BLM

June 2012

Lower Sonoran and Sonoran Desert National Monument

Proposed Resource Management Plan and Final Environmental Impact Statement

U.S. Department of Interior
Bureau of Land Management
Lower Sonoran Field Office, Phoenix, Arizona

MISSION STATEMENT

"The Bureau of Land Management is responsible for stewardship of our public lands. The BLM is committed to manage, protect, and improve these lands in a manner to serve the needs of the American people. Management is based upon the principles of multiple use and sustained yield of our Nation's resources within the framework of environmental responsibility and scientific technology. These resources include recreation, rangelands, timber, minerals, watershed, fish and wildlife habitat, wilderness, air, and scenic quality, as well as scientific and cultural values."

BLM/AZ/PL-12/005

FINAL ENVIRONMENTAL IMPACT STATEMENT
LOWER SONORAN-SONORAN DESERT NATIONAL MONUMENT
PROPOSED RESOURCE MANAGEMENT PLAN

Lead Agency: US Department of the Interior (DOI), Bureau of Land Management (BLM)

Cooperating Agencies: Arizona Game and Fish Department, Arizona Department of Transportation

Location: Arizona

Contacts: *Requests for additional information regarding the Final Environmental Impact Statement:*
Chris Horyza, Lower Sonoran-Sonoran Desert National Monument Project Manager, 602-417-9446
Requests for copies of the document:
blm_az_ls_sdnm_plan@blm.gov or Penny Foreman, Lower Sonoran-Sonoran Desert National Monument Project Manager, 623-580-5528
Project Web site: http://www.blm.gov/az/st/en/prog/planning/son_des.html

Abstract: The Lower Sonoran-Sonoran Desert National Monument Proposed Resource Management Plan/Final Environmental Impact Statement (PRMP/FEIS) is a project of BLM Arizona that supports the BLM's Mission. The PRMP provides direction for approximately 1.4 million acres of public land in south-central Arizona managed by the Lower Sonoran Field Office (LSFO). Of these public lands, approximately 486,400 acres are within the Sonoran Desert National Monument (SDNM) established in 2001 by Presidential Proclamation.

Information provided by the public, other agencies and organizations, and BLM personnel has been used to develop and analyze the alternatives; the EIS evaluates five alternatives. Alternative A (the No Action Alternative) represents continuation of current management for the Lower Sonoran and Sonoran Desert National Monument Decision Areas. Alternative B would identify the greatest extent of public lands suitable for the widest potential array of uses, and emphasize opportunities for those uses. Alternative C represents an attempt to balance resource protection with human use and influence by providing opportunities for a variety of uses, while placing an emphasis on resource protection and conservation. Alternative D would place the greatest emphasis on resource protection/conservation, and opportunities to visit remote settings and experience non-motorized, primitive recreation. Alternative E, the agency Proposed RMP, incorporates elements from each of the other alternatives, and offers a unique prescription for managing the Decision Areas while, at the same time, providing long-term protection and resource conservation. Major issues addressed include travel management, lands with wilderness characteristics, habitat management for wildlife and special status species, livestock grazing, recreation management, and energy development.

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LOWER SONORAN AND SONORAN DESERT NATIONAL MONUMENT

PROPOSED RESOURCE MANAGEMENT PLAN AND FINAL ENVIRONMENTAL IMPACT STATEMENT

Prepared by

U.S. Department of the Interior
Bureau of Land Management
Phoenix District
Lower Sonoran Field Office

June 2012

Recommended by:

Emily Garber
Field Manager, Lower Sonoran

Concurred by:

Angelita S. Bulletts
District Manager, Phoenix

Approved By:

Raymond Suazo
State Director, Arizona

United States Department of the Interior

BUREAU OF LAND MANAGEMENT
Lower Sonoran Field Office
21605 North 7th Avenue
Phoenix, AZ 85027-2929

In reply refer to: 1610-5.G.1.4

June 8, 2012

Dear Reader:

Enclosed is the Proposed Resource Management Plan (PRMP) and Final Environmental Impact Statement (FEIS) for the Lower Sonoran-Sonoran Desert National Monument planning area. The Bureau of Land Management (BLM) prepared the PRMP/FEIS in consultation with cooperating agencies, taking into account public comments received during this planning effort. The PRMP provides a framework for the future management direction and appropriate use of the Lower Sonoran-Sonoran Desert National Monument planning area, located southwest of Phoenix in parts of Maricopa, Pinal, Pima, Gila and Yuma Counties, Arizona. The document contains land use planning decisions and implementation decisions to guide the BLM's management of the Lower Sonoran-Sonoran Desert National Monument planning area.

This PRMP and FEIS have been developed in accordance with the National Environmental Policy Act of 1969, as amended, and the Federal Land Policy and Management Act of 1976, as amended. The PRMP is largely based on Alternative E, the preferred alternative in the Draft Resource Management Plan/Environmental Impact Statement (DRMP/EIS), which was released on August 26, 2011. The PRMP/FEIS contains the Proposed Plan, a summary of changes made between the DRMP/EIS and PRMP/FEIS, impacts of the Proposed Plan, a summary of the written and verbal comments received during the public review period for the DRMP/EIS, and responses to the comments.

Pursuant to BLM's planning regulations at 43 CFR 1610.5-2, any person who participated in the planning process for this PRMP and has an interest which is or may be adversely affected by the planning decisions may protest approval of the planning decisions within 30 days from date the Environmental Protection Agency (EPA) publishes the Notice of Availability in the Federal Register. For further information on filing a protest, please see the accompanying protest regulations in the pages that follow (labeled as Attachment # 1). The regulations specify the required elements of your protest. Take care to document all relevant facts. As much as possible, reference or cite the planning documents or available planning records (e.g. meeting minutes or summaries, correspondence, etc.).

Emailed and faxed protests will not be accepted as valid protests unless the protesting party also provides the original letter by either regular or overnight mail postmarked by the close of the protest period. Under these conditions, the BLM will consider the emailed or faxed protest as an advance copy and will afford it full consideration. If you wish to provide the BLM with such advance notification, please direct faxed protests to the attention of Brenda Hudgens-Williams-BLM protest coordinator at 202-452-5112, and emailed protests to: bhudgens@blm.gov.

All protests, including the follow-up letter to emails or faxes, must be in writing and mailed to one of the following addresses:

Regular Mail:	Overnight Mail:
Director (210)	Director (210)
Attn: Brenda Hudgens-Williams	Attn: Brenda Hudgens-Williams
P.O. Box 71383	20 M Street SE, Room 2134LM
Washington, D.C. 20024-1383	Washington, D.C. 20003

Before including your address, phone number, email address, or other personal identifying information in your protest, be advised that your entire protest – including your personal identifying information – may be made publicly available at any time. While you can ask us in your protest to withhold from public review your personal identifying information, we cannot guarantee that we will be able to do so.

The BLM Director will make every attempt to promptly render a decision on each protest. The decision will be in writing and will be sent to the protesting party by certified mail, return receipt requested. The decision of the BLM Director shall be the final decision of the Department of the Interior. Responses to protest issues will be complied and formalized in a Director's Protest Decision Report made available following issuance of the decisions.

Upon resolution of all land use plan protests, the BLM will issue the Approved RMPs and Records of Decision (RODs). The Approved RMPs and RODs will be mailed or made available electronically to all who participated in the planning process and will be available to all parties through the "Planning" page of the BLM national website (*http://www.blm.gov/planning*), or by mail upon request.

Unlike land use planning decisions, implementation decisions included in this PRMP/FEIS are not subject to protest under the BLM planning regulations, but are subject to an administrative review process, through appeals to the Office of Hearings and Appeals (OHA), Interior Board of Land Appeals (IBLA) pursuant to 43 CFR, Part 4 Subpart E. Implementation decisions generally constitute the BLM's final approval allowing on-the-ground actions to proceed. Once the BLM resolves protests to land use planning decisions and issues the Approved RMPs and RODs, implementation decisions made in the land use plan are still subject to the appeals process or other administrative review as prescribed by specific resource program regulations. The Approved RMPs and RODs will therefore identify implementation decisions made in the plan that may be appealed to the Office of Hearing and Appeals..

Sincerely,

Emily Garber
Field Manager, Lower Sonoran Field Office

Attachment 1

Protest Regulations

[CITE: 43CFR1610.5-2]

TITLE 43--PUBLIC LANDS: INTERIOR
CHAPTER II--BUREAU OF LAND MANAGEMENT, DEPARTMENT OF THE INTERIOR
PART 1600--PLANNING, PROGRAMMING, BUDGETING--Table of Contents
Subpart 1610--Resource Management Planning
Sec. 1610.5-2 Protest procedures.

(a) Any person who participated in the planning process and has an interest which is or may be adversely affected by the approval or amendment of a resource management plan may protest such approval or amendment. A protest may raise only those issues which were submitted for the record during the planning process.

(1) The protest shall be in writing and shall be filed with the Director. The protest shall be filed within 30 days of the date the Environmental Protection Agency published the notice of receipt of the final environmental impact statement containing the plan or amendment in the Federal Register. For an amendment not requiring the preparation of an environmental impact statement, the protest shall be filed within 30 days of the publication of the notice of its effective date.

(2) The protest shall contain:

(i) The name, mailing address, telephone number and interest of the person filing the protest;
(ii) A statement of the issue or issues being protested;
(iii) A statement of the part or parts of the plan or amendment being protested;
(iv) A copy of all documents addressing the issue or issues that were submitted during the planning process by the protesting party or an indication of the date the issue or issues were discussed for the record; and
(v) A concise statement explaining why the State Director's decision is believed to be wrong.

(3) The Director shall promptly render a decision on the protest.

(b) The decision shall be in writing and shall set forth the reasons for the decision. The decision shall be sent to the protesting party by certified mail, return receipt requested. The decision of the Director shall be the final decision of the Department of the Interior.

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APPENDICES

ACRONYMS AND ABBREVIATIONS

	Full Phrase
ACEC	Areas of Critical Environmental Concern
ADA	Americans with Disabilities Act
ADEQ	Arizona Department of Environmental Quality
ADOT	Arizona Department of Transportation
ADWR	Arizona Department of Water Resources
AGFD	Arizona Game and Fish Department
AMA	active management area
AMS	analysis of the management situation
ARS	Arizona Revised Statutes
ATV	all-terrain vehicle
AUM	animal unit month
AWC	Arizona Wilderness Coalition
BA	biological assessment
BLM	Bureau of Land Management
BGR	Barry M. Goldwater Range
BMP	best management practice
BO	biological opinion
CAA	Clean Air Act
CBP	Customs and Border Protection
CC	condition class
CEQ	United States Council on Environmental Quality
CFR	United States Code of Federal Regulations
CH_4	methane
CO	carbon monoxide
CO_2	carbon dioxide
DDT	dichlorodiphenyltrichloroethane
DEIS	draft environmental impact statement
DFC	desired future condition
DHS	Department of Homeland Security
DOI	Department of the Interior
DOE	United States Department of Energy
DPC	desired plant community
DRC	desired resource condition
DRMP	Draft Resource Management Plan
EIS	environmental impact statement
EPA	Environmental Protection Agency
ERMA	extensive recreation management area
ESA	Endangered Species Act
FAA	Federal Aviation Administration
FAMS	facility and asset management system
FEIS	final environmental impact statement
FHWA	Federal Highway Administration
FLPMA	Federal Land Policy and Management Act

	Full Phrase
GHG	greenhouse gas
HMA	herd management area
HMP	habitat management plan
I-8	Interstate 8
I-10	Interstate 10
IFNM	Ironwood Forest National Monument
IMPROVE	Integrated Monitoring of Protected Visual Environments
IM	instruction memorandum
IPCC	Intergovernmental Panel on Climate Change
LAC	limits of acceptable change
LHE	land health evaluation
LSFO	Lower Sonoran Field Office
LTVA	long-term visitor area
LUA	land use authorization
LUP	land use plan
LWCs	lands with wilderness characteristics
MAG	Maricopa Association of Governments
MCDOT	Maricopa County Department of Transportation
MIST	minimum-impact suppression tactics
MLWA	Military Lands Withdrawal Act
MOU	memorandum of understanding
mph	miles per hour
NAAQS	National Ambient Air Quality Standards
NAFTA	North American Free Trade Agreement
NAGPRA	Native American Graves Protection and Repatriation Act
NEPA	National Environmental Policy Act
NF	national forest
NHPA	National Historic Preservation Act
NHT	National Historic Trail
NLCS	National Landscape Conservation System
NO	nitrogen oxide
NO_2	nitrogen dioxide
N_2O	nitrous oxide
NOA	notice of availability
NPS	National Park Service
NRCS	Natural Resource Conservation Service
NRHP	National Register of Historic Places
NSPL	National System of Public Lands
NWR	national wildlife refuge
NWSRS	National Wild and Scenic River System
O_3	ozone
OHV	off-highway vehicle
ONA	outstanding natural area
ORV	off-road vehicle

ACRONYMS AND ABBREVIATIONS *(continued)*

	Full Phrase
PEIS	programmatic environmental impact statement
PILT	payment in lieu of taxes
PM_{10}	particulate matter 10 microns in diameter or less
$PM_{2.5}$	particulate matter 2.5 microns in diameter or less
PDO	Phoenix District Office
PRMP	Proposed Resource Management Plan
PSD	Prevention of Significant Deterioration
R&PP	recreation & public purposes
RCA	Resource Conservation Area
RDEP	Restoration Design Energy Project
REDA	Renewable Energy Development Area
RMA	recreation management area
RMP	resource management plan
RMZ	recreation management zone
ROD	record of decision
ROS	recreation opportunity spectrum
ROW	right-of-way
SCRMA	special cultural resource management area
SDNM	Sonoran Desert National Monument
SEZ	solar energy zones
SHPO	State Historic Preservation Office
SIP	state implementation plans
SO_2	sulfur dioxide
SR-85	State Route 85
SRMA	special recreation management area
SRP	special recreation permit
T&E	threatened and endangered
TMA	travel management area
UDA	undocumented alien
UL	undesignated lands
US	United States
USAF	United States Air Force
USC	United States Code
USDA	United States Department of Agriculture
USDOT	United States Department of Transportation
USFS	United States Forest Service
USFWS	United States Fish and Wildlife Service
USGS	United States Geological Survey
UXO	unexploded ordnance
VIEWS	Visibility Information Exchange Web System
VOC	volatile organic compounds
VRM	visual resource management
WHA	wildlife habitat areas
WMC	wildlife movement corridor

	Full Phrase
WO	Washington Office
WRCC	Western Regional Climate Center
WSA	wilderness study area
WUI	wildland-urban interface

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EXECUTIVE SUMMARY

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MAPS

Note: Maps referenced in this chapter may be found in Volume 4, Map Book.

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EXECUTIVE SUMMARY

ES.1 INTRODUCTION

The United States (US) Department of the Interior, Bureau of Land Management (BLM) is engaged in a planning process to update management direction for the portion of the State of Arizona administered by the BLM's Phoenix District, Lower Sonoran Field Office (LSFO). The Lower Sonoran Planning Area (Planning Area) includes much of Maricopa County, as well as sections of Gila, Pima, Pinal, and Yuma counties.

The geographic region encompassed in the Planning Area includes approximately 8.9 million acres of public, state, and private lands, of which approximately 1.4 million surface acres and 1.5 million subsurface acres are administered by the BLM (see **Map ES-1**, Surface Management). These include about 486,400 surface acres and 461,000 subsurface acres within the Sonoran Desert National Monument (SDNM, or the Monument), referred to as the SDNM Decision Area. In the areas outside of the SDNM, referred to as the Lower Sonoran Decision Area, the BLM administers about 930,200 surface acres and nearly 1.1 million subsurface acres.

The BLM administers public lands, including both surface estate and subsurface mineral estate, under the Federal Land Policy and Management Act (FLPMA) of 1976 [43 United States Code (USC) 1701 et seq.] and other applicable laws. The BLM's land use planning regulations, 43 Code of Federal Regulations (CFR) 1600, set forth procedures for preparing land use plans and making planning decisions in accordance with the FLPMA. These plans and decisions are the basis for every on-the-ground action the BLM undertakes. To ensure that management of public lands is consistent with the FLPMA and other applicable laws and policy guidance, the BLM prepares and periodically updates its resource management plans (RMPs).

While the BLM makes decisions applicable only to public lands and the resources it administers, it is responsible for collaboratively planning with adjacent jurisdictions and the public to encourage compatible land uses within a regional context (Planning Area).

The LSFO is preparing one Proposed RMP (PRMP) to provide management direction for the Lower Sonoran and SDNM Decision Areas. The Lower Sonoran and SDNM PRMP will consolidate or replace current management guidance for the two Decision Areas under existing plans implemented from 1983 through 2005. Seven management plans and plan amendments currently apply to all or parts of the Lower Sonoran Decision Area, and five of these apply to all or parts of the SDNM, which was established in 2001. The SDNM is guided by Presidential Proclamation 7397, issued on January 17, 2001. The proclamation supersedes some of the guidance provided by the area's current land use plans, and is the legal instrument that established its boundaries and purposes. Management priority for SDNM must be protective of the natural and cultural resource values for which it was designated.

ES.2 PURPOSE OF AND NEED FOR THE PROPOSED ACTION

The purpose of the Lower Sonoran and SDNM PRMP is to provide guidance for managing the use of BLM-administered lands and to provide a framework for future land management actions within the Planning Area. To accomplish this, the PRMP/Final Environmental Impact Statement (FEIS) will consolidate and replace the current management guidance for each Decision Area; the PRMP may carry forward previous decisions that are still applicable, as well as modify existing management direction where necessary. While the RMP is consistent with the planning framework, each Decision Area will have unique goals and management direction where appropriate.

The SDNM RMP is needed to respond to the establishment of the SDNM. The Monument Proclamation assigns the BLM the responsibility to protect the special objects for which the Monument was established, and requires that an RMP be prepared to ensure that the management actions needed to do so are identified and implemented. In the absence of such a plan, current management for the SDNM falls under interim Monument guidance, the various existing RMPs, and plan amendments. These documents do not address many current management issues. In addition, there is a need to consolidate the three previous RMPs and five plan amendments for both the Lower Sonoran and SDNM Decision Areas because these plans contain obsolete planning boundaries and management decisions. Over the nearly 30 years during which these plans have been in effect, significant and ongoing changes have dramatically altered the natural and social environments in the Planning Area. Existing management decisions in these plans have not kept pace with changing circumstances, demographics, resource conditions, and policies. New RMPs are needed to address changing conditions, which include:

- Unprecedented regional population growth and urban expansion into surrounding public lands is increasing demand for access to and use of public lands and resources. Growth increases demand for commodities, utilities, renewable energy, communication facilities, transportation, and infrastructure on public lands;
- Emerging recreation technologies have yielded new sports and activities, cutting-edge recreational equipment, and distinctive new outdoor opportunities;
- New legal and BLM policy requirements have resulted in additional or revised management responsibilities; and
- New information and understandings of ecological relationships have led to changes in management direction.

ES.3 PLANNING ISSUES AND MANAGEMENT CONCERNS IDENTIFIED DURING SCOPING

Analysis of more than 6,000 comments received during scoping showed that the various concerns expressed by the public, non-governmental organizations, agencies, and tribal and local governments identified six major planning issues within the scope of this PRMP/FEIS. These six issues accounted for more than 95 percent of the comments received. The six issue areas most frequently mentioned by respondents included the following:

- Issue 1: Travel Management: How will the BLM manage travel and public access?
- Issue 2: Wilderness Characteristics: How will the BLM manage wilderness characteristics in the Decision Areas?
- Issue 3: Wildlife: How will the BLM address wildlife management, including special status species and wildlife water developments in the Decision Areas?
- Issue 4: Livestock Grazing: How will livestock grazing be addressed in the Decision Areas, particularly in the SDNM?
- Issue 5: Energy Development: How will renewable and traditional energy facilities and transmission corridors be managed?
- Issue 6: Recreation: How will public recreation activities be managed?

The character of the comments grouped in the issue categories varied considerably. For example, some favored designation of additional wilderness and other special management areas, some criticized the way existing areas are managed, and others either opposed any expansion in these areas or called for their elimination. Some people and organizations favored reducing or eliminating livestock grazing on public lands, while others supported its continuation. Some parties favored more liberal access to public lands for public use, including off-highway vehicle (OHV) access, while others expressed concerns that excessive recreation access, including that for recreational vehicles, threatens sustainable management of biological and cultural resources.

Although they may be in opposition with each other, all of these comments are equally valid and of use to the planning process. They reflect the range of values that the BLM must consider and balance when managing public lands for both resource sustainability and multiple use. The collective sweep of the comments received helped to define the breadth and character of the management issues these new plans should address. These issues help to define the range of alternatives that must be addressed through the associated EIS in order to provide BLM decision makers and the public with a reasonable range of options to consider for the future management of the Lower Sonoran and SDNM Decision Areas.

ES.4 ALTERNATIVES

This section summarizes the alternatives for managing the Lower Sonoran and SDNM Decision Areas. The goal of developing alternatives is to prepare different combinations of management to address issues and to resolve conflicts among uses. Alternatives must meet the purpose and need; be reasonable; provide a mix of resource protection, use, and development; be responsive to the issues; and meet the established planning criteria. Each alternative is a complete land use plan that provides a framework for multiple use management of the full spectrum of resources, resource uses, and programs present in the Planning Area. Under all alternatives, BLM would manage the public lands in accordance with all applicable laws, regulations, and BLM policy and guidance. Each alternative reflects intergovernmental and interagency collaboration, and public participation.

Table ES-1, Key Land Use Allocations and Decisions for the Lower Sonoran Decision Area, and **Table ES-2**, Key Land Use Allocations and Decisions for the SDNM Decision Area, identify key land use allocations and decisions proposed under the No Action (Alternative A) and the four action alternatives proposed for the Lower Sonoran and SDNM Decision Areas. Following these tables is a brief description of the five alternatives.

Table ES-1
Key Land Use Allocations and Decisions for the Lower Sonoran Decision Area

Decision	Alternative A (No Action)	Alternative B	Alternative C	Alternative D	Alternative E (PRMP)
Cultural: Number of Sites/Total Acres of Proposed Site Allocations for Lower Sonoran					
Public and Scientific Use	0	3 sites/283 acres	3 sites/283 acres	1 site/200 acres	3 sites/283 acres
Scientific Use Only	0	0	0	2 sites/83 acres	0
Cultural: Acres in Special Cultural Resource Management Areas					
Total	0	0	131,000	0	0
Wilderness Characteristics: Acres Managed to Protect Wilderness Characteristics					
Total	N/A	0	128,100	250,000	91,200
Wildlife: Acres Managed as Wildlife Habitat Areas					
Total	0	0	425,900	255,700	255,700
Lands and Realty: Acres Avoided and Excluded from Utility-scale Renewable Energy Development					
Avoided	N/A	727,600	617,500	405,100	499,900
Excluded	105,100	160,100	293,800	519,400	394,200
Lands and Realty: Acres of Land Available for Disposal					
Total	18,900	29,500	36,300	34,800	36,800
Livestock Grazing: Acres Available and Unavailable for Livestock Grazing and Total AUMs					
Available	830,200	830,200	830,200	0	830,200
Unavailable	100,000	100,000	100,000	930,200	100,000
AUMs	17,541	10,431	17,541	0	17,541
Minerals: Acres Available within BLM-administered Surface Estate					
Locatable Minerals	713,300	710,950	711,000	319,400	711,000
Leasable Minerals	713,300	711,000	711,000	128,400	711,000
Mineral Materials	713,300	688,600	520,000	157,300	557,500
Recreation Management Areas					
Acres SRMA	379,400	92,200	85,400	35,400	37,900
Acres ERMA	0	556,700	557,200	22,100	610,200
Acres Undesignated	550,800	281,300	287,600	872,700	282,100
Travel Management: Acres Open, Closed, and Limited for Motorized Travel					
Open	0	40	0	0	0
Closed	100,000	91,100	91,100	342,700	91,100

Table ES-1
Key Land Use Allocations and Decisions for the Lower Sonoran Decision Area

Decision	Alternative A (No Action)	Alternative B	Alternative C	Alternative D	Alternative E (PRMP)
Limited to Existing Roads	830,200	0	0	0	0
Limited to Designated Roads	0	839,060	839,100	587,500	839,100
Special Designations: Acres of Areas of Critical Environmental Concern					
Total	8,900	8,900	63,300	269,500	198,400

Table ES-2
Key Land Use Allocations and Decisions for the SDNM Decision Area

Decision	Alternative A	Alternative B	Alternative C	Alternative D	Alternative E
Cultural: Number of Sites/Total Acres of Proposed Site Allocations for SDNM					
Public and Scientific Use	0	4 sites/ 3,600 acres	4 sites/ 3,600 acres	0	4 sites/ 3,600 acres
Scientific Use Only	0	0	0	4 sites/ 3,600 acres	0
Cultural: Acres in Special Cultural Resource Management Areas					
Total	0	0	16,200	0	16,200
Wilderness Characteristics: Acres Managed to Protect Wilderness Characteristics					
	N/A	0	112,200	154,800	107,800
Lands and Realty: Acres Avoided and Excluded from Utility-scale Renewable Energy Development					
Excluded	The SDNM is excluded from any potential utility-scale renewable energy development within all alternatives.				
Lands and Realty: Acres of Land Available for Disposal					
Total	0	0	0	0	0
Livestock Grazing: Acres Available and Unavailable for Livestock Grazing and Total AUMs					
Available	252,500	244,000	207,700	0	157,210
Unavailable[1]	233,900	242,400	278,700	486,400	329,190
AUMs	8,703	5,321	7,092	0	3,114
Recreation Management Areas					
Acres SRMA	143,900	0	0	0	0
Acres ERMA	0	486,400	486,400	0	486,400
Acres Undesignated	342,500	0	0	486,400	0
Travel Management: Acres Open, Closed, and Limited for Motorized Travel					
Open	0	0	0	0	0
Closed	160,700	157,700	157,700	313,600	157,700

[1] The unavailable acres include the lands south of I-8 closed in the Proclamation

Table ES-2
Key Land Use Allocations and Decisions for the SDNM Decision Area

Decision	Alternative A	Alternative B	Alternative C	Alternative D	Alternative E
Limited to Existing Roads	325,700	0	0	0	0
Limited to Designated Roads	0	328,700	328,700	172,800	328,700
Travel Management: Miles of Designated Open, Closed, and Limited Road Networks					
Open	617.1	559.6	446.8	253.3	410.9
Closed	6.6	68.4	150.7	320.8	204.3
Limited	0	7.1	45.7	12.2	41.0
Limited to Administrative Use	0	0.4	17.3	36.9	7.8
New Proposed	0	8.0	0	0	8.0

ES.4.1 ALTERNATIVE A (NO ACTION)

The No Action Alternative is the current management situation for both the Lower Sonoran and SDNM Decision Areas and serves as a baseline for most resource and land use allocations. Selecting Alternative A for the Lower Sonoran Decision Area would continue current management without change to land or public uses or resource protection management, and would not address issues that were unforeseen or nonexistent when the existing management plans were prepared. Selecting Alternative A for the SDNM Decision Area would continue current management under the existing land use plans except as changed by Presidential Proclamation 7397, which established the Monument and specified certain management provisions.

ES.4.2 ALTERNATIVE B

The management decisions in Alternative B would identify the greatest extent of public lands suitable for the widest potential array of uses, and would emphasize opportunities for those uses. It generally emphasizes motorized and developed recreation; opportunities to visit remote settings and experience non-motorized, primitive recreation would be reduced from the current condition. As a result, this alternative would require the most intensive use management, as well as "hands-on" resource stabilization and restoration measures, as compared to the other alternatives, in order to ensure desired outcomes would be achieved. Actions and allocations would ensure that objects of the SDNM described in the proclamation would be protected.

ES.4.3 ALTERNATIVE C

This alternative represents an attempt to balance resource protection with human use and influence by providing opportunities for a variety of uses, while placing an emphasis on resource protection and conservation. It proposes a mix of natural processes and "hands-on" techniques for resource

stabilization and restoration, thus reducing the need for intensive use management to avoid or mitigate any adverse effects. As under Alternative B, actions and allocations would ensure that objects of the SDNM described in the proclamation would be protected.

ES.4.4 ALTERNATIVE D

This alternative would place the greatest emphasis on resource protection/conservation, and opportunities to visit remote settings and experience non-motorized, primitive recreation. It focuses on natural processes and other unobtrusive methods for resource stabilization and restoration, so the need for both intensive use management and "hands-on" resource measures would be reduced by the greatest extent among all alternatives. Actions and allocations would ensure that objects of the SDNM described in the proclamation would be protected.

ES.4.5 ALTERNATIVE E (PROPOSED RMP)

Alternative E is the BLM's PRMP for the Lower Sonoran and SDNM Decision Areas. It incorporates elements from each of the other alternatives, and offers a unique prescription for managing the Decision Areas while, at the same time, providing long-term protection and resource conservation. Alternative E balances human use and influence with resource protection. Actions and allocations would ensure that objects of the SDNM described in the proclamation would be protected.

ES.5 PUBLIC INVOLVEMENT

The planning issues for the Lower Sonoran and SDNM RMP were identified through scoping, a process conducted early in the planning effort that seeks input from agencies and the public. Public scoping for the RMP/EIS was announced in a Federal Register notice on April 24, 2002, for the SDNM Decision Area and in a second notice on December 9, 2002, for the Lower Sonoran Decision Area. The opportunity to comment was also publicized through news releases, mail notification, flyers, and other methods. Eleven public scoping meetings were held, and the public was invited to submit written comments. Overall, more than 6,000 comments were received during the scoping period.

Since scoping, the BLM has held additional public workshops throughout the Planning Area to collaborate on planning criteria, RMP goals and objectives, the range of alternatives, and preliminary alternatives. Consultation with American Indian tribes and coordination with numerous agencies and governments at the federal, state, and local levels has been an ongoing aspect of the planning process, and periodic interdisciplinary team meetings have been held at key points in the process.

Early in the process, BLM invited all agencies and tribes in Arizona to attend a workshop discussing the cooperating agency process. As a result, cooperating agencies for preparation of these draft RMPs and EIS include the Tohono O'odham Nation, Ak-Chin Indian Community, US Air Force, US Marine Corps, Department of Homeland Security (Border Patrol), Federal Highway Administration, Arizona Game and Fish Department (AGFD), and Arizona Department of Transportation. A Memorandum of Understanding (MOU) also exists between BLM and the US Fish and Wildlife Service (USFWS) pursuant to both agencies' responsibilities under the Endangered Species Act (ESA). Another MOU exists between BLM and the Arizona State Historic Preservation Office (SHPO) for cultural resources.

ES.6 AFFECTED ENVIRONMENT

The EIS portion of this document describes the environmental components of public lands within the Planning Area (i.e., the Lower Sonoran and SDNM Decision Areas) that would potentially be affected by implementation of the PRMP. The Decision Areas' resources, uses, and conditions are described below.

ES.6.1 RESOURCES

ES.6.1.1 Air Resources

The largest source of particulate matter emissions within the Decision Areas is related to surface-disturbing activities, including construction, mining, and OHV (recreation-related) travel. These activities are managed through state and local regulations. Regardless of air quality permit requirements, all sources must implement best management practices (BMPs). These BMPs include measures such as watering or using chemical dust suppressants to reduce the amount of emissions in the localized area.

Most vehicle routes in the Decision Areas are unpaved. Travel on such routes results in particulate emissions, or fugitive dust, except during periods with high levels of humidity (e.g., after a rainstorm), which are generally rare in the Planning Area. Fugitive dust affects local air quality, especially in areas of concentrated travel on unpaved roads and during periods of high winds.

ES.6.1.2 Cave Resources

The Decision Areas contain Paleozoic sedimentary deposits and Tertiary volcanic rocks known to contain caves elsewhere in Arizona. While Paleozoic limestones occur in the Sand Tank Mountains, no caves or cave resources are known to exist on public lands in the area; however, two lava tubes occur in the Sentinel Plain.

ES.6.1.3 Cultural and Heritage Resources

Most of the public land cultural resources are archaeological sites, reflecting both pre-Columbian and post-contact occupation of the region. Almost 80 percent of the sites reflect aboriginal occupation and 13 percent reflect Euro-American occupation, while the cultural and temporal affiliations of the remaining sites have not been determined. Four percent of the Lower Sonoran Decision Area has been surveyed and almost 600 sites recorded, while 6 percent of the SDNM has been surveyed with almost 300 sites discovered. These statistics suggest there could be 13,000 archeological sites in the Lower Sonoran and 5,000 within the SDNM Decision Areas.

Approximately 127,737 acres of the Anza Trail cross the Decision Areas. The setting of the trail through SDNM has probably been altered less since its original use than any other segment of the entire 1,200-mile route (National Park Service 1996). The Painted Rock Petroglyph Site has thousands of aboriginal petroglyphs, as well as some pictographs and historic-period glyphs. The site is located along the Butterfield Overland Stage Route.

ES.6.1.4 Paleontological Resources

Three physiographic provinces characterize Arizona: the Colorado Plateau, Basin and Range, and a Transition Zone between those two provinces having some characteristics of each. Most of the Planning Area is within the Basin and Range province. The Gila River is the main drainage for mountains and valleys and flows east to west, carrying sediments from the various rock units. In a few areas, steep cliff faces and unusually shaped rock features provide high scenic values; such areas include Saddle Mountain, Gila River cliffs, and the San Tank Mountains.

Paleontological resources include vertebrate and invertebrate animal fossils, plant fossils, and trace fossils. In the Planning Area, fossils of birds, fish, and mammals are typically found in unconsolidated Quaternary silt, sand, and gravel deposits and Tertiary sedimentary rocks; however, no significant paleontological resources are known to occur in the Decision Areas.

ES.6.1.5 Soil Resources

Soils are primarily the product of climate, parent material (i.e., underlying bedrock lithology or alluvium), and landscape. Landforms in the Planning Area consist of broad, alluvial basin floors separated by basaltic or granitic mountains, hills, and rock outcrops, dissected by several major drainages and numerous ephemeral ones. Upland parts of the basins are carved by desert washes with soils that are coarse- to medium-textured and cobbly to gravelly on the surface. Several large desert ephemeral (i.e., xeroriparian) washes divide the Planning Area. Deep, stratified sands, silts, and cobbles underlie the channels and floodplains, with textures dependent on flow regimes.

Soil disturbance and compaction are present in long-term use areas, including livestock-congregation sites, roads, and parking areas. Larger areas of accelerated erosion and sedimentation are mainly in the Vekol Valley south of I-8. Based on best available data and analysis in the allotment evaluations, accelerated soil erosion occurs infrequently. Water erosion hazard is highest on the coarse-textured, steeper soils found in the granitic soils in the western and southwestern portions of the Planning Area. Wind erosion hazards are highest on the fine-textured, irrigated soils of the major drainages. Except for data collected on allotments, very little soil condition data are available that could be used to indicate trends.

ES.6.1.6 Vegetation Resources

The Decision Areas contain eight major ecological zones: Creosote Bush-Bursage, Palo Verde-Mixed Cacti, Sonoran Desert Mountain Community, Apacherian-Chihuahuan Upland Scrub, Mogollon Chaparral, Desert Grasslands, Riparian, and large Desert Washes (Xeroriparian).

Six special status plant species are known to occur or have the potential to occur within the Decision Areas. The acuña cactus is a candidate species for listing, meaning there is enough information available to list, but they are precluded by other higher priority species. Invasive species occur to varying degrees throughout the Lower Sonoran and SDNM Decision Areas and include Sahara mustard (*Brassica tournefortii*), fountain grass (*Pennisetum setaceum*), buffelgrass (*Pennisetum ciliare*), and salt cedar (*Tamarix ramosissima*), among others. In most cases these species are sparsely scattered throughout the Planning Area and can be controlled through proactive control measures. However, infestation by salt cedar in

some locations within the riparian community is so great that some native species are threatened with extirpation due to competition as well as habitat degradation and destruction.

ES.6.1.7 Visual Resources

The Planning Area typifies the Sonoran Desert, with northwest-southeast trending mountain ranges separated by broad valleys dissected by numerous ephemeral and perennial riparian corridors, the largest of which are the Gila River and Salt River systems. The dominant mountains within the Decision Areas are considered scenic quality Class A because of their distinctive ridgelines and dark color contrasts against the tan and green desert floor. In addition, Class A and Class B units are identified in bajada and xeroriparian areas, where there are added elements of visual interest from variation in landform, vegetation, color, and influence of adjacent scenery.

Class C units are primarily found in the valley floors where variation is lowest in the flat terrain interspersed with low-to-moderate density coverage of desert scrub vegetation. Some areas are assigned a higher scenic quality rating due to the overall scarcity (i.e., unique, memorable, or rare) within the region. In the Planning Area, the elements of "visibility" and "dark skies" also contribute to scenic quality.

ES.6.1.8 Water Resources

The Planning Area includes portions of 12 groundwater basins and sub-basins, including the Harquahala Irrigation Non-Expansion Area and Phoenix, Pinal, and Tucson Active Management Areas. Water quality issues in shallow groundwater occur throughout the Planning Area and are primarily related to the infiltration of agricultural wastewater, particularly in the Gila and Salt River valleys. The current rate of groundwater pumping will cause levels under the Planning Area to decline; however, the effects will vary in different locations.

The Gila River is the predominant watercourse in the Lower Sonoran Decision Area. The BLM conducted an evaluation of the Gila River from Hayden Dam to the Colorado River to assess its eligibility for inclusion in the National Wild and Scenic River System but concluded that this river does not meet the necessary qualifications.

ES.6.1.9 Wild Horse and Burro Management

Wild burros and, occasionally, a few wild horses have historically used portions of the Decision Areas on a year-round basis. Burros and wild horses are managed within the 215,000-acre Painted Rock Herd Area, which only exists in the Lower Sonoran Decision Area. The last census in the herd area (1999) found no animals present.

ES.6.1.10 Wilderness Characteristics

The Lower Sonoran-SDNM RMP/EIS evaluated wilderness characteristics on approximately 429,500 acres, representing over 31 percent of the land in the combined Planning Area. Fieldwork conducted in 2003, 2005, and 2011, in support of the RMP/EIS was compared against a wilderness characteristics review conducted between 1978 and 1980 for Arizona public lands. This comparison found that no incompatible land uses with long-lasting or irreversible effects had occurred since the earlier study.

Instead, this comparison revealed that a greater acreage than expected was found to exhibit wilderness characteristics in the Planning Area, indicating that recent land use patterns might have been favorable for maintenance of wilderness characteristics.

ES.6.1.11 Wildland Fire

Fire is not a major natural process in the Sonoran Desert ecosystem, as associated vegetation types are not considered dependent on or adapted to fire; however, above-average winter precipitation can generate a sufficiently dense growth of grasses and other annual plants to potentially carry wildfire over a more widespread area than during years with average or below-average precipitation.

Based on information collected for the Arizona Statewide Land Use Plan Amendment for Fire, Fuels, and Air Quality Management (BLM 2003a), most public lands in the Planning Area are a mixture of Condition Class 1 and 2, with a small component of Condition Class 3, under average and less-than-average annual moisture trends. Condition classes are moisture-dependent, and above-average annual moisture results in a greater percentage of Condition Classes 2 and 3, which can result in the propagation of more grasses and invasive species.

ES.6.1.12 Wildlife and Special Status Species

Twenty-eight special status plant and animal species reside or have the potential to reside within the Decision Areas. These species include nine mammals, five birds, four reptiles, three fish, and one invertebrate. Five of these (lesser long-nosed bat, Sonoran pronghorn antelope, Yuma clapper rail, southwestern willow flycatcher, and Arizona hedgehog cactus) are federally listed under the ESA. The yellow-billed cuckoo is a candidate species, meaning that enough information is available to list it but it is precluded by other, higher priority species. On December 2010, the Sonoran desert tortoise was added to the list by the USFWS as a candidate species under the Endangered Species Act (USFWS 2010).

ES.6.2 RESOURCE USES

ES.6.2.1 Lands and Realty

The BLM administers approximately 1,416,600 acres of public lands (surface estate) in the Decision Areas, which includes 486,400 acres in the SDNM and 930,200 acres in the Lower Sonoran. The current land pattern is difficult to manage in areas of scattered and isolated parcels. Larger blocks of public lands provide for improved and more efficient management.

Approximately 26,900 acres are designated as disposal or exchange areas (for surface estate) within the Lower Sonoran Decision Area. The proclamation designating SDNM said all public land within it would be retained, unless a proposed exchange would further its protective purposes.

Currently, there are 10 designated utility corridors in the Lower Sonoran Decision Area and three in the SDNM Decision Area. The corridors generally are 1-mile wide, although widths are slightly narrower near designated wilderness areas.

The Lower Sonoran Decision Area has the potential to support utility-scale renewable energy developments (primarily in the form of solar development); there are several suitable locations for such

developments in the Decision Area that are being considered as part of the Solar Energy PEIS and the Restoration Design Energy Project (see these other project Web sites for additional information: www. http://solareis.anl.gov/ and http://www.blm.gov/az/st/en/prog/energy/arra_solar.html, respectively). Wilderness areas and the SDNM are closed to utility-scale renewable energy development.

ES.6.2.2 Livestock Grazing

The Lower Sonoran Decision Area has 45 permitted BLM-authorized grazing allotments, 21 of which have the potential to be ephemeral. There is a perennial permitted capacity of 17,541 Animal Unit Months (AUMs) for livestock forage. The SDNM Decision Area has 6 BLM-authorized grazing allotments north of I-8. The total perennial permitted capacity is 8,703 AUMs. The SDNM proclamation mandated that grazing permits on public lands within the Monument south of I-8 would not be renewed at the end of their current term. All of these permits expired in 2008 or 2009. The proclamation also states that grazing on public lands north of I-8 will be allowed to continue only to the extent that the BLM determines that grazing is compatible with the paramount purpose of protecting the Monument objects identified in the proclamation. Overall, AUMs within the Planning Area have decreased over time, although the actual number varies from year to year as operators adjust their livestock numbers based on climatic conditions. This is due to grazing and grazing management in the Planning Area being substantially dependent on precipitation and the corresponding improvement in the abundance and vigor of forage species, as well as non-forage species that support the general health and condition of the soil and plant community.

ES.6.2.3 Minerals Management

There have been 33 oil and gas exploratory wells drilled in the Planning Area since 1913. There has been no economic production to date, although there is moderate potential for oil and gas resources in approximately 14 percent of the Decision Areas. There is low potential and no known occurrences or prospects for carbon dioxide, helium, sodium, or coal in the Planning Area. There is high potential for low-temperature geothermal resources in approximately 5 percent of the Planning Area, and moderate potential in about 85 percent of the Planning Area and Decision Areas.

SDNM is closed to mineral leasing, subject to valid existing rights.

There is moderate potential for locatable minerals in approximately 29 percent of the Lower Sonoran Decision Area open to minerals activity, located primarily in the mountain ranges with mineralized rock outcroppings in the Ajo Block, Gila Bend Mountains, and Buckeye Hills, and on public lands in northeast Pinal and Gila counties. Saleable mineral resources have high potential throughout most of the Planning Area; there are currently seven pits in the Lower Sonoran Decision Area.

ES.6.2.4 Recreation Management

Recreational experiences, setting, and activities in the Planning Area range from areas with primitive, unroaded qualities to more modified and roaded natural areas. Within the Decision Areas, visitors can, among other things, bike, camp, hike, ride horseback, backpack, hunt, target shoot, drive OHVs on vehicle routes, picnic, rock hound, geocache, observe cultural and historic sites, view/photograph wildlife, and experience wilderness areas.

The dramatic increase in population within and surrounding the Planning Area has resulted in increased demands for outdoor recreational opportunities and management of public lands.

Recreational activities in both Decision Areas have increased substantially due to newly developed residential communities adjacent to large blocks of public lands.

ES.6.2.5 Travel Management

The Lower Sonoran and SDNM Decision Areas are affected by surface and air transportation, including motor vehicle use on highways, secondary roads, local streets, and improved and unimproved roads; OHV travel; non-motorized travel; and railroad operations.

Non-motorized travel commonly includes pedestrian, equestrian, and bicycling activities. All three occur within both the Decision Areas, although day hiking and backpacking are the most prevalent. All wilderness areas and the Coffeepot Botanical and Vekol Valley Grasslands Areas of Critical Environmental Concern (ACECs) are closed to OHV use. In all other parts, motor vehicles are limited to existing or designated routes. Visitors are required to obtain an annual safety briefing and access permit prior to entering and traveling in the Sand Tank Mountain area of SDNM.

ES.6.2.6 Special Designations

Seventeen special designation areas currently exist within the Decision Areas. Five are within the Lower Sonoran Decision Area and include Sierra Estrella, Signal Mountain, and Woolsey Peak wildernesses; Juan Bautista de Anza National Historic Trail (NHT); and Coffeepot Botanical ACEC. Six occur within the SDNM Decision Area and include the Monument itself; the North and South Maricopa Mountains and Table Top wildernesses; Vekol Valley Grasslands ACEC; and Juan Bautista de Anza NHT.

ES.6.2.7 Hazardous Materials and Public Safety

Seven active landfills are located within the Planning Area, but none are within the Decision Areas. A significant waste issue, commonly known as "wildcat dumping," frequently occurs on public lands and commonly occurs near the urban-interface areas. Another form of hazardous and non-hazardous waste involves litter from recreational users in the Decision Areas and undocumented aliens traveling through.

Data show over 180 active and abandoned mines located in the Lower Sonoran and SDNM Decision Areas. The BLM is researching and ranking the human health and safety risks from known abandoned sites to develop long-term reclamation, remediation, and restoration projects.

Known and potential unexploded ordnance contamination represents an immediate public safety hazard. It exists in and around the Sand Tank Mountains (formerly Area A of the Barry M. Goldwater Range [BGR] and Sentinel Plain, due to their longtime inclusion in the BGR).

Available data associated with the use of paved public highways, unpaved backcountry roads, and off-road areas indicate that the highest numbers of accidents on public highways and roads in the Decision Areas occur on I-8, State Route 85, and State Route 238/Maricopa Road. A number of accidents were also attributed to livestock along State Route 238/Maricopa Road. Excessive speed is the most common contributor to accidents on major roadways traversing public lands.

ES.6.3 SOCIAL AND ECONOMIC CONDITIONS

Based on the 2010 Census, the population of the tri-county region was nearly 5.2 million or 80 percent of the population of Arizona. The highest population, with nearly 4 million, is located in Maricopa County. Between 2000 and 2010, the tri-county region's population grew by approximately 1,046,000 people.

Local population estimates, available for incorporated cities and towns, indicate the City of Maricopa had the fastest-growth rate of any city or town in the state between 2000 and 2005, while Buckeye and Goodyear had growth rates ranked sixth and seventh, respectively. Some communities showed extremely slow population growth, such as the Gila County communities of Globe and Miami.

Resources and programs such as minerals, renewable energy, livestock grazing, recreation, lands and realty, and public finance and government services provide direct, public economic ties that are important in some localities near the Decision Areas. Some resources, such as open spaces and sense of place, share closer social affinities than economic ties. As a result, there are stronger overall social ties between the public lands and the large economic centers in the Planning Area than there are economic ties to local communities.

Environmental justice relates to disproportionately high and adverse human health or environmental effects of programs, policies, and activities on minority populations, low-income populations, and American Indian tribes. In 2010, approximately 42 percent of Arizona's population was minorities. Pima County had a proportion of minority population exceeding that of the state, and Maricopa and Gila Counties have a smaller share of minority population than does the state. All of the American Indian reservations are considered minority communities. Most of the individual incorporated and unincorporated areas analyzed are minority communities as well. About half of the communities considered reported minority populations greater than 50 percent, with most being small communities or are Native American lands. Of the four counties considered (Maricopa, Pima, Pinal, and Gila), all but Maricopa have poverty rates that exceed the statewide average.

ES.7 ENVIRONMENTAL CONSEQUENCES

The foreseeable environmental effects of the five alternatives analyzed in the PRMP/FEIS on the above resources, uses, and conditions are summarized in **Table ES-3**, Environmental Consequences by Program Area for the Planning Area (in Alphabetical Order). Definitions for the qualitative terms used (e.g., negligible, minor, moderate, major) can be found in **Table 4-1**, Qualitative Terms for the Intensity of Impacts, in **Chapter 4**, Environmental Consequences.

Table ES-3
Environmental Consequences by Program Area for the Planning Area (in Alphabetical Order)

Alternative	General Range of Impact Intensities	General Summary of the Impacts
Resources		
Air Resources		
A	Negligible – Major	The primary air quality measure affected by activities on public lands is particulate matter, particularly PM_{10} and $PM_{2.5}$. Impacts would stem from surface-disturbing activities and vehicular travel on unpaved routes. Management practices in all action alternatives would generally improve localized air quality by limiting particulate matter emissions throughout the Decision Areas. Alternative D would have the least impact related to air quality in the Planning Area. Proposals to limit motorized vehicles to designated routes and allocation or special area designations that limit expansion of route networks would result in target pollutants at or reduced from current levels.
B	Negligible – Moderate	
C	Negligible – Moderate	
D	Negligible – Moderate	
E	Negligible – Moderate	
Climate Change		
A	Negligible	Management activities that can affect climate change include those that emit greenhouse gasses (GHGs) and those that sequester GHGs. Proposed vegetation, wildland fire, livestock grazing, mineral resources, recreation, and travel management actions have the potential to emit GHGs in the Planning Area, while proposed vegetation and wildland fire management actions that create healthy vegetation and soils have the potential to sequester GHGs. Emission of GHGs from proposed BLM actions would be small in the context of broader spatial-scale emissions, and the duration of most BLM actions would be shorter than predicted changes in climatic conditions. Over the long term, however, GHG emissions from actions on public lands do contribute to total global emission levels.
B	Negligible	
C	Negligible	
D	Negligible	
E	Negligible	
Cave Resources		
No cave resources have been identified in the Decision Areas. Although a small amount of known Paleozoic limestone outcrops and lava tubes do exist, LUP-level impacts on these resources are anticipated to be negligible.		
Cultural and Heritage Resources		
A	Negligible – Major	Impacts on cultural resources result from ground disturbance such as cross-country OHV travel, wildfires, unauthorized collection, vandalism, trash accumulation, and trampling due to human or livestock activities. Other impacts, including permanent destruction of site features, result from recreational target shooting activities, especially those that are intensive, repetitive, and concentrated. Under all alternatives, cultural resources would continue to be affected by natural weathering and erosion processes, and all alternative management actions would provide sufficient protection
B	Negligible – Major	
C	Negligible – Major	
D	Negligible – Major	
E	Negligible – Major	

Table ES-3
Environmental Consequences by Program Area for the Planning Area (in Alphabetical Order)

Alternative	General Range of Impact Intensities	General Summary of the Impacts
		for known cultural resources, although there would be varying levels of impacts on sites developed for public use.
Geologic and Paleontological Resources		
Limited paleontological resources have been found in the Planning Area; therefore, impacts on these resources are not discussed in detail.		
Soil Resources		
A	Negligible - Major	Impacts would stem primarily from ground-disturbing activities such as grazing, recreation (especially OHV use), and mineral exploration. Impacts include accelerated erosion, compaction, displacement, puddling, and rutting of soils, which impact soil's natural productivity. Management proposed under all the alternatives provides measures to reduce soil erosion and maintain or enhance soil productivity.
B	Negligible – Major	
C	Negligible – Major	
D	Negligible – Major	
E	Negligible – Major	
Vegetation Resources		
A	Negligible - Major	Impacts on vegetation communities generally occur from surface-disturbing activities such as mining, authorizing land actions, recreation and livestock grazing. Impacts from various surface-disturbing activities include the direct removal of vegetation, the spread of invasive weed species, and changes in ecological conditions necessary to support functioning and healthy vegetation communities (i.e., impacts on soils or water supply and/or quality).
B	Negligible - Major	
C	Negligible - Major	
D	Negligible - Major	
E	Negligible - Major	
Visual Resources		
A	Negligible – Major	Impacts would stem primarily from management actions that visibly change the natural landscape, which are guided by visual resource management classes. All alternatives explore allocations that minimize visual impacts while meeting demand for public land resources. Most impacts are associated with resource use activities such as recreation, utility development, grazing, and mining, which typically are visual distractions to public land visitors.
B	Negligible – Major	
C	Negligible – Moderate	
D	Negligible – Moderate	
E	Negligible – Major	
Water Resources		
A	Negligible – Moderate	Impacts would stem from ground-disturbing activities such as grazing, recreation (especially OHV use), and mineral exploration. Management practices proposed under all alternatives are designed to promote or improve water production and quality. Most water-related issues in Arizona are a result of rapid population growth on lands not within the National System of Public Lands. Though BLM's management actions can have only limited effects, proposals to manage motorized vehicles, actions designed to improve vegetation cover, and actions designed to protect or enhance riparian vegetation communities would improve or maintain water
B	Negligible – Moderate	
C	Negligible – Moderate	
D	Negligible – Minor	
E	Negligible – Moderate	

Table ES-3
Environmental Consequences by Program Area for the Planning Area (in Alphabetical Order)

Alternative	General Range of Impact Intensities	General Summary of the Impacts
		production and quality in the Decision Areas.
Wild Horses and Burros		
Due to the fact that the intent of the existing decisions and proposed alternative decision is to remove all wild horses and burros from the Painted Rocks Herd Area, any impacts from other program areas on these wild horses and burros would be negligible; therefore, impacts from other resources are not discussed in detail.		
Wilderness Characteristics		
A	Negligible – Major	Impacts would stem primarily from actions that affect the extent, distribution, or quality of naturalness and/or opportunities for solitude and primitive and unconfined recreation. Although designated wilderness would continue to be protected, current management could allow progressive degradation of areas with wilderness characteristics not protected by Congressional wilderness designation. The alternatives explore shifting emphasis from current management to management of large areas allocated as lands managed to protect wilderness characteristics. All alternatives explore differing mixes of allocations devoted to both motorized and non-motorized recreation. Alternatives C, D, and E emphasize a range of lands managed to protect wilderness characteristics.
B	Negligible – Major	
C	Negligible – Major	
D	Negligible – Major	
E	Negligible – Major	
Wildland Fire		
A	Negligible – Moderate	Impacts would stem primarily from actions that would affect the type and abundance of fuels, increase or limit sources of ignition, and affect fire-suppression activities. Though the alternatives explore varying allocations for large undeveloped areas, few impacts on fire suppression or fire use management are anticipated.
B	Negligible – Moderate	
C	Negligible – Moderate	
D	Negligible – Moderate	
E	Negligible – Moderate	
Wildlife and Special Status Species		
A	Negligible – Major	Impacts would stem primarily from loss or alteration of native habitats. Alterations could lead to the increased expansion of noxious and invasive weed species, decreased water availability, and increased habitat fragmentation, changes in habitat and species composition, and direct loss of wildlife.
B	Negligible – Major	
C	Negligible – Major	
D	Negligible – Major	
E	Negligible – Major	
Resource Uses		
Lands and Realty		
A	Negligible – Major	Impacts would stem primarily from land use allocations or actions that would prevent the authorization of ROWs, leases, and land tenure actions in certain areas. Impacts from restrictive actions could discourage development and force utility development onto non-federal lands in the planning area. The amount of restricted
B	Negligible – Major	
C	Negligible – Major	

Table ES-3
Environmental Consequences by Program Area for the Planning Area (in Alphabetical Order)

Alternative	General Range of Impact Intensities	General Summary of the Impacts
D	Negligible – Major	acres varies among the alternatives, with Alternative A being the least restrictive and Alternative D being the most restrictive. However, throughout all of the alternatives, there are available opportunities for land use authorizations and land tenure actions.
E	Negligible – Major	
Livestock Grazing		
A	Negligible – Major	Impacts would stem primarily from management actions that affect forage levels, ability to construct range improvements, human disturbance of livestock, costs associated with livestock management, and recreation. The greatest potential for impacts on livestock grazing is under Alternative D. Alternative D explores complete cessation of grazing in the Decision Areas, potentially putting many livestock operators that currently use the Planning Area's public lands out of business. The greatest potential for impacts outside of Alternative D would likely occur from recreation under Alternatives A, B, C, and E.
B	Negligible – Major	
C	Negligible – Major	
D	Negligible – Major	
E	Negligible – Major	
Minerals Management		
A	Negligible – Moderate	Impacts would stem primarily from land use allocations or actions that would prohibit surface-disturbing activities related to mining activities from taking place. As with lands and realty actions, impacts from these restrictive actions would promote mineral development on other non-federal lands in the planning area or would hinder the mining industry.
B	Negligible – Moderate	
C	Negligible – Moderate	
D	Negligible – Moderate	
E	Negligible – Moderate	
Recreation Management		
A	Negligible – Major	Impacts would stem primarily from management actions that affect recreational resources and travel across public lands. Conflicts between different types of recreation uses constitute one of the most pressing issues on public lands in Central Arizona. Target shooting, for example, is restricted within the SDNM in Alternatives B and C, and would be prohibited in Alternative D. Each alternative attempts to address recreation management in ways that allow a variety of activities throughout the Decision Areas, and places a different emphasis on the type of recreation (i.e., motorized versus primitive non-motorized).
B	Negligible – Major	
C	Negligible – Major	
D	Negligible – Major	
E	Negligible – Major	
Travel Management		
A	Negligible – Major	Impacts would stem primarily from RMP-level travel management decisions for designating areas as open, limited, or closed to OHV use, and the implementation-level decisions for designating particular routes as open, limited, or closed to public use within the SDNM. The alternatives explore progressively increasing
B	Negligible – Major	
C	Negligible – Major	

Table ES-3
Environmental Consequences by Program Area for the Planning Area (in Alphabetical Order)

Alternative	General Range of Impact Intensities	General Summary of the Impacts
D	Negligible – Major	restrictions to motorized recreation and access, which would result in a progressively limited motorized route network and reduced access. Within the SDNM, a route designation system would be implemented, except within Alternative A. Impacts from not having a route system could result in the continued establishment of unwanted access points and routes leading onto public lands, which would result in negative impacts on Monument objects.
E	Negligible – Major	
Special Designations		
A	Negligible – Major	Impacts would stem primarily from management of resource values associated with the existing or proposed special designations. Therefore, actions related to recreation, lands and realty, grazing, and mining would indirectly impact the special designations by impacting resources such as vegetation.
B	Negligible – Major	
C	Negligible – Major	
D	Negligible – Major	
E	Negligible – Major	
Hazardous Materials and Public Safety		
A	None - Major	Impacts would stem primarily from management actions that affect responses to physical hazards (e.g., abandoned mines), hazardous materials, and illegal activity related to the US/Mexico border. Management related to wildland fire management, utility development, and other resource uses could present public safety concerns. Impacts are substantially similar across all of the alternatives.
B	None - Major	
C	None - Major	
D	None - Major	
E	None - Major	
Social and Economic Conditions		
Socioeconomics		
A	Negligible – Major	Impacts on socioeconomic conditions and environmental justice would stem from management actions that alter employment/income or social well-being. Such impacts would be negligible on a regional basis under all alternatives. At the local level, however, impacts could be major under Alternative D, with the potential loss of ranch businesses from grazing cessation. Additional closures to mineral development would not result in significant loss of current jobs or reduction in current economic development, but may result in the loss of potential jobs and income for future mining opportunities or impact prices of mineral materials for local communities. Implementation of any alternative proposed in the PRMP would not result in a disproportionate impact on any minority or low-income group.
B	Negligible – Major	
C	Negligible – Major	
D	Negligible – Major	
E	Negligible – Major	
Tribal Interests		
A	Negligible – Moderate	Several American Indian tribes have traditional cultural affiliations with the Decision Areas. The Ak-Chin Indian Community, Fort McDowell Yavapai Nation, Fort Sill Apache Tribe of Oklahoma, Gila
B	Negligible – Moderate	

Table ES-3
Environmental Consequences by Program Area for the Planning Area (in Alphabetical Order)

Alternative	General Range of Impact Intensities	General Summary of the Impacts
C	Negligible – Moderate	River Indian Community, Hopi Tribe, Pascua Yaqui Tribe, Salt River Pima-Maricopa Indian Community, San Carlos Apache Tribe, Tohono O'odham Nation, Tonto Apache, White Mountain Apache Tribe, Yavapai-Apache Nation, and Yavapai-Prescott Indian Tribe were contacted by formal consultation letters and follow-up telephone calls. More recently, three tribal communities, the Fort Mohave Indian Tribe, Fort Yuma-Quechan Tribe, and Colorado River Indian Tribes, were identified for consultations as well.
D	Negligible – Moderate	
E	Negligible – Moderate	

CHAPTER 1

PURPOSE AND NEED FOR THE RESOURCE MANAGEMENT PLAN

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Note: Maps referenced in this chapter may be found in Volume 4, Map Book.

CHAPTER 1
PURPOSE AND NEED FOR THE RESOURCE MANAGEMENT PLAN

The United States (US) Department of the Interior (DOI), Bureau of Land Management (BLM) prepares resource management plans (RMPs) to guide and manage resources and uses in the National System of Public Lands (NSPL). These RMPs are the basis of future management of BLM-administered public lands (public lands) and provide a framework for developing subsequent detailed plans for specific resources and uses. The BLM's Phoenix District, Lower Sonoran Field Office (LSFO) is engaged in a planning process to update management direction for public lands in the south central portion of Arizona, which is referred to as the Lower Sonoran Planning Area (Planning Area) throughout this document. While the BLM makes decisions related only to public lands and associated resources, the agency is responsible for collaboratively planning with adjacent jurisdictions and the public to encourage compatible land uses within a regional context.

On January 17, 2001, a portion of the Planning Area was designated as the Sonoran Desert National Monument (SDNM, or the Monument) when President William J. Clinton issued Presidential Proclamation 7397 (**Appendix A**, Sonoran Desert National Monument Presidential Proclamation). The Monument was created to protect an array of scientific, biological, archaeological, geological, cultural, and historical objects. These objects, both individually and collectively in the context of the natural environments that support and protect them, are referred to as "Monument objects." The LSFO is responsible for the management of public lands within the SDNM in a manner that is consistent with management guidance outlined in the proclamation. Due to such special management requirements for the Monument, the Planning Area is divided into two Decision Areas: the Lower Sonoran Decision Area, which includes all BLM-administered lands within the Planning Area excluding the SDNM, and the SDNM Decision Area, which includes all BLM-administered lands within the boundaries of the SDNM. The planning process presented in this Proposed Resource Management Plan/Final Environmental Impact Statement (PRMP/FEIS) will be used to develop two separate RMPs/Records of Decision (RODs): one that will provide management direction for the Lower Sonoran Decision Area, and one that will provide management direction for the SDNM Decision Area.

This document, the Lower Sonoran and SDNM PRMP/FEIS, was prepared in accordance with the National Environmental Policy Act (NEPA) of 1969 (42 US Code [USC] 4321 et seq.) and the US Council on Environmental Quality (CEQ) implementation regulations (40 Code of Federal Regulation [CFR] 1500 et seq.). This document was produced in accordance with all applicable federal statutes and regulations (**Appendix B**, Applicable Laws, Regulations, and Policies). The planning approach is consistent with the requirements found in the Federal Land Policy & Management Act (FLPMA) of 1976 (43 USC 1701). The process is also consistent with the set of instruction memoranda (IMs), information bulletins, and other appropriate BLM manuals, handbooks, and strategic plans that embody the most current BLM policy.

1.1 PURPOSE AND NEED

1.1.1 PURPOSE FOR THE LOWER SONORAN AND SDNM RESOURCE MANAGEMENT PLAN

The purpose of the Lower Sonoran/SDNM PRMP is to provide guidance for managing the use of BLM-administered lands and to provide a framework for future land management actions within the Planning Area. To accomplish this, the PRMP/FEIS will consolidate and replace the current management guidance for each Decision Area; the PRMP may carry forward previous decisions that are still applicable, as well as modify existing management direction where necessary. Management of the decision areas is currently provided by several existing land use plans and plan amendments from 1983 through 2005. These existing plans and amendments are presented in **Table 1-1**, Current Land Use Plans and Plan Amendments, and in **Map 1–1**, Planning Areas, Current Land Use Plans & Amendments.

Table 1-1
Current Land Use Plans and Plan Amendments

Land Use Plan or Amendment	Applicable to the Lower Sonoran Decision Area	Applicable to the SDNM Decision Area[1]
Land Use Plans		
Lower Gila North Management Framework Plan (MFP) (BLM 1983a)	Yes, Saddle Mountain area only	No
Lower Gila South RMP (BLM 1988c)	Yes, excluding Saddle Mountain, East Valley parcels, and Sentinel Plain	Yes, excluding Sand Tank Mountains
Phoenix Resource Area RMP (BLM 1989)	Yes, East Valley parcels only	No
Land Use Plan Amendments		
Lower Gila South RMP, Goldwater Amendment (BLM 1990b)	Yes, Sentinel Plain and Ajo parcels only	Yes, Sand Tank Mountains only
Arizona Standards for Rangeland Health and Guidelines for Grazing Administration (BLM 1997a)	Yes	Yes
Lower Gila South RMP, Cameron Allotment Amendment (BLM 2004a)	Yes, grazing allotments in the Ajo area	No
Statewide Amendment for Fire, Fuels, and Air Quality (BLM 2003a)	Yes	Yes
Amendment to the Lower Gila North MFP and Lower Gila South RMP (BLM 2005a)	Yes, excluding East Valley parcels	Yes, entire decision area

[1] Some of the decisions noted in these plans and plan amendments applicable to the SDNM Decision Area are superseded by the SDNM Proclamation and interim management guidance.

1.1.2 NEED FOR THE LOWER SONORAN AND SDNM RESOURCE MANAGEMENT PLAN

The SDNM RMP is needed to respond to the establishment of the SDNM. The Monument proclamation assigns the BLM with responsibility to protect objects for which the Monument was established, and requires that an RMP be prepared to ensure that the management actions needed to do so are identified and implemented. In the absence of such a plan, current management for the SDNM falls under interim Monument guidance, the various existing RMPs, and plan amendments. These documents do not address many current management issues. In addition, there is a need to consolidate the three previous RMPs and five plan amendments (see **Table 1-1**, Current Land Use Plans and Plan Amendments) for both the Lower Sonoran and SDNM Decision Areas because existing plans contain obsolete planning boundaries and management decisions. Over the nearly 30 years during which these plans have been in effect, significant and ongoing changes have dramatically altered the natural and social environments in the Planning Area. Existing management decisions in these plans have not kept pace with changing circumstances, demographics, resource conditions, and policies. New RMPs are needed to address changing conditions, which include:

- Unprecedented regional population growth and urban expansion into surrounding public lands is increasing demand for access to and use of public lands and resources. Growth increases demand for commodities, utilities, renewable energy, communication facilities, transportation, and infrastructure on public lands;
- Emerging recreation technologies have yielded new sports and activities, cutting-edge recreational equipment, and distinctive new outdoor opportunities;
- New legal and BLM policy requirements have resulted in additional or revised management responsibilities; and
- New information and understandings of ecological relationships have led to changes in management direction.

1.2 PLANNING AREA AND SETTING

1.2.1 PLANNING AREA

The Planning Area, identified on **Map ES-1**, Surface Management, covers nearly 8.9 million acres of south-central Arizona and includes much of Maricopa County, as well as sections of Gila, Pima, Pinal, and Yuma counties. Population centers within or adjacent to the Planning Area include metropolitan Phoenix and the communities of Goodyear, Buckeye, Gila Bend, Ajo, Globe-Miami, Tonopah, Mobile, Maricopa, Casa Grande, and Sells. The Planning Area encompasses federal- and state-administered lands, private lands, and tribal lands. As identified in **Table 1-2**, Surface Management Responsibility/Ownership in the Planning Area, the BLM manages 1,416,600 surface acres of public lands in the Planning Area, which include 1,338,300 acres of mineral estate also managed by the BLM. The state manages the remaining acres. The BLM manages another 210,000 acres of mineral estate where the surface acres are managed by other non-federal landowners, which are referred to as split estate lands. More information

Table 1-2
Surface Management Responsibility/Ownership in the Planning Area

Surface Management Responsibility/ Ownership	Planning Area Surface Acres	% of Area	Lower Sonoran Decision Area Surface Acres	% of Area	SDNM Surface Acres	% of Area
BLM	1,416,600	16.0	930,200	11.1	486,400	98.0
Other Federal Agencies	2,369,300	26.7	2,369,300	28.3	--	--
American Indian Tribes	3,239,100	36.5	3,239,100	38.7	--	--
State Lands	364,900	4.1	361,000	4.3	3,900	0.8
Private Lands	1,398,400	15.8	1,392,400	16.6	6,100	1.2
Other Non-Federal Lands	80,200	0.9	80,200	1.0	--	--
Totals:	8,868,500	100.0	8,371,600	100.0	496,400	100.0

Source: BLM 2012a

regarding mineral estate management may be found in **Section 3.3.3**, Minerals Management of **Chapter 3**, Affected Environment. Unless otherwise identified, this PRMP/FEIS focuses on surface acres of public lands. The BLM is responsible only for the management of public lands within the Planning Area. These lands are divided into the two Decision Areas (Lower Sonoran and SDNM), which are discussed in detail in the following section.

While the majority of public lands in the Planning Area are consolidated, some small tracts are interspersed with other federal, state, or private lands. Other federal land managers include the US Air Force, National Park Service (NPS), US Fish and Wildlife Service (USFWS), Bureau of Reclamation, and US Forest Service (USFS). Some of the large landowners and managers include Arizona State Land Department for State Trust Land; county parks; and tribes, including the Tohono O'odham Nation, Gila River Indian Community, Salt River Pima-Maricopa Indian Community, and Ak-Chin Indian Community. In addition, other agencies may have specialized management responsibilities, such as the Arizona Game and Fish Department's (AGFD) responsibility for managing wildlife for the state.

1.2.2 DECISION AREAS

As mentioned above, the BLM is responsible only for management of public lands in the Planning Area, which is divided into the Lower Sonoran and SDNM Decision Areas (see Map ES–1, Surface Management). The acres of public lands reported in **Table 1-2**, Surface Management Responsibility/Ownership in the Planning Area are subject to change if the BLM acquires or disposes of such lands. Newly acquired lands would be managed according to the decisions in the applicable RMP, negating the need for a plan amendment.

1.2.2.1 Lower Sonoran Decision Area

The Lower Sonoran Decision Area covers a wide geographic region. Specific geographic areas are used for reference in subsequent discussions throughout the plan. These geographic areas are shown on **Map 1-2**, Common Geographical Reference Areas, and are summarized below:

- Saddle Mountain (Area 1 on map): Public lands in the north portion of the Planning Area near Tonopah and Interstate 10 (I-10)
- Buckeye Hills, and Rainbow and Vekol valleys (Area 2 on map): Tracts of public lands east of State Route 85 but outside the SDNM
- Gila Bend and Painted Rock mountains (Area 3 on map): Public lands in the portion of the Planning Area west of the SDNM and between Interstate 8 (I-8) and I–10
- Sentinel Plain (Area 4 on map): Public lands west of Gila Bend and south of I-8
- South Gila Bend (Area 5 on map): The small but consolidated block of public lands southeast of Gila Bend and west of the SDNM
- Ajo Block (Area 6 on map): The tract of public lands in the vicinity of Ajo, Arizona
- East Valley and Globe/Miami (Area 7 on map): The scattered tracts east of the Phoenix metropolitan area

1.2.2.2 SDNM Decision Area

As stated in Presidential Proclamation 7397, the SDNM was designated to protect "a magnificent example of untrammeled Sonoran desert landscape" with an "extraordinary array of biological, scientific, and historic resources" (see **Appendix A**, Sonoran Desert National Monument Presidential Proclamation). The Monument is considered a geographic area (Area 8 on **Map 1-2**, Common Geographical Reference Areas), which contains one sub-area, the Sand Tank Mountains, formerly known as "Area A" (Area 9 on map), which is located in the southwest corner of the Monument.

1.2.2.3 The Barry M. Goldwater Range Relinquished Parcels

Specific geographic parcels formerly managed by the Barry M. Goldwater Range (BGR) are referred to throughout the plan as the "BGR relinquished parcels." These parcels were withdrawn and reserved for military use in the 1940s by the Secretary of the Air Force to be managed as part of the BGR and were relinquished to the BLM in 2001 per Public Law 106-65 (1999). These parcels include 78,000 acres in the southern portion of the SDNM (formerly known as "Area A"), 21,400 acres in Sentinel Plain (portions of the geographic area noted above), and 2,900 acres near the Ajo Airport referred to as the "Ajo Airport parcels."

1.3 PLANNING PROCESS AND ISSUES

1.3.1 PLANNING PROCESS

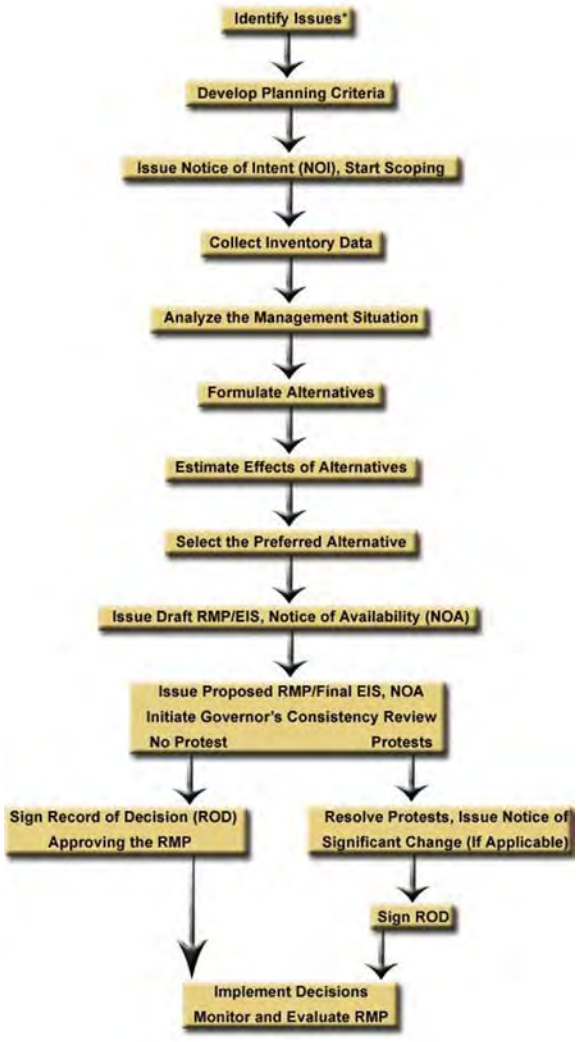
An RMP is the master land use plan that guides management of public lands in a particular area or administrative unit. They are usually prepared to cover the lands administered by a certain field office. An approved RMP establishes the following items in a written document:

- Resource condition goals and objectives;

- Allowable resource uses and related levels of production or use to be maintained;
- Land areas to be managed for limited, restricted, or exclusive resource uses or for transfer from BLM administration;
- Program constraints and general management practices and protocols;
- General implementation schedule or sequences; and
- Intervals and standards for monitoring the plan.

In accordance with 43 CFR 1610.4, preparation of an RMP involves interrelated steps as illustrated in **Figure 1-1**, Planning Process, to the right. Issuance of this PRMP/FEIS represents a portion of the tenth step in this planning process (Issue PRMP/FEIS, NOA).

FIGURE 1-1. Planning Process



1.3.2 PUBLIC SCOPING

The first step of preparing an RMP is identifying land use problems or issues that need be addressed. These planning issues focus the direction and character of future public land management so that existing resource conflicts may be resolved, goals and objectives may be achieved, and future demands for resource use may be met.

Public scoping for the RMP/EIS was announced in a Federal Register notice on April 24, 2002, for the SDNM Decision Area and in a second notice on December 9, 2002, for the Lower Sonoran Decision Area. The opportunity to comment was also publicized through news releases, mail notification, flyers, and other methods. Eleven public scoping meetings were held, and the public was invited to submit written comments. Overall, more than 6,000 comments were received during the scoping period.

Since scoping, the BLM has held additional public workshops throughout the Planning Area to collaborate on planning criteria, RMP goals and objectives, the range of alternatives, and preliminary alternatives.

1.3.3 COLLABORATION

Consultation with American Indian tribes and coordination with numerous agencies and governments at the federal, state, and local levels has been an ongoing aspect of the planning process. Periodic interdisciplinary team meetings have been held at key points in the process.

Early in the process, the BLM invited all agencies and tribes in Arizona to attend a workshop discussing the cooperating agency process. As a result, cooperating agencies for preparation of the RMP/EIS include the Tohono O'odham Nation, Ak-Chin Indian Community, US Air Force, US Marine Corps, Department of Homeland Security (Border Patrol), Federal Highway Administration, AGFD, and Arizona Department of Transportation. In addition, a memorandum of understanding (MOU) is in place between the BLM and USFWS pursuant to both agencies' responsibilities under the Endangered Species Act (ESA), and an agreement is in place between the BLM and State Historic Preservation Office (SHPO) pursuant to responsibilities for cultural resources. Additional information is available in **Chapter 5**, Consultation and Coordination.

1.3.4 PLANNING ISSUES ADDRESSED IN THE RMP PROCESS

One of the most important outcomes of the scoping process was the identification of significant issues to be addressed in this PRMP/FEIS. For planning purposes, an "issue" is defined as a matter of controversy or dispute over potential land and resource allocations, levels of resource use, production, and related management practices. Issues help determine what decisions will be made in the RMP and what the EIS must address as required by NEPA.

Based on the more than 6,000 scoping comments received and subsequent analysis and evaluation, six major planning issues were identified within the scope of this PRMP/FEIS. All six issues center on balancing resource use and human activity with the mandated level of resource protection.

The issues presented here are broadly stated. Nested within each of these issues are many resource questions that are addressed in this document. The variety of ways these questions can be answered within BLM legal mandates and current management direction constraints helped to formulate the action alternatives considered in this PRMP/FEIS.

1.3.4.1 Issue 1: Travel Management

How will the BLM manage travel and public access?

Travel management is an important issue for the public and presents a management challenge for the BLM. Many who commented during the public scoping process felt that existing roads and trails should be kept open for public use and, where necessary, maintained, upgraded, or improved to provide safe and efficient public access. Others were opposed to the creation of new roads and/or believed that unnecessary roads should be closed for the protection of resources, particularly those roads that might fragment wildlife habitat or damage archaeological sites or riparian areas.

Additionally, members of the public expressed concern with the type of motor vehicle use that should be allowed to gain access to the Decision Areas, with viewpoints falling into two general categories: 1) those that valued off-highway vehicle (OHV) use and favored no or minimal further limitations on

such use, and 2) those that expressed concern for the adverse effects from unregulated or increased OHV activities.

The SDNM proclamation specifically states that all off-road motorized and mechanized vehicle use will be prohibited except for emergency or authorized administrative purposes. Such use, however, is considered for the Lower Sonoran Decision Area under the action alternatives described in **Chapter 2**, Alternatives.

1.3.4.2 Issue 2: Wilderness Characteristics

How will the BLM manage wilderness characteristics in the Decision Areas?

A number of individuals and groups voiced their concern for protecting areas with wilderness characteristics in the Decision Areas, specifically in the SDNM. A number of citizen groups and individuals suggested additional wilderness designations during the public scoping period, including the establishment of 16 new wilderness study areas (WSAs) totaling 250,000 acres. Other commenters felt that there is an abundance of existing wilderness, national monuments, wildlife refuges, and other restricted access lands in the region and were opposed to the additional wilderness-related allocations.

The discussion concerning recommending the designation of additional wilderness areas is outside the scope of this PRMP/FEIS. Only Congress can designate wilderness areas, and the current DOI and BLM policies do not provide for designation of additional WSAs. However, areas that contain wilderness characteristics can be managed by the BLM to protect those characteristics. Various alternatives are presented in **Chapter 2**, Alternatives.

1.3.4.3 Issue 3: Wildlife

How will the BLM address wildlife management, including special status species and wildlife water developments in the Decision Areas?

Various wildlife-water development programs, initiated in the 1940s and 1950s throughout the western US, have provided sources of freestanding water under the assumption that this is a key limiting factor on wildlife populations in arid habitats. Critics have suggested that wildlife water developments have not yielded expected benefits and may negatively influence wildlife by increasing predation, competition, and disease transmission. The scientific community in Arizona, led by the efforts of AGFD, is studying whether water developments are necessary for wildlife, what effect developments might have on populations of non-target animals (e.g., predators), and the development of additional wildlife waters. Scoping comments received regarding wildlife water developments represent both sides of the debate. Some individuals advocated that no new wildlife waters be developed while others stressed the importance of allowing the continued access, maintenance, redevelopment, and/or construction of wildlife waters.

Wildlife corridors have also arisen as an important issue related to wildlife. Due to urban growth, existing rights-of-way (ROWs), and the preponderance of wildlife corridors lying outside of BLM jurisdiction in the Planning Area, there is concern about maintenance of sufficient wildlife movement corridors within the Decision Areas. Several alternatives to addressing this issue are discussed in **Chapter 2**, Alternatives.

1.3.4.4 Issue 4: Livestock Grazing

How will livestock grazing be addressed in the Decision Areas, particularly in the SDNM?

The scoping process identified livestock grazing as an important issue for a number of people. Many comments pertained to better management of livestock grazing or were in favor of ending livestock grazing on public lands. There were some who advocated prohibiting certain kinds of grazing (e.g., year-round, domestic animals, stock grazing) and those who advocated prohibiting grazing in certain areas (e.g., Sonoran pronghorn and/or desert tortoise habitat, riparian areas), or under certain conditions (e.g., drought, when not sustainable).

The SDNM proclamation mandates that grazing permits on public lands within the Monument south of I-8 will not be renewed at the end of their current term. All of these permits expired in 2008 and 2009. The proclamation also states that grazing on public lands north of I-8 will be allowed to continue only to the extent that the BLM determines that grazing is compatible with the paramount purpose of protecting the Monument objects identified in the proclamation. These constraints are included in the grazing alternatives in **Chapter 2**, Alternatives.

1.3.4.5 Issue 5: Energy Development

How will renewable and traditional energy facilities and transmission corridors be managed?

Given the growth in renewable energy interest in the Sonoran Desert, much concern was expressed regarding utility corridors and some concern was expressed regarding renewable energy, particularly solar sites. The energy-generating and transmission industries urged the BLM to consider the importance of providing additional utility corridors to meet growing demands for electrical energy requirements in Arizona. Others urged the BLM to consolidate requests for new transmission lines within existing utility corridors and to refrain from granting ROWs for new corridors. One exception to the opposition to new corridors was a proposal that new transmission lines be accommodated within corridors established within 400 feet of each side of highways.

Given public concern and increased demand for energy, several alternatives for transmission corridors and land use authorizations are discussed in **Chapter 2**, Alternatives.

1.3.4.6 Issue 6: Recreation

How will public recreation activities be managed?

During public scoping, people reported that they enjoy a wide variety of activities in the Decision Areas, including hiking, hunting, sightseeing, camping, observing wildlife, and OHV use. They expressed desires for continued opportunities for such activities. Many of the comments overlapped with the travel management issues, particularly with regard to OHV use. Some disagreed with the types of recreational activities that should be allowed in the Decision Areas, or specifically on the Monument. Many expressed concern for the management of certain types of recreation to minimize environmental impacts. Some commenters advocated for dispersed recreation, while others advocated for the development of various types of recreational services (e.g., interpretive sites, restrooms, recreational vehicles areas, equestrian facilities, etc.). Some individuals advocated the development of non-motorized

recreational opportunities, while others preferred motorized forms of recreation. There were comments in support of dispersed, primitive-type camping as well as comments in support of having more developed camping with services and facilities.

While some people indicated that they enjoy recreational shooting within the Decision Areas, others expressed their opposition to recreational shooting due to its resource impacts as well as noise and public safety concerns.

Given the proximity of the Decision Areas to the Phoenix metro area and the increased participation of people in recreation pursuits on public lands over time, ineffective management of visitor activities is recognized as potentially having profound environmental effects on both Decision Areas. These possible effects, along with potential user conflicts, make appropriate management of recreational activities crucial to protecting public resources. Decisions such as where and what kind of recreational facilities to provide, how to minimize potential user conflicts, and what types of recreation settings should be maintained in specific areas are important elements addressed in **Chapter 2**, Alternatives.

1.3.5 PLANNING ISSUES CONSIDERED BUT NOT FURTHER ANALYZED IN THIS RMP PROCESS

The issues identified during public scoping (discussed above) shape the alternatives carried forward in this RMP process. Others issues identified during public scoping were also considered but are not analyzed further in this planning process because they fall outside of BLM jurisdiction or are beyond the scope of this RMP effort. A list of these issues and the rationale for not analyzing them further in this planning process is provided below.

1.3.5.1 Water

Restore water to the rivers

Rationale: The BLM does not control water rights on any of the rivers in the Planning Area, and it is unlikely that any management action proposed by the BLM could restore water flow.

Local aquifers are being depleted, and mineral-laden water is being pumped to the surface, polluting waterways and killing vegetation

Rationale: The BLM does not have the authority to permit or deny pumping of groundwater in Arizona. Such authority lies with the Arizona Department of Water Resources.

1.3.5.2 Biological Resources

Protect and restore native fish populations impacted by dams and non-native species

Rationale: The BLM does not manage any suitable perennial aquatic habitat for native fish species in the Planning Area. Streams within the Decision Areas are typically dry and flow only in response to storm events.

Protect and manage Sonoran pronghorn and Sonoran pronghorn habitat within the SDNM

Rationale: The SDNM is outside the current range of Sonoran pronghorn. The BLM will, however, coordinate with the Sonoran pronghorn recovery team during the RMP process and take any necessary measures for protection of historic habitat, as well as consider possible reintroduction of Sonoran pronghorn into the Monument.

1.3.5.3 Livestock Grazing

Increase grazing fees and use the money to hire more staff to study and protect the land

Rationale: The BLM has no authority to adjust or change the grazing fee. It is set by a formula contained in law, as is the disposition of the fees collected.

1.3.5.4 Wild Horse & Burro Management

Do not implement wild horse and burro management in the SDNM

Rationale: There are no wild, free-roaming horses or burros within the Monument, and no herd areas have been designated or recognized, making it unnecessary to address their management. Any burros or horses on the Monument are considered in trespass and are addressed under the BLM's trespass regulations at 43 CFR 4150.

1.3.5.5 Minerals Management

Allow mining in the Monument; do not grant new mineral leases; ensure any new mining claims are valid and limit to small-scale operation; study/regulate coal-bed methane wells; limit or prohibit resource use in the Monument except for strategic and low-impact mineral extraction

Rationale: Lands within the SDNM are closed to mineral development (subject to valid existing rights) by Monument proclamation. There is no coal in either of the Decision Areas.

It is inappropriate that hardrock mining on public lands is governed by outdated laws such as the General Mining Law of 1872

Rationale: The BLM does not have discretionary authority to disregard existing laws. Rather, a course of action that complies with existing laws, such as the General Mining Law of 1872, must be pursued.

1.3.5.6 Land Tenure Adjustment & Withdrawals

Within the SDNM, sell BLM holdings only as an absolute last resort

Rationale: According to the Monument proclamation, the BLM does not have the authority to sell public lands in the SDNM and can only exchange such lands when it furthers the purposes of the Monument.

Use zoning laws to establish a balance between property rights and conservation of natural resources

Rationale: The BLM does not have jurisdiction over zoning laws. Rather, local and county governments are responsible for establishing zoning laws and controlling land use through zoning. On the other hand, the potential for acquisition, disposal, and exchange of public lands could indirectly affect zoning and development and is considered further in the RMP.

Allow renewal of the lease for public lands bound by Mountain View Road on the east, Goldfield Road on the west, and US 60 on the north near Apache Junction

Rationale: The land specified in this comment is under a variety of withdrawals, leases, and permits, including a recreation and public purposes (R&PP) lease to the City of Apache Junction for equestrian and other recreational activities. The R&PP lease will remain in effect for the duration as identified in the lease and will not be affected by the RMP.

1.3.5.7 Corridors, Communications Sites & Renewable Energy Sites

In the Lower Sonoran Decision Area, do not use the Palo Verde-Devers route as a utility corridor if it would result in building additional power lines or pipelines through the Kofa National Wildlife Refuge

Rationale: The Kofa National Wildlife Refuge is located outside of the Planning Area and is administered by the USFWS. It is thus not addressed in this RMP.

1.3.5.8 Special Area Designations

Designate 140,506 acres in the Sand Tank Mountains, Margie's Peak, and Butterfield Pass units as WSAs as outlined in the Arizona Wilderness Coalition proposal. In the Planning Area, designate the Sentinel Plain and Gila Bend Mountains region, Saddle Mountain and Palo Verde Hills, and 16 other areas as WSAs, totaling 250,000 acres

Do not designate any additional wildernesses or WSAs; these misguided preservation designations have detrimental impacts on wildlife populations because of unwarranted burdens

Rationale: Only Congress has the authority to designate wilderness, and the current DOI and BLM policy does not provide for designation of additional WSAs. However, areas that contain wilderness characteristics can be actively managed by the BLM to protect those characteristics, and various alternatives for this management are presented in **Chapter 2**, Alternatives.

Designate segments of the Gila River as a wild and scenic river to protect the river itself and the surrounding riparian areas

Rationale: The Gila River's eligibility for the National Wild and Scenic River System (NWSRS) was assessed in a series of field surveys from 1992 to 2005. The Wild and Scenic Rivers Act of 1968 authorizes the protection of free-flowing rivers with "outstandingly remarkable scenic, recreational, geologic, fish and wildlife, historic, cultural, or other similar values." None of the segments of the lower

Gila River that run through the Planning Area were found to be eligible for the NWSRS. See **Appendix D**, Wild and Scenic River Eligibility Assessment, for more information.

1.3.5.9 Visual Resources

Protect the viewsheds through zoning and other mechanisms

Rationale: Local and county governments control land use through zoning; however, the BLM can address the protection of viewsheds through other means. The BLM considers viewshed protection through the visual resource management program. Various degrees of such protection have been incorporated into the alternatives proposed in **Chapter 2**, Alternatives.

1.3.5.10 Travel Management

Provide additional motorized public access in wilderness areas for people who are unable to walk long distances

Rationale: Wilderness areas are designated by Congress and must be managed in accordance with the Wilderness Act of 1964, which expressly prohibits motorized vehicle use by the public for recreational purposes. The BLM thus has no authority to develop new or open old motorized vehicle routes within designated wilderness.

Within the SDNM, designate OHV use areas in locations with low wildlife habitat values or where OHV use is already popular; keep each OHV use area to about 30 acres with twisting and interlaced trails

Rationale: Presidential Proclamation 7397 prohibits off-road use in the SDNM; consequently, OHV areas cannot be designated within the Monument.

Provide or re-open cherry stem access of existing roads in some areas, such as the Cabeza Prieta National Wildlife Refuge

Rationale: The BLM has no authority to address management of the Cabeza Prieta National Wildlife Refuge due to the lack of public lands in the refuge; however, the BLM will address vehicle access and route designation in the Decision Areas.

1.3.5.11 Airspace

Consider how wilderness designations could adversely affect military overflights

Rationale: As identified in **Section 1.3.4**, Planning Issues Addressed in the RMP Process, the BLM does not have the authority to designate new WSAs or wilderness areas. There would thus be no potential for conflicts to emerge between military airspace use and new WSA/wilderness designations. In terms of conflicts with existing wilderness areas in the SDNM, the Monument proclamation establishing the SDNM provides for continued military use of airspace over the SDNM, including over existing wilderness areas.

Work closely with nearby military bases and airports to schedule flights and design flight paths that are the least intrusive to wildlife populations and the Monument

Rationale: The Monument proclamation does not address the need for the BLM to dictate flight paths, and the many and varied uses by the military of the airspace over the Monument preclude establishing specific flight paths. The military already has specific high altitude flight paths, but they are very wide and have little impact on Monument resources.

1.3.5.12 Socioeconomics

Include a full identification of the social and economic impacts on all of the approved regional extra-high-voltage electric system components

Rationale: This document evaluates economic impacts of the alternatives, including those regarding corridors and ROWs, as needed at a programmatic level to assess the potential environmental impacts. Cumulative economic impacts (i.e., the impacts of the alternatives when combined with past, present, and reasonably foreseeable actions) are also addressed. A full social and economic impact analysis of the regional extra-high-voltage electric system components, however, is beyond the scope of this EIS.

1.3.5.13 Undocumented Immigrants and Drug Smuggling

Manage illegal immigration and drug smuggling

Rationale: BLM does not manage specifically for illicit immigration or drug smuggling. US Customs and Border Protection (CBP), under the Department of Homeland Security (DHS), has the mission and responsibility for securing the US Border and enforcing federal immigration and drug laws. While the BLM can respond to crime and resource impacts from border activity, jurisdiction of illegal immigration and international drug smuggling lies with the CBP and DHS. BLM law enforcement is predominantly responsible for visitor safety and resource protection. In coordination with CBP, DHS, and state and local law enforcement agencies, BLM:

- Develops integrated resource and law enforcement goals and priorities on National Landscape Conservation System (NLCS) units and other borderlands locales;
- Coordinates resource rehabilitation and mitigation with deployment of law enforcement resources to maximize effectiveness of both within the borderlands;
- Monitors smuggling activity levels, resource impacts, and mitigation efforts through existing and developing technologies;
- Communicates and coordinates effectively with agency partners and public, including sharing of funding and intelligence;
- Works with partners to identify key areas for increased enforcement, closure, restoration, protection efforts, and visitor safety;
- Actively deploys and collaborates on enhanced communication technologies; and

- Implements coordinated safety measures for agency staff, fire and law enforcement personnel, and public visitors.

1.3.6 OTHER ELEMENTS NOT ADDRESSED IN THIS PLAN

Various laws, regulations, policies, and executive orders require specific resource elements be considered during the NEPA process. Based on an evaluation of these elements by the BLM, the following was determined to be not present within or otherwise relevant to the Decision Areas and is dismissed from further consideration in this analysis:

1.3.6.1 Prime and Unique Farmlands

In accordance with the Farmland Protection Policy Act, the BLM determined that no prime or unique farmlands or farmlands of statewide or local importance are present on public lands in the Planning Area.

1.4 PLANNING AREA GUIDANCE

The BLM developed a significance statement for the Lower Sonoran Decision Area based on management principals identified by FLPMA. For the SDNM Decision Area, the BLM developed "purpose" and "significance" statements to clarify the intent of the Monument proclamation and to help shape the development of FLPMA this PRMP/FEIS. Purpose statements clarify why the Monument was set aside as units for special management, while significance statements address what makes the area unique.

The BLM also developed a vision and goals for both Decision Areas. A vision, as used in this context, is an ideal to strive for which is not quantifiable or set to a specific period. It reflects the goals that are common to all alternatives that are presented in **Chapter 2**, Alternatives, and helps integrate the various resource management programs (i.e., resources, resource uses, special designations, and social and economic conditions).

1.4.1 LOWER SONORAN DECISION AREA PLANNING GUIDANCE

1.4.1.1 Significance of the Lower Sonoran Decision Area

The Lower Sonoran Decision Area provides a wide diversity of resources and opportunities and includes wide-open expanses of Sonoran Desert landscapes, including some of the largest open areas near Phoenix and Tucson. Public lands also provide important habitat to support the robust diversity of wildlife found in the Sonoran Desert. In concert with other large landowners and managers in southwestern Arizona, these lands provide large landscapes that help sustain healthy populations of wildlife for the long term. Public lands also contain a history and evidence of human use spanning more than 10,000 years, including villages, farms, rock art, ranches, and travel corridors.

These public lands provide some of the last opportunities for undeveloped and dispersed recreation in the area. These opportunities are particularly important because of the rapid urban growth in Phoenix and Tucson and the increasing number of people living near and recreating on public lands. Public lands also attract visitors from all over the US and from many other countries.

Public lands provide important resources to the growing communities in southern Arizona. These include providing corridors for transmission of utilities to new and growing communities and providing access to mineral and renewable energy development.

1.4.1.2 Management Vision

The Lower Sonoran Decision Area will retain its wide-open spaces and healthy functioning Sonoran Desert ecosystems, while providing opportunities for a multitude of public uses and benefits.

1.4.1.3 Overarching Goals

- Manage natural and cultural resources to ensure that these resources are conserved, enhanced, restored, or preserved in a healthy condition for use by current and future generations consistent with the concepts of multiple use and sustained yield.
- Manage commercial and industrial uses of public lands to meet community needs, benefit the public, and obtain economic return consistent with other resource management responsibilities.
- Sustain a diverse array of recreation settings in order to produce a variety of benefits, opportunities, and experiences to meet the needs of public land users consistent with resource protection goals.
- Promote compatibility between the management of public and adjacent lands.
- Encourage interagency and community partnerships to enhance effective management of public lands.
- Develop outreach and educational programs that build constituencies, expand understanding and appreciation of public lands and resources, and enable an enjoyable experience on the public lands.
- Manage public lands in a manner that considers public health and safety.

1.4.2 SONORAN DESERT NATIONAL MONUMENT DECISION AREA PLANNING GUIDANCE

1.4.2.1 Monument Purpose

The purpose of the SDNM designation is to protect and manage the Monument's natural, geologic, and cultural resources (i.e., Monument objects) for long-term conservation, and to further our knowledge and understanding of such resources through scientific research and interpretation. The Monument was specifically designated to protect certain resources, including:

- A large Sonoran Desert landscape that connects to other large natural areas;

- The ecological diversity of the Sonoran Desert, including a diversity of flora and fauna associated with rare woodlands assemblages, palo verde-mixed cacti, creosote-bursage, desert washes, and rare desert grasslands vegetation communities;

- A cultural landscape that appears largely unchanged, with a rich history that spans at least 10,000 years, from the Archaic to modern day.

Resources mentioned above summarize the Monument objects that are to be the focus of protection in the SDNM RMP. The Monument objects are described in the text of Presidential Proclamation 7397. **Table 1-3**, Sonoran Desert National Monument Objects, further clarifies the objects and identified specific protection criteria for each object or set of objects. Specific discussion regarding proposed uses and potential effects and impacts regarding these Monument objects may be found in the relevant resource sections in **Chapter 4**, Environmental Consequences, or the appendices of this plan.

1.4.2.2 Significance of the SDNM

The SDNM includes natural resources that represent the biological diversity of the Sonoran Desert, including ecological communities found in both the Arizona uplands subdivision and the Lower Colorado River subdivision of the Sonoran Desert biome. The ecological communities include large, high-quality examples of common Sonoran Desert communities such as creosote bursage and palo verde-mixed cacti, which contain expansive saguaro cactus forests and provide habitat for a wide variety of wildlife, including cactus ferruginous pygmy-owls, Sonoran desert tortoise, lesser long-nosed bat, Sonoran pronghorn, and desert bighorn sheep. Less common communities include rare woodland assemblages typically found in wetter climates, desert grasslands, and other habitats that are important for foraging and nesting birds and amphibians.

Cutting through these communities are desert washes that provide important wildlife cover, movement corridors, and forage, especially in hot summer months. This ecological diversity provides habitat for animals and plants to complete their life cycles and survive drought. There are also excellent opportunities for scientific research on many aspects of the Sonoran Desert.

The Monument includes a diverse cultural landscape that appears little changed from prehistoric to modern times and provides a rare opportunity to protect, in one area, a wide diversity of sites, both in time and in place. It contains sites representative of the time periods from the Archaic through the modern day, including villages, camps, Ak-Chin farming sites, rock art, lithic scatters, homesteads, and historic ranches, as well as economically important trade and travel routes. These and other sites are an important connection for contemporary tribal peoples and descendants of those who have traveled through and settled here. The Monument provides significant opportunities to expand our knowledge and understanding of aboriginal peoples, Spanish explorers, and Euro-Americans within a landscape that encompassed all aspects of their daily lives.

The Monument is a large area of Sonoran Desert that supports large-scale ecological processes. This largely undeveloped area provides important open space, wilderness opportunities, and a valuable visual landscape in the midst of a rapidly urbanizing area.

Table 1-3
Sonoran Desert National Monument Objects

Object as Described in Presidential Proclamation 7397	Monument Object	Characteristics	Protection Criteria
"The Sonoran Desert National Monument is a magnificent example of untrammeled Sonoran desert landscape. The area encompasses a functioning desert ecosystem with an extraordinary array of biological, scientific, and historic resources. The most biologically diverse of the North American deserts, the Monument consists of distinct mountain ranges separated by wide valleys, and includes large saguaro cactus forest communities that provide excellent habitat for a wide range of wildlife species."	Functioning Desert Ecosystem	**Physical:** Distinct mountain ranges separated by wide valleys **Ecological:** Sonoran desert landscape with properly functioning desert ecosystem, large saguaro cactus forest communities, habitat for a wide range of wildlife species	Prevent avoidable soil loss Maintain properly functioning plant communities defined by structure, cover, diversity, composition, and presence or absence of invasive species
"The Monument's biological resources include a spectacular diversity of plant and animal species. The higher peaks include unique woodland assemblages, while the lower elevation lands offer one of the most structurally complex examples of palo verde/mixed cacti association in the Sonoran Desert. The dense stands of leguminous trees and cacti are dominated by saguaros, palo verde trees, ironwood, prickly pear, and cholla. Important natural water holes, known as tinajas, exist throughout the Monument. The endangered acuña pineapple cactus is also found in the Monument."	Diversity of Plant and Animal Species	**Biological:** Saguaros, palo verde trees, ironwood, prickly pear, cholla, acuña pineapple cactus **Physical:** Tinajas **Ecological:** Woodland assemblages, structurally complex palo verde-mixed cacti association, dense stands of leguminous trees and cacti	Maintain normal variation in plant composition, diversity, and abundance of native species, diversity of niches, and landscape-level structural complexity
"The most striking aspect of the plant communities within the Monument are [sic] the abundant saguaro cactus forests. The saguaro is a signature plant of the Sonoran Desert. Individual saguaro plants are indeed magnificent, but a forest of these plants, together with the wide variety of trees, shrubs, and herbaceous plants that make up the forest community, is an impressive site [sic] to behold. The saguaro cactus forests within the Monument are a national treasure, rivaling those within the Saguaro National Park."	Saguaro Cactus Forests	**Biological:** Saguaro **Ecological:** Plant communities; saguaro cactus forests; wide variety of trees, shrubs, and herbaceous plants	Maintain age class and stand structure and density. Ensure suitable nurse plants are present and saguaro recruitment is adequate for cactus forest sustainability

Table 1-3
Sonoran Desert National Monument Objects

Object as Described in Presidential Proclamation 7397	Monument Object	Characteristics	Protection Criteria
"The rich diversity, density, and distribution of plants in the Sand Tank Mountains area of the Monument is especially striking and can be attributed to the management regime in place since the area was withdrawn for military purposes in 1941. In particular, while some public access to the area is allowed, no livestock grazing has occurred for nearly 50 years. To extend the extraordinary diversity and overall ecological health of the Sand Tanks [sic] Mountains area, land adjacent and with biological resources similar to the area withdrawn for military purposes should be subject to a similar management regime to the fullest extent possible."	Sand Tank Mountains	**Physical:** Sand Tank Mountains **Ecological:** Diversity, density, and distribution of plants	Maintain normal variation in diversity, density, and distribution of plants
"The Monument contains an abundance of packrat middens, allowing for scientific analysis of plant species and climates in past eras. Scientific analysis of the midden [sic] shows that the area received far more precipitation 20,000 years ago, and slowly became more arid. Vegetation for the area changed from juniper-oak-pinion pine woodland to the vegetation found today in the Sonoran Desert, although a few plants from the more mesic period, including the Kofa Mountain barberry, Arizona rosewood, and junipers, remain on higher elevations of north-facing slopes."	Scientific Analysis of Plant Species and Climates	**Biological:** Packrat middens, mesic period, Kofa Mountain barberry, Arizona rosewood, junipers	Protect packrat middens, dry caves or rock shelters, and relic species. Within established guidelines, make middens available for scientific study and analysis
"The lower elevations and flatter areas of the Monument contain the creosote-bursage plant community. This plant community thrives in the open expanses between the mountain ranges, and connects the other plant communities together. Rare patches of desert grassland can also be found throughout the Monument, especially in the Sand Tank Mountains area. The washes in the area support a much denser vegetation community than the surrounding desert, including mesquite, ironwood, palo verde, desert honeysuckle, chuperosa, and desert willow, as well as a variety of	Vegetation Communities: Creosote Bush-Bursage, Desert Grassland, and Washes	**Biological:** Mesquite, ironwood, palo verde, desert honeysuckle, chuperosa, desert willow, herbaceous plants **Physical:** Sand Tank Mountains **Ecological:** Creosote-	Prevent avoidable soil loss Maintain properly functioning plant communities as defined by structure, cover, diversity, composition, invasive species, desert washes-bank stability, woody over story, and continuity of vertical structure

Table 1-3
Sonoran Desert National Monument Objects

Object as Described in Presidential Proclamation 7397	Monument Object	Characteristics	Protection Criteria
herbaceous plants. This vegetation offers the dense cover bird species need for successful nesting, foraging, and escape, and birds heavily use the washes during migration."		bursage plant community, desert grassland, densely vegetated wash communities	
"The diverse plant communities present in the Monument support a wide variety of wildlife, including the endangered Sonoran pronghorn, a robust population of desert bighorn sheep, especially in the Maricopa Mountains area, and other mammalian species such as mule deer, javelina, mountain lion, gray fox, and bobcat. Bat species within the Monument include *the* endangered lesser long-nosed bat, the California leaf-nosed bat, and the cave myotis. Over 200 species of [song] birds are found in the Monument, including 59 species known to nest in the Vekol Valley area. Numerous species of raptors and owls inhabit the Monument, including the elf owl and the western screech owl. The Monument also supports a diverse array of reptiles and amphibians, including the Sonoran desert tortoise and the red-backed whiptail. The BLM has designated approximately 25,000 acres of land in the Maricopa Mountains area as critical habitat for the desert tortoise. The Vekol Valley and Sand Tank Mountain areas contain especially diverse and robust populations of amphibians. During summer rainfall events, thousands of Sonoran green toads in the Vekol Valley can be heard moving around and calling out."	Wildlife	**Biological:** Sonoran pronghorn, desert bighorn sheep, mule deer, javelina, mountain lion, gray fox, bobcat, bat species (including lesser long-nosed bat, California leaf-nosed bat, and cave myotis), 200 species of songbirds, raptors, owls (including elf owl and western screech owl), red-backed whiptail, Sonoran green toads, critical habitat for Sonoran desert tortoise **Physical:** Maricopa Mountains, Vekol Valley, Sand Tank Mountains **Ecological:** Diverse plant communities	Maintain viable populations of wildlife species, focusing, as appropriate, on foraging habitat, hiding cover, nesting/roosting habitat, escape cover, and thermal cover Prevent avoidable loss of special status species

Table 1-3
Sonoran Desert National Monument Objects

Object as Described in Presidential Proclamation 7397	Monument Object	Characteristics	Protection Criteria
"The Monument also contains many significant archaeological and historic sites, including rock art sites, lithic quarries, and scattered artifacts. Vekol Wash is believed to have been an important prehistoric travel and trade corridor between the Hohokam and tribes located in what is now Mexico. Signs of large villages and permanent habitat sites occur throughout the area, and particularly along the bajadas of the Table Top Mountains. Occupants of these villages were the ancestors of today's O'odham, Quechan, Cocopah, Maricopa, and other tribes. The Monument also contains a much used trail corridor 23 miles long in which are found remnants of several important historic trails, including the Juan Bautista de Anza National Historic Trail (NHT), the Mormon Battalion Trail, and the Butterfield Overland Stage Route."	Archaeological and Historic Sites	**Cultural:** Archaeological and historic sites, rock art sites, lithic quarries, scattered artifacts, large villages, permanent habitat sites, Anza NHT corridor, Mormon Battalion Trail, Butterfield Overland Stage Route **Physical:** Vekol Wash, bajadas, Table Top Mountains	Reduce threats and resolve conflicts from natural and human-caused degradation affecting integrity of sites and settlement clusters, site condition context, setting, stability, and capacity to yield scientific information For the Anza Trail, reduce threats related to the historic trail corridor, its setting, and loss of interpretative opportunities

1.4.2.3 Management Vision

The SDNM shelters and will continue to shelter a healthy and functioning ecosystem that includes the diversity of biological, cultural, geologic, and scientific resources found in the Sonoran Desert while providing compatible recreation and other public use opportunities.

1.4.2.4 Overarching Goals

Public land management goals are derived from the overriding purpose and vision for an area and provide refined guidance for the RMP. The overarching plan-level goals of the SDNM RMP are as follows:

- Assign the highest planning and management priority to the protection of the cultural, biological, physical, and scientific resources for which the Monument was created.
- Protect, restore, maintain, and manage the native biological diversity and associated values of the Monument within their broader ecosystem context, with particular attention to retaining connectivity with other natural areas and conserving habitats for viable populations of a full range of native species.
- Protect and manage the cultural resources of the Monument, paying particular attention to the cultural landscape and the relationship of individual sites to the larger landscape.
- Encourage scientific research that aims to expand understanding and improve management of Sonoran Desert resources.
- Manage natural, recreational, and social settings to protect the undeveloped and natural character of the Monument while providing opportunities for compatible, sustainable public use and enjoyment.
- Develop outreach and educational programs and materials that build constituencies, expand understanding and appreciation of the Monument and its resources, and provide for enjoyable experiences at the Monument.
- Manage the Monument in a manner that considers public health and safety.

1.5 PLANNING CRITERIA

Planning criteria are the standards, rules, and guidelines that help to guide the RMP planning process. The BLM has developed planning criteria to help guide the development of this PRMP/FEIS. The planning criteria were derived principally from FLPMA and other applicable laws and, in the case of the SDNM, from Presidential Proclamation 7397, as well as collaboration with partner agencies, American Indian tribes, and the public during the RMP planning process. The planning criteria were provided to the public for review during the scoping process and were included in the scoping report. General planning criteria are presented below.

1.5.1 GENERAL PLANNING CRITERIA COMMON TO BOTH DECISION AREAS

- The planning process will include an EIS that will comply with NEPA standards. Two records of decision will be issued: one for the Lower Sonoran Decision Area and one for the SDNM Decision Area.

- The RMP will be completed in compliance with FLPMA, the ESA of 1973, as amended (16 USC 1531 et seq.), NEPA, the Archaeological Resources Protection Act, and all other relevant federal laws and executive orders, as well as the management policies of the BLM.

- Where planning decisions have previously been made that still apply, those decisions will be carried forward into the RMP. The BLM will also use information developed and management alternatives proposed in previous studies of the Planning Area, including the proposed Amendment and Environmental Assessment to the Lower Gila North Management Framework Plan and the Lower Gila South RMP (BLM 2005a).

- Planning decisions will be made in the context of the best-available data, including information specific to public lands. Regional contextual data may also be used to identify the regional importance of public lands for resource use and protection.

- The planning team will work collaboratively with the State of Arizona; Maricopa, Pinal, Pima, Gila, and Yuma counties; tribal governments; municipal governments; other federal agencies; the Resource Advisory Council; and all other interested groups, agencies, and individuals. Decisions in the plans will strive to be compatible with existing plans and policies of adjacent local, state, tribal, and federal agencies, consistent with federal law and regulations. Opportunities to coordinate management with adjoining landowners for resource protection and public uses will be considered.

- The RMP will be developed to be flexible and adaptable to new and emerging issues and opportunities. During implementation of the RMP, the BLM will continue to work in partnership with the public and with local, state, and tribal governments and agencies to identify priority implementation projects and to identify and resolve emerging issues.

- Native American tribal consultations will be conducted in accordance with policy, and tribal concerns will be given due consideration. The planning process will include the consideration of any impacts on Indian trust assets.

- Consultation with the USFWS will take place throughout the planning process in accordance with Section 7 of the ESA and the National Memorandum of Agreement (August 30, 2000) to identify conservation actions and measures for inclusion in the plans.

- Coordination with the Arizona SHPO will be conducted throughout the planning process.

- The plans will recognize the state's authority to manage wildlife populations, including hunting and fishing, within the Planning Area. Coordination with AGFD will occur in accordance with the statewide MOU (March 1987).

- The plans will set forth a framework for managing recreational and commercial activities in order to maintain existing natural landscapes and to provide for the enjoyment and safety of the visiting public.

- The lifestyles of area residents, including the wide variety of uses of the public lands, will be considered in the RMP.

- Any lands, or interests therein, acquired by the BLM within the Planning Area boundary will be managed consistently with the RMP, subject to any constraints associated with the acquisition.

- The RMP will address travel management for the public lands. Areas will be identified as open to vehicles, closed to vehicles, or limited to designated roads. Within the Monument and in other areas identified in the RMP, motorized and mechanized routes will be designated.

- The RMP will recognize valid, existing rights.

- Federal Geographic Data Committee standards and other applicable BLM standards will be followed in the development and management of data.

- Management of existing wilderness will continue. The RMP will not address reduction or elimination of existing wilderness, changes in boundaries of existing wilderness, or opening of roads or mechanized or motorized access into existing wilderness.

1.5.2 LOWER SONORAN DECISION AREA PLANNING CRITERION

In addition to the general planning criteria noted above, the Lower Sonoran Decision Area has the following criterion:

- The Lower Sonoran RMP will establish management guidance for public lands outside of the SDNM. The Lower Sonoran RMP will replace and supersede all other BLM RMPs for the lands covered by the Lower Sonoran RMP.

1.5.3 SDNM DECISION AREA PLANNING CRITERIA

Planning criteria for the SDNM is derived from Presidential Proclamation 7397 that established the SDNM "for the purpose of protecting the objects" for which the Monument was designated. The proclamation also states that the BLM will manage the Monument "pursuant to applicable legal authorities, to implement the purposes of the proclamation." Thus, any BLM planning criteria developed for the SDNM is inextricably tied to protecting the objects identified in the proclamation. The following unique SDNM criteria are in addition to the general planning criteria noted above:

- The SDNM RMP will establish guidance upon which the BLM will manage the SDNM, and will replace and supersede all other BLM RMPs for the lands covered by the SDNM RMP.

- The SDNM RMP will meet the requirements of the Presidential Proclamation 7397, dated January 17, 2001, to protect the objects of geological, archaeological, historical, and biological value within the Monument.

- In accordance with the proclamation, acquired lands and interests within the Monument's boundary will be added to the Monument and will be managed consistently with the SDNM RMP.

- To maintain the existing natural and cultural landscapes of the SDNM to the maximum extent possible, facilities will be located outside the Monument's boundary or in neighboring communities. Facilities that must be located within the Monument's boundaries will be placed in such a way that they are unobtrusive, to the extent practicable.

- The SDNM RMP will not address Monument boundary adjustments or proposals to change the Proclamation.

1.6 RELATIONSHIP TO OTHER PLANS

1.6.1 RELATIONSHIP TO OTHER BLM PLANS, PLAN AMENDMENTS & PROGRAMMATIC EISS

In addition to the management plans and amendments being revised in this document, a number of existing management plans, programmatic documents, and standards and guidelines were considered in the preparation of this PRMP/FEIS. These documents include the following:

- Eastern Arizona Grazing EIS and Rangeland Program Summary (BLM 1987): applicable to part of the Lower Sonoran Decision Area (East Valley parcels only).

- Lower Gila North Grazing EIS and Rangeland Program Summary (BLM 1982): applicable to part of the Lower Sonoran Decision Area (Saddle Mountain only).

- Arizona Statewide Land Use Plan Amendment for Fire, Fuels, and Air Quality Management (BLM 2003a): amended existing land use plans to address wildland fire management concerns and issues, including improving public and firefighter safety from wildland fires, using fire as a management tool for achieving resource management objectives, better manage hazardous fuel loads inside and outside the Wildland-Urban Interface, managing fire for resource benefit, and determining the effects on air quality as a result of reintroducing fire into the ecosystem. There are numerous special status species conservation measures from the USFWS Biological Opinion (BO) included as part of this document. Because the amendment will be superseded by this RMP, applicable conservation measures have been incorporated as management actions in **Chapter 2**, Alternatives.

- Vegetation Treatments Using Herbicides on BLM Lands in 17 Western States Programmatic EIS (BLM 2007): applicable to the Lower Sonoran and SDNM Decision Areas.

- The Vegetation Programmatic EIS ROD allows for the use of four new approved herbicides, provides updated analysis on 17 currently approved herbicides, and identifies those

herbicides that the BLM will no longer use on public lands. The decision also guides the use of herbicides for field-level planning and on-the-ground projects designed to restore and sustain important riparian, range, and wildlife habitat on public lands under BLM management. In addition, the decision establishes a protocol for assessing human health and ecological risks of future herbicide use.

- Designation of Energy Corridors on Federal Lands in the 11 Western States Programmatic Environmental Impact Statement (DOE and BLM 2008): applicable to the Lower Sonoran and SDNM Decision Areas.

- Draft Programmatic EIS (PEIS) for Solar Energy Development in Six Southwestern States (DOE and BLM 2011). The BLM and the US Department of Energy (DOE) have jointly prepared the Solar PEIS to provide guidance in facilitating environmentally responsible utility-scale solar energy development through new solar energy development policies, and identification of solar energy zones (SEZ), project design features, and best management practices. The Draft PEIS was released to the public in December 2010, and a supplement to the Draft PEIS was released in October 2011. The focus of the PEIS is on BLM-administered lands in Arizona, California, Colorado, Nevada, New Mexico, and Utah. The preferred alternative in the Draft PEIS identified and analyzed 17 SEZs in the six states, including three in Arizona. The Supplement to the Draft PEIS refined the SEZ analysis, resulting in only two SEZs being proposed in Arizona. One of these SEZs, the Gillespie SEZ, is within the Planning Area, north of the Gila Bend Mountains and directly south of the El Paso Natural Gas Utility Corridor. Additionally, should a ROD result from the Solar PEIS, the SEZ allocations, other planning allocations, design features, and best management practices would amend the Lower Sonoran-SDNM RMPs. More information on the Solar PEIS, including the draft and supplement, are available on the following Web site: http://solareis.anl.gov.

- BLM Arizona's Restoration Design Energy Project (RDEP) Draft EIS (BLM 2012b). The RDEP is a "step down" from the national-level Solar PEIS focusing on specific issues and areas in Arizona, and considering land use allocations, design features, and best management practices for solar and wind energy development. The intent of the RDEP planning effort is to identify Renewable Energy Development Areas (REDAs) and a SEZ for Arizona that include disturbed sites such as brownfields, landfills, retired agricultural lands, or abandoned mines, and lands with low resource sensitivity and few environmental conflicts. Like the Solar PEIS, if the RDEP results in a ROD, the decisions would amend the Lower Sonoran-SDNM RMPs.

Management of public lands within the SDNM is directed by Presidential Proclamation 7397, issued on January 17, 2001. The proclamation is the legal instrument that establishes the boundaries and purposes of the SDNM. The priority for management of the SDNM is protection of the natural and cultural resource values for which the area was designated, subject to withdrawals, leases, and valid existing rights. The proclamation supersedes some of the guidance provided by existing RMPs for the area.

1.6.2 RELATIONSHIP TO STATE, LOCAL, TRIBAL, AND OTHER FEDERAL PLANS, LAWS, POLICIES & PROGRAMS

BLM land use planning regulations (43 CFR 1610.3), FLPMA (43 USC 1712), and regulations for implementing NEPA (40 CFR 1501.5 and 1501.6) guide the BLM in coordinating and cooperating with other federal and state agencies, local governments, and American Indian tribes during the land use planning process. This collective guidance instructs the BLM to:

- Stay informed of federal, state, local, and tribal plans;
- Ensure that it considers these plans in its own planning;
- Help resolve inconsistencies between such plans and BLM planning; and
- Cooperate with other agencies and tribal governments in the development of RMPs and NEPA analysis.

In accordance with these provisions, the BLM initially informed other federal, state, local, and tribal officials of its intent to prepare new RMPs, as detailed in the Scoping Report. Collaboration with these agencies has continued throughout the planning and EIS process.

Agency coordination efforts have included reviewing numerous plans that provide the policies and guide the activities of these agencies and governments. Plans consulted in the preparation of this PRMP/FEIS can be found in **Appendix C**, State, County, Local and Other Related Agency Plans.

1.6.2.1 Specific Agreements

The BLM and AGFD have agreed to work cooperatively to manage wildlife resources on public lands throughout Arizona. The master MOU (AZ-930-0703) between the BLM's Arizona State Office and the Arizona Game and Fish Commission, which sets policy for the management, preservation, and harvest of wildlife and fish resources, establishes the BLM's responsibility for managing wildlife habitat on public lands and the AGFD's public trust responsibility to manage fish and wildlife populations through the authority of the Commission. As stated in the MOU, the BLM and the AGFD "consider the management of fish and wildlife resources as a high priority and agree to work cooperatively to achieve a shared goal to actively manage, sustain, and enhance those resources."

The BLM, Arizona Department of Transportation (ADOT), and Arizona Division of Federal Highway Administration (FHWA) have agreed to establish and improve cooperative working relationships (MOU No. AZ-931-0309, Amendment 2). This MOU provides for a coordinated approach to accomplish land and resource management along with transportation development and operation management. The MOU is designed to reduce or eliminate duplication of work, establish procedures for streamlining work processes, ensure that each agency is provided with sufficient lead-time, share available resources, and develop and execute action programs that maximize responsiveness to public needs and concerns. Per the MOU, BLM will coordinate with responsible agencies to develop design features that minimize the fragmenting effect of the planned roadway and evaluate/incorporate safe and effective wildlife crossings. Where planned roadways potentially fragment other resources, BLM will work with the responsible agency to provide continued connectivity for those purposes. BLM will also work with the agency to

provide continued safe access to public lands from any developed roadway for recreation and other public land users.

1.7 CHANGES BETWEEN THE DRAFT RMP/EIS AND THE PRMP/FEIS

Text added between the Draft RMP/EIS (DRMP/DEIS) and the PRMP/FEIS is shaded in light gray.

Due to review of public comments, coordination with cooperating agencies, and internal reviews of the DRMP/DEIS, BLM has made several revisions to this PRMP/FEIS. This section summarizes the substantive changes made to the PRMP/FEIS organized by chapter/section. This list does not include minor editorial changes.

There were several comment letters submitted during the comment period that the Arizona State BLM had not complied with the BLM Washington Office (WO) IM No. 2011-154, Requirement to Conduct and Maintain Inventory Information for Wilderness Characteristics and to Consider Lands with Wilderness Characteristics in Land Use Plans. This IM directs BLM to "continue to conduct and maintain inventories regarding the presence or absence of wilderness characteristics, and to consider identified lands with wilderness characteristics in land use plans and when analyzing projects under the National Environmental Policy Act." Commenters noted several areas that BLM did not address in the DRMP/DEIS, including Sentinel Plain. In response, the BLM completed its inventory for wilderness characteristics on all BLM lands in the Planning Area and has included this new information in the PRMP/FEIS. See **Table 3-12**, Units Inventoried for Wilderness Characteristics, for a list of all areas inventoried for wilderness characteristics within the Planning Area.

In order to determine whether this new information was "significant," which would require BLM to prepare a Supplemental EIS before incorporating this new information into the PRMP/FEIS, the BLM reviewed the CEQ NEPA regulations and guidance. The CEQ regulations note, "Agencies shall prepare supplements…if:

i. the agency makes substantial changes in the proposed action that are relevant to environmental concerns; or

ii. there are significant new circumstances or information relevant to environmental concerns and bearing on the proposed action or its impacts." (40 CFR 1502.9)

In considering these points, the BLM found that the new inventory data did not show that the actions in the DRMP/DEIS would affect the human environment to a substantial extent not already considered in the EIS. The difference in acreage proposed to manage to protect wilderness characteristics in the PRMP/FEIS Alternative E (Proposed RMP) are not appreciably different from those presented in the DRMP/DEIS's Alternative E (preferred alternative). The DRMP/DEIS's Alternative E recommended 166,300 acres (total for both Decision Areas), whereas the PRMP's Alternative E recommends 199,000 acres (total for both Decision Areas), a 32,700-acre increase. This increase represents an area representing about 3.5 percent of the entire acreage in the Lower Sonoran and SDNM Decision Areas. Although the wilderness characteristic unit locations vary slightly based on the final inventory findings, the Sonoran Desert environment and resource conditions are comparable, as are the environmental

impacts. The impacts disclosed in the PRMP/FEIS are similar or identical to those described in **Chapter 4**, Environmental Consequences, of the DRMP/DEIS, such as those impacts related to travel management, minerals, lands and realty, wilderness characteristics, and recreation. In addition, the BLM found that the new information did not invalidate any conclusions in the DRMP/DEIS to a significant extent. Finally, the BLM found that the qualities presented in this new information are reflected in the goals, management actions, and mitigation measures in the DRMP/DEIS. The BLM determined that the analysis in the DRMP/DEIS sufficiently disclosed impacts to management actions on the lands with wilderness characteristics.

Based on these findings, the BLM concluded that the new information does not affect the environment to a significant extent not already considered; therefore, BLM is able to include this new information in the PRMP/FEIS without issuing a Supplemental EIS. However, the new information led BLM to revise the PRMP/FEIS in those sections pertaining to lands with wilderness characteristics.

Commenters also noted that BLM did not comply with the Director's Office IM No. 2011-004, Revised Recreation and Visitor Services Land Use Planning Guidance, Updated Checklist, and Three Land Use Planning Templates. Two major changes were made in the new IM guidance: (1) It changed the terminology from benefits-based management to outcomes-focused management, and (2) it established a three-tier system of lands managed for recreation and replaced the current two-tiered system. These changes resulted in a complete revision of the recreation section presented in **Chapter 2**, Alternatives.

Upon review of the IM, the BLM revised the recreation allocations for Special Recreation Management Areas (SRMAs) and Extensive Recreation Management Areas (ERMAs). The Draft RMP had proposed seven SRMAs with nine Recreation Management Zones (RMZs) contained within them, and two ERMAs. In this plan, many of the proposed SRMAs were changed to ERMAs, a few of the RMZs have been changed to SRMAs or ERMAs, and several ERMAs were changed to undesignated lands for dispersed recreation. There are now three SRMAs, seven ERMAs, and four RMZs in the PRMP (Alternative E), and the remaining lands are undesignated. Even though these allocation designations have changed, the proposed management objectives and decisions within them remained the same. Some have been reworded for clarification, and a few actions have been added in some of them to better assist BLM to meet the intended SRMA/ERMA objectives. Tourism market-based strategies and the corresponding recreation niches were deleted as land use allocation management decisions as a result of implementing the new IM. These remain an important part of the recreation management strategies and are integrated with the SRMA/ERMA objectives. Even though the SRMAs and ERMAs changed allocation designations, the on-the-ground management in each area remained essentially the same.

BLM also reviewed the recreation management changes from the perspective of whether they were extensive enough to warrant a Supplemental EIS. BLM IM 2011-004 changed the way Recreation Management Areas are allocated (SRMAs and ERMAs). However, BLM concluded that the changes were based in terminology and the new decisions would neither affect recreation management as presented in the DRMP/DEIS, nor invalidate impact analysis conducted in that document. Some recreation management actions were revised for clarification, and a few were added between the DRMP/DEIS and the PRMP/FEIS in response to public comment. These also did not substantially change the recreation management or the impact analysis as presented in the PRMP/FEIS. Additionally, **Appendix R**, Benefits Based Recreation Worksheets, in the DRMP/DEIS was revised for the PRMP/FEIS to include the new

SRMA/ERMA worksheets and the title was changed to **Appendix R**, Special and Extensive Recreation Management Area Worksheets.

Several of the public comments on the DRMP/DEIS were very specific concerning the uses and conditions of individual motorized routes that appeared in the designated route network for the Sonoran Desert National Monument in the Preferred Alternative. BLM reconsidered the route network suggested in the Preferred Alternative in light of these comments and the information they contained. The result was changes in some of the routes recommended to remain open or closed in the PRMP. **Table 1-4**, Route Changes between DRMP/DEIS and PRMP/FEIS below illustrates the changes.

Table 1-4
Route Changes between DRMP/DEIS and PRMP/FEIS

Analysis Number	On-the-ground number	Draft	Final	Reason
3114	800F	Open	Closed	To better protect Monument objects around Espanto Mountain
3116	8000G	Open	Closed	To better protect Monument objects around Espanto Mountain
3033	8000G	Open	Closed	To better protect Monument objects around Espanto Mountain
3028	8005	Open	Closed	Protect Butterfield/Anza Trail from vehicle damage in silty soils. Secondarily, protect resources at Espanto Mountain
3029	8005	Open	Closed	Protect Butterfield/Anza Trail from vehicle damage in silty soils. Secondarily, protect resources at Espanto Mountain
3027	8005A	Open	Admin Use Only, Closed to Public Use	Limit access to admin use only to protect Butterfield Trail from overuse causing rutting in silty soils. Reduces need to seek public access across a corner of private land. Access to range improvement is needed by BLM
3098	8039A	Open	Admin Use Only, Closed to Public Use	Limit access to admin use only to eliminate dumping and uses that are difficult to manage along a main road with limited resources. BLM needs access to the range improvement
4010	8037E	Closed	Open	Open to provide additional spur roads for camping and wilderness access where vehicle use can be effectively managed
4100	8037F	Closed	Open	Open to provide additional spur roads for camping and wilderness access where vehicle use can be effectively managed

Table 1-4
Route Changes between DRMP/DEIS and PRMP/FEIS

Analysis Number	On-the-ground number	Draft	Final	Reason
5001	8014	Closed	Open	Open to allow ADOT access to gravel pit ROW. Open to allow public access and admin access as currently exists. Mitigation for highway safety will need to be identified with ADOT and then implemented
5042	8017	Seasonally Open	Closed	Minimize effects on desert washes from vehicle use. Increase Wilderness Characteristics Area size and reduce the number of gates and areas to manage for seasonal closure to increase effectiveness at other locations
5049	8017	Seasonally Open	Closed	Minimize effects on desert washes from vehicle use. Increase Wilderness Characteristics Area size and reduce the number of gates and areas to manage for seasonal closure to increase effectiveness at other locations
5006	8016C	Closed	Open	Open to provide route connectivity specifically identified by Gila Bend residents. Reduces travel by 7 miles between Farley's Cabin and southern terminus of 8016C
5007	8016C	Closed	Open	Open to provide route connectivity specifically identified by Gila Bend residents. Reduces travel by 7 miles between Farley's Cabin and southern terminus of 8016C
4052	8037F	Closed	Open	Open to allow access to existing campsites on spur roads
4099	8032A	Open	Closed	Protect this old pavement section of SR84 (historic object). Another representative example to the west is still open for exploration and enjoyment with vehicle access. Closing would protect this example of a pre-1950s state highway
6006	8011F, 8011G	Open	Closed	Closed due to poor condition and to reduce impacts in sensitive species habitat
6102	8015	Open	Closed	Truncate route before Javelina Mountain to protect Monument objects
6055	8009E	Open	Closed	Close, at the southernmost campsite, to protect system of interconnected washes and saguaro forest from turn-around impacts. Vehicles can hit saguaros in this area because saguaros line the road
7020	8028, 8028E	Closed	Admin Use Only, Closed to Public Use	Restrict to admin use only to allow ADOT access to a borrow pit ROW

BLM reviewed these proposed route changes to determine whether the scope of changes would warrant a Supplemental EIS. The BLM determined that:

- Although there were changes in mileage open and closed, the mileage difference is not substantial;
- The connectivity of the route network was maintained; and
- The impacts are not substantially different from those described in the DRMP/DEIS.

Following is a list of additional substantive changes made to the document. The document was extensively edited to correct minor inconsistencies (e.g., incorrect table references or titles), typographical errors, and other technical issues. These changes are not noted below nor highlighted in grey.

- The BLM reviewed the viewshed analysis for the Anza National Historic Trail (NHT) and created two new NHT Management Areas in the PRMP.
- Under **Alternative E** (the Proposed RMP) of the PRMP/FEIS, the Coffeepot Batamote Area of Critical Environmental Concern (ACEC) would not be designated.
- In **Chapter 2**, Alternatives, acreage or mileage numbers were corrected in many of the resource land use allocation tables in response to comment submissions or mathematical or typographical errors. Management actions were also modified, added, or deleted for the same reasons. Resource areas with more than minor revisions include Cultural Resources, Wildlife and Special Status Species, Vegetation Resources, Wilderness Characteristics, Minerals Management, Recreation Management, Travel Management, and Special Designations: ACECs, and National Trails.
- The 40-acre open OHV use area in Ajo was deleted from the Proposed RMP (Alternative E).

- The Priority Species heading was changed to "Wildlife and Special Status Species" in **Chapter 3**, Affected Environment, and in **Chapter 4**, Environmental Consequences. The management action code in Chapter 2 was changed from "PS" (which duplicated the code for Public Safety) to "WL."
- The decisions pertaining to recreational target shooting in the SDNM were identified as implementation-level decisions in the DRMP/DEIS. They have been revised to be RMP-level decisions in the PRMP/FEIS. This means they would be protestable decisions during the protest period but not appealable to the Office of Hearing and Appeals, Interior Board of Land Appeals after the ROD is signed.
- The BLM also reviewed its planning decisions related to recreational target shooting in the SDNM. The Preferred Alternative, Alternative E, identified in the DRMP/DEIS would have closed the entire SDNM to recreational target shooting. The BLM now proposes to continue management consistent with the No Action Alternative for recreational target

shooting in the monument, and keep the SDNM open to recreational target shooting. Alternative E (Proposed RMP) in the PRMP/FEIS would allow the BLM to continue providing this recreational opportunity, subject to restrictions and monitoring (Table 2-32), and work with local stakeholders and the public to address recreational target shooting and its potential impacts.

The PRMP/FEIS identifies recreational target shooting as an important recreational activity in the SDNM, for which "use has increased dramatically during the past five years" (PRMP/FEIS Section 3.3.4.2). "Increasingly, Arizona's broad public demand for places to shoot is being shifted to public lands managed by the BLM." (PRMP/FEIS Section 3.5.2.4.) In response to this growing demand, the BLM conducted a comprehensive inventory of recreation sites in SDNM and found 63 sites that were predominately used for target shooting. There currently are no improved or facilitated target shooting sites in the monument. Most recreational target shooting occurs at informal gathering places and often in an inappropriate manner (e.g. without a backstop or shooting protected vegetation), and consequently results in damage to dominant vegetation and littering (PRMP/FEIS Section 3.5.2.4).

As part of this planning process, the BLM conducted an analysis to "determine areas of the SDNM where continued recreational target shooting would cause unacceptable impact to the objects for which the SDNM was designated." (PRMP/FEIS Section G.2) and determined that under current patterns of use and conduct, recreational target shooting is not suitable on most lands within the SDNM (the complete SDNM Recreational Target Shooting Analysis can be found in Appendix G). Based on the BLM's analysis of the damage to monument objects that is attributable to the current manner in which recreational target shooting is occurring on the monument, the BLM will implement a comprehensive suite of administrative actions and best management practices (e.g., the promulgation of supplementary rules for law enforcement purposes) on the ground to minimize the adverse impacts of recreational shooting to monument objects.

The Administrative Actions in chapter 2, following Table 2-32, describe a set of actions and potential supplementary rules intended to adjust the way the activity is currently conducted and to provide conditions for changing management in the future. These actions describe acceptable materials for targets, and appropriate actions for shooters to take in the field. The Administrative Actions that follow Table 2-32, also describe BLM's intent to partner and collaborate with interested groups and individuals to develop standards for monitoring, monitoring techniques, and materials to inform and educate public land users about appropriate recreational target shooting conduct. In addition, the "Recreational Target Shooting" section of Appendix H, Best Management Practices & Standard Operating Procedures, describes how to select a suitable shooting site, summarizes some of the laws affecting recreational target shooting on Public Lands in Arizona, and suggests ways for shooters to minimize their impacts on natural and cultural resources.

In order to ensure that the actions the BLM puts in place result in appropriate recreational shooting practices that protect monument objects, the BLM will monitor the impacts of recreational target shooting and enforce the restrictions identified in the plan. Monitoring will employ analytic methods and criteria appropriate to detect change before monument

objects are harmed. If monitoring reveals that damage to monument objects occurs after the actions are put in place, the BLM will address the issue further. Examples of future actions that the BLM could take include site specific temporary or permanent restrictions or closure to recreational target shooting, or an RMP amendment that re-considers recreational target shooting across the whole SDNM.

Arizona BLM IM No. AZ-2011-005 updated the BLM Arizona plant and animal sensitive-species list, and the USFWS added the Sonoran desert tortoise as a candidate species; both of these new policy documents resulted in updating the wildlife information in **Section 3.2.13**, Wildlife and Special Status Species.

- Information in **Chapter 3** was updated and revised to clarify descriptions of the Planning Area resources, uses, and special designations. Resource topics that were updated include Air Quality, Cultural Resources, Soil Resources, Vegetation Resources, Visual Resources, Wilderness Characteristics, Lands and Realty, Livestock Grazing, Mineral Management, Recreation Management, and Travel Management.

- A Clean Air Act Conformity Analysis Report is being performed, and the Air Quality section of the PRMP/FEIS has been updated to include preliminary analysis from this report.

- Many resource sections in **Chapter 4** had GIS acreage calculations re-run, resulting in some acreage adjustments. These changes are highlighted in grey throughout the chapter.

- The Minerals Management analysis in **Chapter 4** was revised to present the data and findings in a similar format as the information presented in **Chapter 3**. Some of the impact intensity findings were revised to reflect the new acreage calculations and anticipated impacts.

- **Chapter 5**, Consultation and Coordination, was added to the PRMP/FEIS and the List of Preparers was moved to the chapter.

- There have been several new definitions added to the Glossary, now **Chapter 7** of the PRMP/FEIS, including "off-road," "on-road," "key area," and "National Historic Trails Management Area."

- References were updated and moved to **Chapter 8**.

- Several appendices were updated to respond to comments, to clarify text, and to correct minor errors. **Table 1-5**, Lower Sonoran-SDNM PRMP/FEIS Appendices List, describes the changes made to the appendices between the DRMP/DEIS and the PRMP/FEIS.

Table 1-5
Lower Sonoran-SDNM PRMP/FEIS Appendices List

App.	Title in PRMP/FEIS	Title in DRMP/DEIS	Notes
A	Sonoran Desert National Monument Presidential Proclamation	Same	No changes
B	Applicable Laws, Regulations, and Policies (includes Cultural Use Allocations and Land Health Standards)	Same	Includes Appendices I, K, and W; edits and clarifications made
C	State, County, Local, and Other Related Agency Plans	Same	Added missing county plans noted in public comments
D	Wild and Scenic River Eligibility Assessment	Same	No changes
E	Compatibility Analysis: Livestock Grazing on the Sonoran Desert National Monument	Draft Compatibility Analysis: Livestock Grazing on the Sonoran Desert National Monument	Clarifications made
F	Arizona Land Health Evaluation for the Sonoran Desert National Monument	Same	Clarifications made
G	Sonoran Desert National Monument Recreational Target Shooting Analysis	Same	No changes
H	Best Management Practices and Standard Operating Procedures	Same	Clarifications and additions
I	Deleted	Cultural Use Allocations	Incorporated into Appendix B
J	Wildlife and Plant Priority Species	Same	Species updates from IM AZ-2011-005 included
K	Deleted	Conservation Measures from Fish and Wildlife Service Biological Opinions	Incorporated into Chapter 2, Alternatives and Appendix B
L	Guidelines for Grazing Administration	Same	No changes
M	Painted Rock Burro Herd Manageability Analysis	Same	Clarifications made
N	Analysis for Renewable Energy Sensitivity	Same	Clarifications made
O	Arizona Land Tenure Strategy	Same	No changes
P	Grazing Allotment Information	Same	Clarifications made
Q	Recreation Settings and Descriptions	Same	Clarifications made
R	Special and Extensive Recreation Management Area Worksheets	Benefits Based Recreation Worksheets	DEIS appendix replaced with IM-2011-004

Table 1-5
Lower Sonoran-SDNM PRMP/FEIS Appendices List

App.	Title in PRMP/FEIS	Title in DRMP/DEIS	Notes
			worksheets
S	Route Evaluation Methodology and Impact Analysis	Same	Clarifications made
T	Route Mitigations	Same	Clarifications made
U	Definition of Transportation Asset Type, Functional Class, and Maintenance Intensity	Same	Clarifications made
V	Areas of Critical Environmental Concern (ACEC) Evaluations	Same	Clarifications made based on public comments and evaluation of relevance and importance statements
W	Deleted	Land Health Standards	Incorporated into Appendix B
AA	Abbreviations and Acronyms	Same	New acronyms used in the FEIS have been added
BB	Possible Easement Locations for Access to Public Lands	New	New appendix in the FEIS
CC	Deleted	Index	Deleted – not needed for electronic version of PRMP/FEIS

CHAPTER 2

ALTERNATIVES

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MAPS

Note: Maps referenced in this chapter may be found in Volume 4, Map Book.

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CHAPTER 2
ALTERNATIVES

2.1 INTRODUCTION

This chapter describes and compares alternatives for developing the Lower Sonoran-SDNM PRMP/FEIS. The document consists of five alternatives, a No Action (or current management) Alternative, three action alternatives, and the PRMP. The No Action Alternative means that management of the affected public lands and resources would continue without change from the guidance provided by existing applicable land use plans (LUPs) and, in the case of SDNM, Presidential Proclamation 7397 and its associated Interim Guidance. The action alternatives present various combinations of public land uses and resource management practices that address issues identified during the scoping process. Each alternative varies in perspective and intensity of management and describes a series of decisions and desired outcomes that collectively would direct future management for the Lower Sonoran and SDNM Decision Areas. Additionally, each alternative consists of a set of designations, land use allocations, allowable uses, and management actions needed for implementation of that alternative. All alternatives have been assessed for potential environmental impacts, which are summarized at the end of this chapter. A detailed discussion of the potential impacts is presented in **Chapter 4**, Environmental Consequences.

The alternatives represent a reasonable range of management options identified in accordance with NEPA, other applicable laws, intergovernmental and interagency collaboration, and public participation. These inputs were used to derive the management purposes, missions, and goals for the Lower Sonoran-SDNM PRMP/FEIS, described in **Chapter 1**, Purpose and Need for the Resource Management Plan. Consistency with these purposes, missions, and goals was a basic requirement for each alternative.

Once the purposes, missions, and goals were established, the intergovernmental/interagency planning team developed management alternatives that incorporated decisions for a number of resource or resource use categories. These are described in **Table 2-2**, Program Area Categories and Abbreviations, of **Section 2.8**, Alternatives. The above information was presented, reviewed, and discussed at public workshops throughout the Planning Area. Public input from the workshops was carefully considered by the planning team and incorporated into the scope and content of the alternatives provided in this FEIS.

Each alternative portrays a different management focus, as defined by the desired outcomes and actions selected for each alternative. All alternatives meet the BLM's overarching principles of multiple use and sustained yield. All action alternatives provide a high degree of protection for SDNM resources, as required by Presidential Proclamation 7397.

2.2 SELECTION OF THE PROPOSED RMP

The DRMP/DEIS described and analyzed five alternatives, including Alternative A (the No Action Alternative) and Alternatives B, C, D, and E (the Preferred Alternative), each of which represented varying management actions for each resource and resource use for achieving the stated goals and objectives. The BLM has the discretion to select an alternative in its entirety, to combine aspects of the

various alternatives that were presented in the DRMP/DEIS, or to consider management approaches that were presented during the comment period that do not result in significant changes from what the DRMP/DEIS considered. In this PRMP/FEIS, Alternative E has been identified as the PRMP.

The PRMP uses Alternative E from the DRMP/DEIS as a foundation, with adjustments made in response to public comments and coordination with cooperating agencies. Alternative E (PRMP) was chosen because it resolves the major issues while providing for common ground among conflicting opinions and multiple uses of public lands in a sustainable fashion. It provides the best balance of resource protection and use within legal constraints. The PRMP:

- Satisfies statutory requirements (true for all alternatives);
- Reflects what the BLM believes to be the best combination of actions to achieve the stated goals;
- Represents the best solution for the purpose and need as described in **Chapter 1**, Purpose and Need for the Resource Management Plan;
- Provides the best approach to address the key resource and planning issues; and
- Includes input from cooperating agencies, collaborating partners, stakeholders, and the public.

The PRMP does not represent a final BLM decision. The BLM planning process requires a 30-day public protest period and 60-day Governor's consistency review period prior to signing a ROD and Approved RMP. Only upon signing of the ROD/Approved RMP do the actions presented in the EIS become final decisions.

2.3 TYPES OF BLM DECISIONS

These plans include two levels of BLM decision making: planning-level decisions and implementation-level decisions. This document describes other administrative actions the BLM takes when managing public lands. These types of decisions and administrative actions are described below. Implementation of all actions and decisions within the RMP are subject to available funding and staffing.

2.3.1 PLANNING-LEVEL DECISIONS

Planning-level decisions represent the goals and objectives for the Planning Area and the actions needed to achieve them. These decisions guide future land management actions and subsequent site-specific implementation decisions.

2.3.1.1 Goals and Objectives

The BLM's land use plans must identify goals and objectives that direct the BLM actions to meet legal mandates, regulatory responsibilities, national policy, BLM State Director guidance, and other resource or social needs. Goals are broad statements that define desired outcomes. Objectives define specific desired outcomes for a selected resource or use and are considered necessary to achieve the

overarching goal. Examples of objectives include maintaining or restoring palo verde-mixed cacti vegetation communities or directing public recreation use to areas that provide the appropriate resource setting, opportunity, and experience.

2.3.1.2 Management Actions and Allowable Uses

Management actions and allowable uses describe actions the BLM or its partners would take. They guide how allowable uses of the public land would be managed to achieve the desired outcomes.

2.3.1.3 Special Designations

Special designations include those designated by Congress for special protection, such as wilderness areas or national historic or scenic trails. Such designations are not land use plan decisions and are not included in the Lower Sonoran-SDNM PRMP/FEIS. Administrative designations made by the BLM are also considered special designations and can be decided in a land use plan. These include designating ACECs or back country byways.

2.3.1.4 Land Use Allocations

Land use allocations are decisions that describe geographic areas for specific resources or uses, such as where grazing is authorized, specific areas to enhance wildlife habitat, target cultural management objectives, or where OHV areas are available. Allocations have geographic boundaries and are shown on maps provided in this document.

2.3.2 IMPLEMENTATION-LEVEL DECISIONS

Implementation-level decisions are management actions tied to a specific location and are used to implement planning-level decisions. Unlike planning-level decisions, implementation-level decisions are not subject to protest under the planning regulations. Implementation decisions are generally appealable to the Office of Hearings and Appeals under 43 CFR 4.410. These decisions constitute the BLM's final approval allowing on-the-ground actions to proceed. Most implementation-level decisions are developed following adoption of an RMP; however, a single land use planning/NEPA process may be used to make both planning-level and implementation-level decisions when doing so is timely and has undergone appropriate NEPA analysis. When implementation-level decisions are included in the environmental analysis for an RMP, further NEPA analysis is not required to begin implementation of these decisions.

Implementation-level decisions included in the PRMP/FEIS are for the SDNM Decision Area only and include:

(1) Route designation in the SDNM for approved motorized and/or non-motorized public use (see **Section 2.11.5**, Travel Management);

(2) Allotment-specific grazing management practices (e.g., allotment preferences and season of use) and livestock forage amounts in the SDNM that are based on the grazing compatibility analysis findings in **Appendix E**, Compatibility Analysis: Livestock Grazing on the Sonoran Desert National Monument, as well as constraints and needs related to other resources (see **Section 2.11.2**, Livestock Grazing); and

(3) Target shooting decisions based on findings from analysis within the SDNM in **Section 2.11.4**, Recreation Management; the analysis findings are in **Appendix G**, Sonoran Desert National Monument Recreational Target Shooting Analysis.

2.3.3 ADMINISTRATIVE ACTIONS

Administrative actions are day-to-day activities conducted by the BLM, which are often required by the FLPMA but may or may not require specific evaluation under NEPA and do not require a written decision by a responsible official to be accomplished. Examples of administrative actions include, but are not limited to, mapping, surveying, inventorying, monitoring, partnering, developing education materials, adjusting staffing, patrolling, and conducting scientific research and studies.

2.4 SUMMARY OF THE ALTERNATIVES

The range of management alternatives considered in this PRMP/FEIS is described in detail in under each resource or resource use section. The following section summarizes the general scope and key highlights of each alternative.

2.4.1 NO ACTION ALTERNATIVE SUMMARY

BLM lands within the Planning Area are currently managed under three separate resource management plans and several amendments. The decisions from these plans have been extracted and are listed by year of approval. Because none of these current land use plans encompass the entire Planning Area, very few of the current decisions are being carried forward as common to all alternatives and are restated as new action alternatives where applicable.

In addition, the interim management guidance required by proclamation for the SDNM are being considered current management actions, and those policy statements are included with the decisions. Alternative A, the No Action Alternative, consists of the current management actions for both Lower Sonoran and SDNM Decision Areas.

2.4.2 LOWER SONORAN DECISION AREA ALTERNATIVES SUMMARY

Land management must address resources that are unevenly distributed across a landscape. As described in **Section 1.2.2**, Decision Areas, the Lower Sonoran Decision Area public lands are divided into seven relatively large geographic regions, or blocks, dispersed over a large region (see **Map 1-2**, Common Geographical Reference Areas). Noteworthy as management factors, the wide distribution and geographic segregation represent a considerable variety of environments, land uses, public interests, and threats to natural and cultural resources.

Some management issues are best addressed through planning-level decisions applied to the entire Decision Area. Other management issues differ from place to place in character, value, and/or social or economic interest, and thus require more place-specific management techniques found in implementation-level decisions. The planning-level or implementation-level decisions must be sensitive to the geographically distinct characteristics of the Decision Area. As a result, the alternatives for the

Lower Sonoran Decision Area include planning-level decisions that would be applicable across the entire area.

2.4.2.1 Alternative A (No Action)

Selecting the No Action Alternative for the Lower Sonoran Decision Area would continue current management without change to land use, public use, or resource protection management, and would not address issues that were unforeseen or nonexistent when the existing management plans were prepared.

Under Alternative A:

- Wildlife waters would continue to be developed and maintained in the current manner.
- No specific special status species or cultural resource provisions or allocations would be followed; however, management actions would be consistent with the long-term protection of priority species and cultural resources as required by law and policy.
- No management actions would be specific to wildlife movement corridors.
- The Fred J. Weiler Green Belt Resource Conservation Area (RCA) would continue to be managed by the BLM, AGFD, and USFWS as specified in cooperative agreements.
- The Coffeepot ACEC would be maintained and would be the only ACEC designation.
- No areas would be managed to protect wilderness characteristics.
- No back country byways would be allocated.
- Four SRMA allocations would continue without management changes.
- The existing route system would be available for use. This alternative would include the least restrictions and also the least management of motorized use and access.
- Recreational use opportunities would be unchanged from current mix and distribution.
- Opportunities for developed and motorized, as well as primitive and non-motorized, recreation would continue.
- Ten one-mile-wide utility corridors would remain as currently designated.
- Grazing allotments would continue to be allocated as perennial, perennial-ephemeral, or ephemeral, as appropriate to allotment-specific characteristics.

2.4.2.2 Alternative B

The management decisions prescribed by Alternative B would identify the greatest extent of public land suitable for the widest potential array of uses and would emphasize opportunities for those uses. It

generally emphasizes motorized and developed recreation. Opportunities to visit remote settings and experience non-motorized, primitive recreation would be reduced from the current condition. As a result, this alternative would require the most intensive use management, as well as "hands-on" resource stabilization and restoration measures, as compared to the other alternatives, in order to ensure desired outcomes would be achieved.

Under Action Alternative B:

- Cultural and heritage tourism and interpretation would be promoted in appropriate locations.
- No special cultural resource management areas (SCRMA) would be allocated.
- The Fred J. Weiler Green Belt RCA allocation would continue to be managed by the BLM, AGFD, and USFWS as specified in cooperative agreements.
- Existing wildlife waters would be managed or redeveloped, and new ones would be built to sustain or enhance wildlife populations.
- No wildlife habitat areas (WHAs) would be allocated, and few special management actions would be applied for wildlife corridors.
- The Coffeepot-Batamote ACEC would be maintained as the only ACEC and expanded to include additional potential wildlife habitat.
- No areas would be managed to protect wilderness characteristics.
- Visual and scenic resources would be managed to facilitate various public uses, including mineral development.
- No back country byways would be allocated.
- The 40-acre parcel near the Ajo Block (Township 12 South, Range 6 West, Section 4) would be allocated as an open area.
- Routes would be designated as open year-round, open seasonally, or closed year-round to motorized vehicle use in all areas where route inventories have been completed. This alternative would include more restrictions to motorized use than Alternative A but would include the most-managed and best-maintained motorized network.
- Ten one-mile-wide multiuse utility corridors would be designated.
- The least amount of land use authorization (LUA) exclusion and avoidance areas for any alternative would be designated.
- Ephemeral grazing applications would continue to be considered, but perennial stocking rates would be reduced by approximately 40 percent.

2.4.2.3 Alternative C

This alternative represents an attempt to balance resource protection with human use and influence by providing opportunities for a variety of uses, while placing an emphasis on resource protection and conservation. It proposes a mix of natural processes and "hands-on" techniques for resource stabilization and restoration, thus reducing the need for intensive use management to avoid or mitigate any adverse effects.

Under Alternative C:

- Cultural and heritage tourism and interpretation would be promoted only when use is compatible with resource protection.
- Two SCRMAs would be allocated to provide protection and management of cultural resources.
- Existing wildlife waters would be managed or redeveloped, and new ones would be built to sustain or enhance wildlife populations.
- The Fred J. Weiler Green Belt RCA allocation would continue to be managed by the BLM, AGFD, and USFWS as specified in cooperative agreements.
- Four WHAs would be allocated to protect biological resources, and special management prescriptions would be applied to wildlife movement corridors.
- Two ACECs would be designated. The Coffeepot ACEC would be expanded to better align with the mountain range and would be renamed the Coffeepot-Batamote ACEC. The Cuerda de Lena ACEC south of Ajo would be designated for Sonoran pronghorn.
- Wilderness characteristics would be protected on approximately 128,100 acres.
- The scenic and visual resource in high-value areas would be protected, and any facilities developed in these areas would be built to be less noticeable, to the extent possible.
- Agua Caliente Road would be allocated as a back country byway to provide sightseeing and recreational opportunities.
- A modest reduction in motor vehicle access, compared to the current condition, would occur by limiting selected routes in the existing system to seasonal use, and closing other routes to reduce system redundancy or protect resources.
- Nine one-mile-wide multiuse utility corridors would be designated (a portion of the El Paso Natural Gas Corridor from Ajo to the Tohono O'odham Indian Reservation would be excluded).
- Grazing allotments designated as perennial-ephemeral would be reclassified as perennial only, with no supplemental ephemeral grazing applications considered. This alternative does

not apply to ephemeral-only allotments. Season-of-use adjustments on perennial allotments would be considered.

2.4.2.4 Alternative D

This alternative would place the greatest emphasis on resource protection/conservation, with opportunities to visit remote settings and experience non-motorized, primitive recreation. It focuses on natural processes and other unobtrusive methods for resource stabilization and restoration, so the need for both intensive use management and "hands-on" resource measures would be reduced by the greatest extent among all alternatives.

Under Alternative D:

- Cultural and heritage tourism and scientific research would only be allowed when use is compatible with resource protection.
- No SCRMAs would be allocated; they would be become ACECs.
- Existing wildlife waters would be managed or redeveloped, and new ones would be built to sustain or enhance wildlife populations.
- The Fred J. Weiler Green Belt RCA allocation would continue to be managed by the BLM, AGFD, and USFWS as specified in cooperative agreements.
- There would be one WHA and four ACEC designations, containing more acres than any other alternative.
- ACECs would be recommended for withdrawal from mineral entry, and opportunities for mineral development would be reduced.
- Agua Caliente Road would be allocated as a back country byway to provide sightseeing and recreational opportunities.
- The largest number of acres managed to protect wilderness characteristics, for a total of 250,000, would be proposed.
- The 40-acre parcel near the Ajo Block (Township 12 South, Range 6 West, Section 4) would be allocated as a Limited to Designated Routes Area.
- Scenic and visual resources across the area would be managed to maintain or improve scenic views.
- Recreational opportunities would focus on primitive and non-motorized recreation.
- Opportunities for developed and motorized vehicle uses would be reduced due to a smaller number of open vehicle routes.

- Seven one-mile-wide multiuse utility corridors would be designated (the fewest of all alternatives).
- All allotments currently open to grazing would become unavailable as permits expire.

2.4.2.5 Alternative E (Proposed RMP)

Alternative E is the BLM's PRMP for the Lower Sonoran Decision Area. It incorporates elements from each of the other alternatives, and offers a unique prescription for managing the Decision Area while, at the same time, providing long-term protection and resource conservation. Alternative E balances human use and influence with resource protection.

Under Alternative E (PRMP):

- Cultural and heritage tourism and scientific research would only be allowed when use is compatible with resource protection.
- No SCRMAs would be allocated; they would become ACECs.
- One Anza NHT Management Area would be allocated.
- Existing wildlife waters would be managed or reconstructed, and new ones would be built to sustain or enhance wildlife populations.
- The Fred J. Weiler Green Belt RCA would continue to be managed by the BLM, AGFD, and USFWS as specified in cooperative agreements.
- There would be one WHA, special management actions for protection of wildlife movement corridors would be applied, and three ACECs would be designated.
- Wilderness characteristics would be protected on approximately 91,200 acres.
- The 40-acre parcel near the Ajo Block (Township 12 South, Range 6 West, Section 4) would be allocated as a Limited to Designated Routes Area.
- Agua Caliente Road would be allocated as a back country byway to provide sightseeing and recreational opportunities.
- Scenic and visual resources would be managed to maintain visual values in some areas, while accommodating appropriate development in higher-use areas.
- A moderate reduction in motor vehicle access would occur as a result of route closures and seasonal limitations.
- Eight one-mile-wide multiuse utility corridors would be designated (a portion of the El Paso Natural Gas Corridor from Ajo to the Tohono O'odham Indian Reservation would be excluded).

- Grazing allotments would be allocated as perennial, perennial-ephemeral, or ephemeral, as appropriate to allotment-specific characteristics. Season-of-use adjustments on perennial allotments would be considered.

2.4.3 SONORAN DESERT NATIONAL MONUMENT ALTERNATIVES SUMMARY

2.4.3.1 Alternative A (No Action)

Selection of the No Action Alternative for the Monument would continue current management under the existing LUPs, except as changed by Presidential Proclamation 7397, which established the Monument and specified certain management provisions. This continues current public use and resource protection/conservation prescriptions without change. It neither sets desired outcomes for resource management or most uses, nor addresses new issues unforeseen or nonexistent when the current management plans were prepared.

Under Alternative A:

- Livestock grazing permits south of Interstate 8 (I–8) are terminated. Livestock grazing north of I–8 would continue if determined to be compatible with protecting Monument resources.
- Motorized or mechanical vehicle use off road would be prohibited, except for emergency or authorized purposes.
- The Monument is withdrawn from mineral material sales, new mining claims, mineral or geothermal leasing, or other forms of appropriation.
- The Vekol Valley Grasslands ACEC would be maintained, even though provisions of the Proclamation satisfy the ACEC's objectives.
- Three one-mile-wide utility corridors would be maintained.

2.4.3.2 Alternative B

The management decisions in Alternative B generally identify the areas of the Monument that would be most suitable for the widest potential uses, and emphasize opportunities for those uses. Alternative B sets desired outcomes and allocations for resources discussed in the proclamation, including natural, cultural, and visual, while providing appropriate human use/influence and an array of visitor experiences and opportunities. It focuses on "hands-on" techniques for ecosystem restoration, resource management, and scientific research, and likely requires more intensive use management to avoid or mitigate any adverse effects.

Under Alternative B:

- Existing wildlife waters would be managed or redeveloped, and new ones would be built to sustain or enhance wildlife populations.

- No WHAs would be allocated, but management prescriptions would be applied to protect Monument objects.
- Cultural and heritage tourism and interpretation would be promoted in appropriate locations, as long as resources and Monument objects are protected.
- No areas would be managed to protect wilderness characteristics.
- Grazing allotments north of I–8 would be allocated as perennial grazing with an approximate 40-percent reduction in AUMs. Applications for ephemeral grazing would be considered. Monument objects found to be incompatible with livestock grazing would be fenced off to prevent impacts from livestock grazing.
- The route system would be slightly reduced, but motorized opportunities would continue to be available; non-motorized recreation would also be provided.
- Three one-mile-wide multiuse utility corridors would be maintained.

2.4.3.3 Alternative C

The management decisions in this alternative generally represent an attempt to balance resource protection and human use and influence. As in Alternative B, it sets desired outcomes and allocations for the resources discussed in the Monument's proclamation, including natural, cultural, and visual. It proposes a moderate amount of open roads and trails and a mix of recreational opportunities. It proposes a mix of natural processes and "hands-on" techniques for ecosystem restoration, resource management, and scientific research, and would likely reduce the need for intensive use management to avoid or mitigate any adverse effects.

Under Alternative C:

- Existing wildlife waters would be managed or redeveloped, and new ones would be built to sustain or enhance wildlife populations.
- No WHAs would be allocated, but management prescriptions would be applied to protect Monument objects.
- Cultural and heritage tourism and interpretation would be allowed, when such use is compatible with resource protection and Monument objects. A priority would be placed on scientific research.
- The Lower Gila Historic Trail SCRMA would be allocated to protect a number of historic trails.
- Certain areas, primarily in the Sand Tank Mountains, would be managed to protect wilderness characteristics, for a total of 112,200 acres.

- Grazing allotments north of I-8 would be allocated as perennial grazing only, with no ephemeral grazing. Monument objects found to be incompatible with livestock grazing would be fenced off to prevent impacts from livestock grazing.

- A diversity of recreational opportunities would be provided, with increased non-motorized recreation. Certain uses, such as recreational target shooting and wood collecting for campfires, would be limited, compared to current conditions.

- A modest reduction in motor vehicle access, compared to current conditions, would occur by limiting selected routes in the existing system to seasonal use and closing other routes to reduce system redundancy or protect resources.

- Two half-mile-wide multiuse utility corridors where only underground utilities would be allowed would be allocated.

- Highway 238 would be allocated as a scenic byway.

2.4.3.4 Alternative D

Alternative D places the greatest emphasis on minimal human use/influence and maintenance of primitive landscapes. It focuses on natural processes and other unobtrusive methods for ecosystem restoration, resource management, and scientific research, while emphasizing resource protection/conservation. As in the other alternatives, it sets desired outcomes and allocations for Monument resources discussed in the proclamation, including natural, cultural, and visual, while allowing a lower level of human use. The need for both intensive use management and "hands-on" resource stabilization and restoration measures would be reduced by the greatest degree under Alternative D.

Under Alternative D:

- Existing wildlife waters would be managed or redeveloped, and new ones would be built to sustain or enhance wildlife populations.

- Passive restoration would be used, and management would be implemented through limiting human access and development.

- No WHAs would be allocated, but management prescriptions would be applied to protect Monument objects.

- Cultural and heritage tourism and scientific research would be allowed only when such use is compatible with resource protection.

- The largest number of acres (154,800) would be managed to protect wilderness characteristics.

- Allotments currently open to grazing would become unavailable as permits expire.

- Recreational opportunities would focus on primitive and non-motorized recreation. Certain uses, such as recreational shooting, paintball, and wood collection for campfires, would not be allowed.

- All-terrain vehicles, motorcycles, and vehicles weighing less than 1,800 pounds would be prohibited on the Monument. A smaller number of vehicle routes would remain open for public use.

- No multiuse utility corridors would be designated, and new LUAs would not be allowed.

- Highway 238 and I-8 would be allocated as scenic byways.

2.4.3.5 Alternative E (Proposed RMP)

Alternative E is BLM's PRMP for the SDNM Decision Area. This incorporates elements from each of the other alternatives, offering a unique prescription for managing public use of the Monument, while, at the same time, providing long-term protection and conservation of resources. It balances human use and influence with resource protection. The need for both intensive use management and "hands-on" resource stabilization and restoration measures would be reduced by an intermediate degree.

Under Alternative E (PRMP):

- New wildlife waters would be built, or redeveloped, when needed to maintain, or enhance wildlife resources.

- Active or passive restoration could be used when necessary to restore or enhance Monument resources, however, management would be implemented by limiting human access and development whenever possible.

- No WHAs would be allocated, but management prescriptions would be applied to protect Monument objects.

- Cultural and heritage tourism and interpretation, as well as scientific research, would be allowed when use is compatible with resource protection.

- The Lower Gila Historic Trail SCRMA would be allocated to protect a number of historic trails.

- One Anza NHT Management Area would be allocated.

- Certain areas in the Sand Tank Mountains area would be managed to protect wilderness characteristics, for a total of 107,800 acres.

- Grazing allotments north of I–8 would be allocated as perennial, perennial-ephemeral, or ephemeral, as appropriate to allotment-specific characteristics. Monument objects found to be incompatible with livestock grazing would be fenced off to prevent impacts from livestock grazing. Additionally, the portion of Conley Allotment within SDNM boundaries would become unavailable for livestock use. Grazing use across the Monument would be adjusted

as needed in accordance with grazing regulations and in response to the grazing determinations required by the proclamation.

- A diversity of recreational opportunities would be provided, with increased non-motorized recreation. Uses likely to cause resource damage such as recreational target shooting, paintball, and wood collecting for campfires would not be allowed.
- A modest reduction in motor vehicle access similar to Alternative C would occur by limiting selected routes in the existing system to seasonal use and closing other routes to reduce system redundancy or protect resources and Monument objects.
- No multiuse utility corridors would be designated, and new LUAs would not be allowed.
- Highway 238 and I–8 would be allocated as scenic byways.

2.5 ALTERNATIVES CONSIDERED BUT NOT FURTHER ANALYZED

This section briefly describes alternatives considered but not incorporated into an alternative for further analysis in this FEIS. The management actions considered were recommended by members of the public either during scoping or in the alternatives development workshops, or by resource specialists. The management actions are described below, along with the rational for excluding them from further consideration.

2.5.1 PUBLIC SAFETY

There was a recommendation to prohibit the carrying of weapons. By law, US citizens may carry weapons on or through public lands for a number of legitimate purposes including, but not necessarily limited to, hunting and self-protection. Alternatives for managing recreational target shooting activities are being considered in this PRMP for public safety and resource protection purposes, but a prohibition against the possession of firearms is not being pursued.

2.5.2 TRAVEL MANAGEMENT

2.5.2.1 Driving in Washes

A proposal was submitted that driving in washes be allowed in all washes large enough to accommodate a four-wheel-drive vehicle as a long-standing, traditional use. This alternative was not carried forward into an action alternative because allowing vehicular travel in washes not specifically designated as a BLM asset, such as a primitive road, would force drivers to determine whether or not the wash was open for travel. Such ambiguity could lead to situations of unlawful driving and resource damage. The travel route inventory conducted by the BLM since 2000 includes routes in washes.

In addition, authorizing unlimited driving in washes at the driver's discretion would essentially open hundreds of miles of wash system to all-terrain or four-wheel drive vehicles, as this action would include currently traveled washes as well as untraveled washes. This type of travel is inconsistent with Presidential Proclamation 7397, which expressly prohibits, with the exception of emergency or authorized administrative use, all motorized and mechanized vehicle use "off road" in the Monument.

Furthermore, washes throughout the Lower Sonoran Planning Area contribute substantially to sustaining healthy, diverse, and productive ecosystems and cultural landscapes. Due to potentially adverse resource impacts on wildlife habitat, soils, and vegetation, unlimited driving in washes is inconsistent with the resource protection and management goals established for both the Lower Sonoran and SDNM Decision Areas. Vehicle travel in certain washes would be considered during the route evaluation process for the Lower Sonoran Decision Area as part of the comprehensive travel management plans.

2.5.3 RECREATION

During public comment, an alternative was suggested to manage the Buckeye Hills West area as a Special Recreation Management Area with an emphasis on OHV recreation. The commenter suggested development of motorcycle trails, a motorcycle park, a youth size ATV and motorcycle area, and facilities to accommodate developed OHV use. The area in question includes land managed by BLM, Arizona Game and Fish Department, and Maricopa County Parks. The objectives for the Buckeye Hills West area are being developed in concert by all three agencies involved (**Appendix R**). Management as a motorcycle and ATV recreation area with a youth all-terrain vehicle and motorcycle park on this parcel would not be consistent with these objectives. Planning for specific recreation facilities to meet area objectives, including those to accommodate motorized forms of recreation, would be conducted as part of an implementation plan and is beyond the scope of this RMP. In addition, there currently is no legal public access to BLM managed lands within the Buckeye Hills West area. Without legal access, the suggested recreation management would not be implementable. For these reasons, BLM found this alternative impractical to analyze further.

2.5.4 LAND TENURE

2.5.4.1 Land Disposal

The recommendation was to identify for disposal the federal lands bordering the Gila River Indian Reservation in the Estrella Mountains. While there are lands that border the Reservation analyzed in detail for disposal among the alternatives, those lands situated in the Sierra Estrella Wilderness and within the Anza NHT boundaries cannot be disposed. They are Congressionally protected and designated under the Wilderness Act of 1964 and National Trails System Act of 1968.

2.5.5 LIVESTOCK GRAZING

For livestock grazing allotments within the Lower Sonoran Decision Area, an alternative was considered regarding the potential conversion of all, or some, perennial and perennial-ephemeral livestock grazing allotments to strictly ephemeral use only. This alternative was not evaluated further because these decisions would be determined on an individual allotment basis based on monitoring findings and through a land health evaluation (LHE) process, which was not conducted for this plan. During the LHE process, the BLM would determine if the allotments meet the criteria described in the Special Ephemeral Rule as described in **Table 2-27**, Management Actions and Allowable Uses for Grazing Administration, and could modify the designation based on their findings, and in coordination and cooperation with the permittee and the interested public, as required by NEPA.

For livestock grazing allotments within the SDNM Decision Area, the analysis was intended to satisfy the SDNM proclamation requirement to determine the extent of livestock grazing that would be compatible with protection of the Monument objects. During the LHE process (**Appendix F**, Arizona Land Health Evaluation for the Sonoran Desert National Monument) for the Compatibility Analysis (**Appendix E**, Compatibility Analysis: Livestock Grazing on the Sonoran Desert National Monument), the BLM did not determine if the allotments meet the criteria described in the Special Ephemeral Rule as described in **Table 2-27**, Management Actions and Allowable Uses for Grazing Administration. Therefore, an alternative to convert all allotments to ephemeral was not analyzed at this time. However, in the future, BLM could modify the designation based on their future findings, and in coordination and cooperation with the permittee and interested publics, as required by NEPA.

2.6 EXISTING MANAGEMENT DECISIONS

2.6.1 EXISTING PLANS AND ENVIRONMENTAL IMPACT STATEMENTS

Management actions and decisions that apply to all alternatives include those related to the Arizona Land Health Standards and actions and decisions from previous RMPs or amendments that are determined to be valid and are carried forward under the revised plan. However, the public lands within this Planning Area are currently managed under three separate RMPs and several amendments (refer to **Map 1-12** for the geographic areas that each of these plans encompass). Therefore, many of the existing decisions only cover portions of the Planning Area, not the entire Planning Area.

Existing management decisions come from the following RMPs or RMP amendments that overlay the Planning Area (in chronological order):

- Lower Gila North Management Framework Plan (MFP) (1983)
- Phoenix RMP (1989)
- Lower Gila South RMP (1988)
- Lower Gila South RMP (Goldwater Amendment) (1990)
- Arizona Standards for Rangeland Health and Guidelines for Grazing Administration (1997)
- Statewide Amendment for Fire, Fuels, and Air Quality (2003)
- Cameron Allotment Amendment (2004)
- Amendment to the Lower Gila North MFP and Lower Gila South RMP (2005)

In addition to the LUPs above, several programmatic environmental impact statements (EIS) are also adopted and incorporated into this plan where applicable. These are:

- Vegetation Treatments Using Herbicides on BLM Lands in 17 Western States Programmatic EIS (2007) and Vegetation Treatments on BLM Lands in 17 Western States Programmatic Environmental Report (2007)

- Geothermal Leasing in the Western United States (2008)
- Programmatic EIS, Designation of Energy Corridors on Federal Land in the 11 Western States (2009)

2.7 MANAGEMENT COMMON TO ALL ALTERNATIVES

2.7.1 WILDERNESS

The Planning Area includes six wilderness areas designated by the Arizona Desert Wilderness Act of 1990. These areas total 249,450 acres: 91,750 acres in the Lower Sonoran Decision Area and 157,700 acres in the SDNM Decision Area. They are identified in **Table 2-1**, Wilderness Areas of the Lower Sonoran and SDNM Decision Areas.

Table 2-1
Wilderness Areas of the Lower Sonoran and SDNM Decision Areas

Wilderness Area	Size (Acres)
Lower Sonoran	
Sierra Estrella	14,400
Signal Mountain	13,350
Woolsey Peak	64,000
Sonoran Desert National Monument	
North Maricopa Mountains	63,200
South Maricopa Mountains	60,100
Table Top	34,400
Total	*249,450*

BLM management policy (BLM Manual 8560) directs that each BLM wilderness area have a management plan. Management guidance is provided under the Maricopa Complex Wilderness Management Plan (BLM 2005c) (for the North Maricopa Mountains, Sierra Estrella, South Maricopa Mountains, and Table Top Wildernesses) and the Woolsey Peak Wilderness and Signal Mountain Wilderness Management Plan (BLM 2003j). There are no proposals in this RMP that would change any decisions contained in these management plans. The BLM's policy is to allow emergency and/or law enforcement access into wilderness areas under administrative access provisions. See either wilderness area plan noted above for full explanation of the management actions allowed within the wilderness areas.

As stated in **Chapter 1**, Purpose and Need for the Resource Management Plan, only Congress has the authority to designate wilderness and wilderness study areas; no new areas will be proposed in this plan. However, lands with wilderness characteristics can be managed by the BLM to protect those characteristics and are discussed throughout the chapters of this document.

2.7.2 ARIZONA LAND HEALTH STANDARDS

The Arizona Standards for Rangeland Health and Guidelines for Grazing Administration were developed, pursuant to 43 CFR 4180, through a collaborative process involving BLM staff and the Arizona BLM

Resource Advisory Council, and approved by the Secretary of the Interior in April 1997. The Standards and Guidelines have been developed to identify the characteristics of healthy ecosystems on public lands and the management actions that promote them.

When approved, the Standards and Guidelines became Arizona BLM policy, guiding the planning for and management of BLM public lands. Arizona Standards and Guidelines, therefore, have been incorporated into this PRMP/FEIS. The Standards for Rangeland Health describe the conditions necessary to encourage proper functioning of ecological processes, and are adopted as Land Health Standards. In managing and implementing all resource programs, the BLM must consider the Land Health Standards.

The Guidelines for Grazing Administration are a series of management practices used to ensure that grazing activities meet the Land Health Standards. These Guidelines are incorporated into the PRMP/FEIS in **Section 2.11.2**, Livestock Grazing, and are detailed in **Appendix B**, Applicable Laws, Regulations, and Policies, and **Appendix L**, Guidelines for Grazing Administration.

2.8 ALTERNATIVES

Detailed alternatives descriptions for the Lower Sonoran and SDNM Decision Areas are presented by program area and include:

- A brief introduction about the program area;
- Existing management decisions (Alternative A), split between five of the existing LUPs;
- Alternative allocation tables if the program area has any land use allocations; and
- Action alternative (Alternatives B, C, D, and E) management action tables.

Within the Action Alternative Management Action Tables, abbreviations are used to note which Decision Area and alternative applies to an individual action. Abbreviations are also used for the program areas themselves. Program area abbreviations appear before each decision number. The abbreviations used in this chapter are outlined in **Table 2-2**, Program Area Categories and Abbreviations.

Table 2-2
Program Area Categories and Abbreviations

Planning Decision Areas	
Lower Sonoran	LS
Sonoran Desert National Monument	SDNM
Resource Program Areas	
Air Quality	AQ
Cave Resources	CR
Cultural and Heritage Resources	CH
Paleontological Resources	PL
Soil Resources	SR
Vegetation	VG

Table 2-2
Program Area Categories and Abbreviations

Visual Resources	VR
Water Resources	WR
Wild Horse and Burro Management	HB
Wilderness Characteristics	WC
Wildland Fire Management	WF
Wildlife and Special Status Species	WL
Resource Use Program Areas	
Lands and Realty	LR
Livestock Grazing	GR
Minerals Management	MM
Recreation Management	RM
Travel Management	TM
Special Designations	
Special Designations	SD
Social and Economic Concerns	
Hazardous Materials and Public Safety	PS

2.9 STANDARD OPERATING PROCEDURES AND BEST MANAGEMENT PRACTICES

Review of the alternatives must always consider that, despite the goals, objectives, and management actions prescribed, the BLM functions using a set of standard operating procedures (SOPs) and best management practices (BMPs) that guide day-to-day operations and business practices. Every alternative should be reviewed within the context of the way the BLM conducts business. The SOPs and BMPs are the combined product of procedures developed to comply with laws, regulations, policies, and other guidance and are often institutionalized in manuals and handbooks. The SOPs and BMPs are described in detail (although not all inclusive) by program in **Appendix H**, Best Management Practices and Standard Operating Procedures.

2.10 RESOURCES

2.10.1 AIR QUALITY

The US Environmental Protection Agency (EPA) has delegated rulemaking pertaining to air quality and achieving attainment of air quality standards to states, which further delegate authority to counties through state implementation plans. Guidance for management of air resources is published in BLM Manual 7300. Activities on BLM lands contribute a small share of target pollutants in central Arizona. However, within air pollution nonattainment areas in the vicinity of Phoenix, rules made by Maricopa County apply to BLM lands. BLM activities that emit target pollutants in nonattainment areas need to be managed so that they do not contribute to standards violations. The primary target pollutant emitted by activities on BLM lands is particulate matter 10 microns in diameter or less (PM_{10}). The goals, objectives, and management actions below are intended to assure that activities on BLM land comply with the appropriate rules.

2.10.1.1 Existing Management Decisions, Alternative A (No Action) Air Quality

Lower Gila South Resource Management Plan – Goldwater Amendment (1990) [Applies to the three relinquished Sentinel Plain, Sand Tank Mountains, and Ajo Airport parcels]:

- Control excessive fugitive dust at BLM-permitted construction sites and recreation activity areas (WS-12).
- Monitor air quality trends (WS-13).

2.10.1.2 Action Alternatives for Air Quality

Program Goals

- Goal 1: Protect, maintain, and improve the quality of air resources associated with authorized uses and activities on public lands.

Management Actions and Allowable Uses

Table 2-3, Management Actions and Allowable Uses for Air Quality, describes management actions and allowable uses for air quality.

Table 2-3
Management Actions and Allowable Uses for Air Quality

Decision Area		Alternative				Management Actions and Allowable Uses
Goal 1: Protect, maintain, and improve the quality of air resources associated with authorized uses and activities on public lands.						
Objective 1.1: Maintain existing air quality and air quality-related values (e.g., visibility) by ensuring that authorized uses on public lands comply with and support federal, state, and local laws and regulations for protecting air quality.						
LS	SDNM	B	C	D	E	AQ-1.1.1: State and local agencies and adjacent land managers would be consulted to address emissions that affect public lands.
LS	SDNM	B	C	D	E	AQ-1.1.2: Appropriate management techniques and practices would be applied to all authorized surface-disturbing projects and activities as needed to ensure compliance with standards.
Objective 1.2: Apply mitigation measures for uses and activities within and near adjoining communities, wilderness areas, and large particulate-matter (PM_{10}) (i.e., dust) non-attainment and maintenance areas, especially as they pertain to unpaved roads that traverse public lands.						
LS	SDNM	B	C	D	E	AQ-1.2.1: Excessive fugitive-dust generation from unpaved roads, construction sites, recreation activity areas, and other areas would be managed to ensure emissions do not exceed air quality standards, particularly those more rigid requirements in non-attainment areas.
LS	SDNM	B	C	D	E	AQ-1.2.2: Fugitive-dust emissions from unpaved roads would be mitigated through appropriate control methods, including, but not limited to: • Lowering speed limits by creating obstacles such as speed bumps; • Using fugitive-dust control measures such as dust. suppressants, gravel, or pavement;

Table 2-3
Management Actions and Allowable Uses for Air Quality

Decision Area	Alternative	Management Actions and Allowable Uses
		• Installing cattle guards where unpaved roads meet paved roads; • Reducing vehicle-use intensity or duration, reducing route density, or re-routing travel routes to more stable soils; • Limiting the vehicle type on roads or in areas that are susceptible to excessive dust due to unstable soils; • Closing high-use areas during high-pollution days; • Closing areas that frequently exceed PM_{10} standards to non-compliant recreation and other projects until mitigation measures are implemented. • Implementing temporary, seasonal, or permanent route closures when other methods are unsuccessful at controlling fugitive dust that exceeds regulatory limits.

Administrative Actions for Both Decision Areas

- Participate in the Interagency Smoke Program and other programs related to air quality.
- Participate and comment on proposed projects identified as requiring Prevention of Significant Deterioration/New Source Review permits for their effects on air quality and affected resources within 100 kilometers of wilderness areas. Request that location-specific pre-application monitoring be conducted to support the permit review process when appropriate.
- Review projects requiring non-major permits within 10 kilometers of wilderness areas to determine their effects on air quality and affected resources, and provide comments to the appropriate regulatory agency.
- Participate in the public workshops and provide comments on the Maricopa County or other proposed air quality rule changes.
- Work with adjoining land managers and users to mitigate air quality effects on public lands.
- Coordinate with county or municipal authorities to encourage control of fugitive dust emissions from unpaved roads that affect attainment of air quality standards.
- Work with federal, state, and local agencies to monitor air quality on public lands, particularly in wilderness and other special areas. Air quality monitoring should include visibility, ozone, acid deposition or other relevant air quality indicators.
- Work with federal, state, and local agencies to gather meteorological data, including installing meteorological stations on the public lands, as needed and appropriate.
- Encourage research of air quality-related issues.

- Address air quality impacts when planning and executing prescribed burns to comply with federal and state air quality standards and adhere to Article 15 of the Arizona Administrative Code and State Implementation Plan provisions.

Administrative Actions Specific to the SDNM Decision Area

- Review projects requiring non-major permits within 10 kilometers of the SDNM to determine their effects on air quality and affected resources and provide comments to the appropriate regulatory agency.

- Work with adjoining land managers and users and county or municipal authorities to mitigate air quality effects on the SDNM. Make control of fugitive dust emissions from unpaved roads, construction sites, or other activity areas within 10 kilometers of SDNM a priority of this effort.

- Coordinate with county or municipal authorities to encourage control of fugitive dust emissions from unpaved roads that affect attainment of air quality standards in the SDNM.

- Increase public awareness and appreciation of air quality resources and visibility through interpretative displays as part of the public outreach program and visitor facilities planning for SDNM.

- Work with federal, state, and local agencies to monitor air quality in the SDNM. Air quality monitoring should include visibility, ozone, acid deposition, or other relevant air quality indicators.

- Promote the study of air quality conditions in the SDNM, including the effects of ozone, acid deposition and other related pollutants on plants and the supporting ecosystems. Cooperate and promote such activity with academic institutions and other interested parties.

2.10.2 CAVE RESOURCES

Although no caves have been identified in the Decision Areas, there may be undocumented caves located in geologically suitable rock units. Any newly discovered caves would be evaluated for scientific, educational, biological, and recreational value.

The Planning Area contains Paleozoic sedimentary deposits and Tertiary volcanic rocks that are known to contain caves elsewhere in Arizona. While Paleozoic limestone occurs in the Sand Tank Mountains, no caves or karst resources are known. The Sentinel Plain area contains two lava tubes. Small rock overhangs and shallow openings are present in some rock units of the lava tubes; however, by definition these do not qualify as caves. The definition of a cave requires that its depth exceed its width.

BLM Manual 8380, Cave and Karst Resources Management, provides guidance and direction for the management of cave and karst resources on BLM-administered lands, including aquifers and their surface water and groundwater-drainage areas.

2.10.2.1 Existing Management Decisions, Alternative A (No Action) for Cave Resources

No existing management decisions exist for caves and cave resources.

2.10.2.2 Action Alternatives for Cave Resources Management

Program Goals

- Goal 1: Protect and conserve caves and karst resources as they are discovered on the public lands.

Management Actions and Allowable Uses

Table 2-4, Management Actions and Allowable Uses for Cave Resources, describes management actions and allowable uses for cave resources.

Table 2-4
Management Actions and Allowable Uses for Cave Resources

Decision Area		Alternative				Management Actions and Allowable Uses
Goal 1: Protect and conserve caves and karst resources as they are discovered on the public lands.						
Objective 1.1: Manage caves and karst resources to maintain or enhance their physical integrity and scientific interest.						
LS	SDNM	B	C	D	E	CR-1.1.1: Evaluate and inventory caves and karst resources, as they are discovered, to determine if the cave contains significant cultural, scientific, biological, geological, hydrological, educational, or recreational values.
LS	SDNM	B	C	D	E	CR-1.1.2: Protect and manage significant caves and karst resources for cultural, scientific, biological, geological, hydrological, educational, and recreational values.
LS	SDNM	B	C	D	E	CR-1.1.3: Public access to all caves within this Decision Area would be by permit only unless public entry is signed as open. Federal, state and local government employees operating within the scope of their authorizations would be exempt from permit issuance.

2.10.3 CULTURAL AND HERITAGE RESOURCES

Cultural and heritage resources are the physical and traditional remnants of thousands of years of human occupation and use of the land and its resources. Cultural resource sites date to both prehistoric and historic time periods up to the mid-twentieth century. Cultural resources also include places of traditional importance to Native Americans. The BLM strives to protect the informational, heritage, and interpretive values of archaeological and heritage sites.

Cultural and heritage sites are recognized as fragile and irreplaceable resources with potential public and scientific uses. Allocation to one of five use categories is prescribed in BLM Manual 8100:

- Scientific use,
- Conservation for future use,
- Traditional use,
- Public use, or
- Experimental use.

See **Appendix B**, Applicable Laws, Regulations, and Policies, for more information on site allocations.

Management of sites on a regional or landscape level can be achieved by allocating an area as a SCRMA. This is an area containing cultural resources (archaeological sites, historic sites, or places of traditional cultural importance) that are particularly important for public use, scientific use, traditional use, or other uses as defined in BLM Manual 8110.4. Management prescriptions for these areas should reflect and support the primary values for which the areas are allocated. For example, management prescriptions for a SCRMA allocated primarily for public use should focus on developing and interpreting sites for public visitation, including heritage tourism. Management prescriptions for a special area allocated primarily for scientific use should focus on protecting sites for study, supporting field schools, and other research efforts. Management prescriptions for a special area allocated primarily for traditional use should seek to accommodate the traditional cultural practices of Indian tribes or other cultural groups that ascribe religious or other heritage values to the area.

Management prescriptions for a special area allocated primarily to protect scarce sites of singular importance that should not be subjected to invasive studies or other uses that would threaten their present condition should focus on conserving sites for the future. Management prescriptions for a single SCRMA can focus on more than one type of use, just as a single cultural property can be allocated to more than one of the use categories described in Manual 8110.4. For example, a special area might contain a set of cultural properties that, linked together and interpreted as a group, would make a good auto tour route for heritage tourism. At the same time, the area might contain several cultural properties of unusual historic importance that should be segregated from land or resource uses that might impair their present condition or setting. While both kinds of properties should receive management emphasis, they can be included within a single land use allocation with management prescriptions tailored to support public visitation of the sites along the auto tour route, and protection for the sites that warrant segregation.

The primary purpose of this land use allocation is to differentiate some portions of a Planning Area from others in terms of cultural resource values. The allocation can denote priority for the expenditure of time and funds or the need for special protection to achieve management objectives. However, highlighting a geographic area for its special cultural resource values does not diminish the importance of cultural resources in other areas. Cultural resources on lands not included within special areas still need to be managed for the values they contain and opportunities they afford.

The regulatory framework under which cultural and heritage resources are managed include a list of laws, regulations, and Executive Orders. The most important laws are the National Historic Preservation Act (NHPA); Archaeological Resources Protection Act; National Trails System Act;

American Indian Religious Freedom Act; Antiquities Act of 1906; Native American Graves Protection and Repatriation Act of 1990; NEPA; FLPMA; Historic Sites Act of 1935; Reservoir Salvage Act of 1960, as amended by the Archaeological and Historic Preservation Act of 1974; and the Archaeological and Historic Preservation Act.

2.10.3.1 Sonoran Desert National Monument

The purpose of the SDNM designation according to Presidential Proclamation 7397 is to protect the objects of the Monument. Some cultural and historic objects were listed individually, and some were inferred. The objects include the natural historic landscape settings of a 23-mile corridor segment of the Juan Bautista de Anza National Historic Trail (Anza NHT) corridor, and the Butterfield Overland Stage Route and Mormon Battalion Trail located within the same 23-mile corridor. The other named objects include rock art, lithic quarries, historic and prehistoric structures, prehistoric routes, objects of historic or scientific interest, significant archaeological and historic sites, large prehistoric villages, permanent habitation sites, protohistoric villages, Vekol Wash, and other prehistoric travel and trade corridors.

The cultural and heritage resources located on the Monument are a far more diverse collection than this list of object names. Less than three percent of the Monument has been inventoried. As the inventory grows, a greater understanding of these resources and their relationship with each other would be discovered and documented. Protection of these resources as Monument objects would ensure their survival into the future.

2.10.3.2 Existing Management Decisions, Alternative A (No Action) for Cultural and Heritage Resources

The following decisions are extracted from the existing land use plans and amendments and are listed in chronological order. The decisions are also displayed in **Map 2-1a**, Alternative A Cultural Resource Allocations. Because none of these current land use plans encompass the entire Planning Area, very few of these decisions are being carried forward as common to all alternatives and are restated as new action alternatives where applicable.

Lower Gila North Management Framework Plan (1983)

- Allocate cultural resources identified through inventory for scientific uses (CL-01 and CL-02).
- Reduce or eliminate indirect impacts of land uses on cultural resources as identified through study plots (CL-03).
- Conserve a representative sample of site types in the Planning Area for future use (CL-04).
- Provide immediate and long-term in-place preservation and protection of selected cultural resources that are threatened or deteriorating (CL-05).
- Resources that are threatened or deteriorating (CL-05).

Lower Gila South Resource Management Plan (Goldwater Amendment – 1990)
(Applicable to the three relinquished BGR parcels)

- Provide special protection for significant cultural sites that are being impacted or threatened by the public. For sites being impacted or threatened by the military, a different process would be followed. The BLM would be available to the military at all times as a consultant (CL-3).

- Minimize impacts on cultural resources by avoiding cultural property locations whenever feasible and using previously disturbed areas as the preferred locations for ground-disturbing activities when practical (CL-4).

Arizona Standards for Rangeland Health and Guidelines for Grazing Administration (1997)

- Guideline 3-7: Management practices to achieve desired plant communities would consider protection and conservation of known cultural resources, including historical sites, and prehistoric sites, and plants of significance to Native American peoples (CL-9).

2.10.3.3 Action Alternatives for Cultural and Heritage Resources

Program Goals

- Goal 1: Identify, preserve, and protect important cultural resources and Monument objects. Ensure they are available for appropriate uses by present and future generations.

- Goal 2: Reduce threats, reduce or prevent damage, and resolve potential conflicts from naturally occurring or unauthorized human-caused damage or deteriorations.

- Goal 3: Manage assemblages of sites within the Decision Areas as cultural landscapes.

Allocation Summaries

Table 2-5, Proposed Site Use Allocation by Alternative, provides data for site use allocations by Alternative.

Table 2-5
Proposed Site Use Allocation by Alternative

Cultural and Heritage Site Uses	Alternative (BLM acres)				
	A	B	C	D	E
Lower Sonoran					
Painted Rock Petroglyph Site – Public and Scientific Use	0	200	200	200	200
Butterfield West – Public and Scientific Use	0	10	10	0	10
Sundad – Public and Scientific Use	0	73	73	0	73
Butterfield West – Public and Scientific Use	0	0	0	10	0
Sundad – Public and Scientific Use	0	0	0	73	0
Saddle Mountain SCRMA	0	0	48,500	ACEC	ACEC
Lower Gila Terraces and Historic Trails SCRMA	0	0	82,500	ACEC	ACEC

Table 2-5
Proposed Site Use Allocation by Alternative

Cultural and Heritage Site Uses	Alternative (BLM acres)				
	A	B	C	D	E
SDNM					
Bighorn Station – Public and Scientific Use	0	<5	<5	0	<5
Christmas Camp – Public and Scientific Use	0	<5	<5	0	<5
Happy Camp (Desert Station) – Public and Scientific Use	0	<5	<5	0	<5
Selected segments of Butterfield Overland Stage Route (Butterfield Pass) – Public and Scientific Use	0	3,600	3,600	0	3,600
Bighorn Station – Public and Scientific Use	0	0	0	<5	0
Segments of Butterfield Overland Stage Route – Public and Scientific Use	0	0	0	3,600	0
Christmas Camp – Public and Scientific Use	0	0	0	<5	0
Happy Camp (Desert Station) – Public and Scientific Use	0	0	0	<5	0
Lower Gila Terraces and Historic Trails SCRMA	0	0	16,200	0	16,200

Management Actions and Allowable Uses

Table 2-6, Management Actions and Allowable Uses for Cultural Resources, describes management actions and allowable uses for cultural resources.

Table 2-6
Management Actions and Allowable Uses for Cultural Resources

Decision Area		Alternative				Management Actions and Allowable Uses
Goal 1: Identify, preserve, and protect important cultural resources and Monument objects. Ensure they are available for appropriate uses by present and future generations.						
Objective 1.1: Allocate 90 percent of known and evaluated cultural resource sites to one of five use categories: (1) scientific use, (2) conservation for future use, (3) traditional use, (4) public use or (5) experimental use, or classify as "discharged from management," within one year of recording (use categories and criteria to determine categories are described in **Appendix B**, Applicable Laws, Regulations, and Policies).						
Site Use Allocations						
LS		B	C	D	E	CH-1.1.1: Painted Rock Petroglyph Site would remain a public or scientific use site for heritage tourism and interpretation purposes. The site would continue to be managed for interpretation and education uses according to the existing project and business plans (**Maps 2-1b, c, d,** and **e**.)
LS		B	C	D	E	CH-1.1.2: Retain public lands and acquire available state and private lands and/or easements to assure long-term use, protection, and access to important cultural sites and Monument objects that occupy a particular and definitive role in the cultural landscape or are of particular importance to local Native American tribes. Emphasize lands located within allocated use site categories and SCRMAs.

Table 2-6
Management Actions and Allowable Uses for Cultural Resources

Decision Area		Alternative				Management Actions and Allowable Uses
LS		B	C	D	E	CH-1.1.3: All known cultural sites allocated to a use category as identified in **Appendix B** would be closed to locatable mineral exploration and development, and mineral material disposals (saleables). Public lands would be recommended for withdrawal.
LS		B	C	D	E	CH-1.1.4: Public use sites would remain open to all leasable minerals, but any lease or energy LUA would contain a no surface occupancy stipulation. The typical Public Use Site in the Planning Area would be less than 5 acres.
LS		B	C	D	E	CH-1.1.5: Public use sites would be exclusion areas for utility scale energy development and multiuse corridor LUAs. They would be avoidance areas for minor linear and nonlinear LUAs and mitigated to be consistent with management objectives. The typical Public Use Site in the Planning Area would be less than 5 acres.
LS	SDNM	B	C		E	CH-1.1.6: Sundad, Butterfield West (selected segment of the Butterfield Overland Stage Route west of the Painted Rock Site), Anza-Butterfield Interpretive Trail (a high potential use segment of the Juan Bautista de Anza NHT and Butterfield Overland Stage Route within the SDNM), Happy Camp, Christmas Camp and Bighorn Station would be allocated as public or scientific use sites. Management prescriptions for public use sites would follow those set forth in the applicable special designation sections of the RMP when more restrictive. Inventory, recordation, documentation, and preparation of all sites for increased public visitation must be accomplished prior to implementing interpretive developments. Sundad would only be allocated if critical safety issues are addressed. Big Horn Station would only be allocated if stabilization measures are taken, critical safety issues are addressed and legal access is obtained. (**Maps 2-1b, c,** and **e**.)
LS	SDNM			D		CH-1.1.7: Sundad, Butterfield, Anza-Butterfield Interpretive, Happy Camp, Christmas Camp and Bighorn Station sites would be allocated as scientific use sites only. Sites would not be used for tourism or interpretive development (**Map 2-1d**). Management prescriptions for these areas would follow those set forth in the applicable special designation sections of the RMP where more restrictive.
	SDNM			D		CH-1.1.8: The Anza-Butterfield Interpretive Trail high potential use segment would be limited to non-motorized uses.
	SDNM	B	C		E	CH-1.1.9: Camping within 100 feet of centerline along the Anza-Butterfield Interpretive Trail high potential use segment would be limited to designated campsites as determined in activity level planning.
	SDNM			D		CH-1.1.10: No camping (motorized or non-motorized) would be allowed along the Anza-Butterfield Interpretive Trail high potential use segment.

Table 2-6
Management Actions and Allowable Uses for Cultural Resources

Decision Area		Alternative				Management Actions and Allowable Uses
Objective 1.2: Encourage appropriate scientific use of cultural resources.						
LS	SDNM	B	C		E	CH-1.2.1: Provide opportunities for scientific research and inventory at selected sites, including excavation by qualified researchers.
LS	SDNM			D		CH-1.2.2: Opportunities would be provided for scientific research and inventory at selected sites by qualified researchers if designed to have a minor or negligible impact to cultural resources.
Objective 1.3: Allocate cultural and historical features as SCRMAs to protect the features and visual settings and to enhance visitor experience.						
Common To All SCRMAs						
LS	SDNM		C			CH-1.3.1: Selected public lands within Saddle Mountain would be allocated as the Saddle Mountain SCRMA (approximately 48,500 acres), and the Gila River Terraces (bluffs with cultural features along the Gila River) and the Lower Gila Historic Trails Corridor would be allocated as the Lower Gila Terraces and Historic Trails SCRMA (approximately 82,500 in the Lower Sonoran Decision Area and 16,200 acres in the SDNM). (See **Map 2-1c**.)
LS	SDNM		C			CH-1.3.2: Motorized vehicle routes would be closed, limited, or mitigated as needed to protect the cultural resources during the route designation process or when conflicts with cultural resources are identified.
LS	SDNM		C			CH-1.3.3: Heritage tourism would be allowed only if compatible with protection strategies.
LS	SDNM		C			CH-1.3.4: Inventory and evaluations on cultural resources in SCRMAs would be increased and emphasized.
LS	SDNM		C			CH-1.3.5: Sites allocated to Public Use may be developed for interpretation and environmental education.
LS			C			CH-1.3.6: The Saddle Mountain and portions of the Lower Gila Terraces and Historic Trails SCRMA located outside the SDNM would be open to locatable minerals but closed to mineral material disposals (saleables).
LS			C			CH-1.3.7: All LUAs would be avoided, mitigated, and otherwise managed, within the Saddle Mountain and portions of the Lower Gila Terraces and Historic Trails SCRMA located outside the SDNM to be consistent with management objectives.
The Lower Gila Terraces and Historic Trails SCRMA						
LS			C			CH-1.3.8: Portions of the Lower Gila Terraces and Historic Trails SCRMA located outside the SDNM would remain open to all leasable minerals, but any mineral lease would contain a no surface occupancy stipulation.
LS			C			CH-1.3.9: Treatments of invasive species would be allowed within the SCRMAs if they can be designed to have a minor or negligible impact to cultural resources.
LS			C			CH-1.3.10: Vegetation would be rehabilitated and restored in priority areas consistent with cultural landscape, viewshed, and cultural resource integrity.

Table 2-6
Management Actions and Allowable Uses for Cultural Resources

Decision Area		Alternative				Management Actions and Allowable Uses
Goal 2: Reduce threats, reduce or prevent damage, and resolve potential conflicts from naturally occurring or unauthorized human-caused damage or deterioration.						
Objective 2.1: Impacts by erosion, natural processes, or those due to vandalism visitation, vehicle traffic, or other unauthorized human activity would be reduced.						
LS	SDNM	B	C	D	E	CH-2.1.1: Potential conflicts from other resource uses would be minimized, reduced, or unauthorized by complying with Section 106 of the NHPA, and using mitigation or avoidance strategies as prescribed by law, regulation, or the BLM 8100 Manual.
LS	SDNM	B	C	D	E	CH-2.1.2: Sites suffering damage or deterioration resulting from natural or human causes would be restored or stabilized.
LS	SDNM	B	C	D	E	CH-2.1.3: Sites and Monument objects would be protected from degradation due to erosion and other natural processes by using a wide variety of techniques and tools, such as wash bank stabilization, rip rap, and vegetation restoration.
LS	SDNM	B	C	D	E	CH-2.1.4: Sites and Monument objects damaged by vandalism, excessive visitation, vehicle traffic, or other causes would be restored by using signing, fencing, gating, trail re-routing, or other measures.
LS	SDNM	B	C	D	E	CH-2.1.5: Special recreation permit (SRP) holders would be required to provide archaeological site etiquette and resource conservation information to all participants, employees, and volunteers associated with permitted activities.
LS	SDNM	B	C	D	E	CH-2.1.6: The number of visitors at cultural or historic sites would be limited to 25 people at the site at any one time to emphasize resource protection. Some sites may require further limitations to protect the resource. Casual use or group limits for SRPs may be higher on a case-by-case basis if determined to be acceptable in site specific evaluations and the activity/action can be designed to have a minor or negligible impact to cultural resources.
Goal 3: Manage assemblages of sites within the Decision Areas as cultural landscapes.						
Objective 3.1: Distinct cultural landscapes would be described and mapped as defined by human use of the environment to protect the physical integrity, enhance visitor experience, and maintain or enhance visual settings. Cultural landscapes are a new and holistic land use concept that attempts to understand human interaction with each other and their environment through time on a landscape scale.						
LS	SDNM	B	C	D	E	CH-3.1.1: The age, function, and interrelationship of sites attributed to historic indigenous populations in different environmental settings would be identified when possible.
LS	SDNM	B	C	D	E	CH-3.1.2: Cumulative impacts to the cultural landscape, as well as impacts to individual sites, would be analyzed as part of the project assessment when projects are proposed.

2.10.3.4 Administrative Actions

State Historic Preservation Office/NHPA

- Continue to regularly communicate with the State Historic Preservation Office (SHPO) to share information and obtain technical advice on issues relating to compliance with Sections 106 and 110 of the NHPA, in accordance with the Arizona State Protocol.

- Focus proactive (Section 110) inventories on areas defined as Special Cultural Resource Management Areas, ACECs, and areas along historic trail routes.

Tribal Consultation and Concerns

- Continue to consult with the Gila River Indian Community, the Ak-Chin Indian Community, the Salt River Pima-Maricopa Indian Community, the Tohono O'odham Nation, the Hopi Tribe, the Yavapai Prescott Indian Tribe, Fort Yuma-Quechan Tribe, and other interested Indian tribes to identify places of traditional importance and associated access needs. Develop measures for management and protection of such places that may be identified by tribes during the life of the approved RMP.

- Identify sacred areas in consultation with Indian tribes and, where practicable, limit land uses to those that do not conflict with ascribed values.

- Honor tribal requests to protect the confidentiality of sensitive information to the extent permitted by law.

- Provide opportunities for participation by Indian tribes in research and interpretation.

- Specific management prescriptions for sites allocated to the Traditional Use category would be developed in consultation with the Indian tribes to which they are culturally important.

- Restrict public information about the locations of sites that are not allocated to public use as allowed by law and regulation.

Research Opportunities

- Complete documentary research and oral histories to gain a better understanding of cultural resources from homesteading, mining, ranching, and other historical period activities.

- Establish collaborative research partnerships with academic institutions, tribes, professional and nonprofit organizations, vocational organizations, and other entities for an orderly process of cultural research, recordation, and education.

- Work with researchers, tribes, interested members of the public, contractors, local communities, and published materials to define specific cultural landscapes. Work with tribal groups and individuals to define temporal, functional, and inter-relationships of sites within certain landscape settings.

- Provide opportunities for training and participation in site documentation, research, protection, and education projects by tribal members, students, and volunteers. Ensure adequate professional oversight of work conducted by tribal members, students, and volunteers.

Interpretation and Education

- Map and document sites before interpretive development for public use, as needed, to preserve archeological data, plan for interpretive data, and provide a baseline condition assessment for monitoring changes resulting from visitor use.
- Complete interpretive plans for public use sites selected for interpretive development.
- Develop interpretive materials and facilities for selected sites. Provide educational opportunities to the public, including resource protection and appreciation, education, and stewardship.
- Continue to participate in Arizona Archaeology Awareness Month events and other educational outreach programs to highlight the values of cultural heritage resources and the need to protect these resources.
- Provide opportunities for tribal and interested public participation in interpretation.

Monitoring

- Continue to work with and support the Arizona Site Steward Program.
- Develop a monitoring scheme to evaluate the condition of cultural resources.
- Implement procedures for systematic monitoring of all sites developed or authorized for public visitation.

Planning

- The BLM would develop Cultural Resource Project Plans for protection or interpretation projects that require precise descriptions of implementation procedures, workforce, scheduling, equipment, and supplies. Project planning would be implemented following guidance in BLM's Manual 8130, Planning for Uses of Cultural Resources.

Special Programs/Cultural Landscapes

- Work with researchers, tribes, concerned members of the public, contractors, local communities, and other stakeholders to make use of previously published materials to define certain cultural landscapes.
- Develop a strategy to identify, assess, and monitor the viewsheds along the historic trail corridor and other important cultural landscapes on the SDNM and within ACECs. Use

Geographical Information System (GIS) technology to create viewshed studies and collect information for the monitoring program.

2.10.4 PALEONTOLOGICAL RESOURCES

Paleontological resources constitute a fragile and nonrenewable scientific record of the history of life on Earth. Once damaged, destroyed, or improperly collected, their scientific and educational value may be lost forever. In addition to their scientific, educational, and recreational values, paleontological resources can be used to understand the relationships between the biological and geological components of ecosystems over long periods of time. The BLM strives to manage paleontological resources for their scientific, educational, and recreational values, and to mitigate adverse impacts on them. On the SDNM, paleontological resources are considered objects of the Monument, implied by the statement "other objects of historic or scientific interest that are situated upon the … National Monuments" (Proclamation 7397).

Historic trends have shown that very few geologic units in the Planning Area contain paleontological material. This is due primarily to the lack of sedimentary formations in this part of Arizona. It should be noted, however, that very little of the Planning Area was inventoried for paleontological remains or the geologic units that tend to carry them.

The Paleontology Program Manual and Handbook, BLM Manual 8270 and H-8270-1, provide guidelines for implementing the Paleontological Resource Management Program.

2.10.4.1 Existing Management Decisions, Alternative A (No Action) for Paleontological Resources

SDNM Current Management Guidance (2002)

The collection of any objects, including vegetation, paleontological resources, or rock specimens, should not be permitted, except where intended for legitimate scientific uses for which documentation is provided to the satisfaction of the responsible management official. Scientific, archaeological, and historical investigations that increase our understanding of the Monument's resources are important, but surface disturbance should be avoided.

2.10.4.2 Action Alternatives for Paleontological Resources

Program Goals

- Goal 1: Protect and manage any paleontological resources, including all vertebrate fossils, traces, and invertebrate or plant fossils of paleontological interest, found on public lands for scientific, educational, or recreational values.

Management Actions and Allowable Uses

Table 2-7, Management Actions and Allowable Uses for Paleontological Resources, describes management actions and allowable uses for paleontological resources.

Table 2-7
Management Actions and Allowable Uses for Paleontological Resources

Decision Area		Alternative				Management Actions and Allowable Uses
Goal 1: Protect and manage any paleontological resources, including all vertebrate fossils, traces, and invertebrate or plant fossils of paleontological interest, found on public lands for scientific, educational, or recreational values.						
Objective 1.1: Manage paleontological resources to maintain or enhance their physical integrity, educational values, and scientific interest while avoiding all surface-disturbing activities to the extent possible that would damage paleontological resources.						
LS		B	C	D	E	PL-1.1.1: Collection of all vertebrate fossils and invertebrate and plant fossils of paleontological interest would be prohibited without a permit from the BLM authorized officer in accordance with 16 USC 470aaa et seq. Casual collecting of common invertebrate and plant paleontological resources is prohibited unless it is determined by the authorized officer that the resources cannot be protected on site.
	SDNM	B	C	D	E	PL-1.1.2: Collection of paleontological resources for personal use would be prohibited except where intended for legitimate scientific uses and for which written authorization is obtained from the BLM authorized officer.
LS	SDNM	B	C	D	E	PL-1.1.3: Standard discovery stipulations would be included in any permit approval that is likely to affect significant paleontological resources. Stipulations would require the user or operator to: • Suspend operations immediately upon discovery of paleontological resources that would disturb them, • Contact the authorized officer as soon as reasonably possible, • Bear the cost of required mitigation.
LS	SDNM	B	C	D	E	PL-1.1.4: Upon notification of discovery by a permit user or operator, the BLM would: • Evaluate the discovery and inform the user/operator within 5 days, • Allow resumption of use/operations only after completion of mitigation.

Administrative Actions

- Geologic units would be assigned and entered into the Potential Fossil Yield Classification System (per Instruction Memorandum No. 2008-009) using geological maps and professional consideration. A separate class ranking would be assigned to each recognized geologic formation or member present at the surface in accordance with the guidelines provided in the IM.

- All assigned units entered into the Potential Fossil Yield Classification System would be integrated onto a GIS-based geologic map.

2.10.5 SOIL RESOURCES

Soil resources are fundamental to all other resources and resource uses. Guidance for management of soil resources is published in BLM Manual 7100. Primary authority for management includes the Taylor Grazing Act, the Public Rangelands Improvement Act, and FLPMA, which address use of federal rangelands, including assessment, conservation, and improvement of soil resources. The Clean Water Act indirectly affects soil management by controlling the release of nonpoint-source pollution such as sedimentation caused by erosion. The BLM's Phoenix District Office uses surveys developed by the US Department of Agriculture's Natural Resources Conservation Service (NRCS), as well as on-site assessments, when possible, to determine soil types and characteristics when assessing management actions.

Soil conditions are monitored and assessed through land health assessments. Impacts on soils are analyzed during the development of EISs or EAs for projects and use authorizations. The soil program works to reduce impacts on soil and associated vegetation resources through allocation of uses such as transportation and grazing, and through mitigation of project impacts. The soil program also works with other programs to implement restoration projects.

2.10.5.1 Existing Management Decisions (Alternative A - No Action) Soil Resources

The following decisions are extracted from the existing land use plans and amendments and are listed in chronological order. Because none of these current land use plans encompass the entire Planning Area, very few of these decisions are being carried forward as common to all alternatives and are restated as new action alternatives where applicable.

Lower Gila South Resource Management Plan (1989)

- Install gully plugs, waterbars, and other erosion structures to prevent excessive erosion on existing roads in Vekol Valley ACEC (WS-18).
- During construction of all rangeland developments, surface disturbance would be minimized. After construction, disturbed surfaces would be restored to a natural condition to the extent practicable (WS-19).
- Repair and maintain the existing watershed dike system and associated watershed fence (WS-21).

Phoenix Resource Management Plan (1989)

- Maintain and improve soil cover and productivity through erosion-prevention measures and land treatments (WS-03).
- Salinity control measures would be incorporated into erosion-prevention strategies and rehabilitation treatments (WS-04).

Lower Gila South Resource Management Plan - Goldwater Amendment (1990)
(Applies to the three relinquished BGR parcels)

- Restrict the operation of motorized vehicles and heavy equipment to established roadways and previously impacted areas except when the use relates to a specific permitted project (WS-8).

- Assess, as part of site appraisals for NEPA, the vulnerability of soils to disruption and subsequent wind and water erosion (WS-9).

- Use the following techniques to minimize soil disturbance and conserve soil resources on previously unimpacted sites:

    - Gain access to the site, where possible, by using existing roads and trails.

    - Use equipment, where possible, that creates the least amount of soil disturbance.

    - Return disturbed areas to as close to pre-disturbed conditions as possible.

    - Minimize activities where it is known that soils are unstable and subject to wind erosion.

Arizona Standards for Rangeland Health and Guidelines for Grazing Administration (1997)

- Guideline 1-1: Management activities would maintain or promote ground cover that provides for infiltration, permeability, soil moisture storage, and soil stability appropriate for the ecological sites within management units. The ground cover should maintain soil organisms, plants, and animals to support the hydrologic and nutrient cycles and energy flow. Ground cover and signs of erosion are surrogate measures for hydrologic and nutrient cycles and energy flow.

- Guideline 1-2: When grazing practices alone are not likely to restore areas of low infiltration or permeability, land management treatments may be designed and implemented to attain improvement.

2.10.5.2 Action Alternatives for Soil Resources

Program Goals

- Goal 1: Ensure watersheds are functioning appropriately and are consistent with Land Health Standards. Characteristics of a properly functioning watershed include channels that are stable and in balance with the landscape; erosion and sediment deposition appropriate for the ecological site; infiltration of surface water in soils sufficient to support desired future conditions (DFCs) and minimize erosion from runoff; and flood frequencies, durations, and magnitudes appropriate for the landscape.

- Goal 2: Maintain or improve sensitive soils to avoid accelerated erosion rates.

Management Actions and Allowable Uses

Table 2-8, Management Actions and Allowable Uses for Soil Resources, describes management actions and allowable uses for soil resources.

Table 2-8
Management Actions and Allowable Uses for Soil Resources

Decision Area		Alternative				Management Actions and Allowable Uses
Goal 1 (Watershed): Ensure watersheds are functioning appropriately and are consistent with Land Health Standards. Characteristics of a properly functioning watershed include channels that are stable and in balance with the landscape; erosion and sediment deposition appropriate for the ecological site; infiltration of surface water in soils sufficient to support desired future conditions (DFCs) and minimize erosion from runoff; and flood frequencies, durations, and magnitudes appropriate for the landscape.						
Objective 1.1: Maintain or restore upland, channel, and riparian components of watersheds that help stabilize or improve watershed conditions. Major indicators of watershed health include maintaining total cover (vegetation and litter) consistent with desired future conditions, riparian areas in proper function condition, and erosion and sedimentation rates appropriate to the ecological site.						
LS	SDNM	B	C	D	E	SL-1.1.1: Priorities for restoration would be established for disturbed areas. Priorities would be based on the potential for soil erosion and loss, damage to cultural or ecologically sensitive sites, and effects on water quality and quantity.
LS	SDNM	B	C	D	E	SL-1.1.2: Degraded sites would be stabilized and restored to slow or stop accelerated soil erosion and sedimentation and limit erosion to the natural rate for the ecological site.
LS	SDNM	B	C	D	E	SL-1.1.3: Benefits and risks of retaining the Vekol Valley spreader dike system would be evaluated along with benefits and risks of retaining or implementing vehicle closures in areas with eroded or otherwise degraded roads and trails.
LS	SDNM	B	C	D	E	SL-1.1.4: Soil erosion at cultural and ecologically sensitive sites would be evaluated. Soil erosion or degradation at these sites would be mitigated.
	SDNM	B	C	D	E	SL-1.1.5: Any management-caused soil erosion or degradation of the protected objects of the SDNM would be mitigated and restored to the extent possible.
LS	SDNM	B	C	D	E	SL-1.1.6: New or redeveloped facilities not related to water management would be constructed: • Outside riparian areas and the 100-year floodplain of washes or water ways. Water catchment facilities for wildlife waters could be developed or redeveloped in riparian areas or in the 100-year floodplain or if needed to meet wildlife objectives and no other options are viable. • In a manner that avoids changing natural water flow or watershed dynamics, and consistent with other resource and public safety goals. • Existing facilities could be relocated or modified if they are significantly affecting watershed or floodplain function. Where

Table 2-8
Management Actions and Allowable Uses for Soil Resources

Decision Area		Alternative				Management Actions and Allowable Uses
						water management facilities are necessary, the BLM would pursue options that minimize changes to natural water flow and watershed dynamics. Any activities in the 100-year floodplain would be planned for compliance with any county or federal floodplain regulations.
Goal 2: Maintain or improve sensitive soils to avoid accelerated erosion rates.						
Objective 2.1: Disturbance of sensitive soil surfaces, including those classified as highly susceptible to wind and water erosion and those with protective desert pavement or well-developed cryptogamic crust, would be avoided. If disturbance occurs, damage would be mitigated.						
LS	SDNM	B	C	D	E	SL-2.1.1: Developments and ground-disturbing activities would be located away from areas of significant desert pavement, cryptogamic crust, and other sensitive or fragile soils that are vulnerable to disruption or have high wind or water erosion potential unless project goals cannot be met in another location. Where facilities or projects cannot be relocated, mitigation measures would be taken, including application of ground cover, to minimize erosion.
LS		B	C	D	E	SL-2.1.2: The density of roads and trails would be reduced during route designation within areas known to have sensitive soils. Closed roads would be rehabilitated. Roads left open would be treated to mitigate wind and water erosion.
LS	SDNM	B	C	D	E	SL-2.1.3: Motorized vehicle use would be limited to designated roads, primitive roads, and trails. Specific designations would occur within this plan for the SDNM. LSFO routes would be designated within 5 years of RMP completion. Vehicle travel in LSFO would be restricted to inventoried routes only for the interim.
LS		B	C	D	E	SL-2.1.4: Vehicle parking and camping would be limited to 100 feet from the road centerline or designated sites in areas determined to have sensitive soils. Designated sites in such locations would be inventoried, mapped, and signed. If monitoring results show effects that exceed limits of acceptable change, motorized vehicles would not be allowed to pull off a designated route 100 feet either side of centerline.
	SDNM	B	C	D	E	SL-2.1.5: Vehicle parking and camping would be limited to reasonable use of the shoulder or adjacent area (see TM-6.1.1 in **Table 2-37**). Designated sites in such locations would be inventoried, mapped, and signed. If monitoring results show effects that exceed limits of acceptable change, motorized vehicles would not be allowed to pull off a designated route.
	SDNM	B	C	D	E	SL-2.1.6: Surface-disturbing activities – including vehicle camping, parking, and recreation facilities – would be prohibited on undisturbed desert pavement or well-developed cryptogamic crusts.

Administrative Actions

- Update existing soils database on public lands that were formerly part of the BGR.
- Implement watershed improvement projects to increase ground cover to reduce erosion, sediment yield, and salinity contributions.

2.10.6 VEGETATION RESOURCES

Management of vegetation resources on public lands requires the management of a variety of resources, including watersheds, vegetative communities, wildlife habitat, livestock forage, priority plant species, and noxious weeds. The BLM Land Use Planning Handbook (H-1601-1) requires that land use plans identify DFCs for vegetative resources, provide provisions for wildlife habitats and livestock forage, identify areas of ecological importance, and protect priority plant species and habitats. The list of priority plant species may be found at the end of **Appendix J**, Wildlife and Plant Priority Species.

The basis for managing vegetative communities and invasive or noxious weeds on public lands can be found in the federal and state laws, regulations, and policy guidance (**Appendix B**, Applicable Laws, Regulations, and Policies):

- Federal Land Policy and Management Act of 1976
- Arizona Native Plant Law of 1993
- Arizona Standards for Rangeland Health and Guidelines for Grazing Administration (BLM 1997a)
- Clean Water Act of 1977
- EO 11990 Protection of Wetlands
- EO 11988 Floodplain Management
- Title 43 Code of Federal Regulations Part 4100
- The Sikes Act of 1974, as amended (16 USC 670 et seq.)
- BLM Manual 6500 – Wildlife, Fish and Plant Resources
- BLM Manual 6840 – Special Status Species
- BLM MS 1740 Renewable Resource Improvements and Treatments
- BLM Manual 9011 Chemical Pest Control
- BLM Manual 4180 – Rangeland Health Standards
- EO 13112 Invasive Species Control

- Federal Noxious Weed Act of 1974
- Federal Advisory Committee Act (5 USC App. 1)
- Public Rangelands Improvement Act of 1978
- Taylor Grazing Act of 1934
- Vegetation Treatments using Herbicides on BLM Lands in Seventeen Western States Final EIS (September 2007)

2.10.6.1 Existing Management Decisions, Alternative A (No Action)

The following decisions are extracted from the existing land use plans and amendments and are listed in chronological order. Because none of these current land use plans encompass the entire Planning Area, very few of these decisions are being carried forward as common to all alternatives and are restated as new action alternatives where applicable.

Lower Gila South Resource Management Plan (1989)

- Continue to issue woodcutting permits for the Lower Gila Resource Area on a case-by-case basis.
- Developed spring storage and adjacent riparian habitat would be fenced to exclude livestock.

Phoenix Resource Management Plan (1989)

- Maintain and improve habitat and viable wildlife populations (VM-01).

Lower Gila South Resource Management Plan - Goldwater Amendment (1990)

- Give priority to protecting vegetation from disturbances during land-based activities (VM-1).
- Prohibit woodcutting and wood collection for commercial or domestic use on BGR lands. (VM-7; also included in **Section 2.11.4**, Recreation Management)
- No vegetation material is to be removed, with the exception of specific cases deemed appropriate and properly permitted (VM-8).
- Permit campfires on BGR lands using dead and down wood. Wood cannot be collected in ACECs and other areas specifically closed to wood collection by this RMP amendment or subsequent activity planning (RR-17; also included in **Section 2.11.4**, Recreation Management).

Vegetation Treatments using Herbicides on BLM Lands in Seventeen Western States Final EIS (September 2007)

- Implement an integrated vegetation-treatment program for BLM-administered public lands. The vegetation management priorities are as follows:
    - Priority 1 – Take actions to prevent or minimize the need for vegetation control when and where feasible considering the management objectives for the site.
    - Priority 2 – Use effective nonchemical methods of vegetation control when and where feasible.
    - Priority 3 – Use herbicides after considering the effectiveness of all potential methods or in combination with other methods of control.
- Follow the Herbicide Treatment Standard Operating Procedures from Appendix B of Vegetation Treatments using Herbicides on BLM Lands in Seventeen Western States Final EIS (September 2007).

Arizona Land Health Standards (1997)

The Arizona Land Health Standards were derived from the Arizona Standards for Rangeland Health and Guidelines for Grazing Administration (1997) (**Appendix L**, Guidelines for Grazing Administration). All BLM activities and management practices should allow for achievement of the Arizona Land Health Standards. These standards describe conditions needed for healthy sustainable public lands and must be maintained by all users of the public land. In accordance with BLM policy, activities on public land must be evaluated against indicators developed for each standard.

SDNM Current Management Guidance (2002)

- Unauthorized removal of living or dead native plant material is prohibited by the SDNM Proclamation. (Not numbered)
- Native plants as the first priority for all restoration projects. Non-invasive, nonnative plants may be used in limited, emergency situations where they may be necessary to protect the resources or when taking no action would further degrade the resources. This use would be allowed if it complies with the vegetation objectives and other management goals and objectives. In these situations, short-lived species (i.e., nurse-crop species) would be preferentially used and would be combined with native species to facilitate the establishment of native species. (Not numbered)

2.10.6.2 Action Alternatives for Vegetation Resources

Within the Sonoran Desert National Monument, all of the vegetative communities are considered Monument objects as defined in Presidential Proclamation 7397. (Plant communities are described in some form for Objects 1, 2, 3, 4, 5, 6, and 7 of the Presidential Proclamation.) Management and protection of vegetative resources in the Monument would also be provided under guidance from other

resource management programs. The following vegetation communities and special status plants are specific biological objects (vegetative) that were identified in the Proclamation:

- Saguaro cactus forests (within palo verde-mixed cacti vegetation community)
- Woodlands (Sonoran mid-elevation desert scrub)
- Palo verde-mixed cacti vegetation community
- Acuña pineapple cactus
- Creosote bush-bursage vegetation community
- Desert washes (xeroriparian)

Program Goals

- Goal 1: The natural diversity and abundance of native vegetation would occur as expected for landform and ecological site, and within the SDNM protect the vegetative objects of the Monument.
- Goal 2: Populations of endangered, threatened, and special status plants would be stable and/or increasing and suitable habitat is available for future establishment and maintenance of the populations.
- Goal 3: Noxious and undesirable plant species would not occur on the landscape or, if they occur, they would make up a sufficiently small percentage of the vegetative community that they do not affect ecological processes.
- Goal 4: Protect native plants from over-collecting and other uses.
- Goal 5: Native plants would occur at a natural abundance and distribution.
- Goal 6: The Fred J. Weiler Green Belt would be a productive and functioning riparian system supporting healthy, diverse, and abundant populations of wildlife and riparian-dependent plant species with an emphasis on migratory game birds. See also **Table 2-41**, Management Actions for Resource Conservation Area Action Alternatives.

Management Actions and Allowable Uses

Table 2-9, Management Actions and Allowable Uses for Vegetation Resources, describes management actions and allowable uses for vegetation resources.

Table 2-9
Management Actions and Allowable Uses for Vegetation Resources

Decision Area	Alternative	Management Actions and Allowable Uses
Goal 1 (Ecosystems): The natural diversity and abundance of native vegetation occurs as expected for landform and ecological site, and within the SDNM would protect the vegetative objects of the Monument.		
Objective 1.1: Maintain or restore vegetative communities to achieve desired future conditions (DFCs) as identified below:		
DFCs common to all vegetative communities: • Vegetative communities would provide appropriate cover levels, as described in NRCS Ecological Site Descriptions, to protect soils from wind and water erosion. This would ensure properly functioning watersheds and ecological processes in order to sustain healthy biotic populations and communities (biological objects within the SDNM Planning Area). • Each vegetation community would be maintained within its natural range of variation in plant composition, structure, and cover at the landscape level. Site potentials (soil, climate, topography) establish the natural limits on what can be produced in terms of vegetation and related resource values like forage, wildlife habitat, and watershed characteristics.		
DFCs by specific vegetative community: The DFCs described below are general descriptions of the expected plant community makeup. Site potentials (based on ecological sites) and the development of specific desired plant community objectives for each vegetation type should be determined through the use of the NRCS ecological site descriptions, rangeland health reference sheets, or information collected from reference or comparison areas or a combination of the above. The ecological site descriptions that correspond to each vegetation community can be found at http://esis.sc.egov.usda.gov. The vegetative communities listed below that occur within the SDNM are identified as biological objects of the Monument. Within the SDNM, specific desired plant community objectives and site potentials were developed for each ecological site and corresponding vegetation type (biological object) through the land health evaluation process. These site potentials were determined through the use of a combination of the information collected from the BGR and Area A (comparison areas), the NRCS's ecological site descriptions, and the rangeland health reference sheets for the ecological sites. Achievement of these desired plant community objectives would ensure that the biological objects of the Monument are being protected. • Creosote Bush–Bursage: (597,700 acres LS; 179,600 acres SDNM) The potential of this community is a shrub dominated site with desert scrub species, cacti, and annual forbs and grasses. • Palo Verde-Mixed Cacti: (312,000 acres LS; 303,300 acres SDNM) This vegetative community should consist of more diverse vegetative composition and structure than that of the creosote bush- bursage community. It includes vegetation varying from small shrubs to large trees (such as ironwood, palo verde, and mesquite) interspersed with a variety of cacti, such as mammalaria (*Mammalaria spp.*), prickly pear (*Opuntia spp.*), cholla (*Opuntia spp.*), barrel cactus (*Ferocactus wislizenii*), hedgehog (*Echinocereus spp.*), and saguaro (*Carnegiea gigantea*). Where potential exists, saguaro cactus forests would support appropriate densities of saguaro, with all age classes represented to ensure recruitment. • Riparian: (8,800 acres LS; 0 acres SDNM) Riparian habitats should contain a diversity of native riparian obligate trees (such as cottonwood [*Populus spp.*] and willow [*Salix spp.*]) of various age and size classes and herbaceous plants adapted to hydric soils to restore ecological conditions and function. • Apacherian-Chihuahuan Upland Scrub: (3,400 acres LS; 400 acres SDNM) The potential for this		

Table 2-9
Management Actions and Allowable Uses for Vegetation Resources

Decision Area	Alternative	Management Actions and Allowable Uses
		community is a shrubland dominated community consisting of large desert scrub/trees, including mesquites, acacias or junipers, and cacti. Perennial grass cover is typically low. • Sonoran Mid-Elevation Desert Scrub (Woodlands): (1,800 acres LS; 2,000 acres SDNM) This vegetative community should consist of a diverse vegetative composition and structure, similar to that of the palo verde-mixed cacti community, but with an increase of perennial grasses, forbs, and large shrub species (jojoba, crucifixion thorn, etc.) due to the increased precipitation. • Mogollon Chaparral: (1,400 acres LS; 100 acres SDNM) This vegetative community should consist of woody species such as shrub live oak, mountain mahogany, desert ceanothus, and cliffrose interspersed with an understory of perennial grasses along with small shrub and forb species. • Desert Grassland: (0 acres LS; 1,054 acres SDNM) Manage this plant community as a tobosa (*Pleuraphis mutica*)-dominated grassland while limiting the encroachment of mesquites and other shrubs. • Desert Washes (xeroriparian): (1,658 miles in the LS; 970 miles in the SDNM*) This community should have a multi-layered vegetative structure, as provided by perennial vegetation. • Diverse vegetative composition and structure would include such species as foothills palo verde (*Cercidium microphyllum*), blue palo verde (*Cercidium floridum*), desert willow (*Chilopsis linearis*), ironwood (*Olneya tesota*), mesquite (*Prosopis spp.*), smoke tree (*Psorothamnus spinosus*), and catclaw acacia (*Acacia greggii*) of various sizes and growth forms appropriate to the ecological site. • Ensure sufficient bank and floodplain vegetation (including along braided channel floodplains) provides for hydrologic function of the site. *Based on USGS 1:100K scale topographic quadrangles
LS	SDNM	B C D E				VM-1.1.1: Activities would be evaluated on a case-by-case basis and impacts minimized, mitigated, or avoided to achieve land-health standards and vegetation community DFCs, and ensure protection of the vegetative objects of the Monument.
LS	SDNM	B C D E				VM-1.1.2: Vegetation treatments could be conducted in order to make progress toward achieving land health standards. Treatments would include, but would not be limited to, thinning, burning, seeding, transplanting, watering, seasonal closures, and seasonal use restrictions.
Goal 2 (Special Status Plants): Populations of endangered, threatened, and special status plants would be stable or increasing and suitable habitat is available for future establishment and maintenance of the populations.						
Objective 2.1: Identify and protect occupied and potential habitats for maintenance, restoration, or reestablishment of Acuña pineapple cactus and other endangered, threatened, or special status plants. Maintain the diversity and properly functioning ecological processes of natural plant communities that support rare or special status plant species.						
LS	SDNM	B C D E				VM-2.1.1: Authorized surface-disturbing activities within occupied acuña cactus habitat areas would be minimized, mitigated, or avoided. Currently, the only known areas of location are within the Coffeepot-Batamote and the very southern portion of the SDNM.
LS	SDNM	B C D E				VM-2.1.2: Authorized surface-disturbing activities within habitat areas of any endangered, threatened, or special status plants would be minimized, mitigated, or avoided to ensure stable populations.

Table 2-9
Management Actions and Allowable Uses for Vegetation Resources

Decision Area		Alternative				Management Actions and Allowable Uses
LS	SDNM	B	C	D	E	VM-2.1.3: Implement activities to reduce hazardous fuels or improve riparian habitats (prescribed burning or vegetation treatments) within occupied or found-to-be-occupied habitat for southwestern willow flycatchers only during the non-breeding season (October 1 to March 31).
LS	SDNM	B	C	D	E	VM-2.1.4: Vegetation treatment projects adjacent to occupied or found-to-be-occupied habitat would only be conducted when willow flycatchers are not present (October 1 – March 31).
LS	SDNM	B	C	D	E	VM-2.1.5: Any prescribed fire or vegetation treatment project in occupied or suitable marsh habitat would only occur between September 1 and March 15 to avoid the Yuma clapper rail breeding and molting seasons.
LS	SDNM	B	C	D	E	VM-2.1.6: Mechanical removal of overstory habitat (Tamarisk) could occur as early as August 15, after the breeding season for Yuma clapper rails.
LS	SDNM	B	C	D	E	VM-2.1.7: Herbicide application could occur in Yuma clapper rail habitat. Herbicide drift would be minimized by using appropriate drift-inhibiting agents and may include dyes or other tracking agents.
Goal 3 (Noxious Weeds): Noxious and undesirable plant species would not occur on the landscape or, if they occur, they would make up a sufficiently small percent of the vegetative community that they do not affect ecological processes.						
Objective 3.1: Control invasive species using an integrated weed-management approach, including prevention, restoration, mechanical, chemical, biological control methods, and prescribed fire, where appropriate.						
LS	SDNM	B	C	D	E	VM-3.1.1: Proposed projects would use practices that minimize the introduction and spread of invasive species.
LS	SDNM	B	C	D	E	VM-3.1.2: Priority would be assigned to the control of invasive species that have a substantial and apparent impact on native plant communities and wildlife. When infestations are identified, they would be evaluated for their potential threat and scheduled for removal accordingly.
LS	SDNM	B	C	D	E	VM-3.1.3: Monitoring for invasive species would focus on likely vectors of invasion such as linear features (roads, canals, railroads, utility corridors, etc.), disturbed areas (construction or development areas), and areas where water is available or may pond (water-control structures, etc.).
LS	SDNM	B	C	D	E	VM-3.1.4: Certified weed-free feed would be required for all equestrian and stock animal uses authorized under special recreation permits. The general public would be encouraged to provide weed-free feed for their equestrian and stock animals.
Goal 4 (Collection and Allowable Uses): Protect native plants from over-collecting and other uses.						
Objective 4.1: Manage native desert vegetation for commercial and non-commercial uses in accordance with the Arizona Native Plant Law and BLM regulations.						
LS		B	C	D	E	VM-4.1.1: Collection of living or dead native plant material for commercial uses could be permitted on a case-by-case basis as long as it meets resource objectives.

Table 2-9
Management Actions and Allowable Uses for Vegetation Resources

Decision Area		Alternative				Management Actions and Allowable Uses
LS		B	C	D	E	VM-4.1.2: Collection of reasonable amounts of renewable native plant byproducts, including flowers, leaves, fruit, seeds, nuts, cones, and berries, and dead and downed native vegetation for non-commercial, personal use would be allowed when conducted in accordance with the Arizona Native Plant Law.
LS		B	C	D	E	VM-4.1.3: Collection of living or dead native vegetation and byproducts that are federally listed as threatened and endangered species would not be permitted without a valid and current permit issued by the USFWS.
LS		B	C	D	E	VM-4.1.4: Collection of living or dead native vegetation and byproducts that are highly safeguarded native plants identified in the Arizona Native Plant Law could be permitted on a case-by-case basis to achieve resource recovery objectives.
LS		B	C	D	E	VM-4.1.5: Collection of saguaro cacti skeletons for personal use or campfire burning would be prohibited in the Planning Area.
LS				D		VM-4.1.6: Collection of all firewood would be prohibited within ¼ mile of developed recreation sites, and the collection of wood for on-site campfires is also addressed in **Section 2.11.4**.
LS		B	C	D	E	VM-4.1.7: Woodcutting would not be allowed for commercial or personal use, or campfire burning. It may be authorized on a case-by-case basis as needed to meet management objectives, such as hazardous fuels reduction or native plant propagation.
LS		B	C	D	E	VM-4.1.8: The collection of dead, down, and detached wood for personal use and campfire burning while camping on public lands would be allowed unless otherwise prohibited.
LS		B	C	D	E	VM-4.1.9: Removal of all other vegetation material not specifically provided for would be prohibited without written authorization. Examples of authorizations include vegetation removal for Native American traditional uses, scientific research, educational uses, salvage, or meeting management objectives. Authorizations must be in accordance with the Arizona Native Plant Law.
LS		B	C	D	E	VM-4.1.10: Removal of native vegetation for personal use or commercial landscaping may be allowed during authorized salvage operations where vegetation is destined to be destroyed, with written authorization from the BLM and a permit from the Arizona Department of Agriculture in accordance with the Arizona Native Plant Law. Priority would be given to utilizing salvage plants for restoration activities on public lands.
Objective 4.2: Protect SDNM vegetation by managing collection and uses consistent with the Monument proclamation.						
	SDNM	B	C	D	E	VM-4.2.1: Collecting or removing living or dead native vegetation, including plant byproducts and woodcutting for commercial and personal uses, would be prohibited within the SDNM without written authorization. Examples of authorizations include vegetation removal for Native

Table 2-9
Management Actions and Allowable Uses for Vegetation Resources

Decision Area		Alternative				Management Actions and Allowable Uses
						American traditional uses, scientific research, educational uses, salvage, or meeting management objectives. Authorizations must be in accordance with the Arizona Native Plant Law.
Goal 5 (Rehabilitation): Native plants occur within the natural range of abundance and distribution consistent with the ecological sites on which they occur.						
Objective 5.1: Rehabilitate native plant communities after land-disturbing activities, where appropriate. Rehabilitation would be designed to achieve vegetative conditions (cover, composition, etc.) necessary to stabilize the site.						
LS	SDNM	B	C	D	E	VM-5.1.1: Rehabilitation practices would be used to stabilize and rehabilitate sites impacted from new surface-disturbing activities. Long-term restoration would occur through natural processes. In most cases, lands previously disturbed by historical uses would be allowed to recover through natural processes. Sites that may be appropriate for rehabilitation practices include: • Recently disturbed sites that may respond quickly to rehabilitation practices, including damage caused by wildfire, immigrant traffic, or other illegal activities; • Severely damaged, rapidly deteriorating, or rapidly expanding sites; • Placing adjacent resources at risk; • Prone to invasion by nonnative species; • Heavily disturbed, such as mining sites; • Capable of improving habitat for threatened and endangered species; • Management priorities that require accelerated restoration to meet selected management objectives.
LS	SDNM	B	C	D	E	VM-5.1.2: Native plants would be used as the first priority for all rehabilitation projects. Non-invasive, nonnative plants may be used in limited urgent situations where it may be necessary to protect the resources or when taking no action would further degrade the resources. In these situations, short-lived species (i.e., weed-free nurse crop species) would be preferentially used and would be combined with native species to facilitate the establishment of native species.
LS	SDNM	B	C	D	E	VM-5.1.3: Rehabilitation and reclamation plans that describe the site restoration goals, considering the starting condition of the site, and restoration methods would be required for all surface-disturbing activities commensurate with the amount of surface disturbance.

Table 2-9
Management Actions and Allowable Uses for Vegetation Resources

Decision Area		Alternative				Management Actions and Allowable Uses
LS	SDNM	B	C	D	E	VM-5.1.4: Preliminary success criteria for a site would be considered achieved when soil conditions are stabilized and approximately 50 percent or more of the plant composition and cover are present based on appropriate Ecological Site Descriptions. Trees and shrubs would be considered established when they have survived (without assistance such as watering) for two consecutive years. Livestock would not be turned out on rehabilitated sites until it was determined by an interdisciplinary team that the re-established forage could sustain livestock grazing.

Administrative Actions

- Seed from regionally native or sterile alien (nonnative) species of grasses and herbaceous vegetation would be used in areas where reseeding is necessary following ground disturbance to stabilize soils and prevent erosion by both wind and water.
- Monitoring for invasive species would be prioritized to determine if weeds not immediately being treated are becoming a greater threat to the resources of concern.

2.10.7 VISUAL RESOURCES

Outstanding scenic landscapes administered by the BLM provide a place to escape and enjoy the beauty of nature. They also are used for a multitude of other activities, including recreation, mining, grazing, and road development. Many of these activities have the potential to change the visual quality of the landscape and impact scenic values. Visual resource management (VRM) is a system for minimizing the visual impacts of surface-disturbing activities and maintaining scenic values for the future.

Federal laws requiring the protection of visual resources include the following stipulations:

- Public lands would be managed in a manner which protects the quality of the scenic (visual) values of these lands (43 USC 1701, Section 102(a)(8)).
- Aesthetically pleasing surroundings would be assured for all Americans (43 USC 4321, Section 101(b)).

The BLM Visual Resource Program manages landscapes based on visual indicators defined in the Visual Resource Inventory Handbook H-8410-1. The handbook is used for guidance in activities related to management of visual resources.

According to the Visual Resource Inventory Handbook H-8410-1, the objectives of VRM management classes are:

- Class I: The objective of this class is to preserve the existing character of the landscape. This class provides for natural ecological changes; however, it does not preclude very limited management activity. The level of change to the characteristic landscape should be very low and must not attract attention.

- Class II: The objective of this class is to retain the existing character of the landscape. The level of change to the characteristic landscape should be low. Management activities may be seen but should not attract attention from the casual observer.

- Class III: The objective of this class is to partially retain the existing character of the landscape. The level of change to the characteristic landscape should be moderate. Management activities may attract attention but should not dominate the view of the casual observer.

- Class IV: The objective of this class is to provide for management activities that require major modification of the existing character of the landscape. The level of change to the characteristic landscape can be high. These management activities may dominate the view and be the major focus of viewer attention.

The construction of campgrounds, energy and mineral development, vegetation treatments, and ROWs all would be evaluated for design to ensure consistency with the VRM classes. All permitted actions on public lands are evaluated to minimize impacts on visual contrast with the landscape, including impacts on the night sky. VRM classes acknowledge existing visual contrasts, and more restrictive requirements would not be retroactively applied to existing projects.

2.10.7.1 Existing Management Decisions, Alternative A (No Action) for Visual Resources

Decisions are listed in chronological order by plan. The following decisions are extracted from the existing land use plans and amendments and are listed in chronological order. Because none of these current land use plans encompass the entire Planning Area, very few of these decisions are being carried forward as common to all alternatives and are restated as new action alternatives where applicable.

Lower Gila North Management Framework Plan (1983)

- Recognize areas proposed as Class II visual resource management areas as being an area where a contrast may be seen but should not attract attention. Manage visual resources using existing utility corridors (see the Lands and Realty for further detail on decisions regarding existing utility corridors) (RR-01).

- Recognize areas proposed as Class III visual resource management areas as those in which contrasts may be evident and begin to attract attention. Manage visual resources using existing utility corridors (RR-02).

- Recognize areas proposed as Class IV visual resource management areas as those in which a contrast may attract attention and be a dominant feature in the landscape. Manage visual resources by using existing utility corridors (RR-03).

Lower Gila South Resource Management Plan - Goldwater Amendment (1990)
(Applies to the three relinquished Sentinel Plain, Sand Tank Mountains, and Ajo Airport parcels)

- Protect mountain vistas from visual intrusion by developing, during site- or project-specific activity planning, visual resource management prescriptions needed to maintain appropriate visual resource management objectives (Not Numbered).

- Protect the visual resource quality on lands adjacent to the highways (Interstate 8 and State Route 85) by 1) establishing portions of these roads as scenic byways in cooperation with the Arizona Department of Transportation, US Air Force, and US Marine Corps; and 2) using the visual resource management process during activity planning to maintain appropriate visual resource management objectives established for these byways.

Lower Gila Resource Management Amendment (2005)

- Management of recreation opportunities and developments would be evaluated using two inventory and management tools called the Recreation Opportunity Spectrum and Visual Resource Management (RR-1).

- Existing visual resource inventory classes of the RMP would be adopted as management classes (RR-3).

- All MFP visual resource management classes would be brought forward (RR-4).

- Visual resource management classes would be reviewed and refined during future interdisciplinary planning (RR-5).

- All unclassified lands of the MFP and RMP Planning Areas are established as Visual Resource Management Class I and II areas, subject to review and refinement during future interdisciplinary planning (RR-8).

2.10.7.2 Action Alternatives for Visual Resources

Program Goals

- Goal 1: Manage public lands that would maintain scenic quality, natural landscapes, undisturbed views, and other high-quality visual resources.

- Goal 2: Maintain night sky condition.

- Goal 3: The natural splendor for which the SDNM was designated shall be maintained.

Land Use Allocations Summary

The proposed VRM classes by alternative are presented in **Table 2-10**, VRM Classes by Alternative.

Table 2-10
VRM Classes by Alternative

VRM Class	Alternative (BLM Acres)				
	A (No Action)	B	C	D	E (Proposed RMP)
The following VRM classes would be allocated for each alternative to support management objectives for the various resources such as designated wilderness, areas with wilderness characteristics, NHT segments, ACECs, WHAs, and back country recreation settings.					
Lower Sonoran					
Class I	91,800	91,800	91,800	91,800	91,800
Class II	116,300	64,800	387,800	622,400	65,500
Class III	279,600	551,000	385,600	192,000	554,800
Class IV	442,500	222,600	65,000	24,000	218,100
SDNM					
Class I	158,700	158,700	158,700	457,900	158,700
Class II	91,600	219,000	267,300	28,500	246,500
Class III	116,400	108,700	60,400	None	81,200
Class IV	119,700	0	0	0	0

Management Actions and Allowable Uses

Table 2-11, Management Actions and Allowable Uses for Visual Resources, describes management actions and allowable uses for visual resources.

Table 2-11
Management Actions and Allowable Uses for Visual Resources

Decision Area		Alternative				Management Actions and Allowable Uses
Goal 1: Manage public lands that would maintain scenic quality, natural landscapes, undisturbed views, and other high-quality visual resources.						
Objective 1.1: Visual resources would be managed according to the class objectives set in the Visual Resource Inventory Handbook H-8410-1 and BLM Guidelines for a Quality Built Environment.						
LS	SDNM	B	C	D	E	VR-1.1.1: Designated wilderness areas would be allocated as VRM class I.
LS		B	C	D	E	VR-1.1.2: All other public lands within the Lower Sonoran would be allocated to the VRM classes as depicted in **Maps 2-2a, b, c, d, and e**.
LS	SDNM	B	C	D	E	VR-1.1.3: All surface-disturbing projects or activities, regardless of size or potential impact, would incorporate visual design considerations consistent with the Visual Resource Contrast Rating Manual H-8431-1 to meet VRM class objectives for the area. Even activities in VRM Class IV would consider designs that help reduce visual contrast between a proposed project and landscape settings (color, texture, line, and form). Measures to mitigate potential visual impacts could include the use of natural materials, screening, painting, project design, location sighting, or restoration.

Table 2-11
Management Actions and Allowable Uses for Visual Resources

Decision Area		Alternative				Management Actions and Allowable Uses
LS	SDNM	B	C	D	E	VR-1.1.4: Restoration projects would ensure that visual impacts are minimized in the short term (5 years) and that VRM objectives in the project area are met in the long term (life of the project) when such projects are a) considered essential for public safety, achieving DFCs, or reducing hazardous fuels buildups, and b) expected to be visually prominent.
LS	SDNM	B	C	D	E	VR-1.1.5: The viewshed of the Juan Bautista de Anza NHT, Painted Rock, Agua Caliente, and Ajo Scenic Loop roads, Highway 238, and Interstate 8 would be managed in a manner that exceeds or maintains the VRM objectives. VRM and scenic management prescriptions would be applied for their preservation and enhancement. The viewshed of the Anza NHT would be managed to maintain the historic landscape setting.
Goal 2: Maintain current night sky condition.						
Objective 2.1: Manage activities and projects on public lands that would contribute light or air pollution to maintain or improve dark, clear skies for stargazing and nighttime military training.						
LS	SDNM	B	C	D	E	VR-2.1.1: Permanent outdoor lighting would not be allowed in VRM Class I areas.
LS	SDNM	B				VR-2.1.2: The use of dark-sky-friendly technology would be emphasized when placing facilities on public lands. Measures may include, but would not be limited to: directing all light downward, using shielded lights, using only the minimum illumination necessary, using lamp types such as sodium lamps (less prone to atmospheric scattering), using circuit timers, using motion sensors, or using flight proximity detectors.
LS	SDNM		C	D	E	VR-2.1.3: Development on public lands would be required to use dark-sky-friendly technologies in VRM Classes I through IV and in the Sentinel Plain area to provide opportunities for stargazers and amateur astronomers and to maintain conditions favorable to nighttime military operations. Measures may include, but would not be limited to directing all light downward, using shielded lights, using only the minimum illumination necessary, using lamp types such as sodium lamps (less prone to atmospheric scattering), using circuit timers, using motion sensors, or using flight proximity detectors.
Goal 3: The natural splendor for which the SDNM was designated shall be maintained.						
Objective 3.1: Visual resources of the SDNM would be managed to preserve or to retain the existing character of the landscape. The visual character of management activities would be managed according to the objectives described above and in VRM Handbook H-8410-1.						
	SDNM	B	C	D	E	VR-3.1.1: Public lands within the Monument would be allocated to the VRM classes as depicted in **Maps 2-2a, b, c, d, and e** to ensure visual landscapes as described in the Monument proclamation are protected.

Administrative Actions

- All surface-disturbing projects or activities, regardless of size or potential impact, would incorporate visual design considerations consistent with the Visual Resource Contrast Rating Manual H-8431-1 to meet VRM class objectives for the area.

- Participate in regional planning initiatives and comment on proposals for development on adjacent non-federal lands to encourage future development to be compatible with VRM designations and protection of dark night skies on public lands.

- Develop user facilities (trailheads, non-motorized trails, campgrounds, roads, utilities, interpretive areas) to take advantage of views of scenic and historic landscapes in such a way that visual quality is protected.

2.10.8 WATER RESOURCES

Surface water resources in the Planning Area are limited to the perennial flow of the Gila River and treated effluent discharges into the Gila basin. Surface flow often ends near Highway 85, although flow may continue as far as Painted Rock Reservoir during periods of high precipitation. This section of the river has impaired water quality. An Arizona Department of Environmental Quality (ADEQ) plan for improving water quality is scheduled to be completed soon. The BLM would be the designated management agency carrying out this plan, and the agency would participate along with other landowners and managers with land that drains into this segment of the Gila River. Currently, the agency's primary management actions on the river consist of fuels and habitat management associated with tamarisk-dominated riparian areas.

Water use in the Planning Area must fulfill two primary responsibilities:

- Comply with laws and regulations that protect the nation's and the state's water resources; and

- Take all legal and resource-development steps necessary to provide a supply of water of sufficient quality and quantity to meet BLM management needs.

Groundwater is the sole source of drinking water for every community in the Planning Area outside metropolitan Phoenix. Arizona state law limits the use of groundwater within the Phoenix Active Management Area (AMA), which includes the Lower Sonoran Decision Area north of the Gila River and west of Apache Junction. According to the state's 1980 Groundwater Management Act, groundwater use by the BLM and other pumpers in the AMA must not interfere with existing wells, and users must meet requirements for proving an assured supply. Groundwater pumping outside of the AMA by the BLM or its permittees and lessees is limited to "reasonable" amounts for a given use.

Guidance for management of water resources is published in BLM Manual 7200 and DOI Department Manuals (Series 31-Environmental Quality Programs, Series 34-Public Lands, and Series 37-Water and Land Resources) along with a framework set by the following federal laws and regulations:

Federal Land Policy and Management Act: Authorizes the BLM to inventory and monitor the presence and condition of water resources on public land.

Clean Water Act of 1972, as amended: Requires that all water sources meet quality standards developed by the states with authority delegated by the EPA; charges the BLM (and other land-management agencies) with developing and implementing best management practices for the control of non-point source pollution; and requires a number of other actions in coordination with other agencies, such as participating in permitting to protect wetlands and stream channels.

Fundamentals of Rangeland Health (1995): These require the BLM to apply for water rights in the name of the United States, where allowed by state law. These regulations, particularly those associated with grazing, also require public lands to meet or make progress toward land health standards, including meeting state water quality standards.

2.10.8.1 Existing Management Decisions, Alternative A (No Action) Water Resources

Decisions are listed in chronological order by plan. The following decisions are extracted from the existing land use plans and amendments and are listed in chronological order. Because none of these current land use plans encompass the entire Planning Area, very few of these decisions are being carried forward as common to all alternatives and are restated as new action alternatives where applicable.

Phoenix Resource Management Plan (1989)

- Maintain and enhance stream flows through activity plans in special management areas (WS-01).
- Ensure that all waters on public land meet or exceed federal and state water quality standards (WS-02).

Lower Gila South Resource Management Plan - Goldwater Amendment (1990)
(Applies to the three relinquished BGR parcels)

- Keep groundwater development and exploration to a minimum in ACECs, other management areas, and other environmentally sensitive areas (WS-1).
- Limit all field activities relating to groundwater exploration and development to designated roadways and previously disturbed areas (WS-2).

2.10.8.2 Action Alternatives for Water Resources

Program Goals

- Goal 1: Assure physical and legal availability of water in sufficient quantity and quality to meet the management needs of the Lower Sonoran and Sonoran Desert National Monument Decision Areas.

- Goal 2: All surface water in the Planning Area would meet appropriate state water quality standards or would have state-approved plans for water quality improvement.

Management Actions and Allowable Uses

Table 2-12, Management Actions and Allowable Uses for Water Resources, describes management actions and allowable uses for water resources.

Table 2-12
Management Actions and Allowable Uses for Water Resources

Decision Area		Alternative				Management Actions and Allowable Uses
Goal 1: Assure physical and legal availability of water in sufficient quantity and quality to meet the management needs of the Lower Sonoran and Sonoran Desert National Monument Decision Areas.						
Objective 1.1: New water source developments would not adversely affect existing sources and uses. This would be determined prior to any new development activity, including issuance of landowner's permission to drill required by the Arizona Department of Water Resources.						
LS	SDNM	B	C	D	E	WR-1.1.1: All proposed new water uses and developments would be assessed to determine whether they would adversely affect springs, streams, tinajas, or seeps; decrease water availability at existing wells; or conflict with other resource management goals.
LS		B	C	D	E	WR-1.1.2: The only proposed water developments allowed would be those that are consistent with management objectives.
	SDNM	B	C	D	E	WR-1.1.3: The only proposed water developments allowed would be those that are consistent with the proclamation.
LS	SDNM	B	C		E	WR-1.1.4: Groundwater exploration and development would be restricted and damage mitigated in areas with ecological or cultural resources that are sensitive to disturbance.
Objective 1.2: The BLM would take necessary steps to acquire all water rights allowed by law to properly manage the Lower Sonoran Planning Area, including the SDNM, and to protect the natural resources of the Planning Area and the objects of the SDNM. Inventory work and at least one-half of water-rights filings would be completed within 5 years of issuing this plan.						
LS	SDNM	B	C	D	E	WR-1.2.1: Water would be inventoried and appropriate applications and claims filed for state water rights for all water sources and beneficial uses on public land in accordance with state law to ensure water availability to meet management needs and protect ecological functions.
	SDNM	B	C	D	E	WR-1.2.2: Inventory all water sources, including groundwater sources, within the three wilderness areas of the SDNM for quantification and assertion of federal reserved water rights, and provide notice of these rights to Arizona Department of Water Resources.
Goal 2: All surface water in the Planning Area would meet appropriate state water quality standards or would have state-approved plans for water quality improvement.						
Objective 2.1: Impaired water quality in stretches of the Gila River that run through the Planning Area would be improved or corrected within 5 years; the BLM would commit to the state schedule for water quality improvement.						

Table 2-12
Management Actions and Allowable Uses for Water Resources

Decision Area		Alternative				Management Actions and Allowable Uses
LS		B	C	D	E	WR-2.1.1: The BLM would implement best management practices for grazing, mining, energy development, and other activities that have been specifically established to protect streams from non-point source pollution.
LS		B	C	D	E	WR-2.1.2: The BLM would be an active participant as the Arizona Department of Environmental Quality begins work on the Total Maximum Daily Load for the Gila River between the Salt River and Painted Rock Reservoir.
	SDNM	B	C	D	E	WR-2.1.3: No new water development that would divert water out of SDNM would be allowed.

Administrative Actions

- Identify, evaluate, and assign priorities for restoring disturbed areas considering the potential for soil erosion and loss, damage to cultural or ecologically sensitive sites, and effects on water quality and quantity.

- Evaluate proposals for groundwater withdrawals on BLM-administered lands within an AMA in coordination with the Arizona Department of Water Resources (ADWR) and incorporate any restrictions or guidelines for the AMA.

- Work with county, state, and federal agencies to monitor surface and groundwater quantity and quality on public lands. Correct problems as they are identified.

- Coordinate with the AGFD to be sure all wells within the BGR are registered with ADWR. Inventory all water sources on BGR and enter them into the BLM water data management system. Coordinate water rights filings for water sources with the US Air Force and AGFD (applicable to the three relinquished BGR parcels).

Administrative Actions in the SDNM Decision Area

- Work with county, state, and federal agencies and other partners to evaluate the quantity of groundwater available and predict the effect of future potential water withdrawals on the ability to provide adequate water availability for natural resource and multiple use goals within SDNM.

- Begin a dialogue with appropriate State of Arizona policy, legal, and water resources staff on the development of a cooperative agreement on the protection of water resources on SDNM.

2.10.9 WILD HORSE AND BURRO MANAGEMENT

In 1971, Congress passed the Wild Free-Roaming Horses and Burros Act (WFRHBA, Public Law 92-195). It states, "It is the policy of Congress that wild free-roaming horses and burros shall be protected from capture, branding, harassment, or death; and to accomplish this they are to be considered in the area where presently found, as an integral part of the natural system of the public lands."

After the passage of the Wild Free-Roaming Horses and Burros Act, the BLM was required to survey public lands and delineate where wild horses and burros found habitat and forage, and designate these areas as herd areas. These herd areas established boundaries of where wild horses and burros were located at the passage of the Wild Free-Roaming Horses and Burros Act. Later, herd management areas (HMAs) were established within those herd areas to manage healthy, self-sustaining populations of wild horses and/or burros, in accordance with BLM land use plans (i.e., RMPs) and other decisions. Only one herd area, the Painted Rock Herd Area, is located in the Lower Sonoran Decision Area. No other herd areas and no HMAs have been allocated within either Decision Area. The Herd Area is shown on **Map 3-10**, Livestock Grazing Allotments and Wild Horse and Burro Herd Area.

The Painted Rock Herd Area has been administered as a herd area with a target population of zero wild horses and burros. This decision has been based on conflicts in the area with private landowners, wildlife, and a lack of year-round forage and water to support the wild horses and burros within the herd area. A zero population requires removing all wild horses and burros from the herd area.

All previous planning documents, including the Lower Gila South RMP, referred only to wild burros in the area. However, in 1999, it was determined that horses were also present in the area in 1971 and subject to the protection of the Wild Free-Roaming Horses and Burros Act. Protests and litigation of an RMP amendment in the late 1990s resulted in a settlement agreement regarding the Painted Rock Herd Area. The BLM was instructed to conduct an analysis of the manageability of the Painted Rock herds and make a decision in the new RMP based on that analysis. The Painted Rock Burro Herd Manageability Analysis can be found in **Appendix M** of this PRMP/FEIS, and the goals and objectives found below are based on that analysis.

In 1992, the BLM Lower Gila South Field Office determined, through a review of the 1974 census and personal interviews, that burros were not making use of the BGR at the time of passage of the Wild Free-Roaming Horses and Burros Act. Therefore, any burros roaming the BGR are not wild burros, but strays or feral animals from the Tohono O'odham Reservation. Thus, the burros located on the BGR are not protected under the provisions of the Wild Free-Roaming Horses and Burros Act. Likewise, none of the lands relinquished by the US Air Force can be designated as a herd area, as defined by the Wild Free-Roaming Horses and Burros Act. Any burros (or other livestock) found on the BGR are considered in trespass and subject to 43 CFR 4150.

2.10.9.1 Existing Management Decisions, Alternative A (No Action)

The following decisions are extracted from the existing land use plans and amendments and are listed in chronological order. Because none of these current land use plans encompass the entire Planning Area, very few of these decisions are being carried forward as common to all alternatives and are restated as new action alternatives where applicable.

Lower Gila South Resource Management Plan (Goldwater Amendment) (1990)
(Applies to the three relinquished BGR parcels)

- Inventory the burro population to determine herd size and ownership (HB-1).
- Prepare a burro capture-and-removal plan in coordination with the US Air Force, Tohono O'odham tribe, and other affected parties (HB-2).
- Adopt captured burros through the adoption program or impound and sell, whichever is appropriate according to the determination of their ownership (HB-3).

Approved Amendment to the Lower Gila North Management Framework Plan and the Lower Gila South Resource Management Plan and Decision (2005)

- This amendment deferred to subsequent resource management planning all decisions relating to the management of wild horses and burros that were proposed in the Final Amendment and Environmental Assessment to the Lower Gila North Management Framework Plan and the Lower Gila South Resource Management Plan.
- Prepare a burro capture plan in consultation with appropriate government agencies and interest groups. All burros would be removed from the Painted Rock Reservoir area. Details for the burro capture program would be outlined in a herd management plan (HMP) (HB-06).

2.10.9.2 Action Alternatives for Wild Horses and Burros

Program Goals

- Goal 1: Manage the Painted Rock Herd Area in accordance with the Wild and Free-Roaming Horses and Burros Act.

Management Actions and Allowable Uses

Table 2-13, Management Actions and Allowable Uses for Wild Horses and Burros, describes management actions and allowable uses for wild horses and burros.

Table 2-13
Management Actions for Wild Horses and Burros

Decision Area		Alternative				Management Actions
Goal 1: Manage the Painted Rock Herd Area in accordance with the Wild and Free-Roaming Horses and Burros Act.						
Objective 1.1: Manage the Painted Rock Herd Area as a Herd Area with a target population of zero wild horses and burros.						
LS		B	C	D	E	HB-1.1.1: In accordance with the manageability analysis (**Appendix M**, Painted Rock Herd Manageability Analysis), the Painted Rock Herd Area would not be managed as an HMA. Neither reproducing nor non-

Table 2-13
Management Actions for Wild Horses and Burros

Decision Area		Alternative				Management Actions
						reproducing herds of wild horses or burros would be permissible. Burros and horses would be removed from the herd area as funding is available, with the target of reaching a population of zero. Wild horses and burros straying off the herd area onto private lands would be treated as nuisance animals and removed, in accordance with 43 CFR 4720.2.

2.10.10 WILDERNESS CHARACTERISTICS

In order for an area to contain wilderness characteristics, it must exhibit sufficient size, naturalness, and outstanding opportunities for solitude and/or outstanding opportunities for primitive and unconfined recreation. Managing the wilderness resource is part of the BLM's multiple use mission. Consistent with FLPMA and other applicable authorities, the BLM would consider the wilderness characteristics of public lands when undertaking land use planning. Considering wilderness characteristics in the land use planning process may result in different outcomes across the Planning Area over the life of the plan, including:

- Emphasizing other multiple uses as a priority over protecting wilderness characteristics;
- Emphasizing other multiple uses while applying management restrictions, such as conditions of use or mitigation measures, to reduce impacts to some or all of the wilderness characteristics; and
- Emphasizing the protection of some or all of the wilderness characteristics as a priority over other land uses.

Guidance used to inventory wilderness characteristics and consider wilderness characteristics in the Lower Sonoran-SDNM Draft RMP comes from BLM Land Use Planning Handbook (H-1601-1) and WO IM 2011-154:

> *Identify decisions to protect or preserve wilderness characteristics (naturalness, outstanding opportunities for solitude, and outstanding opportunities for primitive and unconfined recreation). Include goals and objectives to protect the resource and management actions necessary to achieve these goals and objectives. For authorized activities, include conditions of use that would avoid or minimize impacts to wilderness characteristics.*

Inventory is a process of gathering, identifying, and documenting information about the public lands and is not a decision to be proposed in the RMP. The existing inventory for wilderness characteristics is extensive, focused on wilderness characteristics, well documented, and includes years of public participation. A summary of wilderness characteristics inventory findings is presented in **Section 3.2.11**, Wilderness Characteristics, of **Chapter 3**, Affected Environment.

The inventory, public scoping, public comment on the DRMP/DEIS, and agency participation contributed to development of a broad range of alternatives for lands managed to protect wilderness characteristics.

The range of alternatives extends from no areas allocated to protect wilderness characteristics under Alternatives A and B, to Alternative D that proposes to allocate 404,800 acres as lands managed to protect wilderness characteristics. Alternative D includes all lands determined to possess wilderness characteristics. The remaining two alternatives propose portions of the Planning Area to be managed to protect wilderness characteristics: Alternative C would allocate 240,300 acres, and Alternative E (Proposed RMP) would allocate 199,000 acres.

The Alternative D presented in the DRMP/DEIS was based on a citizen inventory proposal. The Alternative D presented in the PRMP/FEIS discloses BLM's field-based wilderness inventory findings. All lands considered for wilderness characteristics management under Alternatives C, D, and E have received field inventory and a determination of the presence of wilderness characteristics by the BLM.

As indicated in the DRMP/DEIS and based on the BLM's knowledge of the Planning Area, it was determined that not all of the lands included in the citizens' proposal in Alternative D contained wilderness characteristics as those characteristics are defined. The Gila Bend Mountains (Red Rock Canyon), Oatman Mountain, Cuerda de Lena, Why, and Pozo Redondo areas were determined not to possess the mandatory wilderness characteristics.

Wilderness characteristic areas not addressed in the DRMP/DEIS were brought forward during the public comment period on the DRMP/DEIS. These areas were inventoried by BLM at the close of the public comment period. Some of these areas were determined to possess wilderness characteristics while other areas did not. A summary of these findings is presented in **Section 3.2.11**, Wilderness Characteristics.

The land use plan identifies a variety of measures to protect wilderness characteristics that would be carried forward as land use plan decisions for the life of the RMP. Examples include establishing VRM class objectives to guide analysis, placement, or decisions (approval/disapproval) of features like roads, trails, or facilities; identifying conditions of use for permitted uses; or designating lands as open, closed, or limited to OHV use.

2.10.10.1 Description of Alternatives

The Lower Sonoran-SDNM Planning Area has approximately 42,640 acres that were within three released WSAs. Proposals for lands managed to protect wilderness characteristics are presented under Alternatives C, D, and E that include lands within these former WSAs.

Alternative C contains lands with wilderness characteristics inventoried by the BLM with 240,300 acres to be managed to protect wilderness characteristics. Lands managed to protect wilderness characteristics include Batamote Mountains East/West, Black Mountain, Face Mountain, Palo Verde Hills, Saddle Mountain, Javelina Mountain and Blue Plateau (Sand Tank Mountains East/West), Sauceda Mountains, South Maricopa Mountains Addition, White Hills, and Yellow Medicine Butte.

Alternative D contains all lands with wilderness characteristics inventoried by the BLM. All 404,800 acres of these lands would be managed to protect wilderness characteristics under Alternative D.

Alternative E contains lands with wilderness characteristics inventoried by the BLM with 199,000 acres to be managed to protect wilderness characteristics. Lands managed to protect wilderness

characteristics include Batamote Mountains East/West, Cortez Peak, Saddle Mountain, Javelina Mountain and Blue Plateau (Sand Tank Mountains East/West), Sauceda Mountains, Yellow Medicine Butte, and White Hills.

2.10.10.2 Existing Management Decisions, Alternative A – No Action for Wilderness Characteristics

There are no existing management decisions for wilderness characteristics.

2.10.10.3 Action Alternatives for Wilderness Characteristics

Program Goals

- Goal 1: Areas to be managed to protect wilderness characteristics should retain a high degree of naturalness where the imprint of humans on lands and resources is substantially unnoticeable. Furthermore, outstanding opportunities for solitude and primitive or unconfined types of recreation should be maintained or enhanced.

Allocations Summary

Table 2-14, Acres of Lands Managed to Protect Wilderness Characteristics by Alternative, lists acreages managed to protect wilderness characteristics under each alternative.

Table 2-14
Acres of Lands Managed to Protect Wilderness Characteristics by Alternative

	Alternative (BLM Acres Rounded to Nearest Hundred)				
Decision Area	**Alt A**	**Alt B**	**Alt C**	**Alt D**	**Alt E**
Lower Sonoran	0	0	128,100	250,000	91,200
Sonoran Desert National Monument	0	0	112,200	154,800	107,800
Total	0	0	240,300	404,800	199,000

Management Actions and Allowable Uses

Table 2-15, Management Actions and Allowable Uses for Wilderness Characteristics, describes management actions and allowable uses for wilderness characteristics.

Table 2-15
Management Actions and Allowable Uses for Wilderness Characteristics

Decision Area	Alternative	Management Actions and Allowable Uses
Goal 1: Areas to be managed to protect wilderness characteristics should retain a high degree of naturalness where the imprint of humans on lands and resources is substantially unnoticeable. Furthermore, outstanding opportunities for solitude and primitive or unconfined types of recreation should be maintained or enhanced.		
Objective 1.1: Manage lands managed to protect wilderness characteristics to maintain a high degree of naturalness and offer outstanding opportunities for solitude or primitive, unconfined recreation by reducing impacts to these values while considering manageability and competing resource demands.		

Table 2-15
Management Actions and Allowable Uses for Wilderness Characteristics

Decision Area		Alternative				Management Actions and Allowable Uses
LS	SDNM		C	D	E	WC-1.1.1: Public lands would be designated as lands managed to protect wilderness characteristics as shown in **Table 2-14**, Acres of Lands Managed to Protect Wilderness Characteristics by Alternative. (See **Maps 2-3c, d, and e**)
LS	SDNM		C	D	E	WC-1.1.2: Private or state in-holdings, including subsurface, would be acquired when available from willing owners.
LS	SDNM		C	D	E	WC-1.1.3: Lands managed to protect wilderness characteristics would be managed as exclusion areas for placement of new utility-scale renewable energy developments.
LS	SDNM		C		E	WC-1.1.4: Lands managed to protect wilderness characteristics would be managed as avoidance areas for minor and nonlinear LUAs with the exception for law enforcement, public safety or administrative purposes as approved by the authorized officer.
LS	SDNM			D		WC-1.1.5: Lands managed to protect wilderness characteristics would be managed as exclusion areas for minor and nonlinear LUAs with the exception for law enforcement, public safety, or administrative purposes as approved by the authorized officer.
LS	SDNM		C		E	WC-1.1.6: Any potential new minor and nonlinear LUAs, and maintenance of existing facilities, would be evaluated and allowed under the following circumstances: • When compatible with maintaining or enhancing wilderness characteristics or when needed to protect, manage, or improve natural or heritage resource conditions; • When meeting law enforcement, agency, or public safety needs; • When reconstruction, replacement, or major maintenance of existing facilities, or development of new projects, is consistent with this plan's objectives, VRM classes, and desired recreation, social, and managerial settings; • When the project site can be restored to its previous condition after the project is completed.
LS	SDNM		C	D	E	WC-1.1.7: Existing facilities and projects no longer active would be removed if practicable.
LS	SDNM		C	D	E	WC-1.1.8: Sites and locales with human-caused disturbances would be rehabilitated if such actions maintain or enhance wilderness characteristics and natural/heritage resources, are practicable, meet management prescriptions and SOPs, and are addressed in a restoration plan.
LS	SDNM		C	D	E	WC-1.1.9: Measurement standards would be developed and adopted for: • Trail conditions, • Facility conditions, • Visitor-to-visitor encounters, • Vegetation changes, • Vegetation and wildlife desired resource conditions (DRCs), and

Table 2-15
Management Actions and Allowable Uses for Wilderness Characteristics

Decision Area		Alternative				Management Actions and Allowable Uses
						• Other approved activities
LS	SDNM		C	D	E	WC-1.1.10: Lands managed to protect wilderness characteristics would be closed to leasable minerals exploration and development.
LS			C	D	E	WC-1.1.11: Mineral materials sales and free-use authorizations would be prohibited.
LS			C		E	WC-1.1.12: Lands managed to protect wilderness characteristics would be designated and managed as limited OHV use areas. Motorized vehicle use would be limited to primitive routes described in the wilderness inventory findings and generally subject to the four prescriptions below. When this planning is completed, motorized travel and non-motorized vehicles (e.g., bicycles, hang gliders, other devices for conveyance, and stock drawn carts/wagons) would generally be restricted to designated roads, primitive roads, and trails. • Major arterial vehicle travel routes through wilderness character allocation areas would remain open for motorized travel. • Vehicle routes to range and wildlife developments would remain open to public use under most circumstances. • Vehicle spur roads and vehicle routes in washes would be closed to motorized travel and vehicle use.
LS				D		WC-1.1.13: Lands managed to protect wilderness characteristics would be designated closed OHV areas. Motorized, non-motorized, and mechanized vehicles (with the exception of game carriers) would be prohibited. Until travel management plans are completed, vehicle travel would be restricted to existing routes acknowledged by the BLM's current OHV route inventory.
	SDNM		C		E	WC-1.1.14: Lands managed to protect wilderness characteristics would be designated limited OHV use areas. All inventoried primitive vehicle routes within the wilderness characteristics boundary would be closed.
	SDNM			D		WC-1.1.15: Lands managed to protect wilderness characteristics would be designated closed OHV areas. Motorized, non-motorized, and mechanized vehicles (with the exception of game carriers) would be prohibited. All primitive vehicle routes within such lands would be closed, including primitive routes to range and wildlife developments, primitive route spurs, and routes in washes.
LS	SDNM		C	D	E	WC-1.1.16: Public or commercial collection of plant and mineral materials would be prohibited.
LS	SDNM		C	D	E	WC-1.1.17: Wheeled game carriers would be allowed.
LS	SDNM		C		E	WC-1.1.18: Closed vehicle routes could be converted, where appropriate, for use as equestrian and/or hiking trails.
LS	SDNM		C		E	WC-1.1.19: New equestrian and/or hiking trails would be established when consistent with this plan's objectives; desired recreation, social, and managerial settings; and VRM classes.

Table 2-15
Management Actions and Allowable Uses for Wilderness Characteristics

Decision Area		Alternative				Management Actions and Allowable Uses
LS	SDNM		C		E	WC-1.1.20: Special recreation permits, commercial recreation and vending operations, guided hunts, and concession leases would be allowed when they are landscape- and wilderness-character resource-dependent activities consistent with this plan's objectives; desired recreation, social, and managerial settings; and VRM classes.
LS	SDNM			D		WC-1.1.21: Closed vehicle routes would not be converted for use as equestrian and/or hiking trails.
LS	SDNM			D		WC-1.1.22: Development of new equestrian and/or hiking trails would be prohibited.
LS	SDNM			D		WC-1.1.23: Special recreation permits, including commercial, organized group, and competitive activities, vending operations, and concession leases, would be prohibited.

Administrative Actions

- Projects would employ the least-impacting methods for development that can be reasonably applied:
- Use design methods that cause the facility to blend into the landscape, including consideration of site selection and use of a low profile;
- Design facilities that would require minimal maintenance;
- Use best management practices to minimize surface and vegetation disturbance during construction;
- Decrease the visual effect of existing facilities during reconstruction, replacement, or major maintenance;
- Establish baseline standards to protect proper levels of recreational and landscape disturbance to protect wilderness characteristics.

2.10.11 WILDLAND FIRE MANAGEMENT

Staff at the BLM's Lower Sonoran Field Office coordinates with other agencies to manage fire in accordance with the nationwide BLM fire policy and the National Fire Plan. This integrates fire and fuels management with other land and resource management activities to benefit natural resources and implement multiple use on BLM-administered lands within Arizona that fall within the Planning Area.

The Lower Colorado River subdivision of the Sonoran Desert is the predominant vegetation community within the Planning Area. This vegetation community is neither fire adapted nor fire dependent. Historically, fire has never played a large role in the development and maintenance of the ecosystem

throughout the Planning Area. However, the invasion of nonnative species has created areas that are now prone to high- intensity fires with high rates of spread.

The Planning Area also contains wildland-urban interface (WUI) areas. These are places where manmade structures and infrastructure are intermingled with wildlands. Unplanned ignitions in the WUI could have adverse effects on the ecosystem and society unless some form of mitigation takes place. Wildfire management includes areas where mitigation and suppression are required to prevent direct threats to life or property. Mitigation may include mechanical, manual, biological, chemical, or prescribed fire to maintain non-hazardous levels of fuels, reduce the hazardous effects of unplanned wildland fires, and meet resource objectives.

When applying fuels treatment methods, BLM policies, procedures, and plans are to be followed in all cases. The mechanical, manual, chemical, biological, and fire-treatment methods that may be used are described in this document. There are several treatment methods and standard operating procedures that would be used in a vegetation treatment program. BLM policies and guidance for public land treatments would be followed in implementing all treatment methods.

2.10.11.1 Existing Management Decisions (Alternative A - No Action)

The following decisions are extracted from the existing land use plans and amendments and are listed in chronological order. Because none of these current land use plans encompass the entire Planning Area, very few of these decisions are being carried forward as common to all alternatives and are restated as new action alternatives where applicable.

Arizona Statewide Land Use Plan Amendment for Fire, Fuels, and Air Quality Management (2004)

- Manage fire and fuels according to the current policies and requirements and to meet desired future conditions for other resource values.
- All public lands within the Planning Area are assigned to one of the following allocations for Fire Management based on ecological conditions and ecological risk, and determined by contrasting current with historical conditions and ecological risks associated with those changes. Allocation 1 lands are ecologically adapted to fire, and Allocation 2 lands are not ecologically adapted to fire. Almost all of the lands located within the Lower Sonoran Field Office Planning Area fall into the Allocation 2 classification.

2.10.11.2 Action Alternatives for Wildland Fire Management

Program Goals

- Goal 1: Ensure firefighter and public safety is the highest priority in every fire or fuels management activity.
- Goal 2: Wildland fuels are managed to protect WUI areas and meet resource management objectives.

- Goal 3: Limit the extent of wildfires and the impact of fire suppression efforts on wildlife, plant communities, and natural and cultural features.

Management Actions and Allowable Uses

Table 2-16, Management Actions and Allowable Uses for Wildland Fire Management, describes management actions and allowable uses for wildland fire management.

Table 2-16
Management Actions and Allowable Uses for Wildland Fire Management

Decision Area		Alternative				Management Actions and Allowable Uses
Goal 1: Ensure firefighter and public safety is the highest priority in every fire or fuels management activity.						
Objective 1.1: Set priorities among protecting residences, community infrastructure, and other manmade property and improvements.						
LS	SDNM	B	C	D	E	WF-1.1.1: Management Response to unplanned ignitions would be full suppression for all lands within the LSFO Planning Area.
LS	SDNM	B	C	D	E	WF-1.1.2: Implement a hazardous fuels reduction program that creates conditions conducive for safe and effective firefighting.
LS	SDNM	B	C	D	E	WF-1.1.3: With community partners, implement the Pinal and Pima County Community Wildfire Protection Plans.
LS	SDNM	B	C	D	E	WF-1.1.4: With community partners, provide input into the development of the Pima and Gila County Community Wildfire Protection Plans.
Goal 2: Wildland fuels are managed to protect WUI areas and to meet resource management goals.						
Objective 2.1: Fuels within WUI areas are proactively managed to improve the protection of life and property.						
LS	SDNM	B	C	D	E	WF-2.1.1: Hazardous fuels around communities at risk and utility infrastructure (e.g., roads, power lines, and communication sites) within the WUI are reduced using mechanical, chemical, biological, and prescribed fire treatments, where applicable.
LS	SDNM	B	C	D	E	WF-2.1.2: Identify, prioritize, and implement WUI fuels treatments in the Planning Area. Fuels treatments to reduce wildland fire risk would focus on the WUI areas identified in the Planning Area Community Wildfire Protection Plans and those that are developed collaboratively with Planning Area partners.
LS	SDNM	B	C	D	E	WF-2.1.3: In consultation with cultural resource specialists, develop fuels treatments to protect cultural resources that are susceptible to damage from wildfire.
LS	SDNM	B	C	D	E	WF-2.1.4: Analyze and implement where needed, hazardous fuels reduction in and around recreation sites to improve public and firefighter safety.
Goal 3: Limit the extent of wildfires and the impact of fire suppression efforts on wildlife, plant communities, and natural and cultural features.						
Objective 3.1: Reduce the frequency of human-caused wildland fires and minimize the total number of acres burned within the Planning Area.						
LS	SDNM	B	C	D	E	WF-3.1.1: Management Response to unplanned ignitions would be full suppression for all lands within the Planning Area.

Table 2-16
Management Actions and Allowable Uses for Wildland Fire Management

Decision Area		Alternative				Management Actions and Allowable Uses
LS	SDNM	B	C	D	E	WF-3.1.2: Identify, prioritize, and implement non-WUI fuels treatments within the Planning Area. Prioritization would be given to fuels treatments that maintain areas in Fire Regime Condition Class 1 or have the ability to improve areas characterized as Fire Regime Condition Class II and III.
LS	SDNM	B	C	D	E	WF-3.1.3: Implement fuels treatments, suppression activities, and prevention activities that target reducing the size and number of human-caused wildland fires.
Objective 3.2: For all fire management activities (wildfire suppression, prescribed fire, and mechanical, chemical, and biological vegetation treatments), a focus would be to maintain or improve habitat for federally threatened, endangered, proposed, and candidate (federally protected) species.						
LS	SDNM	B	C	D	E	WF-3.2.1: Identify and implement post-fire stabilization and rehabilitation actions in burned areas to restore a functional landscape to meet the resource management objectives.
LS	SDNM	B	C	D	E	WF-3.2.2: Use prescribed fire, chemical, mechanical, manual, and biological treatments in areas of the Planning Area that fall in Fire Regimes 2 and 4 to reduce shrub and tree components.
LS		B	C	D	E	WF-3.2.3: Hazardous fuel reduction projects would be integrated with riparian restoration projects to reduce the frequency and the extent of fires along the Gila River as well as improve the quality and quantity of native riparian vegetation communities.
LS		B	C	D	E	WF-3.2.4: Utilize fuels management treatments including prescribed fire to manage decadent marsh vegetation and improve habitat for Yuma Clapper Rail and other species that depend upon cattail and bulrush marsh for foraging and nesting habitat.
LS	SDNM	B	C	D	E	WF-3.2.5: Protect known locations of habitat occupied by federally listed species. Minimum impact suppression tactics (MIST) would be followed in all areas with known federally protected species or habitat.
LS	SDNM	B	C	D	E	WF-3.2.6: Construction of permanent roads, primitive roads, or trails would not be permitted during fire-suppression activities in habitat occupied by federally protected species. Construction of temporary roads, primitive roads, or trails is approved only if necessary for safety or the protection of property or resources, including federally protected species habitat. Temporary road construction should be coordinated with the USFWS, through the resource advisor.
LS	SDNM	B	C	D	E	WF-3.2.7: Crew camps, equipment staging areas, and aircraft landing and fueling areas should be located outside of listed species habitats, preferably in locations that have previously been disturbed. If camps must be located in listed species habitat, the resource advisor would be consulted to ensure habitat damage and other effects to listed species are minimized and documented. The resource advisor should also consider the potential for indirect effects to listed species or their habitat from the siting of camps and staging areas (e.g., if an area is within the water flow pattern, there may be

Table 2-16
Management Actions and Allowable Uses for Wildland Fire Management

Decision Area		Alternative				Management Actions and Allowable Uses
						indirect effects to aquatic habitat or species located off-site).
LS	SDNM	B	C	D	E	WF-3.2.8: Use of motorized vehicles during prescribed burns or other fuels treatment activities in suitable or occupied listed species habitat would be restricted, to the extent feasible, to existing roads, trails, washes, and temporary fuel breaks or site-access routes. If off-road travel is deemed necessary, any cross-country travel paths would be surveyed prior to use and would be closed and rehabilitated after the prescribed burn or fuels treatment project is completed.
LS	SDNM	B	C	D	E	WF-3.2.9: Sediment traps or other erosion control methods would be used to reduce or eliminate an influx of ash and sediment into aquatic systems.
LS	SDNM	B	C	D	E	WF-3.2.10: Use of motorized vehicles during rehabilitation or restoration activities in suitable or occupied listed species habitat would be restricted, to the extent feasible, to existing roads, trails, or washes, and to temporary access roads or fuel breaks created to enable the fire suppression, prescribed burn, or fuels treatment activities to occur. If off-road travel is deemed necessary, any cross-country travel paths would be surveyed prior to use and would be closed and rehabilitated after rehabilitation or restoration activities are completed.
LS	SDNM	B	C	D	E	WF-3.2.11: All temporary roads, vehicle tracks, skid trails, and OHV trails resulting from fire suppression and the proposed fire management activities would be rehabilitated (water bars, etc.), and would be closed or made impassible for future use.
LS	SDNM	B	C	D	E	WF-3.2.12: During wildfire suppression, apply MIST within riparian areas. Fire-suppression actions in riparian areas should be prioritized to minimize damage to stands of native vegetation from wildfire or suppression operations. To the extent possible, retain large, downed woody materials and snags that are not a hazard to firefighters.
LS	SDNM	B	C	D	E	WF-3.2.13: In riparian areas, use natural barriers or openings in riparian vegetation where possible as the easiest, safest method to manage a riparian wildfire. Where possible and practical, use wet fuelbreaks in sandy overflow channels rather than constructing fire lines by hand or with heavy equipment.
LS	SDNM	B	C	D	E	WF-3.2.14: Construction or development of a crossing for motorized vehicles across a perennial stream would not be permitted, unless an established road already exists or where dry, intermittent sections occur.
LS	SDNM	B	C	D	E	WF-3.2.15: Avoid the use of fire retardants or chemical foams in riparian habitats or within 300 feet of aquatic habitats, particularly sites occupied by federally protected species. Apply operational guidelines as stated in the Interagency Standards for Fire and Fire Aviation Operations (as updated), "Environmental Guidelines for Delivery of Retardant or Foam Near Waterways."

Table 2-16
Management Actions and Allowable Uses for Wildland Fire Management

Decision Area		Alternative				Management Actions and Allowable Uses
LS	SDNM	B	C	D	E	WF-3.2.16: When using water from sources supporting federally protected species, care must be taken to ensure adverse impacts on these species are minimized or prevented. Unused water from fire abatement activities would not be dumped in sites occupied by federally protected aquatic species to avoid introducing nonnative species, diseases, or parasites.
LS	SDNM	B	C	D	E	WF-3.2.17: If water is drafted from a stock tank or other body of water for fire suppression, it would not be refilled with water from another tank, lakes, or other water sources that may support nonnative fishes, bullfrogs, crayfish, or salamanders.
LS	SDNM	B	C	D	E	WF-3.2.18: Use of containment systems for portable pumps to avoid fuel spills in riparian or aquatic systems would be required.
LS	SDNM	B	C	D	E	WF-3.2.19: All conservation measures for wildland fire suppression also apply to fuels treatment activities (prescribed fire; mechanical, chemical, and biological treatments) in riparian, wetland, and aquatic habitats.
LS	SDNM	B	C	D	E	WF-3.2.20: Fire management treatments within or adjacent to riparian and aquatic habitats would be designed to provide long-term benefits to aquatic and riparian resources by reducing threats associated with dewatering and surface disturbance, or by improving the condition of the watershed and enhancing watershed function.
LS	SDNM	B	C	D	E	WF-3.2.21: For priority fire/fuels management areas (e.g., WUI) with federally protected species or designated critical habitat downstream, BLM biologists and other resource specialists, as appropriate, in coordination with USFWS and AGFD, would determine: 1. The number of acres and the number of projects or phases of projects to occur within one watershed per year. 2. An appropriately-sized buffer adjacent to perennial streams in order to minimize soil and ash from entering the stream. 3. Where livestock grazing occurs in areas that have been burned, specialists would determine when grazing can be resumed. Such deferments from grazing would only occur when necessary to protect streams from increased ash or sediment flow into streams.
LS	SDNM	B	C	D	E	WF-3.2.22: To the extent possible, maintain habitat features necessary to support breeding populations of the pygmy-owl within their historic range and review ongoing fire management activities for effects on essential habitat features needed by cactus ferruginous pygmy-owls. Modify activities, where necessary, to sustain the overall suitability of the habitat for the owls. Priority would be given to activities in or near occupied or recently (within the last 10 years) occupied habitat.
LS	SDNM	B	C	D	E	WF-3.2.23: Implement the conservation measures for Fire Management Activities in Riparian and Aquatic Habitats.
LS	SDNM	B	C	D	E	WF-3.2.24: Except where fires are active in occupied Southwestern willow flycatcher habitat, minimize unnecessary low-level helicopter flights during

Table 2-16
Management Actions and Allowable Uses for Wildland Fire Management

Decision Area		Alternative				Management Actions and Allowable Uses
						the breeding season (April 1 – September 30). Approach bucket dip sites at a 90-degree direction to rivers to minimize flight time over the river corridor and occupied riparian habitats. Locate landing sites for helicopters at least one-quarter mile from occupied sites to avoid impacts on Southwestern willow flycatchers and their habitat.
LS	SDNM	B	C	D	E	WF-3.2.25: Minimize use of chainsaws or bulldozers to construct fire lines through occupied or found to be occupied listed species habitat except where necessary to reduce the overall acreage of occupied habitat or other important habitat areas that would otherwise be burned.
LS	SDNM	B	C	D	E	WF-3.2.26: Avoid developing access roads that would result in fragmentation or a reduction in habitat quality for listed species. Close and rehabilitate all roads that were necessary for project implementation (see RR-5).
LS	SDNM	B	C	D	E	WF-3.2.27: Prescribed burning would only be allowed within one-half mile of occupied or found-to-be-occupied habitat when weather conditions allow smoke to disperse away from the habitat when Southwestern willow flycatchers may be present (breeding season of April 1 – September 30).
LS	SDNM	B	C	D	E	WF-3.2.28: The following reasonable and prudent measures, terms, and conditions are necessary and appropriate to minimize take of Southwestern willow flycatchers: • Minimize the effects of harassment, harm, and mortality to Southwestern willow flycatchers. • In cooperation with USFWS and using guidance from the Southwestern willow flycatcher recovery plan, the BLM shall incorporate the elements recommended for fire risk evaluation and planning into its fire management plans for all current flycatcher breeding sites on or adjacent to BLM-administered lands. • If additional sites become occupied, the BLM shall include them in the yearly fire management plans in cooperation with USFWS, prior to the next wildfire season.
LS	SDNM	B	C	D	E	WF-3.2.29: During fire management activities in habitat occupied by federally protected plant species, no staging of equipment or personnel would be permitted within 100 meters of identified individuals or populations, nor would off-road vehicles be allowed within the 100-meter buffer area, unless necessary for firefighter or public safety or the protection of property, improvements, or other resources (see FS-7). Primary threats to many of these plant species are trampling or crushing from personnel and vehicles.
LS	SDNM	B	C	D	E	WF-3.2.30: No prescribed burning would be implemented within 100 meters of identified locations or unsurveyed suitable habitat for federally protected and sensitive plant populations unless specifically designed to maintain or improve the existing population.

Table 2-16
Management Actions and Allowable Uses for Wildland Fire Management

Decision Area		Alternative				Management Actions and Allowable Uses
LS	SDNM	B	C	D	E	WF-3.2.31: Prior to implementing any fuels treatment activities (prescribed fire, vegetation treatments), pre-project surveys would be conducted for paniculate agaves and saguaros that may be directly affected by fuels management activities.
LS	SDNM	B	C	D	E	WF-3.2.32: Protect long-nosed bat forage plants—saguaros and high concentrations of agaves—from wildfire and fire-suppression activities, and from modification by fuels treatment activities (prescribed fire, vegetation treatments), to the greatest extent possible. Agave concentrations are contiguous stands or concentrations of more than 20 plants per acre. Avoid driving over plants, piling slash on top of plants, and burning on or near plants. Staging areas for fire crews or helicopters would be located in disturbed sites, if possible.
LS	SDNM	B	C	D	E	WF-3.2.33: No seeding/planting of nonnative plants would occur in any wildfire rehabilitation site or fuels treatment site with paniculate agaves or saguaros.
Objective 3.3: For all fire management activities efforts would be made to reduce the impacts on natural and cultural resources.						
LS	SDNM	B	C	D	E	WF-3.3.1: Conduct all fire management activities within the SDNM, ACECs, and along the Anza NHT in a manner that would avoid or minimize degradation of these areas and values that have been identified in the respective legislative designations for these areas.
LS		B	C	D	E	WF-3.3.2: As part of an integrated vegetation resources management strategy, create fuel breaks and complete hazardous fuels reduction activities within the Fred J. Weiler Green Belt to protect and restore mesquite bosques and native riparian woodlands.
LS	SDNM	B	C	D	E	WF-3.3.3: Ensure fire management activities in wilderness areas are compatible with the applicable wilderness plan.

Administrative Actions

- Resource advisors from the BLM would be designated to coordinate natural resource concerns, including federally protected species. They would also serve as a field contact representative responsible for coordination with the USFWS. Duties would include identifying protective measures endorsed by the field office manager, and delivering these measures to the incident commander; surveying prospective campsites, aircraft landing, and fueling sites; and performing other duties necessary to ensure adverse effects on federally protected species and their habitats are minimized. On-the-ground monitors would be designated and used when fire-suppression activities occur within identified occupied or suitable habitat for federally protected species.

- All personnel on the fire (firefighters and support personnel) would be briefed and educated by resource advisors or designated supervisors about listed species and the importance of

minimizing impacts on individuals and their habitats. All personnel would be informed of the conservation measures designed to minimize or eliminate take of the species present. This information is best identified in the incident objectives.

- The effectiveness of fire-suppression activities and conservation measures for federally protected species should be evaluated after a fire when practical, and the results shared with the USFWS and AGFD. Revise future fire-suppression plans and tactical applications as needed and as practical.

- Biologists would be involved in the development of prescribed burn plans and vegetation treatment plans to minimize effects on federally protected species and their habitats within, adjacent to, and downstream of proposed project sites. Biologists would consider the protection of seasonal and spatial needs of federally protected species (e.g., avoiding or protecting important use areas or structures and maintaining adequate patches of key habitat components) during project planning and implementation.

- Pre-project surveys and clearances (biological evaluations/assessments) for federally protected species would be required for each project site before implementation. All applicable conservation measures would be applied to areas with unsurveyed suitable habitat for federally protected species, until a survey has been conducted by qualified personnel to clear the area for the treatment activity.

- As part of the mandatory fire briefing held prior to prescribed burning, all personnel (firefighters and support personnel) would be briefed and educated by resource advisors or designated supervisors about listed species and the importance of minimizing impacts on individuals and their habitats. All personnel would be informed of the conservation measures designed to minimize or eliminate take of the species present.

- When rehabilitating important areas for federally listed species that have been damaged by fire or other fuels treatments, the biologist would give careful consideration to minimizing short-term and long-term impacts. Someone who is familiar with fire impacts and the needs of the affected species would contribute to rehabilitation plan development. Appropriate timing of rehabilitation and spatial needs of federally listed species would be addressed in rehabilitation plans.

- Burned area emergency rehabilitation activities and long-term restoration activities should be monitored, and the results provided to the USFWS and AGFD. Section 7 consultation for burned area emergency rehabilitation activities would be conducted independently, if necessary.

- Develop public education plans that discourage or restrict fires and fire-prone recreation uses during high-fire-risk periods. Develop brochures, signs, and other interpretive materials to educate recreationists about the ecological role of fires, and the potential dangers of accidental fires.

- Fire suppression and rehabilitation in riparian corridors would be coordinated with the resource advisor or qualified biologist approved by the BLM.

- Site-specific implementation plans that include project areas with federally protected aquatic or riparian-obligate species would specify fire management objectives and wildland fire-suppression guidance, taking into account the special concerns related to these species.

- Develop and implement restoration plans for affected riparian or aquatic areas, including long-term monitoring, to document changes in conditions in the riparian zone and watershed that maintain flood regimes and reduce fire susceptibility. Monitor stream water quality and riparian ecosystem health to determine effects of wildfire and fire management activities.. Coordinate efforts and results with the USFWS and AGFD.

- Develop mitigation plans in coordination with the USFWS for fuels treatment projects (prescribed fire; vegetation treatments) that may adversely affect cactus ferruginous pygmy-owls or their habitat. Mitigation plans for prescribed fire shall limit to the extent practicable the possibility that fire would spread to riparian habitats. Mitigation plans would be approved by the USFWS.

- The following reasonable and prudent measures, terms, and conditions are necessary and appropriate to minimize take of Yuma clapper rail:

    - Minimize disturbance to Yuma clapper rails during prescribed fire activities.

    - To allow for a better estimate of the number of birds in the affected area, the BLM or their designated representative shall conduct surveys of the site to be prescribed burned during the breeding season prior to the burn. Since prescribed fires would be conducted during September to March, the surveys shall be done the preceding March to May.

- Instruct all crew bosses fire personnel (wildfire suppression, wildland fire use, prescribed fire, and vegetation treatments) in the identification of agave and columnar cacti and the importance of their protection.

- Known locations and potential habitat for plant populations would be mapped to facilitate planning for wildland fire use, prescribed fires, and vegetation treatments, and to ensure protection of these populations during fire suppression.

- The BLM would coordinate with USFWS to delineate buffer areas around plant populations prior to prescribed fire and vegetation treatment activities. The BLM would coordinate with USFWS during any emergency response and wildland fire use activities to ensure protection of plant populations from fire and fire-suppression activities.

- A mitigation plan would be developed by the BLM in coordination with the USFWS for prescribed fires or fuels management projects (mechanical, chemical, biological treatments) within 0.5 mile of bat roosts or in areas that support paniculate agaves or saguaros. The mitigation plan would ensure that effects on bat roosts and forage plants are minimized and would include monitoring of effects on forage plants. The plan would be approved by the USFWS.

- BLM personnel should examine concentrations of agaves (including shindagger [A. schottii]) within each proposed fuels treatment area, and blackline or otherwise protect from treatments any significant concentrations of agaves that appear to be amidst fuel loads that could result in mortality greater than 20 percent (greater than 50 percent for A. schottii). BLM personnel should use their best judgment, based on biological and fire expertise, to determine which significant agave stands are prone to mortality greater than 20 percent (greater than 50 percent for A. schottii) (see conservation measures FT-1 and FT-3).

- The BLM should continue to support and cooperate in the investigations of agave relationships to livestock grazing, and of the effects of prescribed fire on paniculate agaves.

- Coordinate invasive-species management, monitoring, control, and education efforts with the appropriate federal, state, county, municipal, and tribal agencies and other partners. Efforts would be coordinated through the Borderlands Cooperative Weed Management Area and other similar groups.

- Conduct floristic surveys and monitoring for populations of sensitive, candidate threatened, endangered, rare, or unique species (applicable to the three relinquished BGR parcels).

- Update the existing botanical resources database and vegetation map (applicable to the three relinquished BGR parcels).

- Adhere to the intent of the Arizona Native Plant Law, ESA, and all other applicable laws and regulations to protect vegetative resources.

- Focus invasive species monitoring efforts on likely vectors of invasion, such as linear features (roads, canals, railroads, utility corridors, etc.), disturbed areas (construction or development areas), and areas where water is available or may pond (water control structures, etc.).

- Control of noxious weeds required by law would not be subject to a benefit-cost analysis; however, the most economical and efficient method would be analyzed along with the safety of the proposed kind of treatment.

- Rehabilitation procedures would follow the Phoenix District Reclamation Plan.

- (Environmental Assessments) Conduct an environmental analysis at the time of the pretreatment survey. An interdisciplinary team would review any analysis needed on individual projects or group of projects.

- (Cost-Benefit Analysis) Subject land treatments proposed for livestock forage improvement to a cost-benefit analysis to ensure total benefits gained would equal or exceed the cost of the treatments.

- Develop effective interagency and community interactions and cooperation to meet wildland-fire and fuel-management strategies and landscape-scale resource condition objectives across administrative boundaries.

- Include wildfire hazard mitigation strategies in the Fire Management Plan for the Planning Area by identifying appropriate areas for prescribed fire and mechanical, manual, biological, or chemical treatments to reduce hazardous fuels to minimize the adverse effects of uncharacteristic wildland fires and meet resource objectives. The plan would also identify areas for exclusion from fire (through fire suppression), chemical, mechanical, and biological treatments.

- Protect human life (both firefighters' and the public) and communities, property, and the natural resources on which they depend. Firefighter and public safety are the highest priority in all fire management activities.

- Improve public awareness of the role of fire in ecosystem restoration, wildfire risk and mitigation strategies, and wildfire safe community, preparedness, and response planning.

2.10.12 WILDLIFE AND SPECIAL STATUS SPECIES

The BLM Land Use Planning Handbook (H-1601-1) requires the BLM to designate priority species and habitats, in addition to special status species, for fish or wildlife species recognized as significant for at least one factor such as density, diversity, size, public interest, remnant character, or age. Because priority wildlife species includes special status species, as well as the majority of other wildlife species in the Planning Area, this section also covers special status species in order to display in a single section all actions and desired outcomes for wildlife species.

The primary categories of priority species are listed below. For the complete list of priority wildlife species see **Appendix J**, Wildlife and Special Status Species.

- Special status species, including species listed as threatened or endangered, or those proposed for listing under the ESA, and candidate and BLM sensitive species (BLM Manual 6840);

- Bats;

- Migratory birds, including birds of conservation concern;

- Raptors;

- Game species;

- Species for which there is a signed conservation agreement or strategy.

The BLM focuses most of its wildlife management efforts on priority species habitat. The general assumption is that if the habitat requirements for priority species are met, the habitat for most other wildlife species also is met. The BLM manages priority species in accordance with a variety of laws, regulations, policies, plans, manuals, and agreements. Priority species include fish and wildlife species requiring protective measures and management guidelines to encourage their perpetuation. Moreover, priority wildlife species include state endangered, threatened, sensitive, and candidate species; animal aggregations considered vulnerable; and those species of recreational, commercial, or tribal importance

that are vulnerable. The major sources of guidance the BLM uses to manage priority species are the Endangered Species Act of 1973; Migratory Bird Treaty Act of 1918; Executive Order 13186 (2001); Bald and Golden Eagle Act of 1940; FLPMA of 1976; BLM Manual 174, Introduction, Transplant, Augmentation and Reestablishment of Fish, Wildlife and Plants; BLM Manual 6840 Special Status Species Management (2008); Desert Tortoise Rangewide Plan (1990); and various Instructional Memoranda. See **Section 3.2.13** of **Chapter 3**, Affected Environment, and **Appendix B**, Applicable Laws, Regulations, and Policies, for a comprehensive list and descriptions.

Priority habitats are defined as fish and wildlife habitats requiring protective measures or management guidelines to support habitat availability. Priority habitats are limited in range and size; provide necessary components for threatened, endangered, and special status species; connect two or more priority habitat areas; or are especially sensitive to disturbance and degradation. Priority habitats are large areas that encompass WHAs and wildlife movement corridors. Connection between these habitat patches is important to provide wildlife the ability to move along elevation gradients and between habitat areas. As climate conditions change, wildlife must be able to adapt by expanding or contracting according to the needs of their lifecycles. Therefore, it is necessary to maintain corridors of undisturbed vegetation that connect to other undisturbed habitat areas. Human population growth that results in the development of subdivisions, highways, and other infrastructure creates barriers to wildlife movement. In order to provide for wildlife movement, the BLM, in coordination with AGFD, developed movement corridors where surface-disturbing activities must mitigate damage to habitat and maintain connectivity to other undisturbed areas. In this plan, WHAs are proposed in the various alternatives, and numerous wildlife movement corridors are identified in all action alternatives for the Lower Sonoran Field Office Decision Area.

Arizona's wildlife is one of its most precious resources. To protect wildlife and wildlife habitat, we have proposed allocations of WHAs with an emphasis on habitat management for priority species. This designation contains management prescriptions that are designed to enhance and protect wildlife habitats within the WHA. Also incorporated are wildlife movement corridors. These corridors are not an allocation; however, they would be managed to enhance opportunities for wildlife to traverse from one area to another with relative ease and security. Therefore, there is overlap in the designation of the WHAs and a number of the corridors. These overlaps facilitate management actions in both areas to encourage habitat availability for wildlife species, passageways for wildlife species, and their continued persistence. WHAs and wildlife corridors are defined as follows:

Wildlife Habitat Area: A WHA is an area that offers feeding, roosting, breeding, nesting, and refuge areas for a variety of wildlife species native to an area. The WHAs proposed in the Planning Area are large areas with a multitude of different habitats and uses within their boundaries. Public lands comprise the vast majority of each WHA, but they also may contain state and private land. The proposed WHA includes recommendations to protect and enhance their areas for all wildlife species and would target priority species for management purposes while facilitating multiple uses. The proposed WHA considers both the quality and quantity of habitat when determining whether they would support local populations of wildlife.

Wildlife Movement Corridors: A wildlife movement corridor (WMC) is a continuous natural pathway that allows native wildlife species to move between habitats in relative security over short or great distances. The goal of identifying wildlife movement corridors is to maintain a belt of native vegetation

between various habitats that is as nearly contiguous as possible while facilitating multiple uses. Corridors work best when they are composed of land that is sparsely developed and unfragmented. The land through which wildlife must pass when traveling between these habitats may, at times, consist of lands in private, state, and public ownership. Corridors can and do encompass public roads, rights-of-way, trails, farmlands, OHV areas, and urban areas. Corridors with appropriate management actions facilitate movements of wildlife and aid in maintaining genetic diversity. Genetic diversity plays a very important role in the survival and adaptability of a species. Corridors also facilitate the ability for wildlife to expand and contract based on habitat availability and population cycles, allowing wildlife to travel from sub-par habitat types during drought, for example, to more suitable and sustainable habitat types. Adaptive management and best management practices would be used in WHAs and corridors to allow for multiple uses while preserving passage areas for wildlife. Numerous areas have been identified as movement corridors for wildlife and vary in size and shape depending on alternatives.

These areas contain characteristics necessary for wildlife to traverse their natural range securely and with relative ease. These corridors encompass topography ranging from mountainous terrain to desert flats and washes. While wildlife do not notice or use lines on a map, BLM as habitat managers must in some fashion delineate areas for management prescriptions. Therefore, the areas delineated include prescriptions for habitat management, and protections are provided to assist wildlife in their quest to survive.

2.10.12.1 Existing Management Decisions, Alternative A (No Action) for Wildlife and Special Status Species

Decisions are listed in chronological order by plan. The following decisions are extracted from the existing land use plans and amendments and are listed in chronological order. Because none of these current land use plans encompass the entire Planning Area, very few of these decisions are being carried forward as common to all alternatives and are restated as new action alternatives where applicable.

Please note that the majority of the decisions regarding the management of wildlife and desert tortoise were standard operating procedures or administrative actions and may be found in **Appendix B**, Applicable Laws, Regulations, and Policies or at the end of this section.

Lower Gila North Management Framework Plan (1983)

- Provide wildlife safe access to year-round water at 150 livestock waters on public lands by 1987 and cooperate with allottees to develop similar considerations on private lands (WL-1.1).

- Develop small and upland game waters in 11 areas by FY-87 (WL-1.2).

- Avoid subdividing bighorn sheep lambing areas with fencing and monitor livestock use of these key areas. Negotiate with range users to alleviate competition where documented. This will be done by change in season of use or by instituting a grazing system to rest lambing areas during critical lambing season (January through May) (WL-2.4).

- Decrease cattle densities in bighorn habitat to relieve competition between bighorn sheep and livestock for space, water, and browse. Graze domestic sheep as far from bighorn

habitat as possible to decrease bighorn disease vectors. Management will begin by 1990. Implementation of this recommendation will be met through range management in the following allotments: Aguila (intensive), Ohaco, and Calhoun (non-intensive). Implementation of this recommendation will be met through habitat management plans for the remaining allotments or as a result of planning for Lower Gila South (Crowder Cattle Company-portion lying within Lower Gila North; K-Lazy-B-portions lying within Lower Gila North; Carter-Herrera; Muse portion lying within Lower Gila North; Clem-portion lying within Lower Gila North; and Orosco). Domestic sheep will graze as far from bighorn habitat as practicable (WL-2.8).

- Cooperate with Arizona Game and Fish to acquire water rights to maintain or enhance spring habitats and riparian habitats in the planning unit. Specific sites will be determined in the Habitat Management Plan to achieve the goals stated in the plan (WL-4.4).

- Within distribution of desert and Arizona night lizards (10,000 acres) and Sonoran Mountain king-snake (1,200 acres), utilize 43 CFR 3809 (Surface Management Regulations) to minimize habitat disturbance during new road construction. Specify closing new roads as a provision in new mining plans of operation, when and where necessary, to prevent recreation disturbance to night lizard and king-snake habitat (WL-5.2).

Phoenix Resource Management Plan (1989)

- Maintain and improve habitat and viable wildlife populations (VM-01).

Lower Gila South Resource Management Plan (1989)

- As a general practice, new roads will not be bladed for use in fence construction. Vehicles will travel overland or fences will be built by hand (Not numbered).

- Before installing facilities, the BLM will conduct a site evaluation for state-protected animals and will develop mitigation to protect these species and their habitats. Such mitigation might include project relocation, redesign, or abandonment (Not numbered).

- The BLM will continue to place wildlife escape ramps in water troughs and construct or maintain new wildlife waters in coordination with state and other federal agencies (Not numbered).

- Fences proposed in big game habitat will be designed to reduce adverse impacts on big game movement. Specifications in BLM Manual 1737 and in local BLM directives will be used. The BLM will consult with the AGFD on the design and location of new fences (Not numbered).

- Where existing fences in big game habitat do not meet BLM specifications, they will be modified, according to BLM Manual 1737, when they are scheduled for replacement or major maintenance (Not numbered).

- New livestock waters to be located within two miles of crucial tortoise habitat and/or crucial desert bighorn sheep habitat will be analyzed on a case-by-case basis to determine

potential impacts. Significant impacts will be mitigated with appropriate stipulations on site selection (Not numbered).

- All livestock waters will provide safe, usable water for wildlife. As funding and opportunities permit, existing facilities will be modified to make them safe for wildlife use.

Lower Gila South Resource Management Plan - Goldwater Amendment (1990)
(Applies to the three relinquished Sentinel Plain, Sand Tank Mountains, and Ajo Airport parcels)

- Support continued Sonoran pronghorn monitoring and recovery efforts, including specific recovery efforts stipulated in the RMP (Not numbered).

- Eliminate all trespass grazing by livestock, goats, and burros and construct fences where trespass is a problem (Not numbered).

Vegetation Treatment of Public Lands in Thirteen Western States Final EIS (1991)

- Projects that may affect areas of threatened or endangered species of plants or animals will be postponed or site design modified to protect the presence of these species. Section 7 consultation (as required by the ESA) with the appropriate office of the USFWS will be initiated (Not numbered).

Lower Gila Resource Management Plan Amendment (2005)

Objectives:

- Objective 1: Not relevant.

- Objective 2: Complete and maintain a continuing inventory and monitoring program for tortoise populations and habitats to assist in making management decisions, including habitat categorization, on public lands. The BLM's desert tortoise inventory and monitoring handbook will contain the standards for inventory and monitoring in Arizona.

- Objective 3: Develop and maintain a monitoring program specifically for land use activities that adversely affect tortoise habitats for use in analyzing and responding to the cumulative impacts of land use decisions on tortoise habitats.

- Objective 4: Comply fully with the Endangered Species Act of 1973, as amended, as it relates to tortoise population and habitat management on public lands.

- Objective 5: Coordinate and cooperate with other federal and state agencies and other publics concerning tortoise populations and habitat management.

- Objective 6: Conduct research and studies sufficient to develop and document the knowledge and techniques needed to ensure the viability of tortoise populations and habitats in perpetuity.

- Objective 7: Manage the public lands on a continuing basis to protect the scientific, ecological, and environmental quality of tortoise habitats consistent with the goals and objectives of the Rangewide Plan. This implies management, within BLM's capability, of an adequate number of healthy and vigorous tortoise populations of sufficient size and resilience to withstand the most severe environmental disturbances, and with appropriate sex and age ratios and recruitment rates to maintain viable populations in perpetuity.

- Objective 8: When the need is identified through the BLM planning system, acquire and/or consolidate, under BLM administration, management units with high tortoise habitat values. When public land tortoise habitat values will be affected by the issuance of a lease, permit, right-of-way, or other land use authorization, mitigate to minimize loss of those values.

- Objective 9: Ensure that OHV use in desert tortoise habitats is consistent with the category goals, objectives, and management actions of the Rangewide Plan and the Strategy.

- Objective 10: Ensure that livestock use is consistent with the category goals, objectives, and management actions of the Rangewide Plan and the Strategy. This may include limiting, precluding, or deferring livestock use as documented in activity plans or other site-specific plans.

- Objective 11: Manage wild horses and burros in a manner consistent with the category goals, objectives, and management actions of the Rangewide Plan and the Strategy. This may include limiting or precluding wild horse and/or burro use.

- Objective 12: Manage other wildlife on the public lands consistent with the goals, objectives, and management actions of the Rangewide Plan and the Strategy.

- Objective 13: Cooperate as necessary with the Arizona Game and Fish Department and Animal and Plant Health Inspection Service-Animal Damage Control to control predators that are taking desert tortoises. This will be considered only where predation is interfering with attaining the goals and objectives of the Rangewide Plan or the Strategy.

- Objective 14: Manage the BLM's energy and minerals program in a manner consistent with the goals and objectives of the Rangewide Plan and the Strategy.

Management Decisions/Administrative Actions

- Phoenix Field Office personnel would participate, when asked and when appropriate, in public events such as fairs and open houses with information and displays showing the management of public lands including desert tortoise habitat (WL-1).

- The Phoenix Field Office would develop a public brochure on desert tortoise (WL-2).

- Records of environmental assessments that contain stipulations pertaining to the desert tortoise would be maintained for the express purpose of tracking compliance and effectiveness of the stipulations (WF-5).

- An annual summary of the environmental assessments of actions in desert tortoise habitats would be provided to the Arizona State Office (WF-6).

- The Phoenix Field Office would comply with Section 2 of the Endangered Species Act and BLM policy for managing habitat of candidate species to ensure that the Sonoran desert tortoise does not become threatened or endangered through BLM actions (WL-7).

- The Phoenix Field Office would continue to work with, share information, and support to the extent possible the interests and work of other agencies and public entities concerning tortoise populations and habitat management (WL-8).

- The Phoenix Field Office would forward tortoise-related research proposals received to the Desert Tortoise Management Oversight Group (WL-9).

- Specific and quantifiable desert tortoise management objectives for categorized habitat would be included at the interdisciplinary planning level (WL-10).

- Environmental decision documents for all actions occurring in desert tortoise habitat would address and include mitigation measures sufficient to offset, to the extent possible, any loss of tortoise habitat quantity or quality in Category I, II, and III habitats (WL-11).

- New land uses would be granted in Category I, II, and III tortoise habitats only if no reasonable alternative exists. If no alternative exists, mitigation, including compensation, would be evaluated to meet the no net loss goal (WL-12).

- Competitive OHV race courses are prohibited in Category I desert tortoise habitat (WL-13).

- Competitive OHV race courses would not be located in Category II desert tortoise habitat unless no reasonable alternative site exists. If no reasonable alternative site exists, impacts would be fully mitigated (WL-14).

- Competitive OHV race courses would be evaluated in Category III desert tortoise habitat and impacts would be mitigated (WL-15).

- Categorized desert tortoise habitat would be reviewed in relation to ongoing livestock use on public lands in the MFP and RMP planning areas; forage needs of desert tortoise and ecological site potential would be considered in determining and prioritizing the resolution of conflicts (WL-16).

- In Category I and II desert tortoise habitat, only those range improvements for livestock that do not conflict with desert tortoise habitat or populations would be allowed (WL-17).

- New wildlife improvements would be allowed in category I and II desert tortoise habitats only if there is no conflict with desert tortoise habitat populations or habitat (WL-18).

- Information on predation of desert tortoises would be collected as opportunities arise (WL-19).

- BLM actions in desert tortoise habitats would be evaluated to assure that they do not encourage the proliferation or range expansion of predator populations (WL-20).

- The Phoenix Field Office would use the BLM's discretionary authorities relating to leasable and saleable minerals to meet the desert tortoise habitat category goals and objectives (WL-21).

- Boulder sale permits would be restricted to areas that would result in no net loss of tortoise habitat (WL-22).

- The Arizona Game and Fish Department, in cooperation with the Phoenix Field Office, may use re-establishment and augmentation to assist desert bighorn sheep populations in reaching their natural potential (WL-23).

- Re-establishment and augmentation of desert bighorn sheep populations would be done in areas where conflicts with other uses and resources do not occur, or where conflicts can be resolved (WL-24).

- Final decisions on re-establishment and augmentation proposals would be considered on a case-by-case basis within the appropriate level of National Environmental Policy Act documentation that addresses conflicts and meets the requirement for public participation (WL-25).

2.10.12.2 Action Alternatives for Wildlife and Special Status Species Management

Program Goals

The following goals have been developed to manage habitat for all wildlife with an emphasis on priority wildlife species habitats. These goals are intended to provide diverse and healthy habitat for the continued and future occupancy of species that are or were native to the area. Adapted management, best management practices, and mitigation would be instituted where applicable. The associated objectives may be found in the management decisions section. The goals cover both Decision Areas unless otherwise indicated.

- Goal 1: (Wildlife Habitat Area Management): Manage to encourage habitat availability and diversity for wildlife resources so habitats are maintained and/or improving within WHAs, where priority species would receive focus when analyzing activities and projects.

- Goal 2: (Lesser Long Nosed Bat): Maintain, protect, and make accessible to lesser long-nosed bats, roosts and contiguous foraging habitat.

- Goal 3: (Sonoran Pronghorn): Protect and enhance Sonoran pronghorn habitat and manage to support suitable habitat so it is available for future occupancy based on recovery goals.

- Goal 4: (Southwestern Willow Flycatcher and Yellow-billed Cuckoo): Manage habitats for the Southwestern willow flycatcher and yellow-billed cuckoo so they are maintained and/or improving.

- Goal 5: (Yuma Clapper Rail): Manage habitat for the Yuma clapper rail so it is maintained and/or improving.
- Goal 6: (Sonoran Desert Tortoise): Manage tortoise habitat so habitats provide sufficient forage and shelter for a viable population.
- Goal 7: (Cactus Ferruginous Pygmy Owls): Maintain or restore habitats to support cactus ferruginous pygmy owls.
- Goal 8: (General Bats): Manage to encourage the natural abundance and diversity of bat habitats so they are stable or increasing.
- Goal 9: (Migratory Birds): Manage migratory bird habitats so they are maintained and/or improving to meet the needs of migratory birds in general.
- Goal 10: (Raptor Habitats): Manage raptor habitats so they are maintained and/or improving to meet the needs of raptors in general.
- Goal 11: (Bighorn Sheep/Big Game): Manage bighorn sheep and other big game habitats so they are maintained and/or improving.
- Goal 12: (Wildlife Movement Corridors): Manage wildlife movement corridors so they contain ample habitat to assist wildlife in moving from one area to another in a relatively safe manner.
- Goal 13: (Priority Species Management Guidance): Manage wildlife habitats so they are maintained and/or improved.
- Goal 14: (Wildlife Waters): Provide wildlife with safe, usable, year-round access to water.
- Goal 15: (Nonnative Invasive Animal Species Guidance): Manage to reduce or eliminate undesirable nonnative animal species so they do not occur in the Decision Areas or so their presence does not adversely affect ecological processes.

Allocations Summary

The WHAs proposed for allocation are presented in **Table 2-17**, Wildlife Habitat Area by Alternative, and the management actions and allowable uses are presented in **Table 2-18**, Management Actions and Allowable Uses for Wildlife and Special Status Species.

Table 2-17
Wildlife Habitat Area by Alternative

Wildlife Habitat Area	Alternative (BLM Acres)				
	Alt A	Alt B	Alt C	Alt D	Alt E
Lower Sonoran					
Batamote Mountains	0	0	62,900	0	0
Cuerda de Lena	0	0	58,500	0	0

Table 2-17
Wildlife Habitat Area by Alternative

Wildlife Habitat Area	Alternative (BLM Acres)				
	Alt A	Alt B	Alt C	Alt D	Alt E
Gila Bend Mountains	0	0	255,700	255,700	255,700
Saddle Mountain	0	0	48,800	0	0
SDNM					
Wildlife Habitat Areas	0	0	0	0	0

Management Actions and Allowable Uses

Table 2-18, Management Actions and Allowable Uses for Wildlife and Special Status Species, describes management actions and allowable uses for management of wildlife and special status species.

Table 2-18
Management Actions and Allowable Uses for Wildlife and Special Status Species

Decision Area			Alternative			Management Actions and Allowable Uses
Goal 1 (Wildlife Habitat Area Management): Manage to encourage habitat availability and diversity for wildlife resources so habitats are maintained and/or improving within WHAs, where priority species would receive focus when analyzing activities and projects.						
Objective 1.1: Manage to encourage habitat availability and diversity for wildlife resources so habitats are maintained and/or improving within WHAs, where priority species would receive focus when analyzing activities and projects.						
Common to all WHAs for Alternatives C thru E Note: Only the Gila Bend Mountains WHA is proposed in Alternatives D and E; refer to the ACEC section, **Section 2.12.1**, for actions affecting the other WHAs in D and E.						
LS			C	D	E	WL-1.1.1: WHAs would be designated as described by alternative as presented in **Table 2-17**.
LS			C	D	E	WL-1.1.2: All public lands would be retained, and private and state lands would be acquired as available and as funds allow, on a willing seller, willing buyer basis to maintain habitat connectivity.
LS			C	D	E	WL-1.1.3: Maintenance of utility corridors, including vegetation clearing, would be restricted to the existing authorized LUA corridor only.
LS			C	D	E	WL-1.1.4: Motorized vehicle use would be prohibited in washes that are occupied or are found to be occupied and in cactus ferruginous pygmy-owls habitat from February 1 to August 31 to protect pygmy-owls during the breeding, nesting, and dispersal season. All other areas would be limited to existing or designated routes.
LS			C	D	E	WL-1.1.5: Routes that conflict with resource protection and management could be closed, limited by seasonal restrictions, or mitigated to prevent habitat degradation and fragmentation.
LS			C	D	E	WL-1.1.6: Through travel management planning, route densities would be reduced and the designation of upland routes would be emphasized. Necessary use of access routes in washes would be allowed; however,

Table 2-18
Management Actions and Allowable Uses for Wildlife and Special Status Species

Decision Area		Alternative				Management Actions and Allowable Uses
						these access routes may contain seasonal closures.
LS			C	D	E	WL-1.1.7: All new roads or highways crossing public land would be designed to facilitate movement of wildlife and would be mitigated to minimize disturbance.
LS			C	D	E	WL-1.1.8: Priority habitat areas would be maintained during road improvements (e.g., altering, upgrading, paving, and widening) and improvements must meet desert tortoise protection standards. Mitigation may include at-grade wildlife crossings, wildlife under- or overpasses, wildlife-appropriate fencing, speed limits, and other appropriate actions.
LS			C		E	WL-1.1.9: WHAs would be avoidance areas for utility-scale renewable energy development. Uses would be concentrated in less sensitive resource areas or in areas already disturbed. If no other options exist, activities must be mitigated and managed to ensure consistency with management objectives, with an emphasis to maintain wildlife habitat and movement connectivity within WHAs.
LS			C		E	WL-1.1.10: WHAs would be open for locatables, leasables, and mineral materials. Activities must be mitigated and managed to ensure consistency with management objectives, with an emphasis to maintain wildlife habitat and movement connectivity within WHAs. Valid existing rights would be respected. Existing mineral material free use permits used as community pits would be allowed to continue and be reissued upon expiration.
LS			C			WL-1.1.11: The construction of routes would be allowed if consistent with natural resource objectives and if they do not conflict with wildlife management objectives. Closed roads could be converted for use as non-motorized trails if consistent with natural resource objectives.
Specific to Cuerda de Lena WHA						
Note: In Alternatives D and E, the area would be managed under the proposed Cuerda de Lena ACEC. Also see actions under the Sonoran pronghorn habitat section.						
LS			C			WL-1.1.12: The WHA would be closed to the public for general recreational use during pronghorn fawning between March 15 and July 15 or as determined annually by the Sonoran pronghorn recovery team. Minor non-linear LUAs would also be prohibited unless deemed necessary by the authorized officer. Federal, state, and local government employees and BLM permit holders operating within the scope of their authorizations would be exempt from the closure.
Specific to Gila Bend Mountains WHA						
LS				D		WL-1.1.13: The WHA would be an exclusion area for utility-scale renewable energy development and exploration.
LS				D		WL-1.1.14: The WHA would be closed to all locatable and leasable minerals exploration and development (including geothermal and sodium), and mineral material disposals. Public lands in the WHA would be recommended for withdrawal to all forms of mineral entry.

Table 2-18
Management Actions and Allowable Uses for Wildlife and Special Status Species

Decision Area		Alternative				Management Actions and Allowable Uses
Specific to Saddle Mountain WHA						
Note: In Alternatives D and E, the area is managed under the proposed Saddle Mountain ACEC.						
LS			C			WL-1.1.15: Facilities, including those for recreational purposes, and construction of new roads would be prohibited within one-half mile of known bat roosts and cliffs or other unique habitat features used by nesting raptors.
Goal 2 (Lesser Long Nosed Bat): Maintain, protect, and make accessible to lesser long-nosed bats, roosts and contiguous foraging habitat.						
Objective 2.1: Protect known roosting habitat for lesser long-nosed bat on public land and maintain contiguous foraging habitat at its current range and distribution.						
LS	SDNM	B	C	D	E	WL-2.1.1: Mitigation could occur for facility development, including those for recreation purposes, within 4 miles of known lesser long-nosed bat roosts as long as the action does not impact roost sites. In the event that mitigation is not sufficient, the development would be relocated at least 4 miles from roost sites.
LS	SDNM	B	C	D	E	WL-2.1.2: Activities with the potential to impact lesser long-nosed bats or their habitats would be evaluated on a case-by-case basis and impacts would be mitigated or avoided.
LS	SDNM	B	C	D	E	WL-2.1.3: Medium to high density columnar cactus habitat (≥ 30 saguaro/acre) within 40 miles of known roost sites would be maintained and/or restored.
LS	SDNM	B	C	D	E	WL-2.1.4: Protect long-nosed bat forage plants-saguaros and high concentrations of agaves-from modification by treatment activities (prescribed fire, vegetation treatments), to the greatest extent possible. Saguaros and high concentrations of agaves would be excluded from treatments. Agave concentrations are contiguous stands or concentrations of more than 20 plants per acre.
Goal 3 (Sonoran Pronghorn): Protect and enhance Sonoran pronghorn habitat and manage suitable habitat so it is available for future occupancy based on recovery goals.						
Objective 3.1: Manage for no net loss in currently occupied Sonoran pronghorn habitats. Protect the creosote-bursage, desert washes (xeroriparian), and palo verde mixed cacti communities which provide nutritious forage species that encourages fawn recruitment, provides thermal cover, enables predator avoidance, and provides for growth and survival to the extent practicable. Protect areas that provide for chain-fruit cholla production.						
LS		B	C	D	E	WL-3.1.2: The pronghorn habitat area south of Ajo (see **Maps 2-4a-e**) would be closed to the public for general recreational use during pronghorn fawning between March 15 and July 15 or as determined annually by the Sonoran pronghorn recovery team. Minor non-linear LUAs would also be prohibited unless deemed necessary by the authorized officer. Federal, state and local government employees and BLM permit holders operating within the scope of their authorizations would be exempt from the closure.

Table 2-18
Management Actions and Allowable Uses for Wildlife and Special Status Species

Decision Area		Alternative				Management Actions and Allowable Uses
LS		B	C	D	E	WL-3.1.3: Portions of the Lower Sonoran would be identified as potential reintroduction sites for an experimental/nonessential population of Sonoran pronghorn. (See **Map 3-15,** Sonoran Pronghorn Classification Areas).
LS		B	C	D	E	WL-3.1.4: Sonoran pronghorn experimental/nonessential populations would be managed to achieve recovery goals. Mitigation could be required for activities that may impede movements or otherwise disturb the species or habitat.
Objective 3.2: Manage to maintain or improve habitat for future populations of experimental/ nonessential Sonoran pronghorn within the SDNM.						
	SDNM	B	C	D	E	WL-3.2.1: Sonoran pronghorn habitat within the SDNM would be managed to achieve recovery goals.
	SDNM	B	C	D	E	WL-3.2.2: The Monument would be identified as a potential reintroduction site for an experimental/nonessential population of Sonoran pronghorn.
Goal 4 (Southwestern Willow Flycatcher and Yellow-billed Cuckoo): Manage habitats for the Southwestern willow flycatcher and yellow-billed cuckoo so they are maintained and/or improving.						
Objective 4.1: Protect, maintain, and restore southwestern willow flycatcher and yellow-billed cuckoo habitats and prevent actions that could harm individuals of the two listed species.						
LS		B	C	D	E	WL-4.1.1: Southwestern willow flycatcher and yellow-billed cuckoo habitats in the Fred J. Weiler Green Belt would be maintained and/or restored in coordination with USFWS and AGFD.
LS		B	C	D	E	WL-4.1.2: Recreation activities would only be allowed outside of ½ mile of occupied or found to be occupied habitat when birds may be present (breeding season of April 1 – September 30).
LS		B	C	D	E	WL-4.1.3: Vegetation treatment projects adjacent to occupied or found to be occupied habitat would only be conducted when willow flycatchers are not present (October 1 – March 31).
LS		B	C	D	E	WL-4.1.4: Avoid surface-disturbing activities that would result in fragmentation or a reduction in habitat quality for both species.
Goal 5 (Yuma Clapper Rail): Manage habitat for the Yuma clapper rail so it is maintained and/or improving.						
Objective 5.1: Maintain and protect riparian and wetland areas with potential or occupied Yuma clapper rail habitats.						
LS		B	C	D	E	WL-5.1.1: Yuma clapper rail habitat would be maintained and/or restored by developing or engineering projects that would encourage native emergent vegetation.
LS		B	C	D	E	WL-5.1.2: Vegetation treatment projects in occupied, or found to be occupied, marsh habitat would only occur between September 1 and March 15 to avoid the Yuma clapper rail breeding and molting seasons.
LS		B	C	D	E	WL-5.1.3: Mechanical removal of overstory habitat (*Tamarisk*) would only occur after the breeding season for Yuma clapper rails (September 1 to

Table 2-18
Management Actions and Allowable Uses for Wildlife and Special Status Species

<table>
<tr><th colspan="2">Decision Area</th><th colspan="4">Alternative</th><th>Management Actions and Allowable Uses</th></tr>
<tr><td></td><td></td><td></td><td></td><td></td><td></td><td>March 15).</td></tr>
<tr><td colspan="7">Goal 6 (Sonoran Desert Tortoise): Manage tortoise habitat so it provides sufficient forage and shelter for a viable population.</td></tr>
<tr><td colspan="7"><u>Objective 6.1:</u> Achieve the following objectives in desert tortoise habitat, as identified by habitat category:
• Category I - Maintain stable, viable populations and protect existing tortoise habitat values and increase populations where possible.
• Category II - Maintain stable, viable populations and halt further declines in tortoise habitat values.
• Category III - Limit tortoise habitat and population declines to the extent possible through mitigation.
• Retain natural shelter sites (boulders or caliche caves or similar features used by tortoises for sheltering) in Category I and II desert tortoise habitats, and
• Maintain or restore a diverse mixture of forage species and adequate cover of vegetation for desert tortoise habitat as recommended by the 1988 Rangewide Plan (BLM 1988b).</td></tr>
<tr><td>LS</td><td>SDNM</td><td>B</td><td>C</td><td>D</td><td>E</td><td>WL-6.1.1: Public lands currently allocated for management as Category I, II, and III Sonoran Desert tortoise habitat, as described in Table 2-18a, Sonoran Desert Tortoise Habitat by Category, would be managed according to the objectives listed above.

Table 2-18a: Sonoran Desert Tortoise Habitat by Category
<table><tr><th rowspan="2">Category</th><th colspan="2">Sonoran Desert Tortoise Habitat (BLM Acres)</th></tr><tr><th>Lower Sonoran</th><th>SDNM</th></tr><tr><td>I</td><td>24,800</td><td>166,000</td></tr><tr><td>II</td><td>355,700</td><td>124,700</td></tr><tr><td>III</td><td>65,300</td><td>3,500</td></tr></table></td></tr>
<tr><td>LS</td><td>SDNM</td><td>B</td><td>C</td><td>D</td><td>E</td><td>WL-6.1.2: Habitat-management categories and boundaries may be revised as new population information becomes available. The criteria that would be used in revising categories and boundaries are those in the 1988 Rangewide Plan (BLM 1988b).

The criteria for Category I tortoise habitat areas are as follows:
• Habitat areas are essential to the maintenance of large, viable populations;
• Conflicts are resolvable;
• Populations are medium- to high-density or low-density contiguous with medium- or high-density;
• Populations are increasing, stable, or decreasing.
The criteria for Category II tortoise habitat areas are as follows:
• Habitat areas may be essential to maintenance of viable populations;
• Most conflicts are resolvable;
• Populations are medium- to high-density or low-density</td></tr>
</table>

Table 2-18
Management Actions and Allowable Uses for Wildlife and Special Status Species

Decision Area		Alternative				Management Actions and Allowable Uses
						contiguous with medium- or high-density; • Populations are stable or decreasing. The criteria for Category III tortoise habitat areas are as follows: • Habitat areas are not essential to maintenance of viable populations; • Most conflicts are not resolvable; • Populations are low- to medium-density and not contiguous with medium- or high-density; Populations are stable or decreasing.
LS	SDNM	B	C	D	E	WL-6.1.3: No net loss would occur in the quality or quantity of Category I and II desert tortoise habitat. Mitigation for impacts would be permissible to achieve no net loss in quantity or quality of desert tortoise habitat in accordance with the Desert Tortoise Rangewide Plan and other applicable policy guidance.
LS	SDNM	B	C	D	E	WL-6.1.4: In Category I and II tortoise habitats, all motorized competitive speed races would be prohibited from March 31 through October 15. All other use requests during this time would be reviewed on a case-by-case basis and could be denied or adjusted to avoid conflict with tortoise activity and habitat. Mitigation for conflicts would be permissible to achieve no net loss in quantity or quality of desert tortoise habitat. Development and uses must be compatible with wildlife objectives.
LS		B	C	D	E	WL-6.1.5: Category I and II habitats would be avoidance areas for utility-scale renewable energy development and major linear land use authorizations. Uses would be concentrated in less sensitive resource areas or in areas already disturbed. If no other options exist, activities must be mitigated in accordance with the Desert Tortoise Rangewide Plan and other applicable policy guidance.
LS		B	C	D	E	WL-6.1.6: Minor linear and all nonlinear LUAs would be allowed on a case-by-case basis. Mitigation for conflicts would be permissible to achieve no net loss in quantity or quality of desert tortoise habitat. Development and uses must be compatible with wildlife objectives.
LS			C			WL-6.1.7: Category I, II, and III tortoise habitats would be open to all minerals activities on a case-by-case basis. Mitigation for conflicts would be permissible to achieve no net loss in quantity or quality of desert tortoise habitat. Uses must be mitigated in accordance with applicable policies and guidance, and managed to ensure consistency with management objectives, with an emphasis to maintain habitat. Uses would be concentrated in less sensitive resource areas or in areas already developed or disturbed. Stipulations would be applied to prevent habitat fragmentation, to the extent practicable, when the area is located between Category I and II habitat.

Table 2-18
Management Actions and Allowable Uses for Wildlife and Special Status Species

Decision Area	Alternative					Management Actions and Allowable Uses
Goal 7 (Cactus Ferruginous Pygmy Owls): Maintain or restore habitats to support cactus ferruginous pygmy owls.						
Objective 7.1: Protect cactus ferruginous pygmy-owls from disturbance during the breeding and nesting seasons. Maintain or improve a complex, multi-layered vegetative structure provided by perennial plants within the range of the cactus ferruginous pygmy-owl. Structure should consist of approximately 30 percent each of grasses and forbs, shrubs, and trees as dictated by site conditions. Maintain current or improve interconnected habitat patches of sufficient quality (diversity, density, and structure) and quantity (≥ 3 acres) to support cactus ferruginous pygmy-owls. Maintain sufficient vegetation between patches to allow for dispersal.						
LS	SDNM	B	C	D	E	WL-7.1.1: Activities would be managed to protect, maintain, or improve occupied, or found to be occupied, cactus ferruginous pygmy-owl habitat.
LS	SDNM	B	C		E	WL-7.1.2: Surface-disturbing activities authorized or permitted by the BLM would be avoided within ½ mile of a known active cactus ferruginous pygmy-owl nest site from February 1 through July 31. All actions would be mitigated and managed to ensure consistency with management objectives, with an emphasis to maintain available habitat. Development planned to occur within 100 meters/330 feet of any known or found to be occupied CFPO nest site would be evaluated on a site-specific basis, but significant modification of habitat within these areas should be avoided year round. Uses would be concentrated in less sensitive resource areas or in areas already disturbed.
LS	SDNM			D		WL-7.1.3: Surface-disturbing activities authorized or permitted by the BLM would be excluded within ½ mile of known active cactus ferruginous pygmy-owl nest site from February 1 through September 15.
LS	SDNM		C		E	WL-7.1.4: Use of motorized vehicles on routes within washes in the SDNM and Ajo Block that are occupied or found to be occupied by cactus ferruginous pygmy-owls would be prohibited from April 15 to August 31 to protect pygmy-owls during their nesting seasons. Exceptions to the prohibitions would be authorized only for personnel engaged in constructing, maintaining, or repairing facilities; conducting research or surveys; for authorized law-enforcement or fire-suppression emergencies.
LS	SDNM			D		WL-7.1.5: Motorized use within occupied, or found to be occupied, cactus ferruginous pygmy-owl habitat would be prohibited from February 1 to September 15 to protect pygmy-owls during their breeding, nesting, and dispersal seasons. Exceptions to the prohibitions would be authorized only for personnel engaged in constructing, maintaining, or repairing facilities; conducting research or surveys; for authorized law-enforcement or fire-suppression emergencies.
LS	SDNM	B	C	D	E	WL-7.1.6: Treatment of riparian habitat, Sonoran desert/desert scrub, or mesquite-invaded grasslands under 4,000 feet in elevation that may support nesting cactus ferruginous pygmy-owls would only occur during the non-nesting season of August 1 to January 31, unless pre-project surveys indicate the area does not support pygmy-owls or mitigation plans

Table 2-18
Management Actions and Allowable Uses for Wildlife and Special Status Species

Decision Area		Alternative				Management Actions and Allowable Uses
						approved by the USFWS have alleviated negative consequences.
Goal 8 (General Bats): Manage to encourage the natural abundance and diversity of bat habitats so they are stable or increasing.						
Objective 8.1: Protect bat roosts associated with natural caves and abandoned mine features that are necessary to provide roosting locations for existing bat populations and opportunities for expansion.						
LS	SDNM	B	C	D	E	WL-8.1.1: In cooperation with AGFD, important bat roosts would be protected where practicable and mitigation measures would be used to resolve potential resource conflicts.
LS	SDNM	B	C	D	E	WL-8.1.2: New water developments would be configured to allow for safe use by bats.
LS	SDNM	B	C	D	E	WL-8.1.3: Hazardous mine features occupied by bats would be remediated in coordination with the AGFD by installing bat gates or, if other roosts are readily available, by backfilling.
Goal 9 (Migratory Birds): Manage migratory bird habitats so they are maintained and/or improving to meet the needs of migratory birds in general.						
Objective 9.1: Avoid take of migratory birds (adults, nests, eggs, and chicks) to comply with the Migratory Bird Treaty Act, Executive Order 13186, and the BLM-USFWS Memorandum of Understanding.						
LS	SDNM	B	C	D	E	WL-9.1.1: Applications for activities on public lands would evaluate the effects of the BLM's actions on migratory birds during the NEPA process, if any, and identify where take reasonably attributable to agency actions may have a measurable negative effect on migratory bird populations, focusing first on species of concern, priority habitats, and key risk factors. In such situations, the BLM would implement approaches lessening such take.
LS		B	C	D	E	WL-9.1.2: Burrowing owl artificial habitats would be developed to facilitate introduction/transplant of owls in suitable locations.
Goal 10 (Raptor Habitats): Manage raptor habitats so they are maintained and/or improving to meet the needs of raptors in general.						
Objective 10.1: Manage activities that could reduce raptor nest production.						
LS	SDNM	B	C	D	E	WL-10.1.1: Authorized developments, uses, and activities within ¼ mile of known occupied raptor nests would be avoided, relocated, or seasonally limited.
LS	SDNM	B	C	D	E	WL-10.1.2: Authorized developments, uses, and activities within ½ mile of communal raptor nesting areas would be avoided.
LS		B	C	D	E	WL-10.1.3: All authorized activities would be evaluated on a case-by-case basis within active eagle nest territories to comply with Bald and Golden Eagle Protection Act of 1940.
Goal 11 (Bighorn Sheep/Big Game): Manage bighorn sheep, and other big game, habitats so they are maintained and/or improving.						
Objective 11.1: Provide water for bighorn sheep and protect them from communicable diseases.						

Table 2-18
Management Actions and Allowable Uses for Wildlife and Special Status Species

Decision Area		Alternative				Management Actions and Allowable Uses
LS	SDNM	B	C	D	E	WL-11.1.1: Additional waters may be installed in high elevations of bighorn sheep habitat to improve habitat suitability.
LS	SDNM	B	C	D	E	WL-11.1.2: Domestic sheep and goat use would be prohibited on all allotments within nine miles of bighorn sheep habitat.
Goal 12 (Wildlife Movement Corridors): Manage wildlife movement corridors so they contain ample habitat to assist wildlife in moving from one area to another in a relatively safe manner.						
Objective 12.1: Manage wildlife movement corridors in a manner that would assist wildlife in safe passage from one area to another.						
Specific to Wildlife Movement Corridors (WMCs)						
LS	SDNM	B	C	D	E	WL-12.1.1: All new roads and primitive roads where average speeds may be greater than 45 miles per hour, or highways crossing public land, would be designed to facilitate movement of wildlife to reduce mortality of wildlife from vehicle collisions.
LS	SDNM	B	C	D	E	WL-12.1.2: Maintenance or expansion of existing roads would incorporate measures to maintain or restore wildlife habitat connectivity and would incorporate, where appropriate, wildlife underpasses or overpasses.
LS	SDNM	B	C	D	E	WL-12.1.3: Existing and/or designated roads and/or trails would be subject to seasonal closures if conflicts with wildlife cannot be mitigated.
LS	SDNM	B	C	D	E	WL-12.1.4: New surface disturbance within 100 meters of the edge of large washes located in the desert washes vegetative community (those depicted on USGS 1:24,000 maps) would be mitigated as needed to protect the integrity of washes as corridors.
LS	SDNM	B	C	D	E	WL-12.1.5: Density of roads, primitive roads, and motorized trails would be limited to 3 miles of road per section or less within the wildlife movement corridors in accordance with the Habitat Guidelines for Mule Deer (Mule Deer Working Group 2006).
LS	SDNM	B	C	D	E	WL-12.1.6: Treatments of invasive plant species would be allowed.
LS		B	C			WL-12.1.7: WMCs would be open to all locatable and leasable minerals exploration and development (including geothermal and sodium) and mineral material disposals with the exception of seasonal restrictions in Sonoran pronghorn habitat for leasables and mineral material disposals (See 1.1.13). All activities would be managed through existing regulations. Mitigation, terms and conditions would be applied as necessary to retain or improve habitat.
LS			C		E	WL-12.1.8: Surface-disturbing activities would be evaluated on a case-by-case basis. Activities would be concentrated in less sensitive resource areas or in areas already disturbed. If no other options are available, actions must be mitigated and managed to ensure consistency with management objectives, with an emphasis to maintain wildlife habitat continuity and movement connectivity. If impacts to wildlife cannot be mitigated, the action would be denied.

Table 2-18
Management Actions and Allowable Uses for Wildlife and Special Status Species

Decision Area		Alternative				Management Actions and Allowable Uses
LS				D		WL-12.1.9: WMCs would be exclusion areas for utility-scale renewable energy development and exploration.
LS				D		WL-12.1.10: WMCs would be closed to leasable minerals exploration and development (including geothermal and sodium), and mineral material disposals. Public lands located within the corridors would be recommended for withdrawal.
LS					E	WL-12.1.11: WMCs would be open to all locatable minerals. Exploration and development would be managed through existing regulations. Mitigation, terms and conditions would be applied as necessary to retain or improve habitat.
LS					E	WL-12.1.12: WMCs would be open to all non-renewable leasable minerals actions, including geothermal and sodium, but would be mitigated to allow available habitat no less than 200 meters wide as a corridor to facilitate wildlife movement.
LS					E	WL-12.1.13: WMCs would be open to mineral material sales on a case-by-case basis. Preference would be to place the surface disturbance outside of the WMC but if an area within the WMC is unavoidable, mitigation to improve or enhance the habitat would occur. Development and uses must be compatible with wildlife objectives and not detrimental to wildlife or its habitat. If impacts cannot be mitigated, the action would be denied.
Goal 13 (Priority Species Management Guidance): Manage wildlife habitats so they are maintained and/or improved.						
Objective 13.1: Manage habitats for wildlife species so they are maintained and/or improving to meet the needs of wildlife in general.						
LS	SDNM	B	C	D	E	WL-13.1.1: Reintroductions, transplants, and supplemental stockings of native wildlife populations (as defined in BLM Manual 1745 or subsequent guidance) could occur in their current or historic range with collaboration between the AGFD and FWS.
LS	SDNM	B	C	D	E	WL-13.1.2: The release of rehabilitated or displaced wildlife on public lands would be allowed, which could involve constructing artificial habitats where appropriate, for species that are compatible with other resource-management and use objectives.
LS	SDNM	B	C	D	E	WL-13.1.3: Acquisitions of non-federal lands and disposals of federal land that have, or potentially have, priority species or habitats would include the potential to: • Enhance the conservation and management of threatened, endangered or special status species habitat, riparian habitat, desert tortoise habitat, key big game habitat; • Improve the overall manageability of wildlife habitat; • Improve habitat connectivity in and around the WHA and wildlife

Table 2-18
Management Actions and Allowable Uses for Wildlife and Special Status Species

Decision Area		Alternative				Management Actions and Allowable Uses
						movement corridors. The BLM would not transfer (dispose of) from federal ownership the following: • Designated or proposed critical habitat for a listed or proposed threatened, endangered or special status species; • Lands supporting listed or proposed threatened or endangered species if such transfer would be inconsistent with recovery needs and objectives or conservation measures or would likely affect the recovery of the listed or proposed species, and lands supporting federal candidate species if such action would contribute to the need to list the species as threatened or endangered. Retain Category I and II tortoise habitat unless it is in the general public interest to dispose of them, and losses in habitat quality and quantity can be mitigated. Exceptions to the above could occur if: • The recipient of the lands agrees to protect the species or critical habitat under the ESA, such as disposal to a non-federal governmental agency or private organization; • If conservation of the habitat would still be achieved and ensured; or • In a land exchange if a net gain in the value of species habitat or protection is achieved.
LS	SDNM	B	C	D	E	WL 13.1.4: Treatments of invasive species would be allowed to benefit visual resources or wildlife habitat unless otherwise restricted.
	SDNM		C		E	WL-13.1.5: Designated roads, primitive roads, and/or trails within washes would be closed from April 15-August 31 during the travel management route designation process to address the forage, shelter, breeding, and thermal cover protection provided by washes as a component of wildlife habitat. In Alternative B, this management action would apply to routes 8008H, 8013, 8016B, 8017, 8018, 8019, and 8026B. In Alternative E, this management action would apply to routes 8013, 8018 and 8019.
Goal 14 (Wildlife Waters): Provide wildlife with safe, usable, year-round access to water.						
Objective 14.1: Increase, improve or maintain the density and distribution of wildlife waters on public lands throughout the Planning Area to sustain and enhance wildlife populations across their range.						
LS	SDNM	B			E	WL-14.1.1: Maintain and re-develop existing and develop additional wildlife waters in cooperation with AGFD. Increase the density and/or restore the distribution of wildlife waters throughout the Planning Area to sustain and enhance native wildlife populations across their range. All existing wildlife waters would be maintained or improved as needed to maintain the

Table 2-18
Management Actions and Allowable Uses for Wildlife and Special Status Species

Decision Area		Alternative				Management Actions and Allowable Uses
						presence of perennial water for native wildlife. New wildlife waters would be built when needed to maintain, restore, or enhance native wildlife population numbers or distributions.
LS	SDNM	B	C	D	E	WL-14.1.2: In the event that range water developments are no longer needed for livestock use, the BLM, in consultation with the AGFD, would determine if the water development would be beneficial to meet wildlife distribution goals or other objectives. If it is deemed that the water development is not useful for such purposes, the water source would be removed.
Goal 15 (Non-Native Invasive Animal Species Guidance): Manage to reduce or eliminate undesirable non-native animal species so they do not occur in the Decision Areas or that their presence does not adversely affect ecological processes.						
Objective 15.1: Limit the distribution and abundance of invasive animal species to current levels. Reduce the impact of invasive species on native ecosystems from current levels.						
LS	SDNM	B			E	WL-15.1.1: Non-native, invasive animal species would not be allowed except for biological controls for which peer-reviewed scientific literature states that the introduced species would have no detrimental effects to any native wildlife or plant species in the Planning Area.

Administrative Actions

- Work in partnership with AGFD to manage wildlife and wildlife habitat to achieve AGFD's wildlife population goals. Cooperatively develop HMPs to meet Sikes Act requirements and address site-specific habitat management objectives consistent with other natural resource objectives. Wildlife management activities administered by AGFD include, but are not limited to, surveys, telemetry, transplants, water management, vegetation restoration and enhancement, invasive species control, research, law enforcement activities, setting and administering hunting permits, and other wildlife or habitat management projects as identified in the Master MOU between the Arizona Game and Fish Commission and the BLM.

- Work in partnership with AGFD to manage wildlife and wildlife habitat to achieve AGFD's wildlife population goals and other activities as identified in the Master MOU between AGFD and the BLM.

- Work with other land owners within wildlife movement corridors to maintain or improve vegetative connectivity and prevent actions that would obstruct the movement of wildlife through the areas. Fences may be removed when no longer needed or other options meet the need and as funding and opportunities allow.

- Emphasize maintaining and restoring ecological connectivity through land acquisition, partnerships with local landowners, and vegetation resources. If opportunities for wildlife

movement cannot be adequately maintained, then mitigation to maintain isolated wildlife populations would be adopted.

- Eliminate unauthorized grazing by cattle, sheep, goats, burros, and other non-native animals and construct wildlife-passable fences where unauthorized use is a problem. Fences may be removed when no longer needed or other options meet the need and as funding and opportunities allow.

- Livestock waters would provide safe, usable water for wildlife, where possible. As funding and opportunities permit, existing facilities would be modified for safe wildlife use. The above-ground height of livestock troughs and tanks would not exceed 20 inches. The BLM would install wildlife escape ladders in each facility and provide ramps for small bird and mammal access as funding permits. Storage tanks would be configured to reduce evaporation and prevent wildlife from drowning.

- The BLM would contact the appropriate USFWS biologist as soon as practical once a wildfire starts and a determination is made that a federally protected species or its habitat could be affected by the fire or by fire-suppression activities.

- The USFWS would work with the BLM during the emergency response to apply the appropriate conservation measures.

- If conservation measures cannot be applied during the suppression activities, the BLM would consult with the responding agency after the fact on any suppression actions that may have affected the federally protected species or its habitat.

- If conservation measures are adhered to, the BLM would report on the actions taken and the effects to the species and its habitat following the fire, but no further consultation on that incident would be required.

Threatened and Endangered Species

- The BLM would initiate formal Section 7 consultation with USFWS on all actions that may affect federal listed threatened and endangered species or critical habitat as required by the Endangered Species Act of 1973 as amended.

- The ESA of 1973, as amended, provides for the protection of threatened and endangered and proposed threatened and endangered species of plants and animals. Specifications of the ESA pertain to both the Lower Sonoran and SDNM Decision Areas. BLM Manual 6840 prescribes conservation measures for threatened and endangered species, including conservation measures for fire management activities and species-specific conservation measures. To a large extent, these measures have been built in to the RMP alternatives evaluated in this FEIS.

- Monitor existing populations and inventory for additional populations of threatened and endangered species as funding permits.

Wildlife Species

- Maintain and develop a proactive public education program on the desert tortoise and its habitat requirements, including participation in public events with tortoise habitat information.
- Continue to work with and support other agencies and public entities in desert tortoise conservation.
- Coordinate invasive animal species control and education efforts with AGFD.
- Follow management prescriptions for livestock grazing allotments in the Woolsey Peak and Signal Mountain wilderness areas as provided in the wilderness management plans or, if different, as described in Arizona Standards for Rangeland Health and Guidelines for Grazing Administration evaluations.
- Design fences to reduce adverse impacts on wildlife movement. Specifications in BLM Manual 1741 and in local BLM directives would be used. The BLM would consult with AGFD on the design and location of new fences. Where existing fences in wildlife habitat do not meet BLM specifications, they would be modified according to BLM Manual 1741 when they are scheduled for replacement or major maintenance as funding permits. Special consideration would be given to placement, type, and installation of fences in Category I and II desert tortoise habitat to facilitate desert tortoise movement, dispersal, and protection. Before installing facilities, the BLM would conduct a site evaluation for special status and state-protected animals and would develop mitigation to protect these species and their habitats. Such mitigation might include project relocation, redesign, and abandonment.
- Inventory for federally listed, proposed, and candidate species. Implement monitoring programs on known populations of listed, proposed, and candidate species and other special status species (as defined in BLM Manual 6840) to document population levels and status. Where monitoring finds threats to these populations, actions would be taken to protect the species and their habitats.
- Standardize desert tortoise management throughout its habitat. Management would be consistent with the following documents:
    - Desert Tortoise Habitat Management on Public Lands: A Range wide Plan (BLM 1988b).
    - Strategy for Desert Tortoise Habitat Management on Public Lands in Arizona, Instruction Memorandum No. AZ-91-16 (BLM 1990a).
    - Strategy for Desert Tortoise Habitat Management on Public Lands in Arizona: New Guidance on Compensation for the Desert Tortoise, Instruction Memorandum No. AZ-92-46 (BLM 1992).

- Instructional Memorandum No. 94-018 Ephemeral Grazing Policy in Desert Tortoise Habitat Supplemental Guidance for Desert Tortoise Compensation, Instruction Memorandum No. AZ-99-008 (BLM 1999).
- Desert Tortoise Mitigation Policy, Instruction Memorandum No. AZ-2009-010 (BLM 2009)

- Establish additional desert tortoise study plot(s) or other monitoring methods, as necessary. Read plots at 5-year intervals, or as necessary, and as funding permits.

2.11 RESOURCE USES

2.11.1 LANDS AND REALTY

The lands and realty program for the Planning Area consists of three distinct parts: (1) land use authorizations (LUAs), which includes ROWs for utility-scale renewable energy development proposals; (2) land tenure (disposal and acquisition of lands); and (3) withdrawals, classifications, and segregations. The lands and realty program processes applications related to solar, wind, and biomass energy; while geothermal proposals are managed by the minerals program and are discussed in **Section 2.11.3**, Minerals Management.

The lands and realty program administers uses on public lands within a framework of numerous laws and mandates, which are discussed below:

- The Federal Land Policy and Management Act of 1976 (FLPMA), as amended enables the BLM to accomplish a variety of lands actions, including but not limited to sales, withdrawals, acquisitions, exchanges, leases, permits, easements, and ROWs.
- Federal Land Exchange Facilitation Act (102 Stat. 1087) established uniform rules for the resolution of appraisal disputes in the exchange process.
- Mineral Leasing Act of 1920 (MLA) (30 USC 185), as amended authorizes the BLM to process ROWs for pipelines for the transportation of oil, natural gas, synthetic liquid or gaseous fuels, or any refined product produced.
- Recreation and Public Purposes Act of June 14, 1926 (R&PP) (43 USC 869 et seq.), as amended authorizes the sale and/or lease of public lands for recreational and public service needs for parks and other related community buildings.
- Airway Improvement Act of 1982 (49 USC 2215) provides for the conveyance of public lands to public agencies for use as airports and airways.
- Various Federal Highway Acts codified in 23 USC, Sections 17 and 317 established to build, improve, and maintain the federal interstate highway system.

- Federal Land Transaction and Facilitation Act (114 Stat. 613; 43 USC 2301 et seq.) of July 25, 2000 allows retention by the BLM of receipts received from the sale of or interests in land if a LUP was completed prior to July 25, 2000.

- Energy Policy Act of 2005 (42 USC 15801) encourages energy efficiency and conservation, promotes alternative and renewable energy sources, and encourages the expansion of nuclear energy.

2.11.1.1 Land Use Authorizations (LUAs)

This segment of the lands and realty program focuses on requests for rights-of-way (ROWs), permits, leases, and easements, which are all referred to as "land use authorizations (LUAs)" throughout this document. As a general rule, proponents need an LUA (grant, permit, or lease) whenever a surface-disturbing activity takes place on public land. Some examples of land uses which require a LUA grant include: electric transmission lines, communication sites, roads, highways, trails, telephone/fiber optic lines, canals, flumes, pipelines, reservoirs, and utility-scale renewable energy developments. Proponents do not need a LUA for so-called "casual uses." Examples of casual uses include driving vehicles over existing roads, sampling, surveying, or collecting data to prepare an application for a ROW, and performing certain activities that do not cause any appreciable disturbance or damage to the public land, resources, or improvements.

The objective of the LSFO is to meet the public land use demands on public lands, while also minimizing unnecessary impacts to resources. The LSFO would meet this objective by organizing the LUA types the Planning Area is accustomed to processing (or anticipates to receive in the next twenty years) into defined LUA category types (which are dictated by the size and intensity of the surface disturbance of the proposed LUA). Management allocations from other resource specific program areas (such as priority wildlife, special designations, and cultural resources) set restrictions on certain LUA types or state whether or not they are avoided or excluded. These allocations have been consolidated and renamed by the Lands and Realty program, so that the public, future utility proponents, and current LUA holders can easily comprehend what LUA type is allowed or prohibited within a certain location of the Planning Area.

These LUA types and the Lands and Realty designation in which the LUA type is managed (allowed or excluded in a certain area), have been defined in **Table 2-19**, Description of Land Use Authorization Types.

Table 2-19
Description of Land Use Authorization Types

LUA Type	Description	Lands and Realty Designations Managing the LUA Type
Utility-scale Renewable Energy Development LUAs	Utility-scale renewable energy development ROWs where the proponent has signed a purchase power agreement with a utility company to sell power. These facilities typically produce more than 100 megawatts of power and may include linear utility features	Utility-scale Renewable Energy Development Exclusion Areas: this type of LUA would be excluded in prohibited areas under all action alternatives (refer to **Map 2–5b, 2–5c, 2–5d, and 2–5e**). Utility-scale Renewable Energy Development

Table 2-19
Description of Land Use Authorization Types

LUA Type	Description	Lands and Realty Designations Managing the LUA Type
	such as access roads, transmission lines, and/or pipelines.	Avoidance Areas: this type of LUA would be avoided in high and moderate sensitivity conflicts areas under all action alternatives (refer to **Map 2–5b, 2–5c, 2–5d and 2–5e**)
Major Linear LUAs	Linear LUAs that require a ROW width of more than 20 feet. These types of utilities include, but are not limited to: • Transmission lines that are greater than 115 kV, • Pipelines (water or gas) greater than 10 inches in diameter, and • Primary paved roads (as defined by the Planning and Conducting Route Inventories Technical Reference Guide 9113-1 [2006]).	Utility Corridors**:** this type of LUA (excluding roads) would be routed through these corridors under the no action alternative (refer to **Map 2–6a**). Multiuse Utility Corridors**:** this type of LUA would only be authorized within these corridors under all action alternatives (refer to **Map 2–6b, 2–6c, 2–6d and 2–6e**)
Minor Linear LUAs	Linear LUA lines that require a ROW width of no more than 20 feet. These types of utilities include: • Transmission lines that are 115 kilovolts or smaller, • Pipelines (water or gas) smaller than 10 inches in diameter, • Roads other than primary paved roads as defined by the Planning and Conducting Route Inventories Technical Reference Guide 9113-1 [2006]), and • Fiber optic or telephone lines.	**LUA Exclusion Areas**: this type of authorization would be excluded in these areas under all action alternatives (refer to **Map 2–6b, 2–6c, 2–6d, and 2–6e**) **LUA Avoidance Areas**: this type of authorization would be excluded in these areas under all action alternatives (refer to **Map 2–6b, 2–6c, 2–6d and 2–6e**)
Nonlinear LUAs	LUAs that are not linear in fashion and typically do not exceed five acres of surface disturbance. These LUAs do not produce or store more than 100 megawatts of power. These types of LUAs include: • Oil, natural gas, or water wells, • Cathodic protection utilities, • Communication facilities, • Meteorological devices (such as rain gauges), • Apiaries, • Wildlife waters, • Geophysical exploration facilities, and • Storage facilities.	**LUA Exclusion Areas**: this type of authorization would be excluded in these areas under all action alternatives (refer to **Map 2–6b, 2–6c, 2–6d and 2–6e**) **LUA Avoidance Areas**: this type of authorization would be excluded in these areas under all action alternatives. **Communication Sites**: communication facilities would be encouraged to be authorized in this site under all action alternatives (refer to **Maps 2-6b, c, d, and e**)

Utility-Scale Renewable Energy Development

Proposals for the development of utility-scale renewable energy facilities on BLM administered public lands fall under the authority of FLPMA as a land use authorization for a ROW, which are subject to environmental analysis under NEPA. The high demand for utility-scale renewable energy development (primarily solar development in the Western US) has led to three parallel processes within the agency to respond to this rapid demand: an agency wide programmatic process, an Arizona BLM process, and the process being analyzed in detail for this planning effort at the field office level. Regardless of when each of these processes become final decisions, this resource management plan would be amended to meet the decisions set forth by both the agency wide and state level decisions.

The management actions set forth in this Plan were crafted from methods which were adopted from the Western Governors' Association and local utility companies' planning efforts through the Western Renewable Energy Zones initiative. For the Plan, 2010 BLM GIS data was used to categorize public lands into four sensitivity categories (prohibited, high sensitivity, moderate sensitivity, and low known sensitivity areas). These four categories indicate the level of conflict that utility-scale renewable energy development proposals would encounter on public lands, in regards to existing resources and management goals and objectives.

This conflict analysis categorization method (which is described in detail in **Appendix N**, Analysis for Renewable Energy Sensitivity) was used to identify locations within the Lower Sonoran Decision Area where utility-scale renewable energy development would encounter some level of conflict, based on known resources and the allocations set forth in this plan. Management actions were then guided by this analysis to decipher which areas of the Planning area would be excluded or avoided to utility-scale renewable energy development. **Maps 2-5a, b, c, d, and e** display the lands that fall under each of these sensitivity categories. Under all of the action alternatives, public lands that fall under the "prohibited" category would be areas where utility-scale renewable energy development proposals would be excluded and proposals that fall under the "high and moderate sensitivity" categories would be areas where these types of developments would be avoided. Applications within the Decision Area would still need site-specific environmental analysis no matter where they are proposed in the Decision Area. The polygons depicted on **Maps 2-5a through 2-5e** do not imply a preauthorization for utility-scale renewable energy development, but are simply an RMP level depiction of where conflicts exists. Other conflicts may be revealed as site-specific analysis is conducted.

According to Appendix B of the Wind Energy Development Final Programmatic EIS (June 2005), there is little known potential for wind energy development on public lands in the Planning Area; therefore, no management actions were developed to manage such developments. Proposals for wind energy development would be entertained in low sensitivity areas of Planning Area and must comply with the best management practices that are identified in the Programmatic EIS ROD for Wind Energy Development.

Utility Corridors and Multiuse Utility Corridors

In order to minimize adverse environmental impacts and the proliferation of individual and isolated LUAs, utility corridors and multiuse utility corridors would be designated. Major linear LUA holders reserve to the BLM the right to grant additional major linear LUAs from other holders for compatible uses adjacent and at times within existing LUAs and designated utility corridors. Under existing

management, there are ten designated utility corridors (now referred to as multiuse utility corridors in all four of the action alternatives, in an effort to stress that utilities, including transportation networks, are permitted in these corridors). Under current management, major linear transportation facilities are not required to be placed within the existing utility corridors. Multiuse utility corridor designations vary by each action alternative and are displayed on **Maps 2-6b, c, d, and e**, while the ten existing utility corridors are displayed on **Map 2-6a**.

Portions of the San Diego Gas and Electric, El Paso Natural Gas, and Tucson Electric Power multiuse utility corridors (which exist throughout all alternatives and can be identified on **Maps 2-6a through 2-6e**) would comply with the adopted interagency operating procedures and standards for Section 368 energy corridors, set by the Approved Resource Management Plan/ROD for Designation of Energy Corridors on BLM Administered Lands in 11 Western States. Sections 368 (of the Energy Policy Act of 2005) corridors are allocated for oil, gas, and hydrogen pipelines and electricity transmission and distribution facilities (energy corridors).

Land Use Authorization (LUA) Avoidance and Exclusion Areas

LUA Avoidance Areas are areas with sensitive resource values where minor linear LUAs and nonlinear LUAs (such as ROWs, permits, leases, and easements) would be strongly discouraged and therefore "avoided". Authorizations to be considered within avoidance areas must be compatible with the purpose for which the area was designated and not be otherwise feasible on lands outside the avoidance area. Authorizations approved within these areas would be required to meet additional mitigation measures set forth by individual program areas that manage the "avoided" designated allocation. For example, WHAs call for the avoidance of LUAs. If LUAs are authorized within the WHA (or LUA Avoidance Area), the LUA would be required to meet the mitigation measures (or management actions) prescribed for that WHA in this Plan.

LUA Exclusion Areas are areas with sensitive resource values where minor linear LUAs and nonlinear LUAs (such as ROWs, permits, leases, and easements) would not be authorized. These areas have been determined to be unsuitable for a LUA because of (1) unique, highly valued, complex, or legally protected resources; (2) potentially significant environmental impacts resulting from conflicts with current land uses; or (3) areas posing substantial hazard to construction and/or operation of a linear facility (e.g., electric transmission line, pipeline, telephone line, fiber optic line). In these areas, LUAs would be granted only in cases where there is a legal requirement to provide such access or an immediate public safety concern.

LUA Avoidance and Exclusion Areas vary by alternative depending on the allocations established by other resources and program areas, BLM policy, or congressional/secretarial/presidential orders. These areas can be found on **Maps 2-6a through 2-6e**.

Communication Sites

Communications sites are generally limited to designated areas with existing facilities on mountain peaks. Communications sites (a nonlinear LUA type) on public lands accommodate the wireless systems referred to in the Telecommunications Act of 1996 as well as many other uses, including, but not limited to, AM/FM broadcast facilities, commercial mobile radios, private mobile radios, and microwaves on designated communications sites. There is currently one designated communication site in the Planning

Area at Oatman Mountain (refer to **Map 2-6a**), in which all proposed communication facilities would be encouraged to be placed. Throughout all of the alternatives, communication facilities would be placed outside of LUA Exclusion Areas on a case-by-case basis.

2.11.1.2 Land Tenure

Land tenure focuses on disposing and acquiring lands or interests in lands. The land tenure segment of the lands and realty program specifies that BLM would (1) retain all public lands or interests in land that enhance multiple-use management, (2) acquire lands or interests in land that complement important resource values and further management objectives, and (3) dispose of lands or interests in lands that are difficult or uneconomical to manage or are no longer needed for federal purposes.

Land Acquisition

The Secretary of the Interior is delegated with the authority from FLPMA to acquire non-federal lands or interests in lands. Lands acquired by the LSFO must accomplish at least one of the following:

- Facilitate access to public lands and resources,
- Maintain or enhance public uses and values,
- Facilitate implementation of this RMP/EIS,
- Provide for a more manageable land ownership pattern,
- Include significant natural or cultural resource values,
- Eliminate split-estate by acquiring either the surface or subsurface rights, if acquisition of rights would be in the public interest,
- Assist in the consolidation of large tracks of BLM administered lands, and/or
- Facilitate proper management within congressionally designated NLCS management units.

Lands Suitable for Disposal

Disposal actions usually take place in response to a request from the public, or from an application that could result in a title transfer wherein the lands leave the public domain. Federal lands can be disposed of through sale, exchange, or Recreation and Public Purposes Act (R&PP) patent. Sales and exchanges are used for disposal in order to assure an optimum final land ownership pattern and provide better overall land management. The types of sales include direct, competitive, and modified-competitive. Lands identified as being suitable for disposal are displayed on **Maps 2-7a through 2-7e** in green. Lands that are shaded in blue on **Maps 2-7b through 2-7e** are currently leased under the R&PP Act and could potentially be patented to these lease holders.

Public lands selected for disposal typically are those lands that meet the following criteria:

- Isolated and fragmented from larger tracks of BLM-administered lands,

- Adjacent to urbanizing private and state lands, which could be subject to future development,
- Currently leased under the R&PP Act and are eligible to be patented, and/or
- Present an economic and management challenge to retain under public ownership.

The BLM would not transfer from federal ownership the following:

- Designated or proposed critical habitat for a listed or proposed threatened, endangered or special status species; and/or
- Lands supporting listed or proposed threatened, endangered, or candidate species if such transfer would be inconsistent with recovery needs, objectives, and conservation measures or would likely affect the recovery of the species.

Exceptions to the above could occur if the recipient of the lands agrees to protect the species or critical habitat under the ESA, such as disposal to a non-federal governmental agency or private organization if conservation purposes for the species would still be achieved and ensured.

Disposal of lands would be made on a case-by-case basis and would be accomplished by the most appropriate disposal authority and after proper NEPA analysis. Should the authorizing official wish to dispose of lands not designated for disposal in this RMP, an RMP amendment would have to be made and the lands would need to meet the disposal criteria of the applicable laws and regulations.

No management actions related to land withdrawals, classifications are presented in this plan; therefore, each proposal would be analyzed on a case-by-case basis.

2.11.1.3 Withdrawals, Classifications and Segregations

Withdrawn lands where another public agency manages the surface estate are displayed on **Maps 2-6a through 2-6e**. Withdrawn lands from congressional designations (such as wilderness areas) and proposed withdrawn lands from program area allocations (such as ACECs and public use and conservation for future use sites) where the BLM still manages the surface are also displayed on these maps.

The BLM is delegated the authority to process withdrawal actions for the BLM and other federal agencies. Most of the existing plans for the subject Planning Area do not specifically address withdrawals, however, the following items are generally considered consistent:

- Review existing withdrawals on a case-by-case basis. Determine whether the use is consistent with the intent of the withdrawal and whether the withdrawal should be continued, modified, revoked or terminated.
- If it is determined by a withdrawal review that a withdrawal should be revoked or terminated or a withdrawal expires, the land does not automatically open to operation of the laws(s) to which the land was closed. An opening order would be published to notify the public when and to what extent the land would be opened. An opening order may be

incorporated in a public land order or termination order that revokes or terminates a withdrawal or may be published in the Federal Register as a separate document.

- Land on which a withdrawal has expired or has been revoked or terminated would be managed in a consistent manner with adjacent or comparable public lands within the Planning Area.

- New withdrawals may be completed when existing laws or regulations cannot adequately protect or preserve the integrity of resources of rarity, significance, fragility, or irreplaceability, or when valuable capital improvements are involved. They must be shown to be at risk by current land management practices. New withdrawals may also be completed when land is needed by another federal agency. Proposed withdrawals would be the minimum acreage consistent with the demonstrated need.

Classification of lands is the process of determining whether the lands are more valuable or suitable for transfer or use under federal ownership for management purposes. The classification process is currently used for potential disposals under the R&PP. The segregation of lands is an action such as a withdrawal or allowed application (R&PP) that suspends the operation to entry under all or portions of the public land laws, including the mining and mineral leasing laws. Similar to withdrawals, classifications and segregations are not specifically addressed in all the applicable current land use plans, but are generally considered consistent with the following actions:

- Review existing and subsequent segregations on a case-by-case basis to determine whether the segregation is appropriate and should be continued, modified or terminated. A notice of termination and opening order would be published to notify the public when and to what extent the land would be opened. Land on which a classification or segregation has been terminated would be managed in a manner consistent with adjacent or comparable public land within the Planning Area.

No management actions related to land withdrawals, classifications are presented in this Plan; therefore, each proposal would be analyzed on a case-by-case basis.

2.11.1.4 Existing Management Decisions (Alternative A - No Action) Lands and Realty

Decisions are listed in chronological order by plan. The following decisions are extracted from the existing land use plans and amendments and are listed in chronological order. Because none of these current land use plans encompass the entire Planning Area, very few of these decisions are being carried forward as common to all alternatives and are restated as new action alternatives where applicable.

Lower Gila North Management Framework Plan (1983)

- Establish the following seven *multiple-use utility corridors along existing rights-of-way in Lower Gila North. In these corridors, all utility uses (including transportation, pipelines, and electrical transmission lines) will be allowed when the uses are compatible (LR-07).

- Palo Verde-Devers*: 2 miles (restricted between Burnt Mountain and Big Horn Mountains)

- El Paso Natural Gas Company*: 2 miles (1 mile at Bill Williams River crossing) [*Only the two corridors located within the Lower Sonoran Planning Area and are listed above.]

- Continue to allow small-utility distribution systems to be developed on an "as needed" basis throughout the Lower Gila North Planning Area. These small distribution systems will include all uses such as electrical lines, gas and water pipelines, and roads. These distribution systems will be authorized when consistent with environmental and land use considerations (LR-08).

Lower Gila South Resource Management Plan (1989)

- Designate 10 corridors within the Lower Gila South Planning Area (each one mile wide) (LR-13).

Phoenix Resource Management Plan (1989)

- All major utilities in the Phoenix RMP Planning Area would be routed through designated corridors (LR-02).

- All the corridors in the Phoenix RMP Planning Area [except for the Black Canyon corridor] would be 1 mile in width (LR-03).

- Retain 6,880 acres in the San Tan Mountains, outside the Resource Conservation Areas (RCAs), as a Cooperative Recreation Management Area with state or local agencies (LR-20).

- Acquire 480 acres of state land in the San Tan Mountains Cooperative Recreation Management Area (LR-21).

- Designate 391,803 (remainder thereof) acres of federal surface outside the seven RCAs as suitable for disposal through state indemnity selection, R&PP patent, or state or private exchange (LR-29). This now refers to two RCAs (which are now within the Bradshaw Harquahala RMP Area) based on the redesignation of BLM Field Office management boundaries. Therefore, all public lands from the Phoenix RMP Planning Area that are now within the Lower Sonoran Planning Area have been identified as suitable for disposal.

- Designate 45,000 (remainder thereof) acres of federal surface outside the seven RCAs as suitable for disposal through state indemnity selection, state or private exchange or sale (LR-30). This now refers to two RCAs (which are within the Bradshaw Harquahala RMP Area) based on redesignation of BLM Field Office management boundaries. Therefore, all public lands from the Phoenix RMP Planning Area that are now within the Lower Sonoran Planning Area have been identified as suitable for disposal.

- Identify for disposal all subsurface mineral estate underlying federal surface designated for disposal outside the seven RCAs, Cooperative Recreation Management Areas and R&PP lands (LR-31). This now refers to two RCAs (which are within the Bradshaw Harquahala RMP Area) based on the redesignation of BLM Field Office management boundaries.

Therefore, all public lands from the Phoenix RMP Planning Area that are now within the Lower Sonoran Planning Area have been identified as suitable for disposal.

- Transfer 1,140 acres in the Goldfield Area to the City of Apache Junction for park development under R&PP leases (LR-32).

- On land retained or acquired, communication facility development would be limited to designated sites (LR-52).

- Land identified for disposal would generally be left open for communication site development on a case-by-case basis (LR-53).

- Communication site applications will continue to be considered on land identified for disposal until such time as disposal takes place (LR-54).

- Land use authorizations (right-of-way, leases, permits, easements) will continue to be issued on a case-by-case basis (LR-55).

- Rights-of-way will be issued to promote the maximum utilization of existing right-of-way routes, including joint use whenever possible (LR-56).

Lower Gila South Resource Management Plan (Goldwater Amendment) (1990)

- Restrict construction of overhead transmission lines to paralleling the existing Gila Bend to Ajo 69-kilovolt transmission line. Underground facilities must be constructed on the west side of the Tucson Cornelia and Gila Bend railroad. All rights-of-way are subject to US Air Force concurrence (LR-3). Applies only to the relinquished Ajo Airport parcel.

- Communicate promptly to the public and other agencies, as necessary, new designations for land use, resource protection, safety and security (LR-6). Applicable to the three relinquished BGR parcels.

- Prohibit new ROWs and other land use authorizations except those installed in the established Interstate 8 utility corridors; encourage the installation of below ground utility services within the corridor south of Interstate 8 unless overhead facilities are required due to technical and/or operational circumstances (Not Numbered).

Lower Gila Resource Management Plan Amendment (2005)

- Approximately 33,459 acres of public lands within the Planning Area are identified for disposal (LR-1; identified on **Map 2-7a**).

- Public lands in the Gila Bend Management Area adjacent to the White Tanks County Regional Park, described as T.2 N., R. 3 W., sections 4,5,8,9,14,15,17 through 22, 26 through 29, and 33 through 35; T. 2 N., R. 4 W., section 1; and T. 3 N., R. 4 W., sections 1, 11 through 14, 24, 25, and 36 will be retained in federal ownership and will only be available for disposal to local or state governmental entities for recreation/park purposes (LR-2).

- The BLM will continue to dispose of federal subsurface estate under non-federal surface estate on a case-by-case basis (LR-3).

- Exchanges to re-position lands within all the management areas may occur if it has been determined that it would be in the public interest (LR-4).

- Lands identified for disposal may be retained if significant resource values are found during evaluation. The policy is not to dispose of lands occupied by proposed or listed threatened or endangered species. If other public uses outweigh the value of a parcel as federally owned threatened or endangered species habitat, disposal could be considered on a case-by-case basis. If a listed or proposed threatened or endangered species would be affected by a land disposal action, consultation or conferencing with the USFWS will be required. Exchange for other parcels of habitat will be encouraged. Compensation for loss of habitat value would be required where such a policy exists. Other mitigation may also be required. These determinations would be made during preparation of the site-specific environmental assessments required for every disposal action. Environmental documentation must be in compliance with the National Environmental Policy Act prior to the approval of any lands action (LR-5).

- Approximately 3,043,900 acres not listed in Appendix 3 or identified for specific purposes in this amendment will be retained in public ownership unless needed for recreation or public purposes. Such disposal proposals on lands not identified for disposal will be considered on a case-by-case basis (LR-6).

- All non-federal lands with high resource values within the boundaries of the management areas may be considered for acquisition. Acquisitions will occur primarily through the land exchange process in accordance with 43 CFR 2200 and the Federal Land Exchange Facilitation Act. Acquisition by donation and purchase using Land and Water Conservation Funds will also be considered when willing parties or available funds exist. All acquisitions will be negotiated with willing landowners only and must be in the public interest. There are approximately 288,800 acres of non-federal land within the four management areas (LR-7).

- The BLM will continue to acquire non-federal subsurface estate under federal surface estate on a case-by-case basis (LR-8).

Approved Resource Management Plan Amendments/Record of Decision (ROD) for Designation of Energy Corridors on BLM Administered Lands in 11 Western States (2009)

- Section 368 directs the Secretary of the Interior (the Secretary) to designate energy transport corridors under existing authorities, such as those provided by Section 503 of the Federal Land Policy and Management Act of 1976 (43 USC 1763) (FLPMA). By signing this ROD, the Sale and Lease Management Agreement amends the affected BLM land use plans under the authority of FLPMA and in accordance with BLM planning regulations (43 CFR Part 1600). The approved plan amendments are consistent with the requirements of Section 368 of the Energy Policy Act of 2005. The decision also adopts interagency operating procedures to meet the Section 368 requirement to improve the ROW application process and to meet NEPA requirements to provide practicable means to avoid

or minimize environmental harm which may result from future ROW grants within the designated 3 corridors. The approved BLM plan amendments are presented in Appendix A of this ROD and the interagency operating procedures are presented in Appendix B of this ROD. This decision reallocates the El Paso Natural Gas, San Diego Gas and Electric, and Tucson Electric Powers Utility Corridors (identified on **Maps 2-6a through 2-6e** in this Plan) as a Section 368 energy transport corridor.

2.11.1.5 Action Alternatives for Lands and Realty

Program Goals

- Goal 1: Manage lands and realty actions to effectively support public needs and resource management objectives.
- Goal 2: Manage land tenure to meet natural resource management objectives, community needs, and to promote agency efficiency.

Allocations Summary

Table 2-20, Lands and Realty Allocations for the Lower Sonoran Decision Area, and **Table 2-21**, Lands and Realty Allocations for the SDNM Decision Area, list lands and realty allocations for both Decision Areas.

Table 2-20
Lands and Realty Allocations for the Lower Sonoran Decision Area

	Alternative				
	A (No Action)	**B**	**C**	**D**	**E (Proposed RMP)**
Land Use Authorizations: Utility-scale Renewable Energy Avoidance and Exclusion Areas (acres)					
Acres avoided (moderate and high sensitivity conflict areas)	N/A	727,600	617,500	405,100	499,900
Acres excluded (prohibited areas)	105,000	160,100	293,800	519,400	394,200
Land Use Authorizations: Utility Corridors (Width/Length miles)					
El Paso Natural Gas	1.0/49.2	1.0/49.2	1.0/34.8	1.0/34.8	1.0/34.8
Palo Verde to Devers	1.0/8.8	1.0/8.8	1.0/8.8	N/A	1.0/8.8
Sand Diego Gas and Electric	1.0/22.3	1.0/22.3	1.0/21.5	1.0/21.5	1.0/21.5
Palo Verde-Kyrene	1.0/8.1	1.0/8.1	1.0/7.6	1.0/7.6	1.0/7.6
Liberty-Gila Bend	1.0/9.2	1.0/9.2	1.0/9.2	1.0/9.2	1.0/9.2
Gila Bend-Ajo	1.0/0.5	1.0/0.5	N/A	N/A	N/A
Santa Rosa-Gila Bend	1.0/0.1	1.0/0.1	1.0/0.1	N/A	N/A
Interstate 8	1.0/22.9	1.0/22.9	1.0/24.4	1.0/20.5	1.0/20.5
Tucson Electric Power	1.0/34.4	1.0/34.4	1.0/15.6	1.0/15.6	1.0/15.6
Interstate 10	1.0/1.0	1.0/1.0	1.0/1.0	1.0/1.0	1.0/1.0
Total Corridor Acres	134,328	134,328	95,203	72,153	82,301

Table 2-20
Lands and Realty Allocations for the Lower Sonoran Decision Area

	Alternative				
	A (No Action)	**B**	**C**	**D**	**E (Proposed RMP)**
Multiuse utility corridor widths and lengths are measured as they cross BLM administered lands only. Multiuse utility corridors are simply referred to as utility corridors within Alternative A and would not include transportation facilities. *Indicates that the multiuse utility corridor would only permit underground facilities in a certain portion of the corridor					
Land Use Authorizations: Avoidance and Exclusion Areas (acres)					
LUA Avoidance Area	N/A	609,000	449,500	260,500	344,800
LUA Exclusion Area	105,100	143,700	271,900	593,600	295,100
Land Use Authorizations: Communication Sites					
The Oatman Communication Site is allocated in all alternatives					
Land Tenure (acres)					
Disposal	18,900	29,500	36,300	34,800	36,800
R&PP Leased	N/A	3,400	3,400	3,400	2,800
Acquisition	Private and state lands would be acquired as available and funds allow, on a willing seller, willing buyer basis.				
Retention	899,400	888,600	890,600	907,400	896,300

Table 2-21
Lands and Realty Allocations for the SDNM Decision Area

	Alternative				
	A (No Action)	**B**	**C**	**D**	**E (Proposed RMP)**
Land Use Authorizations: Utility-scale Renewable Energy Avoidance and Exclusion Areas (acres)					
The SDNM is excluded from any potential utility-scale renewable energy development within all alternatives.					
Land Use Authorizations: Utility Corridors (Width/Length miles)					
Santa Rosa-Gila Bend	1.0/18.1	1.0/18.1	0.5*/17.9*	N/A	N/A
Interstate 8	1.0/21.1	1**/21.1	0.5*/21.1*	N/A	N/A
Tucson Electric Power	1.0/7.4	1.0/7.4	N/A	N/A	N/A
Total Corridor Acres	32,900	32,900	14,900	N/A	N/A
Multiuse utility corridor widths and lengths are measured as they cross BLM administered lands only. Multiuse utility corridors are simply referred to as utility corridors within Alternative A and would not include transportation facilities. *Indicates that the multiuse utility corridor would only permit underground facilities **Indicates that a portion of the multiuse utility corridor narrows to a ½ mile wide (south of the Interstate 8 highway centerline) as it passes along the length of the South Maricopa Mountains Wilderness (refer to **Map 2-6b**)					

Table 2-21
Lands and Realty Allocations for the SDNM Decision Area

	Alternative				
	A (No Action)	**B**	**C**	**D**	**E (Proposed RMP)**
Land Use Authorizations: Avoidance and Exclusion Areas (acres)					
LUA Avoidance Area	N/A	293,600	181,400	N/A	N/A
LUA Exclusion Area	164,900	192,800	305,000	486,400	486,400
Land Use Authorizations: Communication Sites					
No communication sites are designated in the SDNM					
Land Tenure (acres)					
Disposal	No lands are designated as being suitable for disposal within the Monument. Exchanges for lands within the Monument for other private lands within the Monument's boundaries would be permitted if they further improve the management of Monument objects and present no net loss to existing objects that would be impacted by the exchange.				
R&PP Leased	No lands are presently leased under the R&PP Act within the SDNM, therefore no acres were identified.				
Acquisition	Private and state lands would be acquired as available and funds allow, on a willing seller, willing buyer basis.				
Retention	All 486,400 acres of public land would be retained.				

Management Actions and Allowable Uses

Table 2-22, Management Actions and Allowable Uses for Lands and Realty, describes the management actions and allowable uses for lands and realty.

Table 2-22
Management Actions and Allowable Uses for Lands and Realty

Decision Area		Alternative				Management Actions and Allowable Uses
Goal 1: Manage lands and realty actions to effectively support public needs and resource management objectives.						
Objective 1.1 (Utility-scale Renewable Energy Development LUAs): Authorize utility-scale renewable energy development LUAs (as defined in **Table 2-14**, Acres of Lands Managed to Protect Wilderness Characteristics by Alternative) in locations that are found to be suitable due to limited conflicts with other management objectives.						
LS	SDNM	B	C	D	E	LR-1.1.1: Utility-scale renewable energy development LUAs would be excluded on lands that fall under the "prohibited" area (refer to **Map 2–5b** through **2–5e** and **Appendix N**, Analysis for Renewable Energy Sensitivity.
LS		B	C	D	E	LR-1.1.2: Utility-scale renewable energy development LUAs would be avoided on lands that fall under the "high and moderate sensitivity" conflict areas (refer to **Map 2–5b** through **Map 2-5e** and **Appendix N**, Analysis for Renewable Energy Sensitivity.

Table 2-22
Management Actions and Allowable Uses for Lands and Realty

Decision Area		Alternative				Management Actions and Allowable Uses
Objective 1.2 (Major Linear LUAs): Authorize major linear LUAs (as defined in **Table 2-14**, Acres of Lands Managed to Protect Wilderness Characteristics by Alternative) in locations that utilize designated multiuse utility corridors effectively.						
LS		B				LR-1.2.1: Ten 1-mile wide multiuse utility corridors would be designated, in which all compatible major linear utility LUAs (as defined in **Table 2-14**, Acres of Lands Managed to Protect Wilderness Characteristics by Alternative) would be allowed unless otherwise specified by the authorizing official. The corridors are listed below; also see **Map 2-6b** for location descriptions: • El Paso Natural Gas (section from Ajo, AZ to the Tohono O'odham Nation would allow only underground facilities). • Palo Verde-Devers • San Diego Gas and Electric • Palo Verde-Kyrene • Liberty-Gila Bend • Gila Bend-Ajo • Gila Bend-Santa Rosa • Interstate 8 • Tucson Electric Power • Interstate 10
LS			C			LR-1.2.2: Nine 1-mile wide multiuse utility corridors would be designated, in which all compatible major linear utility LUAs (as defined in **Table 2-14**, Acres of Lands Managed to Protect Wilderness Characteristics by Alternative) would be allowed unless otherwise specified by the authorizing official. The corridors are listed below; also see **Map 2-6c**: • El Paso Natural Gas (*section from Ajo, AZ to the Tohono O'odham Nation would be removed*). • Palo Verde-Devers • San Diego Gas and Electric • Palo Verde-Kyrene • Liberty-Gila Bend • *Gila Bend-Ajo would be removed* • Gila Bend-Santa Rosa *(underground facilities only)* • Interstate 8 • Tucson Electric Power *(section from Ajo, AZ to Tohono O'odham Nation would be removed)* • Interstate 10
LS				D		LR-1.2.3: Seven 1-mile wide multiuse utility corridors would be designated, in which all compatible major linear utility LUAs (as defined in **Table 2-14**, Acres of Lands Managed to Protect Wilderness Characteristics by Alternative) would be allowed unless otherwise specified by the authorizing official. The corridors are listed below; also see **Map 2-6d**:

Table 2-22
Management Actions and Allowable Uses for Lands and Realty

Decision Area		Alternative				Management Actions and Allowable Uses
						• El Paso Natural Gas (*section from Ajo, AZ to the Tohono O'odham Nation would be removed*). • *Palo Verde-Devers would be removed* • San Diego Gas and Electric • Palo Verde-Kyrene • Liberty-Gila Bend • *Gila Bend-Ajo would be removed* • *Gila Bend-Santa Rosa would be removed* • Interstate 8 • Tucson Electric Power *(section from Ajo, AZ to Tohono O'odham Nation would be removed)* • Interstate 10
LS					E	LR-1.2.4: Eight 1-mile wide multiuse utility corridors would be designated, in which all compatible major linear utility LUAs (as defined in **Table 2-14**, Acres of Lands Managed to Protect Wilderness Characteristics by Alternative) would be allowed unless otherwise specified by the authorizing official. The corridors are listed below; also see **Map 2-6e**: • El Paso Natural Gas (*section from Ajo, AZ to the Tohono O'odham Nation would be removed*). • Palo Verde-Devers • San Diego Gas and Electric • Palo Verde-Kyrene • Liberty-Gila Bend • *Gila Bend-Ajo would be removed* • *Gila Bend-Santa Rosa would be removed* • Interstate 8 • Tucson Electric Power *(section from Ajo, AZ to Tohono O'odham Nation would be removed)* • Interstate 10
LS		B	C		E	LR-1.2.5: Major linear LUAs (as defined in **Table 2-14**, Acres of Lands Managed to Protect Wilderness Characteristics by Alternative) may be authorized on case-by-case basis outside designated multiuse utility corridors if they are due and necessary in connecting a generating facility to the closest designated multiuse utility corridor.
LS		B	C	D	E	LR-1.2.6: Portions of the El Paso Natural Gas, San Diego Gas and Electric, and Tucson Electric Powers Multiuse Utility Corridors (as shown in **Maps 2-6a** through **2-6e**) would adhere to the decisions and interagency operating procedures set forth in the Approved Resource Management Plan Amendments / Record of Decision (ROD) for Designation of Energy Corridors on BLM Administered Lands in 11 Western States (2009).
	SDNM	B				LR-1.2.8: Three 1-mile wide multiuse utility corridors would be designated in which all compatible major linear LUAs (as defined in **Table 2-14**,

Table 2-22
Management Actions and Allowable Uses for Lands and Realty

Decision Area		Alternative				Management Actions and Allowable Uses
						Acres of Lands Managed to Protect Wilderness Characteristics by Alternative) would be allowed unless otherwise specified by the authorizing official. The corridors are listed below; also see **Map 2-6b** for location descriptions: • Gila Bend to Santa Rosa • Interstate 8 • Tucson Electric Power
	SDNM		C			LR-1.2.8: Two ½-mile wide multiuse utility corridors would be designated in which all compatible major linear LUAs (as defined in **Table 2-14**, Acres of Lands Managed to Protect Wilderness Characteristics by Alternative) would be allowed unless otherwise specified by the authorizing official. The corridors are listed below; also see **Map 2-6c**: • Gila Bend to Santa Rosa *(underground facilities only)* • Interstate 8 • *Tucson Electric Power would be removed.*
	SDNM			D	E	LR-1.2.9: No existing or future multiuse utility corridors would be designated within the Monument (see **Map 2-6d** and **2-6e**).
Objective 1.3 (Minor Linear and Nonlinear LUAs): Authorize minor linear and nonlinear LUAs (as defined in **Table 2-14**, Acres of Lands Managed to Protect Wilderness Characteristics by Alternative in locations that minimize resource impacts, are compatible with multiple use objectives, and do not compromise the existing rights of current holders.						
LS	SDNM	B	C	D	E	LR-1.3.1: Proposed minor linear and nonlinear LUAs would be prohibited in areas designated as LUA Exclusion Areas, unless they allow for: • Access to private property in holdings when there is no other reasonable access alternative across non-federal land, • Authorized emergency, public safety and administrative uses, and • Authorized emergency, public safety and administrative uses, and • Uses that would further enhance the goals and objectives of the allocation, as permitted by the authorizing official. Exclusion areas for minor linear and nonlinear LUAs include: • The SDNM (Alternatives D and E only), • Designated wilderness areas (all alternatives), • The Juan Bautista de Anza National Historic Trail (all alternatives), • The Fred J. Weiler Green Belt (PLO 1015 lands) (all alternatives), • Sentinel Plain (military land relinquished to the BLM with restrictions related to public safety)(all action alternatives), • Lands managed to protect wilderness characteristics (in Alternative D only) • ACECs (Alternative D and E only), • VRM Class I lands (all action alternatives) and • High-potential segments of the Butterfield Overland Stage Route

Table 2-22
Management Actions and Allowable Uses for Lands and Realty

Decision Area		Alternative				Management Actions and Allowable Uses
						(Alternative D only).
LS	SDNM	B	C	D	E	LR-1.3.2: Proposed minor linear and nonlinear LUAs would be strongly discouraged in areas designated as LUA Avoidance Areas, unless they allow for / or are: • Authorized emergency, public safety, and administrative uses. • Uses that are compatible with the purpose for which the allocation was designated by meeting the restrictions set forth by the underlining program area allocation, an • Are not feasible on lands outside the avoidance area. LUA Avoidance Areas for minor and nonlinear LUAs include: • SDNM (Alternatives B and C only), • ACECs (Alternatives B and C only), • Anza NHT Management Areas • Developed campgrounds and recreation sites • BLM threatened and endangered species habitats, including Sonoran desert tortoise habitats (all action alternatives), • Lands managed to protect wilderness characteristics (in Alternatives C and E only), • VRM Class II lands (all action alternatives), • SCRMAs (Alternative D only), • Fred J. Weiler Green Belt (non-PLO 1015 lands) (all action alternatives), • Cultural sites allocated to a use category (such as public and conservation use sites)(all action alternatives), • High-potential segments of the Butterfield Overland Stage Route (Alternatives B, C, and E only), and • Back country recreation settings (Alternative D only).
LS		B	C	D	E	LR-1.3.3: Proposed minor linear and nonlinear LUAs would continue to be authorized on an "as needed" case-by-case basis in areas outside of LUA Avoidance and Exclusion areas.
LS		B	C	D	E	LR-1.3.4: Oatman Mountain would be designated as a communication site (see **Map 2-6a** through **2-6e**).
LS		B	C	D	E	LR-1.3.5: Communication facilities would be encouraged to be authorized within the designated Oatman Mountain Communication Site.
LS		B	C	D	E	LR-1.3.6: Apiary special-use permits (a nonlinear LUA) would not be authorized within ¼ mile of a developed recreation facility or water sources such as livestock waters and springs.
Goal 2: Manage land tenure to meet natural resource management objectives, community needs, and to promote agency efficiency.						
Objective 2.1: Determine interests in lands for consolidation, retention, disposal, and acquisition. Evaluate land tenure actions in accordance with the criteria established in the Arizona Land Tenure Adjustment Strategy (**Appendix O**, Arizona Land Tenure Strategy)						

Table 2-22
Management Actions and Allowable Uses for Lands and Realty

Decision Area		Alternative				Management Actions and Allowable Uses
LS		B				LR-2.1.1: Approximately 29,500 acres would be suitable for disposal via any disposal method, including patent through the R&PP Act on a case-by-case basis (as shown on **Map 2–7b**).
LS			C			LR-2.1.2: Approximately 36,300 acres (including San Tan Mountain Regional Park) would be suitable for disposal via any disposal method, including patent through the R&PP Act on a case-by-case basis (as shown on **Map 2-7c**).
LS				D		LR-2.1.3: Approximately 34,800 acres (including San Tan Regional Park) would be suitable for disposal via any disposal method, including patent through the R&PP Act on a case-by-case basis (as shown on **Map 2-7d**).
LS					E	LS-2.1.4: Approximately 36,800 acres (including San Tan Regional Park) would be suitable for disposal via any disposal method, including patent through the R&PP Act on a case-by-case basis (as shown on **Map 2-7e**).
LS		B	C	D	E	LR-2.1.5: Land interests disposed of through the R&PP Act would be evaluated on a case-by-case basis. (Current R&PP leased lands are identified on **Map 2-7b** through **2-7e**).
LS		B	C	D	E	LR-2.1.6: Disposal of 1,140 acres of R&PP leased lands near the City of Apache Junction to the City of Apache Junction would continue via any disposal method on a case-by-case basis.
LS		B	C	D	E	LR-2.1.7: Non-federal interests for acquisition would be targeted on a case-by-case basis, with an emphasis on acquiring lands that adjoin or are near existing public lands that would increase the continuity of public lands, facilitate proper management, or protect an existing use.
LS		B	C	D	E	LR-2.1.8: Acquisition by donation and purchase would be considered when willing parties or available funds exist.
LS		B	C	D	E	LR-2.1.9: All acquisitions would be negotiated with willing landowners only and would have to be in the public interest.
LS		B	C	D	E	LR-2.1.10: Public lands bordering the Gila River Indian Reservation, which are identified as being suitable for disposal (as shown on **Maps 2-7b** through **2-7e**), would only be available for disposal to local, state, federal, or tribal governmental entities.
LS	SDNM	B	C	D	E	LR-2.1.11: The BLM would continue to eliminate split estate situations by acquiring non-federal subsurface estates that lies beneath federal lands when there is a willing seller.
LS	SDNM	B	C	D	E	LR-2.1.12: The BLM would continue to eliminate split estate situations by disposing of federal subsurface estates when there are no known mineral values
LS	SDNM	B	C	D	E	LR-2.1.13: The BLM would not dispose of any subsurface mineral estates that lie under BLM managed surface estate.
	SDNM	B	C	D	E	LR-2.1.14: The BLM would seek land owners who are willing to sell private land interests within the Monument and proceed with acquiring these

Table 2-22
Management Actions and Allowable Uses for Lands and Realty

Decision Area		Alternative				Management Actions and Allowable Uses
						inholdings (surface and subsurface) as funding opportunities arise
	SDNM	B	C	D	E	LR-2.1.15: The BLM would seek landowners who are willing to sell partial private land interests (i.e., "easements") within the Monument in cases where the BLM cannot acquire fee-simple ownership in land interests, and proceed with securing the easements as funding opportunities arise.
	SDNM	B	C	D	E	LR-2.1.16: No lands are designated as being suitable for disposal within the Monument. Exchanges for lands within the Monument for other private lands within the Monument's boundaries would be permitted if they further improve the management of Monument objects and present no net loss to existing objects that would be impacted by the exchange.

Administrative Actions

- Continue to coordinate with the Maricopa County Department of Transportation (MCDOT), the Maricopa Association of Governments (MAG), Pinal County, Pima County, the Arizona Department of Transportation (ADOT), and the Federal Highway Administration for transportation activities that may affect public lands.
- Cooperate with the Western Utility Group and other industry groups to facilitate the exchange of information and coordinate planning efforts between federal agencies and utility providers through the western US.
- Whenever possible, promote energy transfer efficiency and support alternative energy sources such as the use of photovoltaic cells (solar energy) and wind power.
- Promptly communicate new designations for land use, resource protection, safety, and security to the public and other agencies, as necessary.
- Utility-scale renewable energy land use authorizations within designated multiuse utility corridors shall not conflict with existing and potential future linear facilities.

Specific to the SDNM Decision Area

- Activities to maintain existing facilities would be evaluated on a case-by-case basis, and if SDNM resources can be protected, approved.

2.11.2 LIVESTOCK GRAZING

The livestock grazing program in the Planning Area is managed under Title 43 of the CFR 4100, to carry out the intent of the Taylor Grazing Act of 1934, as amended and supplemented, the Federal Land Policy and Management Act of 1976, and the Public Rangelands Improvement Act of 1978. Grazing permits or

leases are valid for up to 10 years and authorize grazing within grazing districts on public land and other land administered by the BLM under Section 3 of the Taylor Grazing Act, and outside of grazing districts under Section 15 of the Taylor Grazing Act.

The BLM evaluates allotments when leases or permits are scheduled for renewal consistent with 43 CFR 4100 (subpart 4180) and the Arizona Standards for Rangeland Health and Guidelines for Grazing Administration, IM-AZ-98-013. Terms and conditions are specified in grazing permits or leases, which require lessees to meet management objectives, provide for proper range management, and assist in the orderly administration of the public rangelands. These terms and conditions are contained in 43 CFR 4100 (subpart 4130).

In Arizona, BLM rangelands and grazing allotments are classified as perennial, ephemeral, or perennial-ephemeral. These classifications correspond to the following types of designated rangelands:

- Perennial rangeland: consistently produces perennial forage to support a year-round livestock operation;
- Ephemeral rangeland: does not consistently produce enough forage to sustain a year-round livestock operation but may periodically produce large amounts of annual forage to accommodate livestock grazing; and
- Perennial-ephemeral rangeland: produces perennial forage each year and periodically provides additional ephemeral vegetation. In a year of abundant moisture and favorable climatic conditions, annual forbs and grasses add materially to the total grazing capacity.

During the resource management planning process, land use plan decisions identify lands available or not available for livestock grazing. In contrast implementation decisions identify areas available for grazing, and then establish allotment-specific grazing management practices and livestock forage amounts, based on monitoring and assessment information. Grazing management practices and levels of livestock grazing use must achieve the desired outcomes outlined in the land use plan, including rangeland health standards (or comprehensive Land Health Standards), or must result in significant progress toward fulfilling rangeland health standards. They must also conform to the guidelines required under 43 CFR 4180.2(b).

2.11.2.1 Lower Sonoran Decision Area

For the LSFO Decision Area, the proposed land use allocations for livestock grazing availability are as follows:

- Alternative A (No Action): Grazing allotments would continue to be allocated as perennial, perennial-ephemeral, or ephemeral, as appropriate to allotment-specific characteristics. Season of use adjustments on perennial allotments would be considered (see **Map 2-8a**).
- Alternative B: Ephemeral grazing applications would continue to be considered, but perennial stocking rates would be reduced (see **Map 2-8b**).

- Alternative C: Grazing allotments designated as perennial-ephemeral would be reclassified as perennial only, with no supplemental ephemeral grazing applications considered. This alternative does not apply to ephemeral-only allotments. Season of use adjustments on perennial allotments would be considered (see **Map 2-8c**).

- Alternative D: All allotments currently open to livestock grazing would become unavailable as permits expire (see **Map 2-8d**).

- Alternative E (Proposed RMP): Grazing allotments would be allocated as perennial, perennial-ephemeral, or ephemeral, as appropriate to allotment-specific characteristics. Season of use adjustments on perennial allotments would be considered. Alternative E incorporates elements from each of the other alternatives (see **Map 2-8e**).

Once the RMP is adopted for the Lower Sonoran Decision Area, the BLM would evaluate allotments when leases or permits are scheduled for renewal consistent with 43 CFR 4100 (subpart 4180) and the Arizona Standards for Rangeland Health and Guidelines for Grazing Administration, IM-AZ-98–013. These decisions would be implemented as directed pursuant to 43 CFR 4100.

2.11.2.2 SDNM Decision Area

Within the SDNM Decision Area, the Proclamation for the Sonoran Desert National Monument requires the BLM to determine the compatibility of grazing "with the paramount purpose of protecting objects identified in this proclamation." A grazing Compatibility Analysis which represents the BLM's analysis of livestock grazing on 252,500 acres of public lands currently available for livestock grazing within the SDNM north of I-8, is available in **Appendix E**, Proposed Compatibility Analysis: Livestock Grazing on the Sonoran Desert National Monument. The compatibility analysis is used to determine whether livestock grazing is compatible with the paramount purpose of the Monument, which is to protect the objects identified in the proclamation. Process steps for the compatibility analysis include:

- Identify the objects of the Monument.

- Conduct a literature review. The literature review helps identify potential effects of livestock grazing in the Sonoran Desert.

- Prepare a land health evaluation (LHE). The LHE documents if standards are achieved or not achieved, including causal factors for non-achievement.

- Analyze the effects of grazing on the biological and cultural Monument objects.

- Develop a grazing Compatibility Analysis.

- Develop a full range of Alternatives presented in this Resource Management Plan.

The grazing Compatibility Analysis and Land Health Evaluation (**Appendix E**, Proposed Compatibility Analysis: Livestock Grazing on the Sonoran Desert National Monument and **Appendix F**, Arizona Land Health Evaluation for the Sonoran Desert National Monument, respectively) analyzed the effects of livestock grazing on the SDNM only.

The results of the Compatibility Analysis indicate that, in some locations, current conditions on the SDNM's six allotments are not achieving all of the Arizona Standards for Rangeland Health. Where standards are not being achieved and grazing has been determined to be a contributing factor, the BLM has determined that current grazing practices are not compatible with protection of the objects of the Monument. Current livestock grazing practices were determined to be a contributing factor of non-achievement of Standards in areas where forage utilization exceeded 41 percent (or "moderate" to "severe" utilization). In areas that showed negligible to light utilization (0–40 percent), yet did not achieve Land Health Standards, other causal factors (such as fire, drought, historic livestock use patterns, OHV use, or combinations thereof) were considered to be the contributing factor(s). The proposed Compatibility Analysis indicates that livestock grazing is a contributing factor for non-achievement of Standard 3 on 8,498 acres of the 252,500 (3.4 percent) acres north of I-8.

The LHE and Compatibility Analysis recommended adjustments to season of use levels to primarily fall-winter-spring with reduced levels during the summer months as follows: 65 percent of the permitted use would occur from October 1 to April 30, and 35 percent of permitted use would occur from May 1 to September 30. This would reduce potential competition with special status wildlife species and other wildlife species during the critical summer months. Moderate ephemeral grazing does not appear to influence achievement of Land Health Standards, and thus should be considered to continue where applicable, in accordance with the Special Ephemeral Rule and the Arizona Guidelines for Grazing Administration.

These management recommendations and the Compatibility Analysis Determination helped in the development of alternatives for the RMP. Through this RMP/EIS process, a full range of alternatives and management actions would be considered that would allow for continued protection of the objects of the Monument and grazing management design features that would ensure continued compatibility.

For the SDNM Decision Area, the planning- and implementation-level decisions reflect the findings of the compatibility analysis. Based on the results of the compatibility analysis, a limited amount of livestock grazing has been determined to be compatible with protection of the biological and cultural objects of the Monument on most of the lands north of Interstate 8. **Table 2-24**, Livestock Grazing Allocations for the SDNM Decision Area, and **Table 2-25**, Livestock Grazing Acres for the SDNM North of Interstate 8 Only, present the planning-level use allocations and acreages for the SDNM; **Table 2-26**, Permitted Animal Unit Months (AUMs) for the SDNM, presents the implementation-level AUM decisions for the allotments in the SDNM for each alternative. The 8,498 acres determined to be incompatible with livestock grazing would be unavailable for grazing under all alternatives, except the No Action Alternative. This is to ensure that non-compatible areas are protected, per the Monument proclamation.

Summarized below are the SDNM livestock grazing alternatives:

- Alternative A (No Action Alternative): Livestock grazing permits south of I-8 are terminated. Livestock grazing north of I-8 would continue to be allocated as perennial, perennial-ephemeral, or ephemeral, as appropriate to allotment-specific characteristics, if determined to be compatible with protecting Monument resources. Season of use adjustments on perennial allotments would be considered.

- Alternative B: Stocking rates on grazing allotments north of I-8 would be allocated as perennial grazing and would be reduced by approximately 40 percent. Ephemeral grazing applications would continue to be considered. The approximately 8,500 acres determined to be incompatible with livestock grazing would be made unavailable for grazing by fencing off these specific areas.

- Alternative C: Grazing allotments in the SDNM north of I-8 would be allocated as perennial only with no ephemeral grazing applications considered (this would not apply to the Arnold Allotment). Approximately 8,500 acres determined to be incompatible with livestock grazing, plus an additional 36,300 acres that connect and/or surround those 8,500 acres, would be made unavailable for grazing. Grazing management of these areas would be accomplished by using a combination of fencing and natural topographic barriers to make grazing exclosures, rather than directly fencing off the incompatible areas. As part of the historic Anza NHT, approximately 10 acres around North Tank would be directly fenced. Season of use adjustments on perennial allotments would be considered.

- Alternative D: All allotments currently open to livestock grazing in the SDNM would become unavailable as permits expire.

- Alternative E (Proposed RMP): Livestock grazing north of I-8 would continue to be allocated as perennial, perennial/ephemeral, or ephemeral, as appropriate to allotment-specific characteristics. Grazing allocations would be adjusted as needed, in accordance with grazing regulations and in response to the grazing determinations required by the Proclamation. The SDNM portion of the Conley Allotment (which is the allotment with the largest departure from Standard 3 and has the most acreage found to be incompatible with grazing) would be unavailable for grazing. This alternative includes the fenced enclosures of Alternative C.

2.11.2.3 Existing Management Decisions, Alternative A (No Action) Livestock Grazing

The following decisions are extracted from the existing land use plans and amendments and are listed in chronological order. Because none of these current land use plans encompass the entire Planning Area, very few of these decisions are being carried forward as common to all alternatives and are restated as new action alternatives where applicable.

Lower Gila North Management Framework Plan (1983)

- Construct 21 reservoirs, 32 wells, and develop nine springs in areas of low forage production. (RM-1.5) Applies only to those present in the Saddle Mountain area.

- Allocate forage on all (33) allotments based on preference. Initiate monitoring studies that include actual use, utilization, trend in condition, and climate, using the Bureau's Selective Management Policy (Appendix 34 of the Decision Source) to set priorities. These studies will be used to adjust stocking rates, either upward or downward to meet multiple-resource management objectives (GR-13). Only a few allotments in the northwestern part of the Phoenix South Planning Area are addressed in the Decision Source.

Eastern Arizona Grazing Environmental Impact Statement and Rangeland Program Summary (1985)

- Land that is presently unleased for livestock use would remain unleased, with vegetation reserved for wildlife and non-consumptive use (GR-07). Applies only to those allotments in the eastern Lower Sonoran Planning Area covered by the Decision Source.

- Grazing management systems including rest rotation, deferred rotation, deferred, seasonal, short-duration or others which are various combinations of these would be implemented where needs are identified through monitoring (maintain and improve categorized allotments). On custodial allotments, grazing systems or season of use would be coordinated with the private landowners, State Land Department, or Soil Conservation Service (GR-11). Applies only to those allotments in the eastern Lower Sonoran Planning Area covered by the Decision Source.

- Fences would be needed to support grazing or land treatments and would be built to allow wildlife movement. Any fences that currently restrict wildlife movement would be modified to facilitate movement (GR-12). Applies only to those allotments in the eastern Lower Sonoran Planning Area covered by the Decision Source.

- Stocking additional animals would be allowed in the good ephemeral years where additional but unquantified animal-unit months (AUMs) of forage are available (GR-14). Applies only to those allotments in the eastern Phoenix South Planning Area covered by the Decision Source.

- Long-term target AUM figures (from increased vegetation production through revision of grazing systems already implemented, additional grazing systems and various land treatments) would be distributed on the basis of 40 percent to livestock and 60 percent to nonconsumptive uses (GR-18). Applies only to those allotments in the eastern Phoenix South Planning Area covered by the Decision Source.

- Grazing is authorized at the levels presented in the Range Program Summary (GR-19). Applies only to those allotments in the eastern Phoenix South Planning Area covered by the Decision Source.

Lower Gila South Resource Management Plan (1989)

- Institute grazing-management practices that would ensure perpetuation of botanical diversity within the Coffee Pot Botanical ACEC (GR-02).

- Livestock facilities will not be developed in Table Top area where that development would serve to increase livestock use within the area proposed for designation (GR-03).

- Improvement and maintenance of the rangeland will be accomplished through the construction of new rangeland developments (see Table 1 in Decision Source) and through livestock adjustments if needed (GR-05). The majority of allotments in the Lower Sonoran Planning Area are covered by this Decision Source.

- Livestock facilities will not be developed where that development would serve to increase livestock use within the Coffee Pot Botanical ACEC being proposed for designation (GR-07).

Arizona Standards for Rangeland Health and Guidelines for Grazing Administration (1997)

- Guideline 3-4: Intensity, season and frequency of use, and distribution of grazing use should provide for growth and reproduction of those plant species needed to reach desired plant-community objectives (GR-43).

- Guideline 3-5: Grazing on designated ephemeral (annual and perennial) rangeland may be authorized if the following conditions are met (GR-44):

    - Ephemeral vegetation is present in draws, washes, and under shrubs and has grown to useable levels at the time grazing begins;

    - Sufficient surface and subsurface soil moisture exists for continued plant growth;

    - Serviceable waters are capable of providing for proper grazing distribution;

    - Sufficient annual vegetation will remain on site to satisfy other resource concerns, (i.e., watershed, wildlife, wild horse and burro); and

    - Monitoring is conducted during grazing to determine if objectives are being met.

SDNM Current Management Guidance (2002)

- Laws, regulations, and policies followed by the BLM in issuing and administering grazing leases on all lands under its jurisdiction shall continue to apply with regard to the lands in the Sonoran Desert National Monument;

- The grazing permits south of Interstate 8, in the SDNM, shall not be renewed at the end of their current term;

- Grazing in the SDNM north of Interstate 8 shall be allowed to continue only to the extent that the BLM determines that grazing is compatible with the paramount purpose of protecting the objects identified in the Proclamation (biological, scientific, and historic resources).

Cameron Allotment Amendment to the Lower Gila South Resource Management Plan (2004)

- The above amendment approved decisions to protect the endangered Sonoran Pronghorn which affected grazing management for four allotments in the Ajo area, including the closure of the Cameron allotment in its entirety. See **Section 2.10.12**, Wildlife and Special Status Species for specific decisions.

2.11.2.4 Action Alternatives for Livestock Grazing

Program Goals

- Goal 1: Manage livestock grazing in the Lower Sonoran Decision Area to provide for multiple uses while maintaining healthy ecosystems.
- Goal 2: Manage livestock grazing in the SDNM Decision Area to provide for multiple uses while maintaining healthy ecosystems and protecting the Monument's biological and cultural resources.

Allocations Summary

Table 2-23, Livestock Grazing Allocations for Lower Sonoran Decision Area, and **Table 2-24**, Livestock Grazing Allocations for the SDNM Decision Area, describe planning-level livestock grazing acres and AUM allocations in both Decision Areas.

Table 2-23
Livestock Grazing Allocations for Lower Sonoran Decision Area

	Alternatives				
Allocation	**A (No Action)**	**B (Reduced Perennial)**	**C (Perennial Only/ No Ephemeral)**	**D (Closed)**	**E (Proposed RMP)**
Available Acres	830,200	830,200	830,200	0	830,200
Unavailable Acres[1]	100,000	100,000	100,000	930,200	100,000
Total Acres	930,200	930,200	930,200	930,200	930,200
Total Proposed (AUMs[2])	17,541	10,431[3]	17,541	0	17,541

[1] Unavailable acres include approximately 58,700 acres of grazing allotments that have been closed (e.g, Cameron Allotment, Fred J. Weiler Green Belt, Sentinel Plain, other Ajo parcels, land leases, etc.) and approximately 41,200 acres that are otherwise unallocated or unavailable for grazing within the Lower Sonoran Decision Area.
[2] Animal Unit Month (AUM) means the amount of forage necessary for the sustenance of one cow or its equivalent for a period of 1 month.
[3] Ephemeral AUMs are permitted on a case-by-case basis pursuant to the Special Ephemeral Rule. These AUMs are not included in the proposed perennial AUMs listed.

Table 2-24
Livestock Grazing Allocations for the SDNM Decision Area

	Alternatives				
Allocation	**A (No Action)**	**B (Reduced Perennial)**	**C (Perennial Only/No Ephemeral)**	**D (Closed)**	**E (Proposed RMP)**
Total Acres within SDNM	*486,400*	*486,400*	*486,400*	*486,400*	*486,400*
Unavailable Acres from Proclamation	155,900	155,900	155,900	155,900	155,900

Table 2-24
Livestock Grazing Allocations for the SDNM Decision Area

Allocation	Alternatives				
	A (No Action)	B (Reduced Perennial)	C (Perennial Only/No Ephemeral)	D (Closed)	E (Proposed RMP)
Unavailable Acres from Area A[1]	78,000	78,000	78,000	78,000	78,000
Unavailable Acres[2] from RMP Decisions	N/A	8,500[3]	44,800[4]	252,500	95,290[5]
Total Unavailable Acres	*233,900*	*242,400*	*278.700*	*486,400*	*329,190*
Total Available Acres	*252,500*	*244,000*	*207,700*	*0*	*157,210*
Total Proposed (AUMs[6])	8,703	5,321[7]	7,092	0	3,114

[1] Relinquished lands in Barry M. Goldwater Range south of I-8.

[2] In accordance with the Monument Proclamation the allotments or portions of allotments south of I-8, within SDNM, were made unavailable to livestock grazing when the permits expired.

[3] Acreage includes approximately 8,500 acres [Bighorn 2,970 acres; Conley 5,520 acres; and Lower Vekol 10 acres (all rounded to nearest 10 acres)] or 3.4% of the area north of I-8 determined to be unavailable for livestock grazing through the compatibility analysis and would be fenced off (see **Map 2-8b**).

[4] Acreage includes the 8,500 acres found to be incompatible with Monument objects, plus 36,300 acres [Bighorn 14,000 acres; Conley 21,700 acres; and Lower Vekol 600 acres (all rounded to nearest 100 acres)] connected or surrounding acres, using a combination of fencing and topographic barriers and wilderness boundaries, for a total of 44,800 acres of unavailable acres under Alternative C (see **Map 2-8c**).

[5] Acreage includes all unavailable acreage identified in Alternative C above (44,800 acres) plus the remaining acres in the Conley Allotment (50,490 acres) from recommendations in the grazing Compatibility Analysis (**Appendix E**, Proposed Compatibility Analysis: Livestock Grazing on the Sonoran Desert National Monument). All unavailable acres would remain unallocated for livestock grazing, and its forage and other vegetation would be reserved for wildlife habitat.

[6] AUMs shown are prorated and reduced by 7,884 from the total permitted use due to the allotment closures south of I-8. In Alternatives B and E, AUMs were further prorated using current data compared to forage allocations suggested in the Lower Gila South RMP Resource Protection Alternative (see **Section F.6** in **Appendix F** for more details).

[7] Ephemeral AUMs are permitted on a case-by-case basis pursuant to the Special Ephemeral Rule.

Table 2-25, Livestock Grazing Acres for the SDNM North of Interstate 8 Only, and **Table 2-26**, Permitted Animal Unit Months for the SDNM, describe implementation-level livestock grazing acres and AUM allocations by allotment in the SDNM Decision Area.

Table 2-25
Livestock Grazing Acres for the SDNM North of Interstate 8 Only

Allotments	Alternatives (BLM Acres)[1]									
	A (No Action)		B (Reduced Perennial)		C (Perennial Only/ No Ephemeral)		D (Closed)		E (Proposed RMP)	
	Avail.	Un-avail.	Avail.	Un-avail.[2]	Avail.	Un-avail.[3]	Avail.	Un-avail.	Avail.	Un-avail.[3]
Arnold	1,609	0	1,609	0	1,609	0	0	1,609	1,609	0
Beloat	33,600	0	33,600	0	33,600	0	0	33,600	33,600	0
Big Horn	92,204	0	89,230	2,974	75,230	16,974	0	92,204	75,230	16,974
Conley	77,708	0	72,191	5,517	50,491	27,217	0	77,708	0	77,708

Table 2-25
Livestock Grazing Acres for the SDNM North of Interstate 8 Only

	Alternatives (BLM Acres)[1]									
	A (No Action)		B (Reduced Perennial)		C (Perennial Only/ No Ephemeral)		D (Closed)		E (Proposed RMP)	
Allot-ments	Avail.	Un-avail.	Avail.	Un-avail.[2]	Avail.	Un-avail.[3]	Avail.	Un-avail.	Avail.	Un-avail.[3]
Hazen	31,926	0	31,926	0	31,926	0	0	31,926	31,926	0
Lower Vekol	15,409	0	15,402	7	14,802	607	0	15,409	14,802	607
Total	*252,456*	*0*	*243,958*	*8,498*	*207,658*	*44,798*	*0*	*252,456*	*157,167*	*95,289*

[1] These numbers reflect the numbers from the Land Health Evaluations and are estimated. The acreage totals shown in **Table 2-24**, Livestock Grazing Allocations for the SDNM, were rounded up for the land use plan-level decisions.

[2] Alternative B unavailable numbers come from the acres determined to be incompatible with Monument objects from the Compatibility Analysis in **Appendix E**, Proposed Compatibility Analysis: Livestock Grazing on the Sonoran Desert National Monument.

[3] Alternatives C and E unavailable numbers come from the acres determined to be incompatible with Monument objects from the Compatibility Analysis in **Appendix E**, Proposed Compatibility Analysis: Livestock Grazing on the Sonoran Desert National Monument, and the acreage determined to become unavailable due to the projected boundary closures of the area based on fencing and topographic boundaries.

Table 2-26
Permitted Animal Unit Months for the SDNM

	Alternatives				
Allotments	A (No Action)	B (Reduced Perennial)	C (Perennial Only/ No Ephemeral)	D (Closed)	E (Proposed RMP) (% Reduction from Alternative A)
Arnold	0	0	0	0	0 (0%)
Beloat	776	541	936	0	552 (29%)
Big Horn[1]	2,812	2.031	2.278	0	1,633 (42%)
Conley[2]	3,403	1,572	2,212	0	0 (100%)
Hazen	886	531	873	0	400 (55%)
Lower Vekol	826	646	793	0	529 (36%)
Total AUMs[3]	8,703	5,321	7,092	0	3,114 (64%)

[1] The AUMs for the Big Horn allotment in Alternative A reflect the reduction in permitted use due to the closure of the portion of the allotment south of Interstate-8.

[2] Acres within the SDNM portion of the Conley allotment are proposed to be made unavailable for the following reasons:

- It has the largest departure from achieving Land Health Standard 3 of all other SDNM allotments,
- It has the most acreage found incompatible with the Monument proclamation, and
- Future management options for the remaining available portion would be limited due to the amount and location of pasture fencing that would be required to be placed around the non-achieving acres.

[3] AUMs shown are prorated and reduced by 7,884 from the total permitted use due to the allotment closures south of I-8. In Alternatives B and E, AUMs were further prorated using current data compared to forage allocations suggested in the Lower Gila South RMP Resource Protection Alternative.

Management Actions and Allowable Uses

Table 2-27
Management Actions and Allowable Uses for Grazing Administration

Decision Area		Alternatives				Management Actions and Allowable Uses
Goal 1: Manage livestock grazing to provide forage for multiple uses while maintaining healthy ecosystems.						
Objective 1.1: Livestock grazing use and associated practices would be managed in a manner consistent with other multiple use needs and other desired resource condition objectives to ensure that the health of rangeland resources and ecosystems are maintained or improved. Management would achieve, or make significant progress toward achieving, Land Health Standards and produce a wide range of public values such as wildlife habitat, livestock forage, recreation opportunities, clean water, and functional watersheds.						
LS		B	C		E	GR-1.1.1: Public lands would be allocated and available for livestock grazing as shown in **Table 2-23** and **Maps 2-8b, c** and **e.**
LS				D		GR-1.1.2: All public land acres currently available to grazing would become unavailable when current permits expire.
LS		B				GR-1.1.3: All perennial-ephemeral and perennial allotments available to grazing would receive a reduction in permitted use as reflected in **Table 2-23**. Total proposed AUMs in the Lower Sonoran would be reduced by approximately 41 percent.
LS			C			GR-1.1.4: All perennial-ephemeral and ephemeral allotments that are available to grazing would be reclassified as perennial only. Ephemeral authorizations would not be permitted on these allotments
LS				D		GR-1.1.5: No AUMs would be permitted for allotments currently available to grazing when permits expire.
LS					E	GR-1.1.6: All allotments that are currently available to grazing would remain open to grazing under their current classifications and permitted AUMs as reflected in **Table 2-23** (see **Appendix P**, Grazing Allotment Information).
General Management Actions						
LS		B	C		E	GR-1.1.7: The portions of the Santa Rosa Allotment south of I-8 and outside Monument boundaries would remain available for livestock grazing if fencing is built to exclude SDNM from the allotment.
LS		B	C		E	GR-1.1.8: The portion of the Big Horn allotment south of I-8 and outside of the SDNM would remain available for livestock grazing if fencing is built to exclude SDNM from the allotment.
LS		B	C		E	GR-1.1.9: The portion of the Table Top allotment south of Interstate 8 and outside of SDNM, would be unavailable for livestock grazing.
LS		B			E	GR-1.1.10: The portion of the Table Top allotment north of I-8, outside SDNM, would be classified as Perennial-ephemeral. The authorized permitted use would be 148 AUMs.
LS	SDNM	B	C	D	E	GR-1.1.11: All existing water developments would be evaluated, and modified as necessary, to provide the maximum benefit and minimum impact to priority wildlife and special status species.
LS	SDNM	B	C		E	GR-1.1.12: Grazing management on allotments categorized as "Maintain" and "Improve" may include rest rotation, deferred rotation, deferred, seasonal, short duration or other management practices to be implemented

Table 2-27
Management Actions and Allowable Uses for Grazing Administration

Decision Area		Alternatives				Management Actions and Allowable Uses
						where needs are identified through monitoring. On "Custodial" allotments, grazing systems or season of use would be coordinated with the permittee, Arizona State Land Department, and/or Natural Resources Conservation Service.
LS	SDNM	B	C		E	GR-1.1.13: If grazing availability or classification differs for the Big Horn, Conley, Lower Vekol, Hazen, Beloat, and Arnold allotments outside SDNM versus inside the Monument boundaries, fencing or other control mechanisms would be installed to allow for management of Monument lands separately from the rest of the allotment before grazing could continue.
LS	SDNM	B			E	GR-1.1.14: Allotments may be classified as ephemeral in accordance with the Special Ephemeral Rule published December 7, 1968 through Rangeland Health Assessments during the permit renewal process. The BLM has established criteria and SOPs (see **Appendix H**, Best Management Practices and Standard Operating Procedures) based upon the Special Rule through which allotments can be classified and managed as ephemeral. These criteria include: • Rangelands are within the hot desert biome; • Average annual precipitation is less than eight inches; • Rangelands produce less than 25 pounds per acre of desirable perennial forage; • The vegetative community is composed of less than five-percent desirable forage species; • The rangelands are generally below 3,500 feet in elevation; • Annual production is highly unpredictable and forage availability is of a short duration; • Usable forage production depends on abundant moisture and other favorable climatic conditions; and • Rangelands lack potential to improve existing ecological status and produce a dependable supply of forage through intensive rangeland management practices.
LS	SDNM	B	C		E	GR-1.1.15: The Arizona Guidelines for Grazing Administration, as approved in the Arizona Standards for Rangeland Health and Guidelines for Grazing Administration (1997), would apply where appropriate to all livestock grazing activities (**Appendix L**).
LS	SDNM	B	C		E	GR-1.1.16: Land not allocated for livestock use would remain unallocated for this use and its forage and other vegetation would be reserved for wildlife and non-consumptive uses.
LS	SDNM	B	C		E	GR-1.1.17: If an evaluation of land health standards identifies an allotment where land health standards cannot be achieved under any level or management of livestock use and where current grazing use has been identified as the causal factor, then decisions identifying those areas as available for livestock grazing would be revisited.

Table 2-27
Management Actions and Allowable Uses for Grazing Administration

Decision Area		Alternatives				Management Actions and Allowable Uses
LS	SDNM	B	C		E	GR-1.1.18: Should a livestock grazing permit be relinquished, the allotment and associated resources, and public uses would be evaluated to determine the appropriate allocation of available forage.
LS	SDNM	B	C		E	GR-1.1.19: One-time travel off of designated routes may be approved with written authorization from the authorized officer to access sick or injured livestock.
LS	SDNM	B	C		E	GR-1.1.20: Construction of new livestock waters in Category I and Category II desert tortoise habitat and in bighorn sheep habitat would be addressed on a case-by-case basis.
LS	SDNM	B	C		E	GR-1.1.21: Range improvement permits and cooperative range improvement agreements shall specify the standards, design, construction and maintenance criteria for the range improvements and other additional conditions and stipulations or modifications deemed necessary. The extent, location and timing of such actions would be based on allotment-specific management objectives adopted through the evaluation process, interdisciplinary development and analysis of proposed actions, and funding.
Goal 2: Manage livestock grazing to provide for multiple uses while maintaining healthy ecosystems and protecting the Monument's biological and cultural resources.						
Objective 2.1: Public lands in SDNM north of I-8 available to livestock use would be managed to achieve or make significant progress toward achieving Land Health Standards to ensure that the health of the biological resources are maintained or improved. Livestock grazing use and associated practices would be managed in a manner consistent with other multiple use needs and other desired resource condition objectives to ensure that the health of rangeland resources and ecosystems are maintained or improved.						
	SDNM	B	C	D	E	GR-2.1.1: Pursuant to the Monument Proclamation, the grazing permits for the allotments south of I-8, within SDNM, were not renewed upon expiration. The public lands South of I-8, within SDNM, would remain unavailable for livestock use and the grazing preferences, attached to the base properties, for permitted use on the allotments would be cancelled. Forage previously allocated for livestock grazing (7,255 AUMs) would be available for other resource uses such as wildlife habitat, watershed values, recreation, etc.
	SDNM	B				GR-2.1.2: Domestic goats or sheep would not be permitted within nine miles of suitable bighorn sheep habitat or within allotments that contain suitable bighorn sheep habitat.
	SDNM		C	D	E	GR-2.1.3: Domestic goats or sheep would not be permitted.
Implementation-Level Decisions for the SDNM						
Proposed Changes to Available Acres by Allotment within the SDNM						
	SDNM	B				GR-2.1.4: 8,500 acres found to be incompatible with protecting the objects of the Monument due to current livestock use as specified in the Proposed Compatibility Analysis would become unavailable to livestock grazing use within allotments north of I-8. Allotment-specific unavailable acres (rounded to nearest 10 acres):

Table 2-27
Management Actions and Allowable Uses for Grazing Administration

Decision Area		Alternatives				Management Actions and Allowable Uses
						• 2,970 acres within the Big Horn allotment • 5,520 acres within the Conley allotment, and • 10 acres within the Lower Vekol allotment. See **Map 2-8b** and **Appendix E**, Proposed Compatibility Analysis: Livestock Grazing on the Sonoran Desert National Monument.
	SDNM		C			GR-2.1.5: 44,800 acres would become unavailable to livestock grazing use within allotments north of I-8 through a combination of fencing, natural barriers, and wilderness boundaries. These acres include the 8,500 acres determined to be incompatible with the objects of the Monument due to current livestock use, plus 36,300 connected or surrounding acres. Allotment-specific unavailable acres (rounded to nearest 10 acres): • 16,970 acres within the Big Horn allotment, • 27,220 acres within the Conley allotment, and • 610 acres within the Lower Vekol allotment. (Total of 8,500 incompatible acres and 36,300 pasture fencing acres) See **Map 2-8c** and **Appendix E**, Proposed Compatibility Analysis: Livestock Grazing on the Sonoran Desert National Monument
	SDNM			D		GR-2.1.6: All public land acres currently available to grazing in the SDNM would become unavailable as current permits expire.
	SDNM				E	GR-2.1.7: 95,290 acres would become unavailable to livestock grazing use within allotments north of I-8 through a combination of fencing and natural barriers. These acres include the 8,500 acres determined to be incompatible with the objects of the Monument due to current livestock use, the acres made unavailable in Alternative C, and an additional 86,790 connected or surrounding acres. Allotment-specific unavailable acres(rounded to nearest 10 acres): • 16,970 acres within the Big Horn allotment • 77,710 acres within the Conley allotment, and • 610 acres within the Lower Vekol allotment. (Total of 8,500 incompatible acres, 36,300 pasture fencing acres and remaining 50,490 acres in Conley allotment) See **Map 2-8e** and **Appendix E**, Proposed Compatibility Analysis: Livestock Grazing on the Sonoran Desert National Monument
Proposed Changes to AUMs by Allotment within the SDNM						
	SDNM	B			E	GR-2.1.8: All perennial-ephemeral and perennial allotments that are available to grazing within the SDNM would receive a reduction in permitted use, as described in **Table 2-26**. Actions result in approximate 39% AUM reduction in Alternative B and 64% AUM reduction in alternative E due to closure of Conley allotment. Rationale for this includes: • Majority of desirable forage species are perennial browse species and winter/spring annuals; • Reduces competition with special status wildlife species considered

Table 2-27
Management Actions and Allowable Uses for Grazing Administration

Decision Area		Alternatives				Management Actions and Allowable Uses
						to be Monument objects (Sonoran desert tortoise, Desert bighorn sheep, etc.); • Supported by inventory and monitoring data; and • Supported by the Arizona Land Health Evaluation for the SDNM and the Proposed Compatibility Analysis: Livestock Grazing on the SDNM, Arizona, April 2011 (**Appendices E and F**).
	SDNM		C			GR-2.1.9: Perennial-ephemeral allotments that are available to grazing would be reclassified as perennial only and AUMs would be adjusted due to acreage reductions (**Map 2-8c**). Ephemeral authorizations would not be permitted on any allotment classified as perennial. (See **Table 3-16** in Chapter 3 for actual ephemeral use from 1998 to 2007.)
	SDNM			D		GR-2.1.10: No AUMs would be permitted for allotments currently available to grazing when permits expire.
	SDNM				E	GR-2.1.11: The period and level of use (approx. 65 percent of permitted use) would be adjusted to primarily fall-winter season (Oct. 1 – April 30) and reduced use levels (approx. 35 percent of permitted use) during the summer season (May 1 – Sept. 30). The rationale for this includes: • Bimodal precipitation pattern provides more consistent and widespread rainfall during winter season, when the majority of the forage is produced; • Majority of desirable forage species are perennial browse species and winter/spring annuals; • Provides for rest period for key browse species; • Reduces competition with wildlife during critical hot summer months; • Reflects general pattern of current grazing management practices; • Supported by inventory and monitoring data; and • Supported by the Arizona Land Health Evaluation for the SDNM and the Proposed Compatibility Analysis: Livestock Grazing on the SDNM, Arizona, April 2011 (**Appendices E and F**).

Administrative Actions

- Existing range developments in areas not allocated for livestock use may be removed if not necessary for management of other resources.

- Develop a monitoring plan for allotments as needed to determine and track ecological condition and trend.

Administrative Actions in the SDNM Decision Area

Livestock management changes may be made based on assessment, inventory, or monitoring data. Except under Alternative D, develop and implement a monitoring plan on the SDNM to determine and track ecological condition and trend. The plan would include:

- Monitoring previously established study sites in allotments that would continue to be grazed, and establishing new key areas as needed. Data would be used to support grazing management decisions.
- Monitoring previously-established study sites in the allotments not to be grazed and establishing new sites as needed. Location of sites should be established based on resource management goals. Data would be used for comparison to grazed areas and historical data to track resource responses to management changes.
- Establish frequency and intensity of monitoring effort.
- BLM would develop a monitoring program based upon the land health evaluation methodology to determine any effects on Monument objects, not limited to livestock use.

2.11.3 MINERALS MANAGEMENT

The BLM supports mineral exploration and development on public lands in keeping with its multiple-use mandate. Unless otherwise restricted, all federal mineral estates administered within the Planning Area would be available for orderly and efficient development of mineral resources. Exploration and development would be conducted in accordance with applicable laws, regulations, and policies, and in conformance with the approved resource-management plan. Restrictions and stipulations would be applied on a case-by-case basis.

Identified mineral resources are classified according to the BLM's system as described in Manual 3031 (BLM 1985a) and Manual 3060 (DOI BLM undated). Mineral and mining laws and policy are implemented through the BLM's minerals management regulations which are contained in the 3000 series of volume 43 of the Code of Federal Regulations. A mineral resource potential report was prepared for the Planning Area (URS Corporation 2004). Mineral resources are categorized as follows:

- Locatable Minerals: metallic minerals including, but not exclusively, gold, silver, copper, lead, zinc, and uranium, as well as some non-metallic minerals such as alunite, asbestos, barite, gypsum, and mica, and also unique and uncommon varieties of stone and other construction materials (43 CFR 3800 and 43 CFR 3715).
- Leasable Minerals: mostly, but not exclusively, energy minerals, including fluid minerals such as oil and gas and geothermal resources, and some solid minerals such as coal, sodium, and potash (43 CFR 3100, 43 CFR 3200, 43 CFR 3400, and 43 CFR 3500).
- Mineral Material Disposals (saleables): common varieties of construction materials such as sand, gravel, cinders, decorative rock, and building stone (43 CFR 3600).

2.11.3.1 Existing Management Decision, Alternative A (No Action)

Decisions are listed in chronological order by plan. The following decisions are extracted from the existing land use plans and amendments and are listed in chronological order. Because none of these current land use plans encompass the entire Planning Area, very few of these decisions are being carried forward as common to all alternatives and are restated as new action alternatives where applicable.

Lower Gila North Management Framework Plan (1983)

- Restrict any actions or withdrawal in the Planning Area that would "segregate" leasable minerals unless there is strong evidence that the area is not conducive to mineralization. Leave the Planning Area open to mineral leasing. (MM-03) Applicable to the northwestern Lower Sonoran Planning Area near Saddle Mountain.

- Leave Planning Area open to mineral location and development. (MM-05) Applicable to the northwestern Lower Sonoran Planning Area near Saddle Mountain.

- Leave Planning Area open to mineral leasing. (MM-06) Applicable to the northwestern Lower Sonoran Planning Area near Saddle Mountain.

Lower Gila South Resource Management Plan (1989)

- Mitigate mining practices that adversely impact unique botanical and animal habitat in Vekol Valley ACEC. (MM-15) Decision still applicable to area although not being carried forward as an ACEC.

- Demand for saleable minerals will be met by sales or free-use permits on a case-by-case basis. (MM-16)

Phoenix Resource Management Plan (1989)

- All land in the RMP/EIS area would remain open to leasing. Should exploration and/or development of leasable resources be pursued, special stipulations will be incorporated into the lease agreement after the results of site-specific environmental assessments for each action are known. (MM-02) Applies to the eastern Lower Sonoran Planning Area, including the Apache Junction and Globe/Miami areas.

- Mining activity within the Planning Area would continue to be administered on a case-by-case basis. (MM-09) Applies to the eastern Lower Sonoran Planning Area, including the Apache Junction and Globe/Miami areas.

- Sales of mineral materials to the public would continue to be administered on a case-by-case basis. (MM-10) Applies to the eastern Lower Sonoran Planning Area, including the Apache Junction and Globe/Miami areas.

- Free-use permits would continue to be issued to the state and local communities as the need arises. (MM-11) Applies to the eastern Lower Sonoran Planning Area, including the Apache Junction and Globe/Miami areas.

SDNM Current Management Guidance

- All federal lands and interests in lands within the boundaries of the Monument are appropriated and withdrawn from all forms of entry, location, selection, sale, leasing, or other disposition under the public land laws, including but not limited to withdrawal from location, entry, and patent under mining laws, and from disposition under all laws relating to mineral and geothermal leasing. Unless otherwise specified in legislation or proclamation, all valid existing rights will be recognized in accordance with policy. Mining claims that predate the Monument designation have valid rights if those rights continue to be supported by a discovery. (Not numbered)

Lower Gila Resource Management Plan Amendment (2005)

- All lands in the Planning Area are considered open for oil and gas leasing unless specifically ruled closed. Approximately 375,000 acres of federal minerals in wilderness are closed to oil and gas leasing. The approximately 1.6 million acres of federal minerals remaining in the Planning Area are open to oil and gas leasing. Conditions of approval and special stipulations will be developed and incorporated as part of any operational permit after site-specific environmental analyses are completed and documented per the National Environmental Policy Act. Stipulations will mitigate impacts to special status species, cultural areas, and other resources affected by leasing-related activities. (MM-1)

2.11.3.2 Action Alternatives for Minerals Management

Program Goals

- Goal 1: Provide opportunities for exploration and development of energy and mineral resources.

Allocations Summary

Table 2-28, Acres of Public Lands Available for Mineral Activity by Alternative enumerates the acreages available for minerals activities for each category (locatables, leasables, mineral material [saleables]) under each alternative. Lands with BLM federal reserved mineral estate and non-federal surface (state, local government, and private lands) are shown only for Alternative A but remain the same under all alternatives. The BLM has limited authority to manage non-BLM surface and there are no proposals for the withdrawal of BLM managed mineral estate under non-federal surface.

Table 2-28
Acres of Public Lands Available for Mineral Activity by Alternative

	Alternative (BLM acres (percent))				
	A (No Action)	**B**	**C**	**D**	**E (Proposed RMP)**
Acres of BLM-administered Surface Lands/Subsurface Mineral Estate					
Existing Closed*	625,000 (47%)				
Existing Open	713,300 (53%)				

Table 2-28
Acres of Public Lands Available for Mineral Activity by Alternative

	Alternative (BLM acres (percent))				
	A (No Action)	**B**	**C**	**D**	**E (Proposed RMP)**
Total	*1,338,300 (100%)*				

* The Existing Closed total includes the SDNM (461,000 ac.), Lower Sonoran wilderness areas (89,200 ac.), Sentinel Plain, Fred J. Weiler Green Belt, and Painted Rock Dam area (64,300 ac. combined), and R&PP leases (10,500 ac).

Locatable Minerals					
Additional acreage recommended for withdrawal under Action Alternatives	--	2,350 (<1%)	2,300 (<1%)	393,900 (29%)	2,300 (<1%)
Total Closed	*625,000 (47%)*	*627,350 (47%)*	*627,300 (47%)*	*1,018,900 (76%)*	*627,300 (47%)*
Total Available (Open) with Standard Mitigation Measures Applied	713,300 (53%)	710,950 (53%)	711,000 (53%)	319,400 (24%)	711,000 (53%)
Leasable Minerals					
Additional acreage closed under Action Alternatives	--	2,300 (<1%)	2,300 (<1%)	584,900 (44%)	2,300 (<1%)
Total Closed	*625,000 (47%)*	*627,300 (47%)*	*627,300 (47%)*	*1,209,900 (90%)*	*627,300 (47%)*
Open with No Surface Occupancy	--	20,900 (2%)	25,600 (2%)	0 (0%)	23,800 (2%)
Open with Mitigation	287,100	280,700 (21%)	396,800 (30%)	88,500 (7%)	263,700 (20%)
Open with Standard Stipulations	--	409,400 (31%)	288,600 (22%)	39,900 (3%)	423,500 (32%)
Total Open	*713,300 (53%)*	*711,000 (53%)*	*711,000 (53%)*	*128,400 (10%)*	*711,000 (53%)*
Mineral Material Disposals (Saleables)					
Additional acreage closed under Action Alternatives	--	24,700 (2%)	193,300 (14%)	556,000 (42%)	155,800 (12%)
Total Closed	*625,000 (47%)*	*649,700 (49%)*	*818,300 (61%)*	*1,181,000 (88%)*	*780,800 (58%)*
Open with Mitigation	--	280,500 (21%)	238,600 (18%)	95,700 (7%)	169,900 (13%)
Open with Standard Stipulations	--	408,100 (30%)	281,400 (21%)	61,600 (5%)	387,600 (29%)
Total Available	*713,300*	*688,600*	*520,000*	*157,300*	*557,500*

Table 2-28
Acres of Public Lands Available for Mineral Activity by Alternative

	Alternative (BLM acres (percent))				
	A (No Action)	**B**	**C**	**D**	**E (Proposed RMP)**
	(53%)	*(51%)*	*(39%)*	*(12%)*	*(42%)*
Acres of Non-BLM Surface Land/BLM-administered Subsurface (Split Estate)**					
Closed (Total)	71,000 (34%)				
Open (Total)	139,000 (66%)				
Total	*210,000 (100%)*				

** The definition for Non-BLM Surface lands means lands not owned or administered by BLM, such as lands owned or administered by other federal agencies, the State of Arizona, local municipalities, and private parties.

Management Actions and Allowable Uses

Table 2-29, Management Actions and Allowable Uses for Minerals Management, describes management and allowable uses for minerals management.

Table 2-29
Management Actions and Allowable Uses for Minerals Management

Decision Area		Alternative				Management Actions and Allowable Uses
Goal 1: Provide opportunities for exploration and development of energy and mineral resources						
Objective 1.1: Utilize mineral potential determinations (high, medium, and low) during the evaluation of all proposed actions for all resources. Reduce or mitigate hindrances to mineral development, particularly in areas of moderate to high potential. Mitigate impacts to other resource values.						
All Minerals						
LS		B	C	D	E	MM-1.1.1: Minerals activities would be managed to provide maximum protection for other resources while attempting to allow sufficient mineral development to occur to meet public demand.
LS		B	C	D	E	MM-1.1.2: Should lands now closed to mineral activity be opened, these lands, including the mineral estate, would be managed to be consistent with the decisions made in this plan.
LS		B	C	D	E	MM-1.1.3: On split-estate lands where the BLM manages the federal mineral estate but the surface is not in federal ownership, the BLM would manage the minerals in accordance with existing laws and regulations while providing the surface owner input into the management process.
LS		B	C	D	E	MM-1.1.4: Within ACECs, WHAs, SCRMAs, SRMAs, ERMAs, and lands managed to protect wilderness characteristics, minerals-related actions would be approved in a manner and with mitigation that maintains the resource values for which the special designation or allocation was made while not denying valid existing rights for locatable minerals. Leasable or saleable minerals actions would be severely restricted or prohibited

Table 2-29
Management Actions and Allowable Uses for Minerals Management

Decision Area		Alternative				Management Actions and Allowable Uses
						depending on the management allocation.
LS		B	C	D	E	MM-1.1.5: The following areas would remain closed to all forms of mining, including locatable mineral entry, under the mining laws, mineral leasing, and mineral material disposals for the life of the plan (**Maps 2-9a-e**): • Designated wilderness areas, • Fred J. Weiler Green Belt RCA (PLO 1015 lands), • Painted Rock Dam power site withdrawal area, • Sentinel Plain withdrawal area, • San Tan Mountains SRMA (Alternative B), • Bureau of Reclamation withdrawn lands, and • Lands leased under the R&PP Act, including San Tan Mountains Regional Park (Alternatives A, C, D and E).
						Locatable Minerals
LS		B	C	D	E	MM-1.1.7: All BLM-administered lands would be open to locatable mineral entry under the mining laws except the following areas, which would be recommended for withdrawal for all alternatives unless otherwise noted (**Maps 2-9b-e**): • Juan Bautista de Anza National Historic Trail and Management Area, • Select high potential route segments of the Butterfield Trail, • Painted Rock Campground and Petroglyph Site, • Quartz Peak trailhead, • Sundad and Butterfield West proposed Public Use Sites (not more than 5 acres each) (Alternatives B, C and E), • Gunsight Wash Campground (Alternatives B, C and E), • Ajo 40-acre open use OHV area (Alternative B), and • ACECs: Cuerda de Lena, Coffeepot, Lower Gila Terraces and Historic Trails, and Saddle Mountain (Alternative D only).
LS		B	C	D	E	MM-1.1.8: Notices and plans of operations would be processed according to the 43 CFR 3802 and 3809 regulations.
LS		B	C	D	E	MM-1.1.9: The use and occupancy of public lands would be managed to that which is reasonably incident to prospecting, mining or processing operations under the mining laws (43 CFR 3715).
Leasable Minerals (Fluid energy minerals, including geothermal resources and sodium)						
LS		B	C	D	E	MM-1.1.10: All BLM-administered lands not withdrawn or segregated from minerals actions would be open for mineral leasing in accordance with resource management objectives except the following areas, which would be closed for all alternatives unless otherwise noted (**Maps 2-10a-e**): • Lands with existing segregations or withdrawals (see MM-1.1.5), • Painted Rock Campground, • Gunsight Wash Campground SRMA (Alternatives B, C and E),

Table 2-29
Management Actions and Allowable Uses for Minerals Management

Decision Area		Alternative				Management Actions and Allowable Uses
						• Juan Bautista de Anza National Historic Trail and Management Area (Alternative D only), • Gila Bend wildlife habitat area (Alternative D only), • Lands managed to protect wilderness characteristics (Alternative D only), and • All ACECs: Cuerda de Lena, Coffeepot, Lower Gila Terraces and Historic Trails, and Saddle Mountain (Alternative D only).
LS		B	C	D	E	MM-1.1.11: The following BLM-administered lands would be open for mineral leasing but with a No Surface Occupancy stipulation: • Juan Bautista de Anza National Historic Trail and Management Area (Alternatives B, C and E), • Select high-potential route segments of the Butterfield Trail, • Sundad and Butterfield West proposed Public Use Sites (not more than 5 acres each) (Alternatives B, C and E), • Selected parcels in the Lower Gila Terrace and Historic Trails SCRMA (Alternative C only), • 40-acre Ajo open use area (Alternative B only), and • Lower Gila Terraces and Historic Trails ACEC (Alternative E only).
LS		B	C	D	E	MM-1.1.12: Leases would be issued for fluid energy minerals with appropriate stipulations. Site-specific actions would be addressed such as geophysical exploration, approval or disapproval of applications for permit to drill, well siting, tank-battery placement, and pipeline routing would be addressed on a case-by-case basis and include appropriate restrictions or conditions of approval.
LS		B	C	D	E	MM-1.1.13: Mineral-use authorizations for non-energy leasables would be issued for prospecting permits, exploration licenses, preference-right leases, competitive leases, lease modifications, and use permits subject to appropriate restrictions and stipulations to protect other resources.
Mineral Material Disposals (Saleables)						
LS		B	C	D	E	MM-1.1.14: All BLM-administered lands not recommended for withdrawal or segregated from minerals actions would be open to discretionary mineral materials disposal via sales or free-use permits on a case-by-case basis in accordance with resource management objectives. Those lands unavailable for mineral materials disposal for all alternatives unless otherwise noted are as follows (for specific acreages for each alternative see **Table 2-28**; see also **Maps 2-11a-e**): • Lands with existing segregations or withdrawals (see MM-1.1.6), • Juan Bautista de Anza National Historic Trail and Management Area, • Select high-potential route segments of the Butterfield Trail, • Painted Rock Campground and Petroglyph Site,

Table 2-29
Management Actions and Allowable Uses for Minerals Management

Decision Area		Alternative				Management Actions and Allowable Uses
						• Quartz Peak trailhead, • Sundad and Butterfield West proposed Public Use Sites (not more than 5 acres each) (Alternatives B, C, and E), • Gunsight Wash Campground (Alternatives B, C, and E), • Ajo 40-acre open use OHV area (Alternative B), • Lands managed to protect wilderness characteristics, • Portions of the Gila River Terraces and Lower Gila Historic Trails SCRMA and ACEC, • Cuerda de Lena, Saddle Mountain, and Coffeepot ACECs (Alternatives D and E), • Desert tortoise Categories I, II, and III habitats (Alternative D) and • Desert tortoise Categories I and II habitats (Alternatives B, C, and E [if no-net-loss stipulation is not met]), • Within ¼ mile of known active cactus ferruginous pygmy-owl nest site from February 1 through August 31 (Alternatives B, C, and E) • Within ¼-mile of known active cactus ferruginous pygmy-owl nest sites from February 1 through September 15 (Alternative D).
LS		B	C	D	E	MM-1.1.15: Common-use areas and community pits would be established. Exploration for, and disposal of, mineral materials would also be allowed through exploration permits, free-use permits, and competitive and noncompetitive sales subject to appropriate restrictions and stipulations to protect other resources.

Administrative Actions

Specific to the SDNM Decision Area

- Recognize the superior right to explore for and mine mineral resources on those split estate lands where the BLM manages the surface and the subsurface estate is owned by the state of Arizona or private entities. Develop a MOU with the state to establish procedures to protect SDNM resources from the effects of exploration and mining on SDNM to the greatest extent possible.

2.11.4 RECREATION MANAGEMENT

In the DRMP, in accordance with Instruction Memorandum No. 2006-060, the "benefits-based-management" approach was used to establish proposed management goals, objectives, and prescribed actions. This approach transitioned recreation land use planning from a traditional activity-based management approach to one that emphasized managing for specific individual, social, and economic

benefits beginning with the identification of market-based strategies and niches. However, in August of 2011, shortly before the printing of the DRMP, Instruction Memorandum No. 2011-004 was issued. In this new guidance, BLM revised the policy for recreation land use planning, shifting from the benefits-based-management back to more outcomes-focused management. Detailed instructions outlining how to fully implement the new guidance for land use planning is still being drafted; however, the IM did establish a three-tier system for allocating lands managed for recreation, replacing the two-tier system. The major change now incorporates three classifications to allocate lands managed for recreation. These are Special Management Recreation Areas (SRMA), Extensive Recreation Management Areas (ERMA), and Undesignated Lands (UL).

SRMAs are administrative units where the existing or proposed recreation opportunities and recreation setting characteristics are recognized for their unique value and importance, and/or distinctiveness, especially as compared to other areas used for recreation. In contrast to the former benefits-based-management policy, within an SRMA, recreation management is recognized as the predominant planning focus where specific recreation opportunities and recreation setting characteristics are managed and protected on a long-term basis.

In contrast, ERMAs are administrative units that require specific management consideration in order to address recreation use, demand, or recreation and visitor services program investments. They are managed to support and sustain the principal recreation activities and the associated qualities and conditions of the ERMA. Management of ERMA areas is commensurate with the management of other resources and resource uses.

BLM-administered lands that are not designated as Resource Management Areas (RMAs), Undesignated Lands, are managed to meet basic recreation and visitor services and resource stewardship needs. Recreation is not emphasized; however, recreation activities may occur. The recreation and visitor services are managed to allow recreation uses that are not in conflict with the primary uses of these lands.

To effectively manage for differing expected outcomes within an RMA, SRMAs and ERMAs may be subdivided into separate Recreation Management Zones (RMZs). The RMZs provide for management emphasis tailored to expected recreation opportunities and outcomes over two or more specific geographic areas within an individual RMA.

Based on comments received during the DRMP public comment review, the recreation allocations and decisions were reviewed and revised to reflect changes in planning approach between the old and new policies. **Table 2-30**, Comparison of Draft and Proposed Recreation Management Areas by Decision Area, reflects the changes made to the SRMA and ERMA allocations based on the new guidance. The action alternatives attempt to address the new approach and alternatives for management of recreation that were brought forward through public scoping, internal management analysis, and public comments received on the DRMP.

Table 2-30
Comparison of Draft and Proposed Recreation Management Areas by Decision Area

Recreation Management Area/Zone	Alternative				
	A (No Action)	B	C	D	E (Proposed RMP)
Lower Sonoran SRMAs					
Ajo SRMA	SRMA (both)	ERMA (PRMP) SRMA (DRMP)	ERMA (PRMP) SRMA (DRMP)	UL (PRMP) ERMA (DRMP)	ERMA (PRMP) SRMA (DRMP)
Buckeye Hills East Trails SRMA *(formerly Buckeye Hills East RMZ)*	N/A	SRMA (PRMP) RMZ (DRMP)	SRMA (PRMP) RMZ (DRMP)	SRMA (PRMP) RMZ (DRMP)	SRMA (PRMP) RMZ (DRMP)
Gila Trails SRMA (*Lower Sonoran portion)*	SRMA (both)	Within Portions of Lower Gila Historic Trails ERMA (PRMP) Within Portions of Lower Gila Historic Trails SRMA (DRMP)			
Gunsight Wash SRMA *(formerly an RMZ)*	N/A	SRMA (PRMP) RMZ (DRMP)	SRMA (PRMP) RMZ (DRMP)	UL (PRMP) ERMA (DRMP)	SRMA (PRMP) RMZ (DRMP)
Painted Rock SRMA *(formerly an RMZ within Lower Gila Historic Trails SRMA*	N/A	SRMA (PRMP) RMZ (DRMP)	SRMA (PRMP) RMZ (DRMP)	SRMA (PRMP) RMZ (DRMP)	SRMA (PRMP) RMZ (DRMP)
Painted Rock Mountains SRMA[1]	N/A	None (PRMP) SRMA (DRMP)	None (both)	None (both)	None (both)
Saddle Mountain SRMA *(formerly an SRMA)*	SRMA (both)	SRMA (both)	SRMA (both)	UL (PRMP) ERMA (DRMP)	ERMA (PRMP) SRMA (DRMP)
Sentinel Plain *(formerly an ERMA)*	SRMA (both)	UL (PRMP) ERMA (DRMP)	UL (PRMP) ERMA (DRMP)	UL (PRMP) ERMA (DRMP)	UL (PRMP) ERMA (DRMP)
San Tan Mountains (*formerly an ERMA)*	N/A	SRMA (both)	UL (PRMP) ERMA (DRMP)	UL (PRMP) ERMA (DRMP)	UL (PRMP) ERMA (DRMP)
Lower Sonoran ERMAs					
Ajo ERMA *(formerly an SRMA)*	SRMA (both)	ERMA (PRMP) SRMA (DRMP)	ERMA (PRMP) SRMA (DRMP)	UL (PRMP) ERMA (DRMP)	ERMA (PRMP) SRMA (DRMP)
Ajo Desert Zone	N/A	RMZ (both)	RMZ (both)	UL (PRMP) ERMA (DRMP)	RMZ (both)

Table 2-30
Comparison of Draft and Proposed Recreation Management Areas by Decision Area

Recreation Management Area/Zone	Alternative				
	A (No Action)	**B**	**C**	**D**	**E (Proposed RMP)**
Ajo Gateway Zone	N/A	RMZ (both)	RMZ (both)	UL (PRMP) ERMA (DRMP)	RMZ (both)
Arlington Trails ERMA *(formerly an SRMA)*	N/A	ERMA (PRMP) SRMA (DRMP)	In Gila Bend Mtns ERMA (PRMP)/ In Gila Bend Mtns SRMA (DRMP)	UL (PRMP) ERMA (DRMP)	ERMA (PRMP) SRMA (DRMP)
Buckeye Hills West ERMA *(formerly an RMZ within Buckeye Hills SRMA)*	N/A	ERMA (PRMP) RMZ (DRMP)	ERMA (PRMP) RMZ (DRMP)	ERMA (PRMP) RMZ (DRMP)	ERMA (PRMP) RMZ (DRMP)
Gila Bend Mountains ERMA *(formerly an SRMA)*	N/A	ERMA (PRMP) SRMA (DRMP)	ERMA (PRMP) SRMA (DRMP)	UL (PRMP) ERMA (DRMP)	ERMA (PRMP) SRMA (DRMP)
Lower Gila Historic Trails ERMA *(formerly Gila Trails SRMA in Alt. A and an SRMA in Alts. B-E)*	N/A	ERMA (PRMP) SRMA (DRMP)	ERMA (PRMP) SRMA (DRMP)	UL (PRMP) ERMA (DRMP)	ERMA (PRMP) SRMA (DRMP)
SDNM SRMAs					
Gila Trails SRMA *(SDNM portion)*	SRMA (both)	Portions of Juan Bautista de Anza NHT RMZ (both)			
SDNM ERMAs					
Sonoran Desert ERMA *(formerly SRMA)*	N/A	ERMA (PRMP) SRMA (DRMP)	ERMA (PRMP) SRMA (DRMP)	UL (PRMP) SRMA (DRMP)	ERMA (PRMP) SRMA (DRMP)
Desert Back Country RMZ	N/A	RMZ (both)	RMZ (both)	UL (PRMP) ERMA (DRMP)	RMZ (both)
Juan Bautista de Anza NHT RMZ	N/A	RMZ (both)	RMZ (both)	UL (PRMP) ERMA (DRMP)	RMZ (both)

* UL = Undesignated Lands

[1] The Painted Rock Mountains SRMA was deleted in the PRMP for all alternatives. Wilderness inventory findings concluded that the area did not support motorized-focused uses for which the SRMA was originally proposed.

Note: There is no Gila River RMZ in the PRMP; it is now incorporated within Lower Gila Historic Trails ERMA.

2.11.4.1 Existing Management Decisions, Alternative A (No Action) for Recreation Management

The following list is a comprehensive compilation of land use planning decisions (and their identifying planning decision number) currently in effect that constitutes the existing management situation for the Decision Areas. Because none of these current land use plans encompass the entire Planning Area, very few of these decisions are being carried forward as common to all alternatives. They are restated as new action alternatives where applicable. Decisions specific to travel management would be found in **Section 2.11.5**, Travel Management.

Lower Gila South Resource Management Plan (Goldwater Amendment) (1990)

(Applicable to public lands in the Sand Tank Mountains, "Area A" within the SDNM, lands south of Interstate 8 referred to as the Sentinel Plain, and selected parcels near the Ajo airport.)

- Establish the Sentinel Plain Lava Flow SRMA and prepare a recreation area management plan. Implement management prescriptions to maintain recreation, geologic, and educational features associated with the Sentinel Plain Lava Flow (SM-1).

- In the Sentinel Plain Lava Flow SRMA, prohibit new rights-of-way (ROWs) and other land use authorizations (LUAs) except those installed in the established I-8 utility corridor; encourage the installation of below ground utility services within the corridor south of I-8 unless overhead facilities are required due to technical and/or operational circumstances (SM-4).

- In the Sentinel Plain Lava Flow SRMA, minimize visual impacts on the area's geologic formations (from ROWs construction in the I-8 utility corridor) by application of visual resource management guidelines (SM-5).

- Issue a special recreation use permit for specific recreation uses on the public lands of the BGR when required by the BLM's special recreation permit policy. Permits would be issued only with the concurrence of the US Air Force when such activity does not impair or damage natural or cultural resources or interfere with military operations (RR-6).

- Establish ERMA and implement appropriate management actions to facilitate compatible recreation use of each ERMA. (RR-10).

- Survey sites for primitive or undeveloped campgrounds in the ERMA (RR-13).

- Allow camping on all lands open to the public in accordance with standard operating procedures for camping on public lands, permit self-contained or vehicle-based camping within 50 feet of designated or established roads (RR-16).

- Allow campfires using dead and down wood (RR-17).

Lower Gila North Management Framework Plan (1983)
(Applicable to public lands in the Saddle Mountain area)

- No new land will be acquired in this area (former Saddle Mountain Wilderness Study Area). If Saddle Mountain is rejected as a wilderness area, no new roads will be allowed, but it will be designated as a recreation and rock-hound area. (LGN-MFP-3-R-4.1)

Lower Gila Resource Management Amendment (2005)
(Applicable to a portion of lands in the LSFO and all lands within the SDNM Planning Areas)

- Management of recreation opportunities and developments will be evaluated using two inventory and management tools called the Recreation Opportunity Spectrum (ROS). And Visual Resource Management (RR-1).

- Recreation opportunity spectrum (ROS) classifications will be reviewed, refined, and adopted during interdisciplinary planning (RR-2).

- Four SRMAs are established (Ajo, Gila Trail, Saddle Mountain, and Vulture Mountains) and one is revised (Sentinel Plain) (RR-19) (see **Map 2-12a**).

- The Gila Trail SRMA, to include lands surrounding the Gila Trail, the Butterfield Overland Stage Route, the Anza National Historic Trail (NHT), the Southern Overland Trail, the Mormon Battalion Trail, the Oatman Massacre Site, the Painted Rock Mountains, and associated cultural and recreational features, is established (RR-26).

    - Facilities and maintenance to protect resource values and improve visitor safety and recreational opportunities are authorized in areas classified as rural, roaded-natural, or semi-primitive motorized (RR-27).

    - Single-use and multiple-use trails to meet the demand for hiking, equestrian, and mountain biking opportunities will be developed (RR-28).

    - Surface-disturbing activities within one-quarter mile of historic and prehistoric trail segments will be mitigated (RR-29).

    - All OHV routes will be inventoried and designated (RR-30).

    - Signing, regulations, and brochures will be provided as needed (RR-31).

- The Saddle Mountain SRMA, to include the public lands containing Saddle Mountain and the Palo Verde Hills, is established to emphasize provision of geologic, cultural, and wildlife interpretive sites; protection of the area's scenic landscapes and vistas; and promotion of recreational opportunities (RR-32).

    - Facilities and maintenance to protect resource values and improve visitor safety and recreational opportunities are authorized for the northern and northeastern portions of the area (RR-33).

  - Single-use and multiple-use trails to meet the demand for hiking, equestrian, and mountain biking opportunities will be developed (RR-34).
  - Signing, regulations, and brochures will be provided as needed (RR-35).
  - The southern and western portions of the area will be maintained as remote and mostly undeveloped (RR-36).

- The Ajo SRMA, to include the entire Ajo Management Area, is established (RR-37).
  - Facilities and maintenance to protect resource values and improve visitor safety and recreational opportunities are authorized (RR-38).
  - Single-use and multiple-use trails to meet the demand for hiking, equestrian, and mountain biking opportunities will be developed (RR-39).
  - Signing, regulations, and brochures will be provided as needed (RR-40).
- The Sentinel Plain Lava Flow SRMA is restricted to entry by permit only. Existing boundaries may be adjusted through interdisciplinary planning to respond to changing land uses (RR-41).
  - Existing prescriptions authorized by the Goldwater Amendment (BLM, 1990) will be brought forward without change (RR-42).
  - Facilities and maintenance to protect resource values and improve recreational opportunities and visitor safety are authorized (RR-43).
  - Single-use and multiple-use trails to meet the demand for hiking, equestrian, and mountain biking opportunities will be evaluated (RR-44).
  - Signing, regulations, and brochures will be provided as needed (RR-45).
- Project level planning for the ERMA will be conducted on a case-by-case basis (RR-46).
  - Primitive facilities are authorized where needed for resource protection, visitor safety, improvement of the recreation experience, or increasing recreational opportunities (RR-47).
  - Camping locations, camping stay limits, OHV and special recreation vehicle use, and utilization of the existing natural resources will be established (RR-48).
  - Long- and short-term camping areas, commercial or competitive OHV and special recreation vehicle use areas, scenic turnouts, cultural interpretive sites, hiking, equestrian or mountain bike trails, road and portal signage, and road maintenance will be evaluated (RR-49).

  - A "designated routes only" OHV and special vehicle classification will be established on a site-specific basis when needed for resource protection or to maintain consistency with ROS classifications (RR-50).

- The existing 14-day camping stay limit and all associated policy will be maintained throughout the Planning Area unless otherwise designated by the authorized officer or through project planning. Areas may be closed for resource protection, rehabilitation, or to reduce conflicts with other uses (RR-51).

- Camping facilities and length-of-stay limits may be established as prescribed below for dispersed camping, long-term visitor areas, extended camping areas, and short-term camping areas (RR-52).

- Self-contained or vehicle-based camping will be permitted within 50 feet of the centerline of designated or existing routes. Cross-country travel to campsites is not permitted (RR-54).

- Trailhead facilities will be closed to overnight camping upon written approval of the field manager (RR-55).

- Long-term visitor areas (LTVAs) will be defined on the ground with fences or signs. Each LTVA will include designated roads, designated campsites, and amenities to support long-term camping occupancy (RR-56).

- The following resource factors will be considered for implementation and development of LTVAs (RR-57):

  - Permitted only in rural or roaded-natural ROS classes.

  - Location on rocky or resilient soils.

  - Well-maintained ingress and egress routes.

  - Location within 30 miles of local community.

  - Location outside of Category I or II desert tortoise habitat.

  - Mitigation if located in Category III desert tortoise habitat.

  - Location with no cultural resource conflicts.

  - Location outside of burro HMAs.

  - Location of developments in a manner that "is not likely to adversely affect" threatened or endangered species and their habitats.

  - Location outside of riparian areas.

  - Location outside of areas of critical environmental concern and wild and scenic river areas

- The following operating rules will be considered for LTVA development and use (RR-58):
  - Long-term camping will be restricted to the term of the permit.
  - Long-term camping will be restricted to designated sites.
  - Services may be provided by contract or local vendor, but the costs of services (firewood, sanitation, trash, water, etc.) will be the responsibility of each occupant.
  - Users will be required to comply with all other LTVA regulations.
  - LTVA users must comply with all local, state and federal laws.
  - LTVA supplementary rules may be enacted as needed.
- The following operating rules will be considered for extended camping area development and use (RR-63):
  - Camping restricted to designated sites.
  - Services may be provided by contract or local vendor, but the costs of services (firewood, sanitation, trash, water, etc.) will be the responsibility of each occupant.
  - Extended camping area visitors must comply with all local, state, and federal laws.
  - Extended camping area supplementary rules may be enacted as needed.
- Other regulations and conditions for extended camping area use will be identified as required during interdisciplinary project planning. If, during the planning process, the interdisciplinary project planning team determines that modifications need to be made to the guidelines listed above those modifications may be made without the need for a planning amendment. Other regulations and conditions identified during ongoing operation of extended camping areas will require public notification (RR-64).
- Short-term camping areas will be designated only where such use promotes resource protection and where all conflicts can be mitigated. Short-term camping areas will be defined on the ground with fences or signs (RR-65).
- Interdisciplinary planning will evaluate short-term camping areas where historic use patterns equate to this type of use, and potential new areas are identified that would be suitable for short-term camping (RR-66).
- The following resource factors will be considered for implementation and development of short-term camping areas (RR-67):

  - Primitive ingress and egress routes.
  - Location on rocky or resilient soils.
  - Mitigation if located in category I, II or III desert tortoise habitat.
  - Location with no cultural resource conflicts.
  - Location outside of burro HMAs.
  - Location of developments in a manner that "is not likely to adversely affect" threatened or endangered species and their habitats.
  - Location outside of wildernesses.
  - Location outside of areas of critical environmental concern and wild and scenic river areas.

- The following operating rules will be considered for short-term camping area development and use (RR-68):
  - Camping will be restricted to the terms and conditions of that campground.
  - Camping will be restricted to designated sites.
  - Services may be provided by contract or local vendor, but the costs of services (firewood, sanitation, trash, water, etc.) will be the responsibility of each occupant.
  - Camping area users must comply with all local, state and federal laws.
  - Specific supplementary rules may be enacted as needed.

- Other regulations and conditions for short-term camping area use will be identified as required during interdisciplinary project planning. If, during the planning process, the interdisciplinary project planning team determines that modifications need to be made to the guidelines listed above those modifications may be made without the need for a planning amendment. Other regulations and conditions identified during ongoing operation of short-term camping areas will require public notification (RR-69).

- Interdisciplinary planning will evaluate and authorize development of special use areas within the management areas (RR-70).

Federal Register Notice for Painted Rock Campground Closure and Stay-Limit Change

- Federal Register "Closure of Public Lands to Camping and Off-Road Vehicle Use; Modification of Maximum Camping Stay Limit; and Exemption from Visitor Use Fees for Native Americans"; January 28, 1999 (Volume 64, Number 18) Page 4461. This Federal Register notice closed certain public lands in the Painted Rock Mountains in Maricopa

County to camping and off-road vehicle use except designated/signed open roads; established a maximum camping stay of seven (7) months per party at designated sites within the limits of Petroglyph Campground; and waived visitor use fees upon request at Painted Rock Petroglyph Site and Campground for Native Americans visiting the site for the purpose of engaging in activities of traditional cultural importance.

Sonoran Desert National Monument

Current management guidance for the Sonoran Desert National Monument is the same as for current management guidance for the Lower Sonoran Decision Area (presented above), except as modified by Presidential Proclamation 7397 as identified below.

- In order to protect the public during operations at the adjacent BGR and to continue management practices that have resulted in an exceptionally well preserved natural resource, the current procedures for public access to the portion of the Monument depicted as Area A shall remain in full force and effect except to the extent that the US Air Force agrees to different procedures which the BLM determines are compatible with the protection of the objects identified in this proclamation.

- Unauthorized persons cannot appropriate, injure, destroy, or remove any feature of this Monument.

2.11.4.2 Action Alternatives for Recreation Management

Program Goals

- To provide a diverse array of recreation settings, opportunities and experiences; manage recreation activities and settings consistent with other resource goals; enhance recreation quality and reduce conflicts amongst various users, the following goals were developed:

Lower Sonoran Decision Area

- Goal 1: Provide quality recreation opportunities and experiences derived from public land resource values which are responsive to visitor demand and where these values are recognized as the primary resource management consideration above all others.

- Goal 2: Establish Special Recreation Management Areas (SRMAs) where the recreation setting characteristics are unique in value, importance, and/or distinctiveness providing quality recreation opportunities and experiences derived from public land resource values. These are recognized as the primary resource management consideration above all others and are responsive to visitor demand and resolve use/user conflicts where necessary.

- Goal 3: Establish Extensive Recreation Management Areas (ERMAs) and associated zones where specific management considerations are necessary to address recreation use, demand, or recreation program investments commensurate with the management of other resources and resource uses while sustaining the principal recreation activities and associated qualities and conditions of the area.

Sonoran Desert National Monument Decision Area

- Goal 4: Recreation opportunities and experiences are derived from the objects and resource values for which the SDNM was established.

Allocations Summary

Tables 2-30 (above) and **2-31**, Recreation Allocations by Decision Area (below), describe recreation allocations for each decision area by type and acreage, respectively.

Table 2-31
Recreation Allocations by Decision Area

Recreation Management Area / Zone	Alternative (BLM acres)				
	A (No Action)	B	C	D	E (Proposed RMP)
Lower Sonoran SRMAs					
Ajo SRMA	175,200	0 (ERMA)	0 (ERMA)	0 (ERMA)	0 (ERMA)
Buckeye Hills East Trails SRMA	0 (UL)	25,800	25,800	25,800	25,800
Gila Trails SRMA *(Lower Sonoran portion)*	137,100	Portions of Lower Gila Historic Trails ERMA and ULs			
Gunsight Wash SRMA	0 (UL)	2,500	2,500	0 (UL)	2,500
Painted Rock SRMA	0 (UL)	9,600	9,600	9,600	9,600
Saddle Mountain SRMA	46,300	47,500	47,500	0 (UL)	0 (ERMA)
Sentinel Plain SRMA	20,800	0 (UL)	0 (UL)	0 (UL)	0 (UL)
San Tan Mountains SRMA	0 (UL)	6,800	0 (UL)	0 (UL)	0 (UL)
Subtotal SRMA Acres	*379,400*	*92,200*	*85,400*	*35,400*	*37,900 (4%)*
Lower Sonoran ERMAs					
Ajo ERMA	n/a	177,700	177,700	0 (UL)	177,700
Ajo Desert Zone	*n/a*	*150,400*	*157,300*	*0 (UL)*	*149,800*
Ajo Gateway Zone	*n/a*	*27,300*	*20,400*	*0 (UL)*	*27,900*
Arlington Trails ERMA	n/a	60,600	Gila Bend Mtns ERMA	0 (UL)	60,600
Buckeye Hills West ERMA	n/a	22,100	22,100	22,100	22,100

Table 2-31
Recreation Allocations by Decision Area

Recreation Management Area / Zone	Alternative (BLM acres)				
	A (No Action)	B	C	D	E (Proposed RMP)
Gila Bend Mountains ERMA	n/a	253,700	314,800	0 (UL)	259,700
Lower Gila Historic Trails ERMA*	n/a	42,600	42,600	0 (UL)	42,600
Saddle Mountain ERMA	n/a	0 (SRMA)	0 (SRMA)	0 (UL)	47,500
Subtotal ERMA Acres	*0*	*556,700*	*557,200*	*22,100*	*610,200 (66%)*
Undesignated Lands	550,800	281,300	287,600	872,700	282,100 (30%)
Total Acres	*930,200*	*930,200*	*930,200*	*930,200*	*930,200 (100%)*
SDNM SRMAs					
Gila Trails SRMA *(SDNM portion)*	143,900	Portions of Juan Bautista de Anza NHT RMZ			
SDNM ERMAs					
Sonoran Desert ERMA	n/a	486,400	486,400	0	486,400 (100%)
Desert Back Country RMZ	n/a	433,600	433,600	0	433,600
Juan Bautista de Anza NHT RMZ	n/a	52,800	52,800	0	52,800
Undesignated Lands	342,500	0	0	486,400	0
Total Acres	*486,400*	*486,400*	*486,400*	*486,400*	*486,400 (100%)*

UL = Undesignated Lands

Note: There's no longer a Gila River RMZ; it's now incorporated within Lower Gila Historic Trails ERMA. The Painted Rock Mountains SRMA was deleted from all alternatives in the PRMP.

Management Actions and Allowable Uses

How to read this table: Most of the management action changes reflected in **Table 2-32**, Management Actions and Allowable Uses for Recreation Management, did not change the on-the-ground recreation management as they were presented in the DRMP. They have been refined for clarification purposes in response to the new policy guidance, or comments received, to aid the reader in understanding BLM's intended management and direction for the area. In addition, some actions that were originally reflected in other sections of the plan have been more appropriately added to the recreation section and are noted in italics with action. Objectives have been refined based on information presented in the **Appendix R** worksheets. **Only those actions that are bordered in thick black lines denote changes in management decisions between the printed DRMP and the PRMP that affect proposed on-the-ground management.**

Table 2-32
Management Actions and Allowable Uses for Recreation Management

Decision Area	Alternative	Management Actions and Allowable Uses
Goal 1: ***Provide quality recreation opportunities and experiences derived from public land resource values which are responsive to visitor demand and where these values are recognized as the primary resource management consideration above all others.***		
Objective 1.1 (Buckeye Hills East Trails SRMA): To provide local residents motorized and non-motorized recreation trail opportunities in the natural open spaces accommodating a range of skill levels for various distances located within an hour's drive of their local communities. Through the life of the plan, at least 85% of sampled visitors report satisfaction with their recreational experience.		
Management Actions and Allowable Uses for Buckeye Hills East Trails SRMA (Alternatives B, C, D and E)		
LS	B	RM-1.1.1: The Buckeye Hills East Trails SRMA would be designated (25,800 acres) with an emphasis on motorized recreation opportunities, predominately motorcycle trail riding, adjacent to the communities of Buckeye, Avondale, and Goodyear (see **Map 2-12b**). The physical, social, and administrative recreation settings would be managed for 100% Community Interface.
LS	C	RM-1.1.2: The Buckeye Hills East Trails SRMA would be designated (25,800 acres) for a balanced mix of motorized and non-motorized recreation opportunities adjacent to the communities of Buckeye, Avondale, and Goodyear **(see Map 2-12c).** Single-track trails would be maintained with developed loop opportunities where appropriate. The physical, social, and administrative recreation settings would be managed for 100% Front Country.
LS	D	RM-1.1.3: The Buckeye Hills East Trails SRMA would be designated (25,800 acres) with an emphasis on non-motorized single-track trail recreation opportunities adjacent to the communities of Buckeye, Avondale, and Goodyear (see **Map 2-12d**). The physical, social, and administrative recreation settings would be managed for 100% Front Country.

Table 2-32
Management Actions and Allowable Uses for Recreation Management

Decision Area		Alternative				Management Actions and Allowable Uses
LS					E	RM-1.1.4: The Buckeye Hills East Trails SRMA would be designated (25,800 acres) for a balanced mix of motorized and non-motorized recreation opportunities adjacent to the communities of Buckeye, Avondale, and Goodyear (see **Map 2-12e**). Single-track trails would be maintained with developed loop opportunities where appropriate. The physical, social, and administrative recreation settings would be managed for 100% Community Interface.
LS		B	C	D	E	RM-1.1.5: If needed to meet management objectives, the SRMA, or specific sites within it, would potentially be designated as a Special Management Area (SMA). An Individual Special Recreation Permit (ISRP) program may be established to allow for special management and resource protection if needed to meet the objectives for the area. Fee sites would be established in accordance with Federal Lands Recreation Enhancement Act (FLREA). A business plan would be prepared and approved before implementation, and fees would be established as needed for operational management of the site. *[New; clarification]*
LS		B	C	D	E	RM-1.1.6: Partners may be obtained through a Cooperative Management Agreement. Through this agreement, partners could be authorized to share in the operational management of the area and in the collection and management of fees in accordance with FLREA. *[New; clarification]*
LS		B	C		E	RM-1.1.7: When designated, the travel system would predominately consist of roads maintained at levels 1 to 3. Access roads could be maintained at level 5. The area would provide single track trail opportunities for motorcycle and equestrian trail riders.
LS		B				RM-1.1.8: Up to six staging, parking and/or training areas may be developed with standard and expanded amenity facilities such as gravel surfacing or other soil hardening for dust control, picnic tables, and fire rings (up to 30 acres). Up to two large staging areas could be developed not to exceed 10 acres each.
LS			C		E	RM-1.1.9: Up to six staging, parking and/or training areas may be developed with standard and expanded amenity facilities such as gravel surfacing, or other soil hardening for dust control, picnic tables, and fire rings (up to 30 acres). One large staging area could be developed not to exceed 10 acres.
LS				D		RM-1.1.10: Up to four staging/parking areas may be developed with standard amenity facilities such as gravel surface, picnic tables, and fire rings (up to 20 acres).

Table 2-32
Management Actions and Allowable Uses for Recreation Management

Decision Area		Alternative				Management Actions and Allowable Uses
LS		B	C		E	RM-1.1.11: Primitive roads and/or trails, especially connector and loop routes, would be developed for a diversity of users. Existing single-track trails would be used as appropriate to provide for those user experiences.
LS				D		RM-1.1.12: Up to 50 percent of the primitive roads (approximately 63 miles) would be converted to non-motorized trails. Trails could be developed to provide connector and loop opportunities for non-motorized users.
LS		B	C	D	E	RM-1.1.13: In the Buckeye Hills East Trails SRMA, competitive motorized and non-motorized speed events, including motorcycle enduros or equestrian endurance rides, would be considered on a case-by-case basis and the recreation and resource objectives of the area must be retained. *[New; changed because all speed events were prohibited in DRMP]*
LS		B	C	D	E	RM-1.1.14: Vehicle-based camping would be limited to existing or designated sites, or as determined by subsequent activity-level planning.
LS		B	C	D	E	RM-1.1.15: The area would be managed mostly for the following VRM Classes (see **Maps 2-3b, c, d,** and **e**): • Alternatives B and E: Mostly VRM Class IV, and • Alternatives C and D: Mostly for VRM Class III. *[DRMP: VRM classes only shown on maps]*
Objective 1.2: (Gunsight Wash SRMA): Provide structured, managed camping where there is a high demand from long-distance winter visitors seeking a remote, primitive winter camping experience and access to adjacent BLM-administered lands. Through the life of the plan, at least 90% of sampled visitors report satisfaction with their camping experience.						
Management Actions and Allowable Uses Gunsight Wash SRMA (Alternatives B, C and E)						
LS		B	C		E	RM-1.2.1: The Gunsight Wash SRMA would be designated (T14S, R5W, Sections 2-4 and 9-11; 2,500 acres) to provide visitors RV and primitive camping, social gathering, and hiking experiences with sightseeing/touring, photography, and wildlife viewing on the adjacent BLM-administered and other federal lands (see **Maps 2-12b, c** and **e**). The physical, social and administrative recreation settings would be managed as 100% Front Country.
LS		B				RM-1.2.2: The camping stay limit in the Gunsight Wash SRMA would be 14 days except during October 1 – April 30 when the stay limit would be increased to 120 days. *[Additional text removed; too difficult to enforce]*

Table 2-32
Management Actions and Allowable Uses for Recreation Management

Decision Area		Alternative				Management Actions and Allowable Uses
LS			C			RM-1.2.3: The camping stay limit in the Gunsight Wash SRMA would be 14 days except during October 1 – April 30 when the stay limit would be increased to 60 days. *[Additional text removed; too difficult to enforce]*
LS					E	RM-1.2.4: The camping stay in the Gunsight Wash SRMA would be limited to no more than a period of 14 days within any period of 28 consecutive days. All other rules and restrictions pertaining to this standard camping rule would apply. *[Changed from 60 days in DRMP to 14 days in PRMP]*
LS		B			E	RM-1.2.5: When designated, the travel system would predominately consist of roads suitable for two-wheel-drive access for RVs with at least 80 percent maintained at levels 3 to 5 to provide access for dispersed camping and motorized sightseeing and hiking opportunities.
LS			C			RM-1.2.6: When designated, the travel system would predominately consist of roads suitable for two-wheel-drive access for RVs with at least 40 percent maintained at levels 3 to 5 to provide access for dispersed camping and motorized sightseeing and hiking opportunities.
LS		B	C		E	RM-1.2.7: The Gunsight Wash SRMA would be closed to locatable minerals exploration and development, leasable minerals, seismic exploration, and mineral material disposals. Public lands would be recommended for withdrawal to all mineral location and entry.
LS		B	C		E	RM-1.2.8: The Gunsight Wash SRMA, or specific sites within it, would potentially be designated as a Special Management Area (SMA). An Individual Special Recreation Permit (ISRP) program may be established to allow for special management and resource protection if needed to meet the objectives for the area. Fee sites would be established in accordance with FLREA. A business plan would be prepared and approved before implementation, and fees would be established as needed for operational management of the site.
LS		B	C		E	RM-1.2.9: Controlled access, such as a center turning lane on Highway 85, would be secured with ADOT.
LS		B	C		E	RM-1.2.10: Standard and expanded amenity infrastructure would be provided at the campground such as restrooms, ramadas, picnic tables, individual campsites with fire pits and improved road systems.
LS		B	C		E	RM-1.2.11: The SRMA would be managed for VRM Class III (See **Maps 2-3b, c** and **e**). *[DRMP: VRM classes only shown on maps]*
LS		B	C		E	RM-1.2.12: The SRMA would be an exclusion area for utility-scale

Table 2-32
Management Actions and Allowable Uses for Recreation Management

Decision Area		Alternative				Management Actions and Allowable Uses
						renewable energy developments and major linear LUAs. *[DRMP: only in Lands and Realty section and Appendix N]*
LS		B	C		E	RM-1.2.13: The SRMA would be an avoidance area for minor linear and all non-linear LUAs. *[DRMP: only in Lands and Realty section]*
LS		B	C	D	E	RM-1.2.14: In the Gunsight Wash SRMA, competitive motorized speed events would be prohibited. *[DRMP: only in General Recreation section]*
LS		B	C	D	E	RM-1.2.15: Firewood collection would be prohibited within ¼ mile of the signed campground. Saguaro skeletons and wood pallets would be prohibited. *[Revised; original action in General Recreation section didn't provide protection around the site]*
LS		B	C	D	E	RM-1.2.16: The developed area, as signed, would remain closed to target shooting in accordance with state and federal regulations. *[New: clarification]*
LS				D		RM-1.2.17: The existing area used for camping (approximately 1,000 acres) would not be designated as a Recreation Management Area and not developed as a campground. It would remain available for dispersed primitive camping. The camping stay limit would remain 14 days in a 28-day period in accordance with the standard camping guidelines in place and addressed in the general camping section. Restrictions identified in RM-1.1.14 through 16 would apply. *[New; clarification]*
Objective 1.3 (Painted Rock SRMA): To provide structured, managed camping where there is a high demand from national and international winter visitors seeking a remote, primitive winter camping experience near an adjacent petroglyph site day use area, and access to adjacent public lands which provide cultural and historic attractions of regional, national, and international interest. Through the life of the plan, at least 90% of sampled visitors report satisfaction with their camping experience.						
Management Actions and Allowable Uses for Painted Rock SRMA (Alternatives B, C, D and E)						
LS		B	C	D	E	RM-1.3.1: The Painted Rock SRMA would be designated (T4S, R7W, Sections 30-32; T4S, R8W, Sections 13, 24, 25; T5S, R7W, Sections 5-8, 17, 20; and T5S, R8W, Sections 1-3, 10-12; approximately 9,800 acres). The approximate 300-acre Petroglyph Site and Campground (T5S, R8W, Sections 1 and 2) would be retained as day use and campground fee sites for winter visitor camping. Visitors would experience RV and primitive camping, social gathering, petroglyph and historical trail viewing, interpretive exhibit viewing, picnicking, hiking, and motorized exploring adjacent to natural landscapes. The adjacent 9,500 acres would continue to provide the camping closure buffer around the campground with limited off-highway vehicle access offering visitors a more back

Table 2-32
Management Actions and Allowable Uses for Recreation Management

Decision Area		Alternative				Management Actions and Allowable Uses
						country experience for wildlife viewing and hunting. (Refer to **Maps 2-12b** through **e**). The physical, social and administrative recreation settings would be managed for 100% Front Country for the entire SRMA.
LS		B	C	D	E	RM-1.2.2: The Painted Rock Petroglyph Site and Campground would be retained as campground and day use fee sites in accordance with FLREA and the approved business plan. Fees would be adjusted or established as needed to meet business plan objectives.
LS		B	C	D	E	RM-1.2.3: At the designated campground, the camping-stay limit would be 14 days except October 1 to April 30, when the stay limit would be increased to 90 days.
LS		B	C	D	E	RM-1.2.4: Public lands adjacent to the developed campground and day use area, as defined in RM-1.2.1, would remain closed to camping and motorized off-highway vehicle use except designated/signed open roads, primitive roads, and trails. The following persons, operating within the scope of their official duties, are exempt from the provisions of this closure: Employees of the BLM, Arizona Game and Fish Department, and local and federal law enforcement and fire protection personnel. Access by additional parties may be allowed but must be approved in advance in writing by the BLM authorized officer. *[DRMP: shown as OHV closure on maps; carried forward from existing Federal Register Notice "Closure of Public Lands to Camping and Off-Road Vehicle Use." dated January 28, 1999]*
LS		B	C	D	E	RM-1.2.5: Pursuant to the American Indian Religious Freedom Act of 1978, and Executive Orders 13007 and 13084, visitor use fees at Painted Rock Petroglyph Site and Campground would be waived upon request for Native Americans visiting the site for the purpose of engaging in activities of traditional cultural importance. *[Carried forward from existing Federal Register Notice "Closure of Public Lands to Camping and Off-Road Vehicle Use." dated January 28, 1999]*
LS		B	C	D	E	RM-1.2.6: When designated, the travel system would consist of roads suitable for two-wheel-drive RVs and passenger cars with at least 90% maintained at levels 3 to 5. Roads away from the immediate vicinity of the site would be maintained at levels 1-3 for more back country driving experiences.
LS		B	C	D	E	RM-1.2.7: The Painted Rock Petroglyph Site and Campground (approximately 300 acres) would remain closed to all locatable minerals exploration and development, leasable minerals, seismic exploration, and mineral material disposals. Public lands would be recommended for withdrawal to all mineral location and entry.

Table 2-32
Management Actions and Allowable Uses for Recreation Management

Decision Area		Alternative				Management Actions and Allowable Uses
LS		B	C	D	E	RM-1.2.8: Select public lands adjacent to the Painted Rock Petroglyph Site and Campground (approximately 6,100 acres) would remain open to all non-renewable leasable minerals actions (including geothermal and sodium), but any lease would contain a No Surface Occupancy stipulation. These acres would also be closed to mineral material disposals. *[DRMP: revised to correct acreage to match maps]*
LS		B	C	D	E	RM-1.2.9: The remaining public lands in the SRMA not identified above (approximately 3,400 acres) would be open to all mineral activities. *[New; clarification]*
LS		B	C	D	E	RM-1.2.10: The petroglyph site and campground area would be managed for VRM Class IV (See **Maps 2-3a** through **e**). *[DRMP: VRM classes only shown on maps]*
LS		B	C	D	E	RM-1.2.11: The petroglyph site and campground area (300 acres) would be exclusion areas for utility-scale renewable energy developments and major linear LUAs. The remaining public lands in the SRMA would be available unless otherwise excluded. *[DRMP: only in Lands and Realty section and Appendix N]*
LS		B	C	D	E	RM-1.2.12: The petroglyph site and campground would be avoidance areas for minor linear and all non-linear LUAs (300 acres). The remaining public lands in the SRMA would be available unless otherwise excluded. *[DRMP: only in Lands and Realty section]*
LS		B	C	D	E	RM-1.2.13: In the Painted Rock SRMA, competitive motorized speed events would be prohibited. *[DRMP: only in General Recreation section]*
LS		B	C	D	E	RM-1.2.14: Firewood collection would be prohibited within ¼ mile of the signed campground and day use area. Saguaro skeletons and wood pallets would be prohibited. *[Revised; original action in General Recreation section didn't provide protection around the site]*
LS		B	C	D	E	RM-1.2.15: The developed area, as signed, would remain closed to target shooting in accordance with state and federal regulations. *[New; clarification]*
Objective 1.4 (Saddle Mountain SRMA): To provide recreation and educational opportunities and experiences to local residents and regional visitors seeking a primarily non-motorized trail experience with limited motorized access to explore, discover, and view the outstanding scenic landscapes, unique geologic features, and cultural and wildlife resources of the area, and contribute to the quality of life and economy of the local community of Tonopah. Through the life of the plan, at least 85% of sampled visitors report satisfaction with their recreational experience.						

Table 2-32
Management Actions and Allowable Uses for Recreation Management

Decision Area		Alternative				Management Actions and Allowable Uses
Management Actions and Allowable Uses for Saddle Mountain SRMA (Alternatives B and C)						
LS		B	C		~~E~~	RM-1.4.1: The Saddle Mountain SRMA would be designated (47,500 acres) with an emphasis on non-motorized recreation experiences (see **Maps 2-12b, c** and **e**). *[No longer SRMA in Alternative E]*
LS		B				RM-1.4.2: The physical, social and administrative recreation settings would be managed for 6% Community Interface, 83% Front Country, 11% Back Country and < 1% passage.
LS			C			RM-1.4.3: The physical, social and administrative recreation settings would be managed for 54% Front Country, 45% Back Country and 1% Passage.
LS		B				RM-1.4.4: When designated during travel management planning, the travel system would consist primarily of primitive roads maintained at levels 1 to 3, with up to 10 percent of the route network maintained at level 5 (approximately 5 miles) to provide two-wheel-drive passenger car access to public use cultural sites, day-use, and camping facilities.
LS			C			RM-1.4.5: When designated during travel management planning, the travel system would emphasize primitive access to non-motorized trail opportunities. Roads would predominately be maintained at level 1 with up to 10 percent maintained at level 3 (approximately 9 miles).
LS		B				RM-1.4.6: Primitive roads and primitive trails would be developed to provide sustainable opportunities for motorized and non-motorized trail opportunities.
LS			C			RM-1.4.7: Non-motorized trails would be developed, or converted from motorized roads, to meet demand for hiking, equestrian, and mountain biking. Primitive roads would only be developed if needed to redirect motorized use from the Saddle Mountain.
LS			C			RM-1.4.8: The area would be closed to mineral material disposals and exploration. *[DRMP: only in Minerals section and on maps]*
LS		B	C			RM-1.4.9: The area would be managed for the following VRM classes (see Maps **2-3b** and **c**): • Alternative B: Mostly for VRM Class III with some Class II in summit area and IV in corridors and north areas; and • Alternative C: Mostly for VRM Class II with some Class III along corridors and the north end of the SRMA. *[DRMP: VRM classes only shown on maps]*
LS		B	C			RM-1.4.10: In the Saddle Mountain SMRA, SRPs would not be authorized for motorized competitive speed events. Competitive

Table 2-32
Management Actions and Allowable Uses for Recreation Management

Decision Area		Alternative				Management Actions and Allowable Uses
						non-motorized speed events such as endurance rides would be analyzed on a case-by-case basis and the resource and recreation objectives of the area must be retained. *[New: all speed events were prohibited in DRMP; changed to allow for potential non-motorized speed events]*
LS		B	C			RM-1.4.11: Motorized technical and specialized uses, such as rock-crawling and rock-hopping, would be prohibited.
LS		B	C			RM-1.4.12: Vehicle-based camping would be limited to existing or designated sites or as determined by subsequent activity-level planning.
LS		B	C			RM-1.4.13: Facilities may be developed as needed for visitor use or public safety as needed. *[New; clarification]*
LS		B	C			RM-1.4.14: Visitor and management infrastructure would generally be modest in scope and scale, but may include fully developed facilities with paved access, water, and sewer. *[New; clarification]*
Objective 1.5 (San Tan Mountains SRMA): To continue providing a developed, non-motorized park setting for residents in eastern Maricopa and western Pinal counties, located southeast of metropolitan Phoenix, seeking recreational and educational benefits and opportunities in pristine Lower Sonoran Desert containing quality natural and cultural resources. Activities include hiking, horseback riding, mountain biking, picnicking, and organized events. The park is one of 12 in the Maricopa County Parks System and is an integral part of the local communities' and counties' economy. Through the life of the plan, at least 90% would indicate that they are very satisfied with their recreational experience in the area.						
Management Actions and Allowable Uses for San Tan Mountains SRMA (Alternative B)						
LS		B				RM-1.5.1: The San Tan Mountains SRMA would be designated (6,800 acres) as a cooperative management recreation area in partnership with Maricopa and Pinal Counties for non-motorized recreational opportunities (see **Map 2-12b**). The physical, social and administrative recreation settings would be managed for 69% Front Country and 31% Back Country.
LS		B				RM-1.5.2: The area would be established as a Special Management Area (SMA) and an Individual Special Recreation Permit (ISRP) program may be established to allow for special management and protection of the SMA cooperation with Maricopa and Pinal Counties, and other stakeholders as necessary. Through a Cooperative Management Agreement, partners may be authorized to share in the operational management of the area and in the collection and management of fees.
LS			C	D	E	RM-1.5.3: The San Tan Mountains area would be managed as a recreational park under a Recreation and Public Purposes Act Lease (see **Maps 2-12c** through **2-12e**). *[Revised for clarification;*

Table 2-32
Management Actions and Allowable Uses for Recreation Management

Decision Area		Alternative				Management Actions and Allowable Uses
						moved from General Recreation section]
LS		B				RM-1.5.4: Fees may be established as needed to meet activity or business plan objectives in accordance with the FLREA.
LS		B				RM-1.5.5: Primitive roads and primitive trails would be developed to provide sustainable opportunities for motorized and non-motorized trail opportunities. *[New; clarification]*
LS		B				RM-1.5.6: The park would remain a day use area and closed to overnight camping; hiking, equestrian, and mountain biking are acceptable uses. *[New; clarification]*
LS		B				RM-1.5.7: In the San Tan Mountains SRMA, competitive motorized speed events would be prohibited. *[DRMP: only in General Recreation section]*
LS		B				RM-1.5.8: Visitor and management infrastructure may be developed as needed to protect the cultural and natural resources in the area. *[New; clarification]*
Goal 2: ***Provide recreation opportunities and experiences derived from public land resource values which are responsive to visitor demand and where recreation use and program investments are commensurate with the management of other resources and resource uses while sustaining the principal recreation activities and associated qualities and conditions of the area. Manage recreation resources in cooperation with local communities in areas with recreation-dependent economies.***						
Objective 2.1 (Ajo ERMA): To provide local and seasonal residents of Ajo close-to-home recreational destination opportunities on BLM-administered lands in the Lower Sonoran Desert. The Ajo ERMA (also known as the Ajo Block) is surrounded by the US Air Force Barry M. Goldwater Range, Cabeza Prieta National Wildlife Area, the Organ Pipe Cactus National Monument, and the Tohono O'odham Nation. A sense of freedom is provided the residents in comparison to the other land use agencies that require permits or formal requests. The area contributes to the residents' quality of life, the local economy, and management support of the surrounding sensitive natural and cultural resources. The ERMA is divided into two recreation management zones with discreet management focus and uses. Through the life of the plan, at least 85% of sampled visitors indicate they were satisfied with their recreational experience in the area.						
Management Actions and Allowable Uses for Ajo ERMA (Alternatives B, C and E)						
LS		B	C		E	RM-2.1.1: The Ajo ERMA would be designated (177,700 acres) for local recreation opportunities that highlight the surrounding BLM-administered lands (see **Maps 2-12 b, c** and **e**).
Objective 2.1.1 (Ajo Gateway RMZ): Provide local and seasonal residents of Ajo open natural spaces to enjoy recreational activities predominately for motorized activities, as well as non-motorized opportunities, on BLM-administered lands bordering the Ajo community. Activities include motocross bike riding, mountain biking, and hiking in a system of primitive roads and trails just outside of town.						

Table 2-32
Management Actions and Allowable Uses for Recreation Management

Decision Area		Alternative				Management Actions and Allowable Uses
Management Actions and Allowable Uses for Ajo Gateway RMZ (Alternatives B, C and E)						
LS		B	C		E	RM-2.1.1.1: The Ajo Gateway RMZ would be designated (27,100, 20,300, and 27,100 acres, respectively) for local recreation opportunities that highlight the surrounding BLM-administered lands (see **Maps 2-12 b, c** and **e**). The physical, social and administrative recreation settings would be managed for 100% Community Interface.
LS		B	C		E	RM-2.1.1.2: When designated, the travel system would predominately consist of roads suitable for two wheel drive maintained at levels 1 to 3, with up to 5 percent (6 to 9 miles) of the route network maintained at level 5 to provide access for dispersed camping and motorized sightseeing and hiking opportunities.
LS		B	C		E	RM-2.1.1.3: Visitor and management infrastructure would generally be moderate in scope and scale, but may include developed facilities which would include a system of primitive roads and trails that meet the desired recreation setting.
LS		B	C		E	RM-2.1.1.4: The Ajo Scenic Loop road would be designated during travel management planning to interpret and educate local and seasonal visitors on adjacent public lands.
LS		B			~~E~~	RM-2.1.1.5: A 40-acre open area to accommodate motorized opportunities, such as unrestricted motocross bike riding, would be established with the provision that local partners would be sought to monitor and provide on-site management and educate users in environmental stewardship. *[Open use area deleted from Alternative E]*
LS		B	C		E	RM-2.1.1.6: The area would be managed mostly for VRM Class IV (see **Maps 2-3b, c** and **e**). *[DRMP: VRM classes only shown on maps]*
LS		B	C		E	RM-2.1.1.7: In the Ajo Gateway RMZ, competitive motorized and non-motorized speed events, including motorcycle enduros and equestrian endurance rides, would be considered on a case-by-case basis and the recreation and resource objectives of the area must be retained. *[New: changed to allow for consideration; all speed events were prohibited in DRMP]*
Objective 2.1.2 (Ajo Desert RMZ): To provide local and regional visitors undeveloped, primitive, and self-directed recreational experiences that allow for motorized as well as non-motorized recreational opportunities. Activities include driving for pleasure, hunting, mountain biking, hiking, camping, exploring, photography, and equestrian use.						

Table 2-32
Management Actions and Allowable Uses for Recreation Management

Decision Area		Alternative				Management Actions and Allowable Uses
Management Actions and Allowable Uses for Ajo Desert RMZ (Alternatives B, C and E)						
LS		B				RM-2.1.2.1: The Ajo Desert RMZ would be designated (150,400 acres) for self-directed recreation opportunities in the foothills and mountains within the Ajo Block (see **Map 2-12b**). The physical, social and administrative recreation settings would be managed for 15% Front Country, 81% Back Country and 4% Passage.
LS			C			RM-2.1.2.2: The Ajo Desert RMZ would be designated (157,300 acres) for self-directed recreation opportunities in the foothills and mountains within the Ajo Block (see **Map 2-12c**). The physical, social and administrative recreation settings would be managed for 16% Front Country, 81% Back Country and 3% Passage.
LS					E	RM-2.1.2.3: The Ajo Desert RMZ would be designated (149,800 acres) for self-directed recreation opportunities in the foothills and mountains within the Ajo Block (see **Map 2-12e**). The physical, social and administrative recreation settings would be managed for 15% Front Country, 82% Back Country and 3% Passage.
LS		B	C		E	RM-2.1.2.4: When designated, the travel system would predominately consist of roads maintained at levels 1 to 3. Major access roads and pullouts could be maintained at level 5.
LS		B	C		E	RM-2.1.2.5: A maximum camping stay would be established of seven days per party. Persons may occupy any one site or multiple sites within a 25 mile radius on public lands not closed or otherwise restricted to camping for a total period of not more than seven (7) days within a 28 day period. When the seven (7) day limit has been reached, the party must move 25 miles from site of last occupation, or off of public land. The authorized officer may give written permission for extension of the seven (7) day limit.
LS		B	C		E	RM-2.1.2.6: Visitor and management infrastructure would generally be low, but developed facilities could be established such as trailheads when linked to primitive trail systems that meet the desired recreation setting. *[New; clarification]*
LS		B	C		E	RM-2.1.2.7: The area would be managed for VRM Classes II and III (see **Maps 2-3b, c** and **e**). *[DRMP: VRM classes only shown on maps]*
LS		B	C		E	RM-2.1.2.8: In the Ajo Desert RMZ, competitive motorized speed events would be prohibited. Competitive non-motorized speed events, such as equestrian endurance rides would be considered on a case-by-case basis and the recreation and resource objectives of the area must be retained. *[New: All speed events were prohibited in DRMP; changed to allow for potential non-motorized speed events]*

Table 2-32
Management Actions and Allowable Uses for Recreation Management

Decision Area		Alternative				Management Actions and Allowable Uses
Objective 2.2 (Arlington Trails ERMA): To manage BLM-administered lands in the area west of Arlington and north of the Gila Bend Mountains for local and regional visitors seeking a dispersed or family-oriented motorized recreation experience, including off-highway vehicle driving for various vehicle types and skill levels, camping, exploring, and sightseeing in a remote Sonoran Desert landscape. Through the life of the plan, at least 80% would indicate that they are very satisfied with their recreational experience in the area.						
Management Actions and Allowable Uses for Arlington Trails ERMA (Alternatives B and E)						
LS		B			E	RM-2.2.1: The Arlington Trails ERMA would be designated (60,600 acres) for family-oriented motorized recreational opportunities on BLM-administered lands (see **Maps 2-12b** and **e**). The physical, social and administrative recreation settings would be managed for 100 percent Front Country.
LS			C			RM-2.2.2: In Alternative C, the area would not be designated as a Recreation Management Area (see **Map 2-12c**). It would be incorporated into the Gila Bend Mountains ERMA and managed under the objectives described for that ERMA which is predominately dispersed, undeveloped recreation in a backcountry landscape (see Objective 3.4).
LS		B			E	RM-2.2.3: When designated, the travel system would predominately consist of roads maintained at levels 1 to 3 to allow for back country, primitive driving experiences with approximately 10% maintained at level 3 (approximately 19 miles) and up to 30% maintained at level 5 (approximately 60 miles) to allow for two-wheel drive access.
LS		B			E	RM-2.2.4: Up to 25 miles of new primitive roads and/or primitive trails may be constructed as needed to connect loop routes to provide a variety of motorized opportunities for family riding experiences and user groups. Existing roads could be re-aligned to improve resource management or public safety.
LS		B			E	RM-2.2.5: Up to two staging, parking, and/or training areas may be developed with standard and expanded amenity facilities such as gravel surfacing or other soil hardening for dust control, picnic tables, and fire rings not to exceed 10 acres each.
LS		B			E	RM-2.2.6: Vehicle-based camping would be limited to existing or designated sites, or as determined by subsequent activity-level planning. *[New; clarification]*
LS		B			E	RM-2.2.7: The area would be managed mostly for VRM Class IV (see **Maps 2-3b** and **e**). *[DRMP: VRM classes only shown on maps]*
LS		B			E	RM-2.2.8: In the Arlington Trails ERMA, competitive motorized and non-motorized speed events, including motorcycle enduros or equestrian endurance rides, would be considered on a case-by-case

Table 2-32
Management Actions and Allowable Uses for Recreation Management

Decision Area		Alternative				Management Actions and Allowable Uses
						basis and the recreation and resource objectives of the area must be retained. *[New; changed to allow for consideration; all speed events prohibited in DRMP]*
LS		B			E	RM-2.2.9: If needed to meet management objectives, the ERMA, or specific sites within it, would potentially be designated as a Special Management Area (SMA). An Individual Special Recreation Permit (ISRP) program may be established to allow for special management and resource protection if needed to meet the objectives for the area. Fee sites would be established in accordance with Federal Lands Recreation Enhancement Act (FLREA). A business plan would be prepared and approved before implementation, and fees would be established as needed for operational management of the site. *[New; previously omitted]*
Objective 2.3 (Buckeye Hills West ERMA): To provide dispersed recreational opportunities adjacent to the Maricopa County Buckeye Recreation Area Regional Park and the Robbins Butte State Wildlife Area. The ERMA would be managed in partnership with the Arizona Game and Fish Department and Maricopa County for motorized and non-motorized activities including off-highway vehicle touring, hiking, sightseeing, wildlife viewing, photography and hunting. Through the life of the plan, at least 80% would indicate that they are very satisfied with their recreational experience in the area.						
Management Actions and Allowable Uses for Buckeye Hills West ERMA (Alternatives B, C, D and E)						
LS		B	C		E	RM-2.3.1: The Buckeye Hills West ERMA would be designated (25,800 acres) in partnership with Maricopa County and Arizona Game and Fish Department (see **Maps 2-12b, c** and **e**). The ERMA would be managed for motorized and non-motorized recreational opportunities on BLM-administered lands adjacent to the Maricopa County Buckeye Hills Recreation Area Regional Park and the nearby Robbins Butte State Wildlife Area.
LS		B			E	RM-2.3.2: The physical, social and administrative recreation settings would be managed for 100% Front Country.
LS			C			RM-2.3.3: The physical, social and administrative recreation settings would be managed for 40% Front Country, 59% Back Country and 1% Passage.
LS				D		RM-2.3.4: The Buckeye Hills West ERMA would be designated (25,800 acres) in cooperation with Maricopa County and Arizona Game and Fish Department for motorized and non-motorized recreational opportunities on BLM-administered lands. The physical, social and administrative recreation settings would be managed for 98% Back Country and 2% Passage.

Table 2-32
Management Actions and Allowable Uses for Recreation Management

Decision Area		Alternative				Management Actions and Allowable Uses
LS		B	C		E	RM-2.3.5: If needed to meet management objectives the SRMA, or specific sites within it, would potentially be designated as a Special Management Area (SMA). An Individual Special Recreation Permit (ISRP) program may be established to allow for special management and resource protection if needed to meet the objectives for the area. Fee sites would be established in accordance with Federal Lands Recreation Enhancement Act (FLREA). A business plan would be prepared and approved before implementation, and fees would be established as needed for operational management of the site. *[Revised for clarification]*
LS		B	C		E	RM-2.3.6: Partners may be obtained through a Cooperative Management Agreement, including Maricopa County and the Arizona Game and Fish Department. Through this agreement, partners could be authorized to share in the operational management of the area and in the collection and management of fees in accordance with FLREA. *[Revised for clarification]*
LS		B	C		E	RM-2.3.7: When designated, the travel system would predominately consist of roads maintained at levels 1 to 3. Any access roads would be maintained at level 5.
LS			C		E	RM-2.3.8: Overnight camping would be prohibited unless specifically authorized.
LS				D		RM-2.3.9: An SMA and ISRP program would not be established and the BLM would remain the lead agency in managing the area in cooperation with Maricopa County and the Arizona Game and Fish Department. The area would remain primitive and undeveloped and used mostly for off-highway vehicle driving and hunting. *[Revised for clarification]*
LS				D		RM-2.3.10: When designated, the travel system would predominately consist of primitive roads maintained at level 1.
LS		B	C	D	E	RM-2.2.11: The area would be managed mostly for the following VRM Classes (see Maps 2-3b, c and e): • Alternatives B and E: Mostly Class III. • Alternatives C and D: Mostly Class II. *[DRMP: VRM classes only shown on maps]*
LS		B	C	D	E	RM-2.3.12: Primitive roads or primitive trails may be developed to provide connector and loop routes for a diversity of users and provide trail connections to nearby county and state parks.
LS		B	C	D	E	RM-2.3.13: In the Buckeye Hills West ERMA, competitive motorized and non-motorized speed events would be prohibited. *[DRMP: in General Recreation section]*

Table 2-32
Management Actions and Allowable Uses for Recreation Management

Decision Area		Alternative				Management Actions and Allowable Uses
Objective 2.4 (Gila Bend Mountains ERMA): To provide local and regional visitors dispersed, self-directed recreation opportunities and experiences in a remote and undeveloped Sonoran Desert landscape which includes two wilderness areas. Activities include off-road vehicle driving, camping, hiking, hunting, and sightseeing. Through the life of the plan, at least 85% would indicate that they are very satisfied with their recreational experience in the area.						
Management Actions and Allowable Uses for Gila Bend Mountains ERMA (Alternatives B, C and E)						
LS		B			E	RM-2.4.1: The Gila Bend Mountains ERMA would be designated (253,800 and 259,800 acres respectively) for visitors from western Maricopa County primarily seeking dispersed, undeveloped recreation experiences in a remote backcountry setting (see **Maps 2-12b** and **e**). To better manage dispersed recreation opportunities the BLM may provide major investments in visitor services however investments in visitor facilities would be moderate to minor. The physical, social and administrative recreation settings would be managed for 15% Front Country, 83% Back Country and 2% Passage.
LS			C			RM-2.4.2: The Gila Bend Mountains ERMA would be designated (314,800 acres) for visitors from western Maricopa County primarily seeking dispersed, undeveloped recreation experiences in a remote backcountry setting (see **Map 2-12c**). To better manage dispersed recreation opportunities the BLM may provide major investments in visitor services however investments in visitor facilities would be minor. The physical, social and administrative recreation settings would be managed for 15% Front Country, 83% Back Country and 2% Passage. (The acreage is higher in this alternative due to the incorporation of the Arlington Trails ERMA.)
LS		B	C		E	RM-2.4.3: When designated, 90% of the motor vehicle travel system would consist of primitive roads and trails maintained at level 1 to provide a rugged primitive motorized experience, with up to 3% maintained at levels 3-5 (approximately 11-16 miles) to allow for two-wheel drive access.
LS		B	C		E	RM-2.4.4: Standard camping amenities, interpretive displays, and improved access would be constructed at the Sundad public use site to facilitate visitation.
LS		B	C		E	RM-2.4.5: Areas of disturbance greater than 2 acres would be rehabilitated back to natural condition and group limits may be established to prevent further resource degradation.

Table 2-32
Management Actions and Allowable Uses for Recreation Management

Decision Area		Alternative				Management Actions and Allowable Uses
LS		B	C		E	RM-2.4.6: The area would be managed mostly for the following VRM Classes (see **Maps 2-3b, c** and **e**): • Class I in Wilderness areas; • Alternative B: Mostly Class III outside of wilderness except the multi-use utility corridor is Class IV; • Alternative C: Mostly Class II outside of wilderness except the multi-use utility corridor is Class III; and • Alternative E: Class II in lands managed to protect wilderness characteristics, Class III in remaining areas other than the multi-use utility corridor which is Class IV. *[DRMP: VRM classes only shown on maps]*
LS		B	C		E	RM-2.4.7: In the Gila Bend Mountains ERMA, competitive motorized speed events, including motorcycle enduros, would be prohibited. Competitive non-motorized speed events such as endurance rides would be analyzed on a case-by-case basis and the resource and recreation objectives of the area must be retained. *[New: all speed events were prohibited in the DRMP; changed to allow for potential non-motorized speed events]*
Objective 2.5 (Lower Gila Historic Trails ERMA): To provide recreation and educational opportunities and experiences to local, regional, and national visitors who seek to discover, tour, and learn about the Juan Bautista de Anza NHT, the historic Butterfield Overland Stage Route, and Mormon Battalion trails that intersect the NHT corridor, in addition to the area's rich cultural and natural history and resources. Through the life of the plan, at least 85% of sampled visitors report satisfaction with their recreational experience.						
Management Actions and Allowable Uses for Lower Gila Historic Trails ERMA (Alternatives B, C and E)						
LS		B	C		E	RM-2.5.1: The Lower Gila Historic Trails ERMA would be designated (42,600 acres) with an emphasis on balanced recreation experiences (see **Maps 2-12b, c** and **e**). The physical, social and administrative recreation settings would be managed for 100% Front Country.
LS		B	C		E	RM-2.5.2: When designated, the motorized vehicle travel system would consist primarily of primitive roads maintained at levels 1 to 3, with up to 10 percent of the route network maintained at level 5 to provide two-wheel-drive passenger car access to public use cultural sites, day-use, and camping facilities.
LS		B	C		E	RM-2.5.3: Visitor and management infrastructure would respond to demand for facilities and access to the Juan Bautista de Anza NHT, Butterfield Overland Stage Route and other high-intensity trail segments and cultural properties.
LS		B	C		E	RM-2.5.4: Facilities may be developed as needed for visitor use or public safety at public use sites such as Butterfield West, or other

Table 2-32
Management Actions and Allowable Uses for Recreation Management

Decision Area		Alternative				Management Actions and Allowable Uses
						areas as identified. Infrastructure would be modest in scope and scale but could include expanded amenities as needed. *[Combined actions and reworded for clarity]*
LS		B	C		E	RM-2.5.5: Allowable land use authorizations and minerals activities would be determined by the applicable allocation decisions established for the Anza NHT and Management Area, and Lower Gila Terraces and Historic Trails ACEC prescriptions. *[New; clarification]*
LS		B	C		E	RM-2.5.6: In the Lower Gila Historic Trails ERMA, competitive motorized speed events would be prohibited. Competitive non-motorized speed events such as endurance rides would be analyzed on a case-by-case basis and the resource and recreation objectives of the area must be retained. *[New; all speed events were prohibited in DRMP; changed to allow for potential non-motorized speed events]*
LS		B	C		E	RM-2.5.7: Vehicle-based camping would be limited to existing or designated sites, or as determined by subsequent activity-level planning. *[New; clarification]*
LS		B	C	D	E	RM-2.5.8: The area would be managed mostly for the following VRM Classes (see **Maps 2-3b, c, d** and **e**): • Alternatives B and E: Mostly VRM Class III; and • Alternatives C and D: Mostly for VRM Class II. *[DRMP: VRM classes only shown on maps]*
Objective 2.6 (Saddle Mountain ERMA): To balance the recreation visitor demands with the other resources in the area for which the area is designated as an ACEC, including cultural, wildlife, and scenic qualities. Local residents and regional visitors seek a primarily non-motorized trail experience with limited motorized access to explore, discover, and view the outstanding scenic landscapes, unique geologic features, and cultural and wildlife resources of the area. Through the life of the plan, at least 85% of sampled visitors report satisfaction with their recreational experience.						
Management Actions and Allowable Uses for Saddle Mountain ERMA (Alternative E)						
LS					E	RM-2.6.1: The Saddle Mountain ERMA would be designated (47,500 acres) with an emphasis on primarily non-motorized recreation experiences in balance with other resource values and uses (see **Map 2-12e**). The physical, social and administrative recreation settings would be managed for 5% Community Interface, 77% Front Country, 17% Back Country and 1% Passage Zone.
LS					E	RM-2.6.2: When designated, the travel system would emphasize primitive access to non-motorized trail opportunities. Roads would predominately be maintained at level 1 with up to 10 percent maintained at level 3 (approximately 9 miles).

Table 2-32
Management Actions and Allowable Uses for Recreation Management

Decision Area		Alternative				Management Actions and Allowable Uses
LS					E	RM-2.6.3: Non-motorized trails would be developed, or converted from motorized roads, to meet demand for hiking, equestrian, and mountain biking. Primitive roads would only be developed if needed to redirect motorized use from the Saddle Mountain.
LS					E	RM-2.6.4: The area would be closed to mineral material disposals and exploration. [*DRMP: only in Minerals section and on maps*]
LS					E	RM-2.6.5: The area would be managed for VRM Classes II, III, and IV. VRM II would be in the lands managed to protect wilderness characteristics; VRM III in the higher elevations; and VRM IV in the foothills along corridors and the north end of the SRMA. *[DRMP: VRM classes only shown on maps]*
LS					E	RM-2.6.6: In the Saddle Mountain ERMA, SRPs would not be authorized for motorized competitive speed events. Competitive non-motorized speed events such as endurance rides would be analyzed on a case-by-case basis and the resource and recreation objectives of the area must be retained. *[New; all speed events were prohibited in DRMP; changed to allow for potential non-motorized speed events]*
LS					E	RM-2.6.7: Motorized technical and specialized uses, such as rock-crawling and rock-hopping, would be prohibited.
LS					E	RM-2.6.8: Vehicle-based camping would be limited to existing or designated sites or as determined by subsequent activity-level planning.
LS					E	RM-2.6.9: Facilities may be developed as needed for visitor use or public safety as needed. Infrastructure would be modest in scope and scale but could include expanded amenities as needed. *[New; clarification]*
Objective 2.7 (Common-To-All RMAs): Through the life of the plan, 90% of sampled visitors report satisfaction with their recreation experience.						
Common-To-All Management Actions and Allowable Uses for RMAs *[New section for clarification purposes]*						
LS		B	C	D	E	RM-2.7.1: All RMAs would be avoidance areas for all land use authorizations unless otherwise limited (such in developed campgrounds). If no other option is available, recreation objectives and experiences would be priority when evaluating proposals. Potential impacts would be mitigated to ensure targeted recreation outcomes are retained as described in the **Appendix R,** Special and Extensive Recreation Management Area Worksheets. *[DRMP: only in Lands and Realty section]*
LS		B	C	D	E	RM-2.7.2: All RMAs would be open to all minerals activities unless otherwise limited (such in developed campgrounds). Recreation

Table 2-32
Management Actions and Allowable Uses for Recreation Management

Decision Area		Alternative				Management Actions and Allowable Uses
						objectives and experiences would be priority when evaluating proposals. Potential impacts would be mitigated to ensure targeted recreation outcomes are retained, as described in **Appendix R,** Special and Extensive Recreation Management Area Worksheets. *[DRMP: only in Lands and Realty section]*
LS		B	C	D	E	RM-2.7.3: Utility-scale renewable energy development would be prohibited in all Back Country recreation settings within RMAs. *[DRMP: only in Lands and Realty section and Appendix N]*
LS		B	C	D	E	RM-2.7.4: SRMAs would be high sensitivity conflict areas (avoidance areas) for utility-scale renewable energy developments in all recreation settings other than Back Country. Projects would only be considered and evaluated if no other option exists and potential impacts could be mitigated to ensure recreation outcomes are retained. *[DRMP: only in Lands and Realty section and Appendix N]*
LS		B	C	D	E	RM-2.7.5: ERMAs would be moderate sensitivity conflict areas (avoidance areas) for utility-scale renewable energy developments in all recreation settings other than Back Country. Projects may be considered and evaluated if potential impacts could be mitigated to ensure recreation outcomes are retained. *[DRMP: only in Lands and Realty section and Appendix N]*
LS		B	C	D	E	RM-2.7.6: SRPs, including vending, would be authorized on a case-by-case basis in accordance with 43 CFR 2930 guidance presented in the SRP section and **Appendix H**, Standard Operating Procedures.
LS		B	C	D	E	RM-2.7.7: As sites are developed, other restrictions would become effective as set forth in other areas of this plan for developed recreation sites (e.g., firewood, firearm restrictions).
Goal 3: ***Manage public lands to allow for basic recreation uses and resource stewardship needs. Visitor health and safety would be addressed as needed; use and user conflicts would be kept to a minimum; special recreation permits would be processed in compliance with the primary resource uses of the areas; and recreation impacts to cultural and natural resources would be mitigated as needed.***						
Objective 3.1 (General Recreation): Through the life of the plan, 85% of sampled visitors report satisfaction with their recreation experience.						
LS				D		RM-3.1.1: The Ajo, Arlington, Gila Bend Mountains, Gunsight Wash, Lower Gila Historic Trails and Saddle Mountain areas would be classified as Undesignated Lands and managed for general recreation stewardship needs (see **Map 2-12d**). Recreation opportunities and amenities would not be proactively managed and developed except in the case of conflict with other resource uses (for example a campground would not be developed at Gunsight Wash unless a biological opinion indicated continued dispersed camping was harming a priority wildlife species). *[Revised to comply*

Table 2-32
Management Actions and Allowable Uses for Recreation Management

Decision Area		Alternative				Management Actions and Allowable Uses
						with new policy; ERMAs under old policy – management remains for general stewardship under this alternative]
General Recreation Management Actions and Allowable Uses						
LS		B	C	D	E	RM-3.1.2: The Sentinel Plain area would be designated and managed as a Special Management Area. Access to the area would require the Barry M. Goldwater Air Force Range entry and public safety permit (for the BLM, these are managed as Individual Special Recreation Permits).
LS				D		RM-3.1.3: Public lands within the Cuerda de Lena ACEC near Ajo would be closed to public access, for all recreation uses including camping and SRPs, during March 15 – July 15 or as determined by the Sonoran Pronghorn Recovery Team.
LS		B	C	D	E	RM-3.1.4: All future developed recreation sites not identified in this plan would also be closed to locatable mineral entry and mineral material disposals. Public lands would be recommended for withdrawal to all mineral location and entry. Lands would be open to mineral leasing with No Surface Occupancy stipulations. (Campgrounds excluded, the average developed recreation site in the Planning Area would be less than 10 acres.) *[Moved from Minerals section]*
LS	SDNM	B	C	D	E	RM-3.1.5: All proposed management actions would conform to the settings described for each recreation allocation. *[New for clarification]*
Camping, Parking, Facilities and Other						
LS	SDNM	B	C	D	E	RM-3.1.6: Camping on all lands open to the public would be allowed in accordance with 43 CFR 8365 unless otherwise closed.
LS	SDNM	B	C	D	E	RM-3.1.7: Except where otherwise specified (e.g. Painted Rock Campground SRMA and Ajo Desert ERMA), camping would continue to be limited to no more than a period of 14 days within any period of 28 consecutive days and, after the 14th day of occupation, the camper would be required to move outside of at least a 25-mile radius of the previous location until the 29th day since initial occupation.
LS		B	C	D	E	RM-3.1.8: Self-contained or vehicle-based camping would be permitted within 100 feet of the centerline of designated or existing routes. Cross-country travel to campsites would not be permitted.
LS	SDNM	B	C	D	E	RM-3.1.9: Vehicle-based camping and parking along roads and primitive roads would be strongly encouraged through visitor information, education, and signing to assist visitors in selecting and using existing camp and parking sites that show clear evidence of

Table 2-32
Management Actions and Allowable Uses for Recreation Management

Decision Area		Alternative				Management Actions and Allowable Uses
						prior use. Existing and suitable sites is indicated or evidenced by the following: vehicle access to the site, lack of vegetation, bare mineral soils, and other dispersed campsite amenities such as fire rings. Existing vehicle parking and camping sites must be large enough to accommodate the group size without increasing the disturbed area. *[New for clarification]*
LS	SDNM	B	C	D	E	RM-3.1.10: Camping facilities and length-of-stay limits would be developed and adjusted to sustain the prescribed settings and attain the desired objectives of the RMA(s) or undesignated lands for dispersed camping or managed camping areas. *[New for clarification]*
LS	SDNM	B	C	D	E	RM-3.1.11: Long term visitor areas would not be designated.
LS		B	C	D	E	RM-3.1.12: Collection of saguaro cacti skeletons for personal use or campfire burning would be prohibited. The burning of wood pallets in developed recreation sites is also prohibited to prevent the accumulation of nails and staples at campsites. *[New]*
LS		B	C	D	E	RM-3.1.13: The collection of dead, down, and detached wood for personal or campfire use while camping on public lands would be allowed. Collection of wood may be restricted in the future if needed as determined through monitoring. *[Revised to allow for adaptive management]*
LS		B	C	D	E	RM-3.1.14: Collection of firewood would be prohibited within ¼ mile of developed recreation sites. *[Revised; original action in General Recreation section didn't provide protection around the site]*
Recreational Target Shooting						
LS		B	C	D	E	RM-3.1.15: Discharge of firearms would be allowed on BLM public lands except as specifically restricted in this land use plan or prohibited by federal and state law. This activity may be restricted or prohibited in specific areas where public safety and resource conflicts exist. For the safety of visitors and to avoid undue degradation of natural resources, visitors are encouraged to follow best management practices as outlined in **Appendix H,** Best Management Practices & Standard Operating Procedures.
Special Recreation Permits (SRPs)						
LS		B	C	D	E	RM-3.1.16: At the discretion of the authorized officer, special recreation permits (SRPs) would be authorized on a case-by-case basis as outlined in 43 CFR 2930; in subsequent policies and guidance (See **Appendix H,** Best Management Practices & Standard Operating Procedures); and in the decisions below.
LS		B	C	D	E	RM-3.1.17: Organized groups over 75 people conducting non-commercial and non-competitive recreational activities and events

Table 2-32
Management Actions and Allowable Uses for Recreation Management

Decision Area		Alternative				Management Actions and Allowable Uses
						would require a permit unless otherwise specified in RMAs or designated sites where carrying capacities are established in subsequent implementation-level plans (such as in wilderness plans), or when special management and monitoring are determined to be needed. *[New]*
LS		B	C	D	E	RM-3.1.18: Certified weed-free feed would be required for all equestrian and stock animal uses authorized under SRPs.
LS		B	C	D	E	RM-3.1.19: Unless otherwise restricted in RMAs, competitive motorized and non-motorized speed events would be authorized on a case-by-case basis unless specifically prohibited. Routes would be evaluated for sustainability for speed racing activities, both motorized and non-motorized, during travel management planning. *[Revised to allow for flexibility in some areas; all speed events were prohibited in DRMP]*
LS		B	C	D	E	RM-3.1.20: Competitive motorized speed racing would be prohibited in Passage recreation settings (within Back Country settings). *[New; to protect Back Country experience]*
						Paintball Activities
LS		B	C		E	RM-3.1.21: Paintball activities would not be allowed in wilderness areas, ACECs and SRMAs. Paintball activities would be allowed beyond 0.25 miles of any established facility or site, campground, residence, trailhead, road, staging area, special designation and other areas as posted. Paintball activities would be restricted in accordance with any applicable local and state law.
LS				D		RM-3.1.22: Paintball activities would be prohibited.
						Geocaching Activities
LS		B	C	D	E	RM-3.1.23: An SRP would not be required if the geocaching activity is non-commercial, complies with land use decisions and designations, does not award cash prizes, is not publicly advertised, poses minimal risk for damage to public land or related water resource values, and generally requires no monitoring.
LS	SDNM	B	C	D	E	RM-3.1.24: The placement of geocaches is prohibited in archaeological and raptor nesting sites. Virtual caches may be allowed within archaeological sites with prior written authorization from the authorized officer.
LS	SDNM			D		RM-3.1.25: Geocache activities would be prohibited.

Table 2-32
Management Actions and Allowable Uses for Recreation Management

Decision Area		Alternative				Management Actions and Allowable Uses
Goal 4 (Sonoran Desert National Monument): Recreation opportunities and experiences in the Sonoran Desert National Monument (SDNM) are derived from the objects and resource values for which the Monument was established.						
Objective 4.1 (SDNM ERMA): Provide modest facilities, educational opportunities, and visitor information to the extent that 90% of sampled visitors report satisfaction with their recreation experience.						
Management Actions and Allowable Uses for SDNM ERMA (Alternatives B, C and E)						
	SDNM	B	C		E	RM-4.1.1: The Sonoran Desert National Monument ERMA would be designated (486,400 acres) to provide for recreation opportunities and outcomes that derive from the objects for which the National Monument was designated.
Objective 4.1.1 (Juan Bautista de Anza NHT RMZ): To provide recreation and educational opportunities directed at visitors seeking to discover, tour, and learn about the Juan Bautista de Anza National Historic Trail, Arizona history, and natural history of the Sonoran Desert.						
Management Actions and Allowable Uses for Juan Bautista de Anza NHT RMZ (Alternatives B, C and E)						
	SDNM	B	C		E	RM-4.1.1.1: The Juan Bautista de Anza NHT (Anza) RMZ would be designated within the SDNM ERMA (approximately 52,800 acres).
	SDNM	B				RM-4.1.1.2: The physical, social and administrative settings for the Anza RMZ would be managed for 72% Front Country, 28% Back Country and <1% Passage.
	SDNM		C			RM-4.1.1.3: physical, social and administrative settings for the Anza RMZ would be managed for 31% Front Country, 68% Back Country and <1% Passage.
	SDNM				E	RM-4.1.1.4: physical, social and administrative settings for the Anza RMZ would be managed for 45% Front Country, 55% Back Country and <1% Passage.
	SDNM	B	C		E	RM-4.1.1.5: The motor vehicle travel system would consist primarily of primitive roads maintained at levels 1-3 with up to 20% maintained at level 5 to provide two-wheel-drive passenger car access to public use cultural sites, day use areas and camping facilities.
	SDNM	B	C	D	E	RM-4.1.1.6: The zone would be managed mostly for the following VRM Classes (see **Maps 2-3b** and **e**): • Alternative B: Mostly Class III with some Class II near Butterfield Pass; • Alternative C: Mostly Class II with small amount of Class III in high use recreation areas; • Alternative D: Nearly all Class I with small amount of Class II in high use recreation areas; and • Alternative E: Mostly Class II with small portions of Class

Table 2-32
Management Actions and Allowable Uses for Recreation Management

Decision Area		Alternative				Management Actions and Allowable Uses
						III near high use recreation areas. *[DRMP: VRM classes only shown on maps]*
Objective 4.1.2 (Desert Back Country RMZ): To provide recreation opportunities for visitors seeking a remote, undeveloped, back country experience with resource-dependent activities such as hunting, camping, hiking, sightseeing, and four-wheel touring.						
Management Actions and Allowable Uses for Desert Back Country RMZ (Alternatives B, C and E)						
	SDNM	B	C		E	RM-4.1.2.1: The Desert Back Country RMZ would be designated (433,600 acres; see **Maps 2-12b, c** and **e**).
	SDNM	B				RM-4.1.2.2: The physical, social and administrative settings for the Desert Back Country RMZ would be managed for 16% Front Country, 84% Back Country and <1% Passage.
	SDNM		C			RM-4.1.2.3: The physical, social and administrative settings for the Desert Back Country RMZ would be managed for 9% Front Country, 91% Back Country and <1% Passage.
	SDNM				E	RM-4.1.2.4: The physical, social and administrative settings for the Desert Back Country RMZ would be managed for 12% Front Country, 88% Back Country and <1% Passage.
	SDNM	B	C		E	RM-4.1.2.5: The motor vehicle travel system would consist primarily of primitive roads maintained at levels 1-3 with up to 5% maintained at level 5 to provide two-wheel-drive passenger car access to public use cultural sites, day use areas and camping facilities.
	SDNM	B	C	D	E	RM-4.1.2.6: The zone would be managed mostly for the following VRM Classes (see **Maps 2-3b** and **e**): • All wilderness areas within zone are managed for VRM Class I for all alternatives; • Alternative B: Mostly Class II with some Class III in northern section by North Maricopa Wilderness; • Alternative C: Mostly Class II with small amount of Class III along I-8 and Vekol road; • Alternative D: Nearly all Class I with small amount of Class II along Vekol road; and • Alternative E: Mostly Class II with small portions of Class III near I-8 and Vekol road. *[DRMP: VRM classes only shown on maps]*
Objective 4.2 (SDNM General Recreation): Manage for recreation opportunities that derive from the vast, undeveloped, and remote character of the SDNM landscape, providing for the minimum of visitor assistance necessary to ensure visitor health and safety to the extent that 90% of sampled visitors report satisfaction with their recreation experience.						
	SDNM			D		RM-4.2.1: The SDNM would not be designated as a recreation

Table 2-32
Management Actions and Allowable Uses for Recreation Management

Decision Area		Alternative				Management Actions and Allowable Uses
						management area and would be classified as Undesignated Lands (see **Map 2-12d**). The recreation resource would be managed in response to conflicts with other uses of the SDNM. Physical, social, and administrative settings would not be established, and the designated motor vehicle travel system would consist entirely of primitive roads maintained at levels 1 to 3. Maintenance would not be provided for two-wheel-drive passenger car access. *[New to comply with new policy; SDNM originally an SRMA in Alternative D although minor change in emphasis to on-the-ground management]*
General Recreation Management Actions and Allowable Uses Specific to SDNM						
	SDNM	B	C	D	E	RM-4.2.2: The Sand Tanks Mountains area of the SDNM commonly known as "Area A" would be designated as a Special Management Area. Access to the area would continue to require the Barry M. Goldwater Air Force Range entry and public safety permit (for the BLM, these are managed as Individual Special Recreation Permits). (Area A is within the Desert Back Country RMZ in Alternatives B, C and E) *[Revised to correct language; has not previously been designated as a SMA]*
Camping, Parking, Facilities and Other						
	SDNM	B				RM-4.2.3: In the ERMA, dispersed overnight vehicle-based camping (including RVs) would be allowed. Cross country travel to access campsites would be prohibited. Existing vehicle and RV-based low-resource-impact campsites would be inventoried, suitable sites marked, their location made known, and their use by visitors encouraged. *[New]*
	SDNM		C		E	RM-4.2.4: In the Anza RMZ, vehicle-based camping (including RVs) would be allowed at designated sites only. A maximum of 100 sites could be designated over the life of the plan, subject to site-specific analysis and monitoring. Cross country travel to access campsites would be prohibited. Specific sites identified as open and/or available for camping would be periodically reviewed and modified based on public demand and resource protection needs within the SDNM. *[New]*
	SDNM		C		E	RM-4.2.5: In the Desert Back Country RMZ, dispersed vehicle-based camping (including RVs) would be allowed on existing or suitable sites as defined in RM-3.1.9. Cross country travel to access campsites would be prohibited. Over the life of the plan, designated sites would be established as the need arises to ensure the protection of Monument objects and other sensitive resources. *[New]*

Table 2-32
Management Actions and Allowable Uses for Recreation Management

Decision Area		Alternative				Management Actions and Allowable Uses
	SDNM			D		RM-4.2.6: In the Monument, vehicle-based camping (including RVs) would be allowed at designated campsites only. A maximum of 100 campsites could be designated over the life of the plan, subject to site-specific analysis and monitoring. The designated sites would be periodically reviewed and modified based on public demand and resource protection needs within the SDNM. *[New]*
	SDNM	B	C	D	E	RM-4.2.7: Motorized and mechanized use would be limited to areas within designated roads, primitive roads, and trails with reasonable use of the shoulder and immediate roadside allowing for vehicle passage, emergency stopping, or parking unless otherwise posted. [*New to state existing state policy]*
	SDNM	B	C	D	E	RM-4.2.8: Collection of native vegetation as firewood would be prohibited in Front Country and Passage settings. Visitors would be encouraged to bring firewood for campfires from sources outside the Monument. The burning of pallets, crates, and similar materials would be prohibited to prevent the accumulation of nails and staples at campsites.
	SDNM	B	C	D	E	RM-4.2.9: Visitor and management infrastructure would be constructed and maintained to accommodate visitation in balance with protection of Monument objects; would be modest in scope and scale; and would be designed to blend with the dominant features of the landscape.
	SDNM	B	C	D	E	RM-4.2.10: Visitor and management infrastructure would be placed on non-Monument lands, where possible.
	SDNM	B	C	D	E	RM-4.2.11: Activities, vehicles, and group sizes would be limited to designated sites and lengths of stay; types and speeds; and numbers as deemed necessary to protect Monument objects.
	SDNM	B	C	D	E	RM-4.2.12: The designated motorized travel system would consist primarily of existing vehicle routes; however, construction of short segments of new vehicle routes to provide experience opportunities consistent with the outcome objective(s) of management zones would be allowed.
	SDNM	B	C	D	E	RM-4.2.13: Standards for the management of recreation impacts to objects of the SDNM would be established and monitored by the limits of acceptable change (LAC) method.
Recreational Target Shooting *[Changed; Identified as Implementation Decisions in the DRMP]*						
	SDNM	B				RM-4.2.14: Recreational target shooting would be prohibited on approximately 389,989 acres, or 80.2 percent, of the SDNM determined to be unsuitable for this activity due to a prevalence of Monument objects. Recreational target shooting would continue on

Table 2-32
Management Actions and Allowable Uses for Recreation Management

Decision Area		Alternative				Management Actions and Allowable Uses
						approximately 96,411 acres, or 19.8 percent, of the SDNM where Monument objects are not prevalent. Hunting would be allowed in accordance with applicable federal, state and local laws. (See **Appendix G,** Recreational Target Shooting Analysis and **Map 2-13b.)**
	SDNM		C			RM-4.2.15: Recreational target shooting would be prohibited on approximately 485,264 acres, or 99.8 percent, of the SDNM determined to be unsuitable for continued recreational target shooting. Recreational target shooting would continue in five areas totaling 1,136 acres, or 0.2 percent, of the SDNM where it was found to be moderately or highly suitable. Hunting would be allowed in accordance with applicable federal, state and local laws (See **Appendix G**, SDNM Recreational Target Shooting Analysis and **Map 2-13c**).
	SDNM			D		RM-4.2.16: Recreational target shooting would not be allowed in the SDNM however hunting would be allowed in accordance with applicable federal, state and local laws.
	SDNM				E	RM-4.2.17: Recreational target shooting would be allowed on National Monument lands except as specifically restricted in this land use plan or prohibited by federal and state law. This activity may be restricted or prohibited in specific areas where public safety and resource conflicts exist, including the need to protect Monument objects. For the protection of Monument objects, to avoid undue degradation of natural resources, and for the safety of visitors, supplementary rules will be developed to allow enforcement of actions as described in the Administrative Actions following the Recreation Section of this plan, and shooters are encouraged to follow best management practices as outlined in **Appendix H,** Best Management Practices & Standard Operating Procedures.
Special Recreation Permits (SRPs)						
	SDNM	B	C	D	E	RM-4.2.18: At the discretion of the authorized officer, SRPs would be authorized on a case-by-case basis as outlined in 43 CFR 2930.5; in subsequent policies and guidance (See **Appendix H,** Best Management Practices & Standard Operating Procedures); and in the decisions below.
	SDNM	B	C	D	E	RM-4.2.19: Organized groups numbering greater than 25 participants would require a special recreation permit.
	SDNM	B	C	D	E	RM-4.2.20: To assure protection of Monument objects, permits would not be issued for organized groups of more than 200 participants at one site.

Table 2-32
Management Actions and Allowable Uses for Recreation Management

Decision Area		Alternative				Management Actions and Allowable Uses
	SDNM	B	C	D	E	RM-4.2.21: Competitive motor sports would not be allowed in the SDNM.
	SDNM	B	C	D	E	RM-4.2.22: All commercial, other competitive, and vendor activities would be permitted on a case-by-case basis if Monument objects are protected.
	SDNM	B	C	D	E	RM-4.2.23: Certified weed-free feed would be required for all equestrian and stock animal uses authorized under SRPs.
Paintball Activities						
	SDNM	B	C	D	E	RM-4.2.24: Paintball activities would be prohibited.

Administrative Actions

- Coordinate with partners and nearby land owners/managers to develop joint campgrounds on and off public lands to provide for public camping needs.
- Develop partnerships and volunteer opportunities with local clubs, organizations, and communities to maintain and monitor routes, recreation sites, and other areas.
- Develop brochures, maps, and information sheets to disseminate recreation use information to the public
- Coordinate with adjoining landowners; Maricopa, Pima, and Pinal counties; and local communities to enhance visitor and resident safety, improve resource protection, and manage recreation use and access that is compatible with protecting resources.
- Plan, designate, and develop recreation areas, routes, trails, tours, and management strategies through interdisciplinary plans with community and user input. Project plans would establish use indicators and standards for monitoring and evaluation. All development must be compatible with SRMAs, VRM classes, and resource management objectives. Areas may be developed as needed for the following purposes:
    - Protecting resources,
    - Improving visitor safety,
    - Maintaining desired recreational setting and experiences.

Administrative Actions Specific to the SDNM Decision Area

- The BLM will collaborate with the Wildlife and Hunting Heritage Conservation Council, other interested stakeholders, and the public to consider management of recreational target shooting in the future.

- Coordinate with partners and nearby land owners/managers to develop regional shooting ranges outside the SDNM boundaries to support concentrated recreational target-shooting activities.

- Coordinate with interested shooting enthusiasts to develop partnerships for educating the shooting public in appropriate recreational and shooting behaviors and ethics.

- The BLM will work collaboratively with adjoining landowners, local communities, and interested individuals and organizations to incorporate the allowable uses and desired outcomes of this land use plan into comprehensive, activity-level recreation planning for the SDNM. Such activity-level planning and related site-specific projects will be designed to protect Monument objects, resources and visitor safety while providing desired recreation experiences and settings. For example, the BLM may consider recreational target shooting with further travel management planning (e.g. locating roads, trails and facilities that support motorized and non-motorized travel in the SDNM) hiking trails and trailheads, or other visitor facilities. Additional planning will include appropriate NEPA analysis to address potential site specific impacts.

- Educational materials and signage will be developed to inform the public about how to conduct target shooting activities in ways that avoid impacts to natural resources and monument objects. These materials will also educate visitors about the laws concerning littering, unnecessary damage to natural resources, 'Leave No Trace!' principles, and Arizona Cactus and native plant laws as they apply. These materials will be developed and installed or distributed to the public as soon as possible after the RMP is approved.

- Sufficient law enforcement will be dedicated to the National Monument to assure continued illegal conduct will cease and Monument objects will be protected. This will be particularly important after the RMP is approved, and until users become accustomed to the new rules created by this RMP, and until the partnerships described above are able to assist with management of recreational target shooting on the Monument.

- The monument will remain open to recreational target shooting. However, in order to minimize any adverse impacts of recreational shooting, the BLM will, as necessary, prepare supplementary rules, closure or restriction orders, and/or enforcement of the rules of conduct applicable to public lands.

Pursuant to its authority under 43 CFR 8365.1-6 (including appropriate NEPA analysis) the BLM may prepare supplementary rules in order to provide BLM Law Enforcement full authority to enforce certain restrictions on the monument with regard to target shooting. For example, a future supplementary rule could include, although not be limited to, the following:

(a) Only retrievable, freestanding paper targets or targets commercially manufactured for the specific purpose of target shooting are allowed.
(b) Shooting glass objects, electronic items and waste, and items that may contain hazardous materials (i.e. paint, spray paint, gasoline, Freon, propane, etc.) is prohibited.

(c) Depositing or shooting appliances, furniture, electronic gear, toys, trash, household or construction products/refuse, or other debris determined to be garbage, refuse or waste by law enforcement or other authorized officers is prohibited.
(d) Attaching or placing targets on or in front of plants, rocks, or solid objects, signs and public infrastructure is prohibited.
(e) Shooting, injuring, defacing, harming or destroying plants, signs, outbuildings, public property, or other objects on federal lands that are for the public's enjoyment is prohibited.
(f) Shooting across or along any numbered BLM road, primitive road, vehicle route or trail, or within any BLM-designated recreation site, facility, trailhead, parking or staging area is prohibited.
(g) Persons engaged in target shooting shall pick up and remove shell casings, brass, targets, shrapnel, clay pigeon fragments, and all other debris resulting from target shooting activities.
(h) Discharge of a firearm is prohibited from ½ hour after sunset to ½ hour before sunrise.
(i) Using bullets to detonate explosives or an explosive device is prohibited.

- Recreational target shooting sites would be patrolled and monitored. Monitoring would include a range of possibilities from regular periodic visits to take pictures and document visible changes, to repeated measurement of site characteristics including vegetation, soils, barren areas, trash, or other characteristics as appropriate. BLM would collaborate with interested public to develop monitoring standards and methodologies for recreation activities on the Monument that address protection of Monument objects. Monitoring of activities such as recreational target shooting, camping, motorized recreation, visitation in wilderness areas, and others, will be conducted to assure future protection of Monument objects and to inform appropriate changes in Monument management.

- The BLM would also exercise its authority pursuant to 43 C.F.R. 8364.1 (including appropriate NEPA analysis) to close areas or restrict recreational target shooting in order to protect persons, property, and public lands and resources.

- As set forth in the BLM's regulations at 43 CFR Subpart 8365, the rules of conduct applicable to the public lands apply in the SDNM and LS planning areas. Violation of these regulations will result in penalties as set forth in 43 CFR 8360.0-7.

NOTE: As with all decisions in an RMP, implementation of these Administrative Actions will be subject to available funding and staffing.

2.11.5 TRAVEL MANAGEMENT

Comprehensive travel management strives to provide manageable access to public lands while balancing resource protection. The allocation of areas as open, closed or limited to OHV, also described as "off-road vehicles" in 43 CFR 8340-8342, directs the management approach for vehicular travel on public lands. Implementation-level actions such as designating routes as part of a planned network help create a balance between human use and resource protection. Administrative uses of vehicles such as military,

fire, or police actions are expressly defined as not being an off-road vehicle and are therefore exempt from vehicle regulations 43 CFR 8342.

Open-area allocation, where cross-country travel is allowed, is largely unused in central Arizona due to resource constraints presented by efforts to protect Sonoran Desert Tortoise, other wildlife disturbance, and concerns about public safety, such as those presented by abandoned mines. Several policies issued by national and Arizona State Office BLM direct local offices to be sensitive to resources/resource uses that may be affected by route designation. These policies include direction to:

- Complete route designation within 5 years of RMP completion (BLM Land Use Planning Handbook 1600-1).
- Follow archaeological and biological policies to ensure land health and compliance with protection laws. Specifically, IM-2007-030 and state manual supplements address National Historic Preservation Act Section 106 compliance for archaeological survey requirements where the federal action of designating the route network would have an effect on cultural resources.
- Not designate motorized routes within lands managed to protect wilderness characteristics. Specifically, BLM Manual 1626 and WO IM 2011-154 addresses the designation of routes in these areas, indicating that routes would not be designated as roads, trails or primitive roads and would remain as "primitive routes". No maintenance requirements compiled by the BLM's Facilities and Asset Management System (FAMS) for future funding or specific management would occur.
- Implement travel management (BLM Manual 1626) by addressing all routes, motorized and non-motorized, for designation for public or administrative use.
- Designate transportation assets as roads, primitive roads, and trails using the travel-management process (BLM Manual 1626). (See **Appendix U**, Definition of Transportation Asset Type, Functional Class, and Maintenance Intensity).

In this plan, the inventoried routes in the SDNM would be the basis for transportation assets designations as roads, primitive roads, or trails as defined in **Appendix U**. Routes in the Lower Sonoran Decision Area, outside the SDNM, would be designated within 5 years of RMP approval. Currently, all routes in the Lower Sonoran have been evaluated for potential conflict with the goals and objectives of resource programs and for their necessity for public use. Model route networks have been created for Alternatives B and D to assess the possible impacts to the resource programs when the actual route designations are completed. No individual route designations have been enacted, not even for ACECs or special wildlife management areas.

2.11.5.1 Current Temporary Closure on the SDNM

A temporary closure is currently in place in the SDNM to restore damaged lands predominately located north of SR 238 in the vicinity of the Anza NHT. No camping or vehicle use is permitted on 54,817 acres, including 89 miles of existing primitive roads. This temporary closure began on June 13, 2008 and is now under a court ordered settlement agreement. It is to remain in effect until the RMP is approved

and when the damaged lands are restored to the extent possible and when adequate measures and major components of the RMP have been implemented to prevent recurrence of such damage. See **Appendix S** for a description of the process for revising route designations in the planning areas.

2.11.5.2 Existing Management Decisions, Alternative A - No Action for Travel Management

Decisions are listed in chronological order by plan. The following decisions are extracted from the existing land use plans and amendments and are listed in chronological order. Because none of these current land use plans encompass the entire Planning Area, very few of these decisions are being carried forward as common to all alternatives and are restated as new action alternatives where applicable (see **Map 2-14a**).

Goldwater Amendment – Lower Gila South Resource Management Plan (1990)
(Applicable to public lands in the Sand Tanks Mountains "Area A" within the SDNM and lands south of Interstate 8 named the Sentinel Plains)

- Maintain and enforce public access permit requirements for visitation into Area A (Sand Tank Mountains) and other areas as required under Public Law 99-606.
- Designate the Sand Tank Mountains (Area A) and Sentinel Plain areas, and other lands under BLM jurisdiction, as limited off-road vehicle use areas, with vehicle use restricted to designated routes in ACECs and established roads elsewhere.
- Develop transportation plan for Area A.
- Permit no open or unrestricted OHV use areas or competitive OHV use or events.
- Prohibit public off-road travel or cross-country vehicle use in all areas.
- Adopt the US Air Force General Vehicle Operating Rules.

Lower Gila North Management Framework Plan (1983)
(Applicable to public lands in the Saddle Mountain area)

- No new roads would be allowed in the Saddle Mountain block of public land. About 5,500 acres area's center encompassing Saddle Mountain would be established as a recreation and rock hound area if Congress did not designate the lands as wilderness (RR-12).

Lower Gila Resource Management Plan Amendment (2005)
(Applicable to a portion of lands in the LSFO and all lands within the SDNM Planning Areas)

- The Vekol Valley Grassland and Coffee Pot Botanical Area ACECs would be closed to recreational OHV use in accordance with 43 CFR, Part 8340, and Subpart 8342. (Not numbered)
- All public lands described in the MFP and RMP are designated as "limited" except wilderness, which is closed to motor vehicles, and relinquished portions of the BGR, which remain

restricted to entry by permit only. OHV and special-recreation vehicles are limited to existing designated roads and vehicle routes. No unauthorized cross-country vehicle travel is permitted. Creation of unauthorized new trails, as well as widening or extension of existing trails, is not permitted (RR-9).

- Single- or multiple-use OHV and special-recreation vehicle areas, routes, and management strategies would be designated and developed through interdisciplinary plans. Planning shall address limits of acceptable change indicators and standards, conflicts, issues, and solutions to vehicle-management problems (RR-10).

- Roads and trails used as race courses would be evaluated for no action, closure, rehabilitation, or modification and authorization as race courses (RR-11).

- Site-specific inventories would be conducted to delineate existing roads and vehicle routes as requested by the authorized officer (RR-12).

- Approved hiking and equestrian trails are closed to unauthorized motorized use (RR-13).

- Road or area closures would be enacted where OHV or special-recreation vehicle use is determined to be inconsistent with established ROS classifications or such use is causing harm to natural or cultural resources (RR-14).

- Cross-country vehicle travel would be permitted only when specifically authorized to complete a task requiring such use, and only in areas where such use would not cause unnecessary or undue resource impacts (RR-15).

- OHV designations for relinquished portions of the BGR are retained – a permit is required for entry to these lands, and motorized travel is limited to designated, established routes (RR-16).

- Wilderness is closed to mechanized use. The provisions of existing wilderness-management plans and wildlife operations and maintenance plans pertaining to motorized and mechanized administrative uses in wilderness would remain in effect (RR-17).

- Self-contained or vehicle-based camping would be permitted within 50 feet of the centerline of designated or existing routes. Cross-country travel to campsites is not permitted (RR-54).

Phoenix Resource Management Plan (1989)
(Applicable to public lands in the extreme eastern part of the Planning Area)

- The RMP presented both area designations and included language for route designations.

- The 6,800-acre San Tan Mountains Regional Park was retained as a Cooperative Recreation Management Area in association with Maricopa County Parks and Recreation. (Travel management decisions were addressed subsequently in the San Tan Mountains Regional Park Master Plan). This agreement expires in 2013.

SDNM Current Management Guidance (2002)
(Applicable to lands in the Sonoran Desert National Monument)

- For the purpose of protecting Monument objects, all motorized and mechanized vehicle use off road will be prohibited, except for emergency or authorized administrative purposes.

- In order to protect the public during operations at the adjacent BGR and to continue management practices that have resulted in an exceptionally well preserved natural resource, the current procedures for public travel and access to the portion of the Monument depicted as Area A shall remain in full force and effect, except to the extent that the US Air Force agrees to different procedures which the BLM determines are compatible with the protection of the objects identified in this proclamation.

2.11.5.3 Action Alternatives for Travel Management

Program Goals

- Goal 1: All public land would be classified as open, closed or limited per 43 CFR 8342.1.

- Goal 2: Public use, resource management, and regulatory needs are met by development of a travel management plan and implementation of a travel management system.

- Goal 3: Protect Monument objects and purposes from human impacts associated with motorized and non-motorized travel within the SDNM.

- Goal 4: Protect Monument objects and resources, meet conservation and restoration goals, ensure sustainable public use and enjoyment, and satisfy public safety and regulatory requirements by developing a travel management plan and implement a sustainable and compatible travel management system.

- Goal 5: Manage the travel management system for the LSFO area to protect resources and maintain desired recreation experiences.

Allocations Summary (Planning-level)

Table 2-33
Off-Highway Vehicle Area Designations by Alternative

	Alternative (BLM acres)				
	A (No Action)	**B**	**C**	**D**	**E (Proposed RMP)**
Lower Sonoran					
Open	0	40	0	0	0
Closed	100,000	91,100*	91,100	342,700	91,100
Limited to existing roads and trails	830,200	0	0	0	0
Limited to Designated Routes	0	839,060	839,100	587,500	839,100
Total	*930,200*	*930,200*	*930,200*	*930,200*	*930,200*

Table 2-33
Off-Highway Vehicle Area Designations by Alternative

	Alternative (BLM acres)				
	A (No Action)	B	C	D	E (Proposed RMP)
SDNM					
Open	0	0	0	0	0
Closed	161,200	157,700	157,700	313,600	157,700
Limited to existing roads and trails	325,200	0	0	0	0
Limited to Designated Routes	0*	328,700	328,700	172,800	328,700
Total	*486,400*	*486,400*	*486,400*	*486,400*	*486,400*

* The amount of closed lands are less in B, C, and E alternatives than in alternative A because the Vekol ACEC, which is currently closed to motorized use, is not proposed to be carried forward, thereby adding the total of lands in the limited classification category.

The closures in Alternatives B, C, and E represent designated Wilderness acreage. Alternative D acreage includes designated Wilderness and lands managed to protect wilderness characteristics.

Allocations Summary for the SDNM (Implementation-Level)

Table 2-34, Route Designations in the SDNM by Alternative, describes proposed route designations in the SDNM.

Table 2-34
Route Designations in the SDNM by Alternative

	Alternative (miles)				
	A (No Action)	B	C	D	E (Proposed RMP)
Total Route Inventory	623.7	631.7	623.7	623.7	631.7
Total Proposed Route System[1]	617.1	559.6	446.8	253.3	410.9
Road Closures[2]	6.6	72.0	176.8	370.3	220.4
Road Closure Percentage[3]	1.0%	11.4%	28.3%	59.4%	35%
Current Asset Type					
Road - Maintained	17.7	32.6	24.6	24.6	32.6
Open	17.7	24.2	24.2	24.2	24.2
Limited to Admin Use Only	0	0.4	0.4	0.4	0.4
Closed	0	0	0	0	0
New	0	8.0	0	0	8.0
Primitive Road - Unmaintained	580.4	570.2	570.2	570.2	570.2
Open	573.8	494.4	356.4	200.2	323.8
Seasonally Limited (Closed April 15 to Aug. 31)	0	0	0	0	26.0
Seasonally Limited (Closed Feb. 1 to Sept. 15)	0	0	37.3	0	0
Limited to vehicles 50" wide or less	0	3.9	0	0	0

Table 2-34
Route Designations in the SDNM by Alternative

	Alternative (miles)				
	A (No Action)	B	C	D	E (Proposed RMP)
Limited to Non-Motorized Use[4]	0	3.2	8.4	12.2	8.3
Limited to Admin Use Only	0	0	17.3	36.9	7.8
Closed	6.6	68.4	150.7	320.8	204.3
Trail	25.6	28.9	28.9	28.9	28.9
Open to non-motorized/ mechanized travel	0	3.3	3.3	3.3	3.3
Open to non-motorized/non-mechanized travel (wilderness trails)	25.6	25.6	25.6	25.6	25.6

[1]Total Proposed Route System (Miles) equals the sum of open roads, primitive roads, trails (including those limited by season, width, and non-motorized use), and new roads. The total excludes roads and primitive roads limited to administrative use. See **Maps 2–15a, 2–15b, 2–15c, 2–15d, and 2–15e**.

[2] Road Closures (Miles) equals the sum of closed roads and primitive roads, roads and primitive roads limited to administrative use, and primitive roads limited to non-motorized use.

[3] Road Closure Percentage equals the miles of road closure divided by the total route inventory (631.5 miles). Note: Primitive roads limited to non-motorized use are included here because no vehicular use would be permitted.

[4] Applies to the Anza NHT, where bicycles and handcarts would be allowed, but not motor vehicles.

NOTE: Large format (36"x36") maps showing the proposed roads, primitive roads, and trails by route number are available for viewing on the PRMP/FEIS CDs, or on the BLM website at www.blm.gov/az/st/en/prog/planning/son_des.html.

Management Actions and Allowable Uses

Table 2-35, Management Actions and Allowable Uses for Travel Management, describes management and allowable uses for travel management. **Table 2-36**, Model of Potential Maintenance Level Assignments for Each Alternative, describes potential maintenance level assignments for each alternative.

Table 2-35
Management Actions and Allowable Uses for Travel Management

Decision Area	Alternative	Management Actions and Allowable Uses
Goal 1: All public land should be classified as open, closed or limited per 43 CFR 8342.1.		
Objective 1.1: Manage areas to sustain experiences of unstructured travel throughout the life of the plan using the OHV area allocation open.		
LS	B	TM-1.1.1:40 acres would be designated as an open motorized and mechanized vehicle-use area in the Ajo SRMA (T12S R6W Sec4; **Map 2-14b**). Within this area, vehicles would not be restricted to vehicle routes. The area would be signed and fenced. Local partners would be sought to monitor use, provide on-site management, and educate users in environmental stewardship.

Table 2-35
Management Actions and Allowable Uses for Travel Management

Decision Area		Alternative				Management Actions and Allowable Uses
LS		B				TM-1.1.2: Within the 40-acre open area described under TM-1.1.1, campsite access would be allowed by any travel mode to any location
LS			C	D	E	TM-1.1.3 No areas would be allocated for open motorized vehicle use.
Objective 1.2: Manage areas for resource protection, conservation, restoration, and public safety using the OHV area allocation closed.						
LS		B	C		E	TM-1.2.1: Approximately 91,100 acres would be closed to motorized use (designated wilderness).
LS				D		TM-1.2.2: Approximately 313,600 acres would be closed to motorized use. These areas would include designated wilderness areas, and lands managed to protect wilderness characteristics..
LS	SDNM	B	C	D	E	TM-1.2.3: Camping would be allowed in closed areas when accessed by non-motorized, non-mechanized means.
LS	SDNM	B	C	D	E	TM-1.2.4: The use of wheeled game carriers would be prohibited in wilderness areas. Elsewhere, non-motorized, hand-powered, wheeled game carriers would be permitted to travel cross-country for the purpose of retrieving downed game. Retrieval of downed game by cross-country motor vehicle use is prohibited.
Objective 1.3: Manage areas by structuring travel for visitor use and enjoyment, resource protection, conservation, and restoration using the OHV area allocation limited over the lifetime of the plan.						
LS		B				TM-1.3.1: Approximately 839,060 acres would be limited to existing roads and trails (based on current BLM route inventories) until such time as route designations are completed. When this is completed, travel would be restricted to designated roads, primitive roads, and trails. Non-motorized vehicles (e.g., bicycles, hang gliders, other devices for conveyance and stock drawn carts/wagons) would be limited to designated roads, primitive roads, and trails.
LS			C	D	E	TM-1.3.2: The 40-acre parcel in T12S, R6W, Sec.4 used for motocross riding would be managed the same as the surrounding area where motorized and mechanized vehicles would be restricted to designated routes and maintain the "motocross experience" area. Local partners would be obtained to monitor use and provide training in environmental stewardship to users of the area and provide on-site management.
	SDNM		C		E	TM-1.3.3: Routes within washes would be closed from April 15-August 31 during the travel management route designation process to address the forage, shelter, breeding, and thermal cover protection provided by washes as a component of wildlife habitat. In Alternative B, this management action would apply to routes 8008H, 8013, 8016B, 8017, 8018, 8019, and 8026B. In Alternative E, this management action would apply to routes 8013, 8018, and 8019.
LS			C		E	TM-1.3.4: Approximately 839,060 acres would be limited to existing roads and trails (based on current BLM route inventories) until such

Table 2-35
Management Actions and Allowable Uses for Travel Management

Decision Area		Alternative				Management Actions and Allowable Uses
						time as route designations are completed. When this is completed, travel would be restricted to designated roads, primitive roads and trails. Non-motorized vehicles (e.g., bicycles, hang gliders, other devices for conveyance and stock drawn carts/wagons) would be limited to designated roads, primitive roads and trails.
LS		B	C		E	TM-1.3.5: One-time travel off of designated routes may be approved with written authorization from the authorized officer to access sick or injured livestock. Use of vehicles for livestock herding in a cross-country manner is prohibited.
LS		B	C	D	E	TM-1.3.6: The use of motorized or mechanized vehicles off designated routes would be prohibited in OHV areas designated as limited to designated routes, closed for motorized vehicles, and in all travel-management areas designated for non-motorized vehicles except as noted below: • Per Arizona BLM policy, motorized vehicles would be allowed to pull off 100 feet on either side of the centerline of a designated route for vehicle passing, emergency stopping parking or camping as long as soils, drainages, and woody vegetation are not damaged. This use shall be monitored on a continuing basis. If monitoring results show effects that exceed limits of acceptable change, motorized vehicles would not be allowed to pull off a designated route 100 feet on either side of the centerline. • Outside of wilderness, hand-powered, non-motorized wheeled game carriers would be allowed to travel cross-country for the purpose of retrieving downed game. • Motorized cross-country use would only be permitted with written authorization from the BLM authorized officer, or when necessary for emergency situations involving public health and safety.
LS		B	C	D	E	TM-1.3.7: Retrieval of downed game by cross-country motor vehicle use is prohibited.
LS		B	C	D	E	TM-1.3.8: Travel within the Painted Rock camping closure area (see **Map 2-12a**) is limited to signed open and/or designated routes.
Objective 1.4: Secure legal access to public lands at all designated entry points to public land within ten years of completing route designations.						
LS		B	C	D	E	TM-1.4.1: The BLM would enter into access agreements for long-term legal access.
LS		B	C	D	E	TM-1.4.2: The BLM would acquire easements or real property from private land owners or other jurisdictions as necessary to maintain or reestablish access to public lands. The locations are identified in **Appendix BB** and would be prioritized to maintain the preliminary or

Table 2-35
Management Actions and Allowable Uses for Travel Management

Decision Area		Alternative				Management Actions and Allowable Uses
						existing road and trail network.
LS		B	C	D	E	TM-1.4.3: Access to public lands along urban interface areas would be limited to designated legal access routes as established by travel management planning.
Goal 2: Public use, resource management, and regulatory needs are met by development of a Travel Management Plan and implementation of a travel management system.						
Objective 2.1: Complete the designation of roads, primitive roads, and trails within 5 years of plan completion.						
LS		B	C	D	E	TM-2.1.1: Develop Travel Management Plans for specific travel management areas to accomplish final route designations within five years of completion of the Approved RMP. In general, Travel Management Area boundaries would correspond to the boundaries set forth in this plan.
LS		B	C	D	E	TM-2.1.2: A standardized method for identifying uses and impacts to routes and areas would be employed following established selection criteria and proposing route designations. An example of such a process is shown in **Appendix S,** Route Evaluation Methodology and Impact Analysis.
LS		B	C	D	E	TM-2.1.3: Criteria to guide route designations would be established based on management actions for recreation wildlife, vegetation, cultural resources, lands/realty, mining, and other resources or resource uses as appropriate. (See administrative actions section for a listing of criteria).
LS		B	C	D	E	TM-2.1.4: Mitigation strategies would be identified and used to reduce the impacts of travel routes and their use on the resources. Examples of typical actions are shown in **Appendix T,** Route Mitigations.
LS		B	C	D	E	TM-2.1.5: Route-designation decisions would be incorporated into planning for all resources or resource uses and would be based on the route networks portrayed on final designation maps and written guidance contained within travel management plans. This would include the management action from WL-1.1.4.
LS		B	C	D	E	TM-2.1.6: New permanent or temporary routes may be added to route networks to address changed conditions or demands (including access to areas for minerals extraction, rights-of-way, recreation developments, etc.) following NEPA-Compliant analyses. In addition to Standard Operating Procedures outlined in **Appendix H**, priority for approval of new routes would include: 1. Access replacing existing routes and involving lower environmental impact, 2. Selection of a low environmental impact route from among alternatives considered, 3. Routes to be added to the network of designated routes, and 4. Routes needed temporarily that would require rehabilitation after the need for access has ended.

Table 2-35
Management Actions and Allowable Uses for Travel Management

<table>
<tr><th colspan="2">Decision Area</th><th colspan="4">Alternative</th><th>Management Actions and Allowable Uses</th></tr>
<tr><td>LS</td><td></td><td>B</td><td>C</td><td>D</td><td>E</td><td>TM-2.1.7: Ensure recreation objectives and settings prescribed in the Recreation section and the RAC Guidelines for OHV Management would be met when designating routes within TMAs.</td></tr>
<tr><td>LS</td><td></td><td>B</td><td>C</td><td>D</td><td>E</td><td>TM-2.1.8: Casual and authorized recreational uses of the travel system would be addressed when authorizing actions. Where major arteries in the recreational route network would be truncated or considerably altered by the authorization, mitigation would be required</td></tr>
<tr><td>LS</td><td></td><td>B</td><td>C</td><td>D</td><td>E</td><td>TM-2.1.9: Develop long distance roads, primitive roads, or trails that connect communities, adjacent lands, and areas of interests.</td></tr>
<tr><td>LS</td><td></td><td>B</td><td>C</td><td>D</td><td>E</td><td>TM-2.1.10: Complete travel planning as follows:
FY 2013/2014 – Ajo and Saddle Mountain TMAs
FY 2014/2015 Buckeye Hills and Rainbow Valley TMAs
FY 2015/2016 Gila Bend Mountains TMA
FY 2017/2018 East Valley and Globe/Miami TMAs</td></tr>
<tr><td colspan="7">Objective 2.2: Delineate areas where community interests or a manageable geographic boundary exists and address landscape issues in a programmatic manner.</td></tr>
<tr><td>LS</td><td>SDNM</td><td>B</td><td>C</td><td>D</td><td>E</td><td>TM-2.2.1: The following travel management areas (TMAs) would be created. (See Maps 2-14b-e.)
<table><tr><th colspan="3">Travel Management Areas (Acres)</th></tr><tr><th>TMA</th><th>Total</th><th>BLM</th></tr><tr><td>Ajo</td><td>190,200</td><td>177,800</td></tr><tr><td>SDNM</td><td>496,400</td><td>486,400</td></tr><tr><td>Gila Bend Mountains</td><td>744,900</td><td>517,500</td></tr><tr><td>Globe/Miami</td><td>119,600</td><td>5,600</td></tr><tr><td>Rainbow Valley</td><td>349,100</td><td>108,400</td></tr><tr><td>Buckeye Hills</td><td>219,700</td><td>55,500</td></tr><tr><td>East Valley</td><td>497,700</td><td>15,000</td></tr><tr><td>Saddle Mountain</td><td>184,100</td><td>50,400</td></tr></table></td></tr>
<tr><td colspan="7">Goal 3: Protect Monument objects and purposes from human impacts associated with motorized and non-motorized travel within the SDNM.</td></tr>
<tr><td colspan="7">Objective 3.1: Close areas of the SDNM to motorized-vehicle activities for the purposes of protecting Monument objects and resources; and meeting associated conservation, restoration, and public safety goals over the lifetime of the plan.</td></tr>
<tr><td></td><td>SDNM</td><td>B</td><td>C</td><td></td><td>E</td><td>TM-3.1.1: Approximately 157,700 acres of designated wilderness would remain closed to motorized use.</td></tr>
<tr><td></td><td>SDNM</td><td></td><td></td><td>D</td><td></td><td>TM-3.1.2: Approximately 310,700 acres would be closed to motorized</td></tr>
</table>

Table 2-35
Management Actions and Allowable Uses for Travel Management

Decision Area		Alternative				Management Actions and Allowable Uses
						use. These acres include designated wilderness and lands managed to protect wilderness characteristics.
Objective 3.2: Limit motorized vehicle use in certain SDNM areas to designated roads, primitive roads to minimize impacts to Monument objects; other resources; and to reduce or eliminate resource, visitor, and behavior-based conflicts over the lifetime of the plan.						
	SDNM	B	C		E	TM-3.2.1: Approximately 328,700 acres would be limited to designated roads, primitive roads and trails. All other vehicles (e.g., bicycles, stock drawn carts/wagons, and other devices for conveyance) would be limited to primitive roads designated as open for such use.
	SDNM			D		TM-3.2.2: Same as Alternative C except motorized travel and bicycle use in acres would be limited to designated roads, primitive roads.
	SDNM	B	C	D	E	TM-3.2.3: Motorized vehicles would be required to be "street legal" (licensed and registered), display a valid Arizona OHV sticker, be compliant with current or future state, county or local licensing, certification or authorization requirements, and be operated by licensed drivers.
	SDNM			D		TM-3.2.4: The following vehicle types: all-terrain (ATV, UTV and quad), motorcycle (dirt and dual-sport), and vehicles weighing less than 1,800 pounds, would be prohibited on primitive roads.
	SDNM	B	C	D	E	TM-3.2.5: Restrictions from other resource section management actions would apply: • WL-1.1.4
Goal 4: Provide a comprehensive travel management system that supports protection of Monument objects, facilitates resource protection, and provides sustainable public use and enjoyment.						
Objective 4.1: Pursue and secure legal access when possible over the lifetime of the plan.						
	SDNM	B	C	D	E	TM-4.1.1: Legal or permissive access would be secured to all identified access points to designated routes within 10 years of final route designation. Identified access points including legal descriptions may be found in **Appendix BB**.
	SDNM	B	C	D	E	TM-4.1.2: Access to public lands would be restricted along urban interface as needed to protect Monument values and objects or at the request of adjoining land owners.
Objective 4.2: Assign BLM road maintenance intensity levels on designated roads as a part of travel management planning and make adjustments as needed as maintenance of the travel management plans.						
	SDNM	B	C	D	E	TM-4.2.1: Roads and primitive roads could be redeveloped to meet either Level 5 maintenance intensity (the highest BLM standard) or the Level 3 standard as necessary to satisfy **Objective 4.2** and prescriptions in **TM-4.2.2** or **TM-4.2.3**. Level 1 roads are primitive and would not be maintained except to correct safety hazards or resource problems such as erosion.
	SDNM	B	C			TM-4.2.2: Up to 20 percent of designated Monument roads/primitive

Table 2-35
Management Actions and Allowable Uses for Travel Management

Decision Area		Alternative				Management Actions and Allowable Uses
						roads could be assigned to Level 5 maintenance standards (passenger-car access) or Level 3 maintenance standards. Level 5 and 3 maintenance level assignments would be adjusted or assigned as necessary to ensure that motorized travel routes: • Are compatible with protection of Monument objects and resources; • Achieve the Monument's desired social and managerial recreation settings; • Meet established limits of acceptable change indicators and standards; • Satisfy biological and ecological land health standards; • Protect or mitigate effects on cultural resources; • Ensure visitor and agency staff safety; • Resolve erosion, air quality, or resource damage issues; • Offer sustainable access to popular Monument features, as well as recreation and national historic trail attractions; and • Meet water quality standards for influenced drainages and watersheds. See **Table 2-35**, Model of Potential Maintenance Level Assignments for Each Alternative, for a model of potential maintenance level assignments for each alternative.
	SDNM			D	E	TM-4.2.3: Up to 10 percent of designated Monument roads/primitive roads could be assigned to Level 5 maintenance standards (passenger-car access) or Level 3 maintenance standards. Level 5 and 3 maintenance level assignments would be adjusted or assigned as necessary to ensure that motorized travel routes: • Are compatible with protection of Monument objects and resources; • Achieve the Monument's desired social and managerial recreation settings; • Meet established limits of acceptable change indicators and standards; • Satisfy biological and ecological land health standards; • Protect or mitigate effects on cultural resources; • Ensure visitor and agency staff safety; • Resolve erosion, air quality, or resource damage issues; • Offer sustainable access to popular Monument features, as well as recreation and national historic trail attractions; and • Meet water quality standards for influenced drainages and watersheds. See **Table 2-35,** Model of Potential Maintenance Level Assignments for Each Alternative.

Table 2-35
Management Actions and Allowable Uses for Travel Management

Decision Area		Alternative				Management Actions and Allowable Uses
	SDNM	B	C		E	TM-4.2.4: One-time travel off of designated routes may be approved with authorization from the authorized officer to access sick or injured livestock. Use of vehicles for livestock herding is prohibited.
Objective 4.3: Minimize the effects of the route system on the Monument and its objects and implement mitigation strategies as needed to resolve conflicts.						
	SDNM	B	C	D	E	TM-4.3.1: Mitigation strategies would be identified and required to reduce the effects of routes and their use. Examples of typical actions are shown in **Appendix S,** Route Evaluation Methodology and Impact Analysis.
Goal 5: Manage the travel management system to protect resources and maintain desired recreation experiences.						
Objective 5.1: Determine the compatibility of emerging issues such as new vehicle technology or new or proposed recreation uses or use areas such as technical vehicle-use sites or motorcycle-observed trials. Proposals for using new recreation technologies or activities would be evaluated and a decision made to proceed or deny the use or proposal as funding and staffing allows.						
LS		B	C	D	E	TM-5.1.1: Technical vehicle use sites or other specialized recreation sites would be delineated through activity level planning.
LS		B	C	D	E	TM-5.1.2: Technical vehicle use sites would be evaluated and established on a case-by-case basis with community and user input. Sites would be developed as needed to ensure visitor safety, meet enthusiast needs, improve recreation experiences, and increasing recreation opportunities. Site plans would establish limits of acceptable change indicators and standards. All sites would be compatible with social and managerial recreation settings and VRM standards; would satisfy biological and ecological land health standards; would protect or mitigate cultural resources; and would meet water quality standards for influenced drainages and watersheds.
LS	SDNM	B	C	D	E	TM-5.1.3: Travel management assets or their maintenance intensity shall not be changed without NEPA and a travel plan amendment. Road maintenance activities can only be completed with approval of the authorized BLM officer. This includes all permitted activities that use designated routes such as ranching, mining and other authorized activities.
LS	SDNM	B	C	D	E	TM-5.1.4: Adjustments to the designated route network may be requested by the public following the process set forth in **Appendix S**, Route Evaluation Methodology and Impacts Analysis.
LS	SDNM	B	C	D	E	TM-5.1.5: Areas affected by legal off-route travel, such as law enforcement-pursuit and wildfire suppression, would be restored within one year of the incident.
LS		B	C	D	E	TM-5.1.6: Establish the travel system as an asset and consider its values when authorizing land use actions and other activities. All land use

Table 2-35
Management Actions and Allowable Uses for Travel Management

Decision Area	Alternative					Management Actions and Allowable Uses
						authorizations, permits, and other activities would be required to use designated routes. The BLM would authorize new roads or cross-country use for land use authorizations only as a last resort.
Objective 5.2: All travel modes and uses on the SDNM travel system must be consistent with the travel management plan and Monument objects and resources. The BLM shall respond promptly to proposals for additional travel modes and uses (as funding and staffing allows).						
	SDNM	B	C	D	E	TM-5.2.1: New travel technologies and uses would be evaluated on a case-by-case basis with community and user input. Compatibility evaluations would be developed as needed to ensure protection of Monument objects and resources, provide compatible and sustainable experiences based on Monument Objects and resources, and visitor safety. The compatibility analysis would establish limits of acceptable change indicators and standards. All uses would be compatible with protection of Monument objects, the Monument's social and managerial recreation settings and VRM standards; the Monuments biological and ecological land health standards; protection of cultural resources; and water quality standards for influenced drainages and watersheds.
Goal 6: Protect Monument objects and resources, meet conservation and restoration goals, ensure sustainable public use and enjoyment, and satisfy public safety and regulatory requirements by developing a travel management plan and implementing a sustainable and compatible travel management system.						
Objective 6.1: Plan and implement a networked system of roads, primitive roads and trails within 1 year of plan completion.						
	SDNM	B	C	D	E	TM-6.1.1: The use of motorized or mechanized vehicles off designated roads or primitive roads would be prohibited with the following management restrictions: • Motorized and mechanized use would be limited to areas within the designated route with reasonable use of the shoulder and immediate roadside allowing for vehicle passage, emergency stopping, or parking unless otherwise posted Non-motorized, hand-powered wheeled game carriers would be permitted to travel cross-country (except in wilderness areas) for the purpose of retrieving downed game on public lands.
	SDNM	B	C	D	E	TM-6.1.2: A travel management plan would be developed and implemented upon plan approval, including designating roads, primitive roads and trails that are open, closed or limited by use type or time, and allocating maintenance class.
Travel Management Implementation Actions for the SDNM						
	SDNM	B	C	D	E	TM-6.1.3: A network of routes would be designated upon plan approval to include roads, primitive roads and trails that are open, closed or limited in their use as specified **Table 2-33**.

Table 2-35
Management Actions and Allowable Uses for Travel Management

Decision Area		Alternative				Management Actions and Allowable Uses
						For route locations, refer to the route maps on the CD, web site, or hard copies by request to the LSFO.
LS	SDNM	B	C	D	E	TM-6.1.4: Develop legal public access along Interstate 8, in cooperation with ADOT and FHWA, to designated roads and primitive roads in SDNM.

Table 2-36
Model of Potential Maintenance Level Assignments for Each Alternative

Maintenance Intensity Levels	A		B		C		D		E	
	5 or 3	1	5 or 3	1	5 or 3	1	5 or 3	1	5 or 3	1
Road miles maintained	18	0	106	0	81	0	27	0	41	0
Primitive road miles (not maintained)	0	578	0	423	0	355	0	246	0	363
Total road miles available for travel*	568		531		403		235		404	

* From **Table 2-33**, the Total Proposed Route minus Trail Miles equals the Total Road Miles available for Travel.

Administrative Actions

General

- The development of standards for monitoring the route system would be directed by compliance with laws, regulations, and travel management plan goals and objectives
- Agreements with local interest groups and communities would be established for long-term route maintenance and community support.
- Participate in regional or municipal transportation planning and promote appropriate legal access consistent with the land use plan.
- Establish a framework for reviewing the travel management program and make necessary changes to meet land health standards, area management, and recreation goals.
- Casual and authorized recreational uses of the travel system would be addressed when authorizing actions. Where major arteries in the recreational route network would be truncated or considerably altered by the authorization, mitigation would be required
- Consider adjustments to route designations, including adding, removing, and redeveloping routes and access, when necessary. Criteria for route designation adjustments can be found

in **Appendix S**, Route Evaluation Methodology and Impact Analysis and **Appendix H**, Best Management Practices and Standard Operating Procedures, Travel Management subsection.

- Develop brochures, maps, access guides, and information sheets to disseminate targeted recreation opportunity information to the public.
- Develop and maintain a monitoring system to support implementation and management of motorized and non-motorized use of the public lands, including routes and access points.
- Create an acquisition plan including a list of parcels where legal access needs to be secured.
- Implement route-mitigation techniques when designing and implementing the route system.
- Identify and manage for a wide range of issues in travel management areas.
- In areas where access permits are required, coordinate with other agencies that issue use permits on public lands to provide reasonable access for their permitted activities. For example, the BLM and AGFD would coordinate hunter access into permit-required access areas for hunters with valid hunting licenses for the affected hunting unit.
- Promote the establishment of additional areas open to motorized and/or non-motorized vehicle use outside of public lands if regional public demand for off-road motorized and/or non-motorized vehicle recreation would support such activities.
- Support the development and implementation of regional or municipal transportation plans that protect or promote appropriate legal access to public lands and are consistent with resource and use objectives.
- Establish relationships and enter into agreements with local OHV groups and other groups and communities for long-term route maintenance and community support.
- Respect valid existing rights.

Specific to the Lower Sonoran Decision Area

- Publish a map of the approved travel system depicting the route designation and associated access points for public access.
- Sign routes and associated access points as needed to identify public lands and disseminate information.
- Partner with neighboring BLM offices, counties, municipalities and user groups to identify, plan, implement, and maintain long-distance motorized routes and non-motorized trail systems.
- Apply route-mitigation techniques when designing and implementing the route system.

- Assess the level of success in managing designated access points and unauthorized routes at least bi-yearly.
- Conduct condition assessments of designated and unauthorized routes and associated access points relative to the standards prescribed by the travel management plan.
- Identify use patterns, including the types, frequency, intensity, and distribution of authorized and unauthorized travel and transportation activities.
- Improve visitor compliance with outdoor ethics through education.
- Identify public-safety issues related to the travel system.
- Publish policies and procedures for travel-system administration.
- As part of the travel management implementation, develop fences, signs, gates, and other methods to manage access, address public safety concerns, and eliminate use of vehicles off of designated routes.

Specific to the SDNM Decision Area

- Support development and implementation of regional and municipal transportation plans that protect or provide appropriate legal access to the SDNM and protect its resources and management objectives.
- Where needed, the SDNM boundary should be identified with appropriate fencing, signs, and other structures.
- Portions of the SDNM may be closed as needed to accommodate safety, climate, resource protection, specific projects, or staffing constraints.

2.12 SPECIAL DESIGNATIONS

2.12.1 AREAS OF CRITICAL ENVIRONMENTAL CONCERN (ACEC)

Areas of critical environmental concern (ACECs) are sections of public land that require special management to prevent irreparable damage to important historic, cultural, or scenic values; wildlife resources; other natural systems or processes; and to protect life and provide safety from natural hazards.

Authority to designate ACECs is provided for in FLPMA and in Title 43 CFR, Part 1610.7. Not only must ACECs require special management; they must meet relevance and importance criteria. In accordance with FLPMA, to qualify as ACECs areas must have substantial significance and value, including qualities "of more than local significance and special worth, consequence, meaning, distinctiveness, or cause for concern." These values are considered the highest and best use for those lands, and protecting them takes precedence over the BLM's mandate to manage public lands for multiple uses.

According to law, areas with the potential for designation and associated management protection actions must be identified during the land use planning process. In the Proposed RMP (Alternative E), this plan proposes to designate four new ACECs in the Lower Sonoran, carry forward one existing ACEC, and no longer designate the existing Vekol Valley Grasslands ACEC. Evaluations for all ACECs can be found in **Appendix V**, Areas of Critical Environmental Concern (ACEC) Evaluations.

2.12.1.1 Existing Management Decisions, Alternative A (No Action)

Decisions are listed in chronological order by plan. The following decisions are extracted from the existing land use plans and amendments and are listed in chronological order. (See Map 2-16a) Because none of these current land use plans encompass the current Planning Area, very few of these decisions are being carried forward. Instead they are restated as new action alternatives where applicable.

Lower Gila South Resource Management Plan (1989)

- Closes Vekol Valley ACEC to recreational off-road vehicle use in accordance with 43 CFR, Part 8340, and Subpart 8342. (RR-08)
- Closes the Coffee Pot ACEC to recreational off-road vehicle use in accordance with 43 CFR, Part 8340, and Subpart 8342. (RR-09)
- Requires the BLM to place special emphasis on the protection of four significant botanical areas important in studying the original plant communities in the Sonoran Desert: Eagletail Mountains, Coffee Pot Botanical, Table Top area, and Sierra Estrella area (SM-17).
- Does not designate the Sierra Estrella area as an ACEC (SM-18).
- Does not designate Table Top area as an ACEC (SM-19).
- Designates two areas within the Lower Gila South Planning Area boundaries as ACECs: Vekol Valley grassland and the Coffee Pot Botanical area. The purpose is to provide more intensive management and protection for existing and potential resource values. Management plans, which are to identify specific resource management practices, are required for each ACEC (SM-20).

Lower Gila South Resource Management Plan (Goldwater Amendment) (1990) *(Applies to the three relinquished Sentinel Plain, Sand Tank Mountains, and Ajo Airport parcels.)*

- Prohibits woodcutting and collection of dead and down wood in ACECs. (no number)

2.12.1.2 Action Alternatives for ACECs

Program Goals

- Goal 1: Provide increased protection for resources of substantial significance and value, which include specific cultural resources, outstanding and scenic features, and priority and special status species while continuing to provide the public access to enjoy these resources.

Allocations Summary

Table 2-37, ACEC Acres Based on Alternative, describes ACEC acreage by alternative.

Table 2-37
ACEC Acres Based on Alternative

ACEC Name	Alternative (BLM Acres)				
	A (No Action)	B	C	D	E (Proposed RMP)
Coffeepot Botanical	8,900	8,900	Not Designated		8,900
Coffeepot-Batamote	Not Designated		63,300	77,600	Not Designated
Cuerda de Lena	Not Designated			60,900	58,500
Lower Gila Terraces and Historic Trails	Not Designated			82,500	82,500
Saddle Mountain	Not Designated			48,500	48,500
Vekol Valley Grasslands	3,500	No longer designate as ACEC			

Management Actions for ACECs

Table 2-38, Management Actions and Allowable Uses for ACECs, describes management actions and allowable uses for ACECs.

Table 2-38
Management Actions and Allowable Uses for ACECs

Decision Area		Alternative				Management Actions
Goal 1: Provide increased protection for resources of substantial significance and value, which include specific cultural resources, outstanding and scenic features, and priority and special status species while continuing to provide the public access to enjoy these resources.						
Common to All Unless Otherwise Noted in Specific ACEC Section						
LS		B	C	D	E	AC-1.1.1: All public lands within the ACEC would be retained and private and state lands would be acquired as parcels become available and funds allow, on a willing seller, willing buyer basis.
LS		B	C	D	E	AC-1.1.2: Core roadless areas would be maintained for wildlife while new facilities, including motorized routes, non-motorized trails, and trailheads that concentrate or increase use in these areas would be avoided.
LS		B	C	D	E	AC-1.1.3: Maintaining and managing the biological, geological, and cultural resources would be emphasized and given priority.
LS		B	C	D	E	AC-1.1.4: Areas would be managed to protect the natural landscape and visual values that provide the visitor with an opportunity to appreciate the character of the area.

Table 2-38
Management Actions and Allowable Uses for ACECs

Decision Area		Alternative				Management Actions
LS		B	C	D	E	AC-1.1.5: Opportunities for recreation would be provided with an emphasis on undeveloped, dispersed recreation, where it is compatible with protecting the natural and cultural resources.
LS		B	C	D	E	AC-1.1.6: The visual and scenic values of the area would be managed to maintain the natural character, including designating appropriate visual resource management (VRM) classes.
LS		B	C	D	E	AC-1.1.7: Treatments of invasive species would be allowed within the ACECs if they can be designed to have a minor or negligible impact to resource values within the ACEC.
LS				D	E	AC-1.1.8: The construction of non-motorized trails would be permitted if they are consistent with ACEC and resource objectives and do not conflict with botanical resources or wildlife and threatened and endangered species management.
LS		B	C			AC-1.1.9: All LUAs, including utility-scale renewable energy development, would be avoided, mitigated, and otherwise managed to be consistent with management objectives. Recreation developments may be allowed if necessary to manage public use or provide for public safety.
LS				D	E	AC-1.1.10: ACECs would be exclusion areas for utility-scale renewable energy development and exploration, and multiuse utility corridors.
LS				D	E	AC-1.1.11: New major linear LUAs would be excluded outside of the corridors. Utilities would be required to be installed underground within the existing multiuse utility corridors to retain the viewshed.
LS				D		AC-1.1.12: ACECs would be closed to all locatable and leasable minerals exploration and development and mineral material disposals including free-use permits. Public lands in the ACECs would be recommended for withdrawal.
LS					E	AC-1.1.13: ACECs would be open to all locatable and leasable minerals exploration and development unless otherwise restricted. (For leasable minerals only, Lower Gila Terraces and Historic Trails ACEC is open with No Surface Occupancy and Cuerda de Lena is closed February 1 to September 15)
LS					E	AC-1.1.14: ACECs would be closed to mineral material disposals, including free use permits, except for the former free use site in the Saddle Mountain ACEC (see AC-1.1.46).
LS		B	C	D	E	AC-1.1.19: The route system would be designed to minimize impacts to the relevance and importance values for which the ACEC was designated. Motorized vehicle routes that conflict with the values described in the Importance and Relevance descriptions would be closed, limited, or mitigated. New route construction would not be allowed except as needed for resource protection, public safety, emergency or other administrative uses as determined by the authorized officer.

Table 2-38
Management Actions and Allowable Uses for ACECs

Decision Area		Alternative				Management Actions
Coffeepot Botanical ACEC						
LS		B			E	AC-1.1.15: The Coffeepot Botanical ACEC designation of approximately 8,900 acres would be retained to protect the outstanding botanical diversity of the native and rare plant communities such as the Acuña cactus (**Map 2-16b**). All management actions (including remaining open to lands and minerals actions) would be the same except the ACEC would not be closed to OHV use.
LS		B			E	AC-1.1.16: Livestock facilities would not be developed where they would increase livestock use within an area of known or newly discovered populations of Acuña Cactus. Livestock facilities could be developed to improve natural resource conditions by improving livestock distribution. Adaptive management and best management practices would be utilized to avoid conflicts with wildlife resources
LS					E	Existing range improvements would remain in place unless the improvement is no longer needed for livestock operations or wildlife water distribution.
Coffeepot-Batamote ACEC						
LS			C			AC-1.1.18: An area of approximately 63,300 acres would be designated as the Coffeepot-Batamote ACEC to protect for outstanding botanical diversity of the native and rare plant communities (including the Acuña cactus); lesser long-nosed bat, cactus ferruginous pygmy-owl and desert bighorn sheep habitat; and other wildlife populations along with unique landscape and scenic features (**Map 2-16c**).
				D		AC-1.1.18: An area of approximately 77,600 acres would be designated as the Coffeepot-Batamote ACEC to protect for outstanding botanical diversity of the native and rare plant communities (including the Acuña cactus); lesser long-nosed bat, cactus ferruginous pygmy-owl and desert bighorn sheep habitat; and other wildlife populations along with unique landscape and scenic features (**Map 2-16d**).
LS			C			AC-1.1.20: Routes within washes would be prohibited.
LS			C			AC-1.1.21: The ACEC would be open to leasable exploration and development but closed to mineral materials disposals including free-use permits.
LS				D		AC-1.1.23: Recreational development would be limited to the minimum required to protect resources and provide for public safety
Cuerda de Lena ACEC						
LS				D	E	AC-1.1.27: Areas of 60,900 and 58,500 acres would be designated as the Cuerda de Lena ACEC in alternatives D and E, respectively. Its purpose would be to protect the endangered Sonoran pronghorn; habitat for other wildlife species, including the cactus ferruginous pygmy-owl; and to protect cultural resources (**Maps 2-16d** and **e**).

Table 2-38
Management Actions and Allowable Uses for ACECs

Decision Area		Alternative				Management Actions
LS				D	E	AC-1.1.28: In addition to the exclusions addressed in the common to all section, the ACEC would be closed to the public for general recreational use during pronghorn fawning between March 15 and July 15 or as determined annually by the Sonoran pronghorn recovery team. Minor non-linear LUAs would also be prohibited unless deemed necessary by the authorized officer. Federal, state and local government employees and permit holders operating within the scope of their authorizations would be exempt from the closure.
LS				D	E	AC-1.1.29: Camping would be limited to dispersed and undeveloped sites.
LS				D	E	AC-1.1.30: Developed recreational sites would be prohibited within the ACEC except for small, non-intrusive-information, and interpretation facilities.
LS				D	E	AC-1.1.31: Tertiary, single-track, and reclaimed vehicle routes that fragment habitat would be closed; however, access would be provided for administrative use and public safety.
LS				D	E	AC-1.1.32: Routes in washes would be prohibited except to provide legal access for law enforcement and other authorized use. New travel routes in washes would be prohibited. New routes would only be considered if deemed necessary for emergency or other authorized administrative uses.
Lower Gila Terraces and Historic Trails ACEC						
LS				D	E	AC-1.1.33: An area of 82,500 acres would be designated as the Lower Gila Terraces and Historic Trails ACEC.
LS				D		AC-1.1.34: Additional public use sites would not be allocated.
LS				D		AC-1.1.35: Scientific research would be permitted only if it is not ground disturbing.
LS				D		AC-1.1.36: Existing developments and disturbed areas that are damaging or incompatible with the trail integrity would be evaluated and removed, rehabilitated or mitigated, or otherwise managed to diminish the overall disturbance area.
LS					E	AC-1.1.37: Public use sites would be allocated if they could be designed to have negligible or minor impacts.
LS					E	AC-1.1.38: The ACEC would remain open to all leasable minerals actions but any lease would contain a No Surface Occupancy stipulation.
LS					E	AC-1.1.39: Portions of the ACEC would be closed to seismic exploration and mineral material disposals. The remaining portion of the ACEC would be open to mineral material disposals however surface disturbance would be minimized where possible through mitigation measures and special stipulations.
LS					E	AC-1.1.40: Selected parcels along the historic trails corridor within the ACEC, would be closed to locatable mineral exploration and development.

Table 2-38
Management Actions and Allowable Uses for ACECs

Decision Area		Alternative				Management Actions
LS					E	AC-1.1.41: Scientific research, including excavation, that enhances our understanding of the cultural resources would be permitted and encouraged if approved research design and qualified researcher by BLM standards.
Saddle Mountain ACEC						
LS				D	E	AC-1.1.42: An area of 48,500 acres would be designated as the Saddle Mountain ACEC.
LS				D	E	AC-1.1.43: Sites containing natural or cultural resources or geological and wildlife resources would be developed for interpretation and environmental education when research opportunities and resource values can be protected.
LS					E	AC-1.1.44: Vehicle-based camping would be limited to existing or designated sites.
LS					E	AC-1.1.45: The ACEC would be open to leasable minerals exploration and development. Surface disturbance would be minimized where possible through mitigation measures and special stipulations.
LS					E	AC-1.1.46: The ACEC would be closed to mineral material disposals with the exception of the former free use permit site (Courthouse Pit; T2N, R7W, Sec. 31). A new permit could be allowed provided the proposed disturbance area remains within the previously authorized area.
Vekol Valley Grasslands ACEC						
LS	SDNM	B	C	D	E	AC-1.1.47: The 3,500-acre Vekol Valley Grasslands ACEC would be no longer designated as an ACEC because Monument designation provides adequate protection for the resources of the grassland.

Administrative Actions

Inventory

- Perform proactive cultural inventories on ACECs, with a special emphasis on the Lower Gila Terraces and Historic Trails ACEC and the Saddle Mountain ACEC and thoroughly document the cultural resources.

Monitoring

- Continue to work with and support the Arizona Site Steward Program to assure adequate monitoring of the sites on the ACECs.

- Implement procedures for systematic monitoring of selected cultural sites within the ACEC's.

Restoration

- Perform mitigation and/or landscape restoration in priority areas of the ACECs, where incompatible activities have altered the natural and cultural landscape and visual settings.

Research

- Complete documentary research and oral histories to gain a better understanding of the cultural history of the ACEC's, relates to homesteading, mining, ranching, and prehistoric archaeological occupations.

Interpretation and Education

- Develop interpretive materials and facilities for selected sites and topics.
- Provide educational materials and opportunities to the public pertaining to the ACEC resources.

Tribal Consultation

- Continue to consult with the Gila River Indian Community, the Ak-Chin Indian Community, the Salt River Pima-Maricopa Indian Community, the Tohono O'odham Nation, the Hopi Tribe, Fort Yuma – Quechan Tribe, and other interested Indian tribes to identify places of traditional importance and to collaborate on issues and projects affecting the ACEC's.

Partnerships

- Coordinate with partner groups, interest groups, interested individuals, local communities, and other stakeholders on ACEC issues and projects.

2.12.2 NATIONAL BYWAYS

The National Byways program was established by the US Department of Transportation/Federal Highway Administration under the Intermodal Surface Transportation Efficiency Act of 1991 and reauthorized under the Transportation Equity Act for the 21st Century in 2003. The BLM Back Country Byway system is a component of the National Byway System and guidance is found in BLM Handbook H-8357-1. In accordance with the handbook, BLM back country and scenic byway designations are approved by the State Director within the parameters established for the state byway program.

The primary objectives of the program are to showcase the BLM's multiple-use mission and potential contributions to local or regional economies through increased travel and tourism.

To be eligible for designation, a road must have attractions that are important on a state and national basis. Attractions may include historical, recreational, cultural, archaeological, scientific, and/or natural features. Cooperation with all local, state, and federal agencies that have jurisdiction over road segments and legal access for any private land segments is also necessary.

2.12.2.1 Existing Management Decisions, Alternatives A (No Action) National Byways

Decisions are listed in chronological order by plan. The following decisions are extracted from the existing land use plans and amendments and are listed in chronological order. Because none of these current land use plans encompass the entire Planning Area, very few of these decisions are being carried forward as common to all alternatives and are restated as new action alternatives where applicable.

Lower Gila Resource Management Plan Amendments (2005)

- Scenic corridors and potential back country byways will receive priority evaluation of visual resources to determine appropriate future classifications (RR-6).

Lower Gila South Resource Management Plan - Goldwater Amendment (1990)
(Applies to the three relinquished BGR parcels)

- Protect the visual resource quality on lands adjacent to the highways (I-8 and SR-85) by:
- Establishing portions of these roads as scenic byways in cooperation with the Arizona Department of Transportation, the US Air Force, and the US Marine Corps.
- Use the VRM process during activity planning to maintain appropriate visual resource-management objectives established for these byways (Not numbered).

2.12.2.2 Action Alternatives for National Byways

Program Goals

- Goal 1: Provide opportunities for the American public to see and enjoy unique scenic and historic landscapes on public lands deemed to have state or national significance.
- Goal 2: Promote regional development of eco- and recreational tourism through designation of BLM National Scenic and Back Country Byways and by managing public lands along potential byway corridors to protect the quality of scenic values.

Allocations Summary

Potential byways to be evaluated by alternative are presented in **Table 2-39**, Potential Byway Designations by Alternative below.

Table 2-39
Potential Byway Designations by Alternative

	Alternative (BLM Miles)				
	A (No Action)	B	C	D	E (Proposed RMP)
Lower Sonoran					
Agua Caliente (not paved)	0	21	21	0	21
SDNM					
Interstate 8	0	21	0	0	21
H-238 Maricopa Road (paved)	0	18	18	0	18

Management Actions and Allowable Uses

Table 2-40, Management Actions and Allowable Uses for National Byways, describes management actions and allowable uses for national byways.

Table 2-40
Management Actions and Allowable Uses for National Byways

Decision Area		Alternative				Management Actions and Allowable Uses
Goal 1: Provide opportunities for the American public to see and enjoy unique scenic and historic landscapes on public lands deemed to have state or national significance.						
Objective 1.1: Identify and evaluate potential roads that meet nomination criteria for BLM National Scenic or Back Country Byway designation.						
LS		B	C		E	NB-1.1.1: Approximately 21 miles of Agua Caliente Road would be evaluated as a potential BLM national back country byway (**Maps 2-16b** and **2–16c**).
	SDNM		C	D	E	NB-1.1.2: Approximately 18 miles of Highway 238 (Maricopa Road) would be evaluated as a scenic byway (**Maps 2-16c, 2–16d** and **2–16e**).
	SDNM			D	E	NB-1.1.3: Approximately 21 miles of I-8 would be evaluated as a scenic byway (**Maps 2-16d** and **2–16e**).
Goal 2: Promote regional development of eco- and recreational tourism through designation of BLM National Scenic and Back Country Byways and by managing public lands along potential byway corridors to protect the quality of scenic values.						
Objective 2.1: Maintain open space and the undeveloped natural character of landscapes within the specified byway corridor. Desert landscapes provide visitors with unique scenic and back country experience while traversing the diverse Sonoran Desert, including saguaro cactus stands, rugged mountains, and vast valleys. These landscapes also offer glimpses of traditional western uses, including historic trail corridors, mining, agriculture, and ranching.						
LS	SDNM	B	C	D	E	NB-2.1.1: Surface-disturbing uses and activities along byways would exceed or at minimum maintain the visual quality consistent with the established VRM setting through project design or mitigation.
LS	SDNM	B	C	D	E	NB-2.1.2: Protective measures would be provided in wildlife-movement corridors to protect wildlife. Measures may include setting speed limits, installing speed bumps or other speed-limiting devices, and installing cautionary signs.

Table 2-40
Management Actions and Allowable Uses for National Byways

Decision Area		Alternative				Management Actions and Allowable Uses
LS	SDNM	B	C	D	E	NB-2.1.3: No motorized competitive speed events would be authorized on the byways.
LS		B	C		E	NB-1.1.4: Road design and maintenance would be coordinated with the county to retain the character of the byway and ensure it remains suitable for passenger car- and truck-based sightseeing. Prescriptions would include: • No paving • No widening beyond existing widths unless required for public safety • Stabilize road surfaces to maintain air quality • Install speed-limit, directional, and vehicle-safety signs where appropriate.

2.12.3 NATIONAL TRAILS

The National Trails System Act, 16 USC 1241, was enacted in 1968 to bring the national scenic, historic, and recreational trails into one unified system. The Juan Bautista de Anza National Historic Trail (Anza NHT) was established in 1990. It is one of 30 national scenic and historic trails designated by Congress to "provide for maximum outdoor recreation potential and for the conservation and enjoyment of the nationally significant scenic, historic, natural, or cultural qualities of the areas through which such trails may pass" (PL 90-543, as amended through PL 109-418). The national historic trails are "extended trails which follow as closely as possible and practicable the original trails or routes of travel of national historical significance" (ibid).

The National Park Service (NPS) administers the trail but works in partnership with federal, state, and local government agencies, as well as private landowners who manage or own lands along the trail route. Because the Anza expedition moved along the trail on horses and pack animals more than 200 years ago, no reliable trail signature remains to be seen in the modern era. Historians have studied the diaries and journals of Juan Bautista de Anza and Father Font and have determined a wide corridor through which the trail route originally passed. Today we face the challenge of conserving the natural visual setting along the trail corridor and constructing a recreational retracement route for non-motorized use in the future.

As cited in the Comprehensive Management and Use Plan Final Environmental Impact Statement for the Juan Bautista de Anza National Historic Trail (NPS 1996) (Anza CMP), the nature and purpose of the trail is to "…create the visitor experience through establishing and marking the trail alignment and interpreting and preserving significant resources associated with the trail." The Anza CMP goes on to state: "that the goals of NPS trail administration are to protect a trail right-of-way, to protect cultural and scenic resources along the trail, to foster public appreciation and understanding, to encourage facilities for resource protection and public information and use, and to promote cooperative management of trail resources and programs."

The BLM's goals and objectives for National Scenic and Historic Trails are: 1) to prevent substantial interference with the nature and purposes of the trail, 2) to make reasonable efforts to avoid activities that are incompatible with the purposes for which the National Trail was established, and 3) to conserve, protect, and restore National Trail resources, qualities, values, and associated settings, subject to valid existing rights.

For the Anza NHT, a Management Area allocation would be established. The location of a Juan Bautista de Anza National Historic Trail Management Area would be based on the Congressionally designated Anza NHT route, BLM inventories, and GIS viewshed analysis. A Management Area encompasses the area identified along a National Trail that meets certain criteria. Criteria include a segment of National Historic Trail that qualifies as a "high potential route segment" and/ or has a "high potential historic site" within or along it. "High potential route segments" are portions of the trail that would afford a high quality recreation experience in a portion of the route having greater than average scenic values or affording an opportunity to vicariously share the experience of the original users of a historic route. A "high potential historic site" is a site that is related to the route or a site in close proximity with the route, which provides opportunity to interpret the historic significance of the trail during the period of its major use. A "high potential historic site" must have historic significance, must have visible historic remnants, scenic quality, and relative freedom from intrusion. The area around the high potential route segment and high potential historic sites (if present) would be identified as a National Historic Trail Management Area determined by the results of GIS viewshed analysis. A National Historic Trail Management Area is defined as an area extending three miles out or to the visual horizon from the NHT corridor.

Two segments of the Anza NHT meet the criteria for identification as "high potential route segments." The segment of the trail that lies primarily within the SDNM is clearly indicated by the descriptions in the historic diaries and journals of Anza and Fr. Font. Congress recognized the importance of the strength of historic documentation and designated the trail corridor within a tightly described area in this section. Modern public use of this area and this segment of trail has been increasing due to the ease with which they can access the area, and more importantly, due to the qualities of the recreational experiences along this segment. The visitor does not have to work hard to experience vicariously what historic trail users once felt. The segment of the Anza NHT stretching from the Painted Rock Mountains to the west end of the Decision Area carries a similar set of values in that the visitor may experience a quality recreational experience. This experience would vary in terms of the individual locations, but the potential for high quality interpretive development and historic settings are outstanding.

2.12.3.1 Existing Management Decisions, Alternative A (No Action)

No specific management prescriptions for National Trails are included in the existing LUPs.

2.12.3.2 Action Alternatives for National Trails

Program Goals

- Goal 1: Manage the Juan Bautista de Anza National Historic Trail corridor through the LSFO through focused management strategies.

Management Actions and Allowable Uses

Table 2-41, Management Actions and Allowable Uses for National Trails, describes management actions and allowable uses for national trails.

Table 2-41
Management Actions and Allowable Uses for National Trails

Decision Area		Alternative				Management Actions and Allowable Uses
Goal 1: Manage the Juan Bautista de Anza National Historic Trail corridor through the LSFO through focused management strategies.						
Objective 1.1: Manage the historic trail corridor on the Lower Sonoran to enhance the experience of visitors, maintain the integrity of the historic trail and associated trail sites, and the visual setting.						
LS	SDNM	B	C	D	E	NT-1.1.1: The Juan Bautista de Anza NHT corridor would be managed consistent with the National Park Service (NPS) management plan and in cooperation with the NPS (**Map 2-16a**).
LS	SDNM		C	D	E	NT-1.1.2: Allocate two Juan Bautista de Anza NHT Management Areas (**Maps 2-16c, d,** and **e**).
LS	SDNM	B	C	D	E	NT-1.1.3: Retain public lands and acquire available state and private lands and/ or easements to assure long-term use, protection, and access to areas along the Juan Bautista de Anza NHT corridor and within the two Anza NHT Management Areas. Lands along the Anza NHT corridor and within the two Anza NHT Management Areas shall not be made available for Recreation and Public Purposes Act sales or leases, agricultural entries, or state grants, and shall be classified for retention in accordance with 43 CFR 2400.
LS	SDNM	B	C	D	E	NT-1.1.4: The Painted Rock Petroglyph Site and the adjacent segment of Anza NHT would be allocated to public use for heritage tourism and interpretation.
LS		B	C		E	NT-1.1.5: The Anza NHT corridor and the Anza NHT Management Areas would remain open to leasable minerals exploration and development actions but any proposed action would contain a No Surface Occupancy stipulation.
LS		B	C	D	E	NT-1.1.6: The Anza NHT corridor and the Anza NHT Management Areas would be closed to all mineral material disposals.
LS				D		NT-1.1.7: The Anza NHT corridor and the Anza NHT Management Areas would be recommended for withdrawal from locatable mineral exploration and development and closed to all leasable and minerals disposals exploration and development actions, including free use permits.
	SDNM	B	C	D	E	NT-1.1.8: The Anza NHT corridor and the Anza NHT Management Areas would remain closed to all minerals actions.
LS	SDNM		C	D	E	NT-1.1.9: The Anza NHT corridor and the two Anza NHT Management Areas would be an exclusion area for major utility-scale renewable energy development and new major linear LUAs. In the Lower Sonoran, utility development could continue on a case-by-case basis in existing utility multiuse corridors and only if impacts are determined to have a negligible to

Table 2-41
Management Actions and Allowable Uses for National Trails

Decision Area		Alternative				Management Actions and Allowable Uses
						minor effect to resources.
LS	SDNM		C	D	E	NT-1.1.10: The Anza NHT corridor would be an exclusion area for all minor linear and nonlinear LUAs except as described in the Lands and Realty section (See **Section 2.11.1**). LUAs would be mitigated to be consistent with management objectives and prescriptions, and only if impacts are determined to have a negligible to minor effect to resources.
LS	SDNM	B	C	D	E	NT-1.1.11: Identify and obtain rights-of-way on selected areas along the Anza NHT corridor and within the two Anza NHT Management Areas to support National Trail purposes and further trail management objectives.
LS	SDNM	B	C	D	E	NT-1.1.12: Cultural sites along the NHT and the Anza NHT Management Areas would be identified and developed as allocated in the appropriate use categories and according to management actions and prescriptions identified in the Cultural and Heritage Resources section for all use categories. (See **Section 2.10.3**)
LS	SDNM	B	C	D	E	NT-1.1.13: Recreation opportunities would be provided consistent with the Anza NHT objectives. Facilities would be developed outside the trail corridor to protect resource values, provide for visitor safety, and support selected use opportunities. Facilities would be developed within the trail corridor only when needed to protect trail integrity and resources, or to establish an Anza NHT recreation retracement route.
LS	SDNM	B	C	D	E	NT–1.1.14: Access points and routes needed to access the Anza NHT corridor and the two Anza NHT Management Areas would be identified and prioritized during travel management planning. Legal access would be secured within 5 years of route designation to assure public access to the areas.
LS	SDNM	B	C	D	E	NT-1.1.15: The Anza NHT Corridor and the two Anza NHT Management Areas would be managed in concert with the Lower Gila Terraces and Historic Trails SCRMA (Alt. C), the Lower Gila Historic Trails ERMA and the Anza Historic Trail RMZ (Alts. C and E) as identified in the Cultural and Heritage Resource and Recreation Management sections. (See **Sections 2.10.3 and 2.11.4**)
LS	SDNM	B	C	D	E	NT-1.1.16: The historic landscape and visual values of the Anza NHT corridor and the two Anza NHT Management Areas would be protected to provide the visitor with an opportunity to appreciate the historic character of the area.
LS	SDNM	B	C	D	E	NT-1.1.17: Vegetation would be rehabilitated and restored in the Anza NHT corridor and the two Anza NHT Management Areas consistent with the natural resource restoration objectives to restore or maintain the integrity of the landscape.
LS	SDNM	B	C	D	E	NT-1.1.18: A strategy would be developed to encourage scientific and historical research within the Anza NHT corridor and the two Anza NHT

Table 2-41
Management Actions and Allowable Uses for National Trails

Decision Area		Alternative				Management Actions and Allowable Uses
						Management Areas as appropriate with management prescriptions and only if designed to have a negligible or minor affect to resources.
LS	SDNM	B	C	D	E	NT-1.1.19: Scientific and historical studies of cultural landscapes, sites, historic trails, and other resources, including excavation, would be allowed by qualified researchers on a case-by-case basis within the Anza NHT corridor and the two Anza NHT Management Areas and with written authorization from the BLM.
LS	SDNM	B	C	D	E	NT-1.1.20: Heritage tourism would be allowed at the Painted Rock Petroglyph Site and along the Anza NHT auto route when use is compatible with protecting the cultural and historical resources and visual values.
LS	SDNM	B	C		E	NT-1.1.21: The Anza NHT auto route would be marked and promoted as appropriate and consistent with Cultural and Heritage Resource and Travel Management actions designations and prescriptions identified in this plan. (See **Sections 2.10.3 and 2.11.5**)
LS	SDNM			D		NT-1.1.22: The Anza NHT auto route would be marked, but not promoted, as appropriate and consistent with Cultural and Heritage Resource and Travel Management actions designations and prescriptions identified in this plan. (See **Sections 2.10.3 and 2.11.5**)
	SDNM	B	C	D	E	NT-1.1.23: The Anza NHT corridor within the SDNM would be managed to retain, and restore where appropriate, the physical integrity of the sites and trails through inventory, evaluation, rehabilitation and restoration of vegetation.
LS	SDNM	B	C	D	E	NT-1.1.24: Acquire parcels that exhibit characteristics consistent with the landscape setting, or important to management of the NHT, from willing buyers when funds are available and the parcels are reasonable priced.

Administrative Actions

Inventory

- Perform field inventories, document, and map historic trail resources and associated cultural resources along the Anza NHT.
- Perform recreational inventories along the Anza NHT to identify high potential sites and segments. Make determinations of suitability for installation of recreational trail tread and interpretive developments.
- Perform viewshed analysis on selected Anza NHT segments with priority given to high potential route segments.
- Collect GPS data to BLM standards on the Anza NHT resources and use GIS mapping (BMP).

Monitoring

- Perform condition assessments on selected segments of the Anza NHT, with a priority on the high potential route segments.
- Implement procedures for systematic monitoring of the Anza NHT management corridor, including associated sites and trail resources.

Restoration

- Perform mitigation and/ or landscape restoration in priority areas along the Anza NHT, where incompatible activities have altered the historic landscape and visual setting of the trail.

Research

- Perform archival research on the history and subsequent uses of the Anza NHT.
- Establish collaborative partnerships with academic institutions, professional and non-profit organizations, individual scholars, tribes, and other entities to perform research on Anza NHT related topics.

Interpretation and Education

- Develop interpretive materials and facilities for selected sites.
- Provide educational materials and opportunities to the public pertaining to the Anza NHT.

Tribal Consultation

- Continue to consult with the Gila River Indian Community, the Ak-Chin Indian Community, the Salt River Pima-Maricopa Indian Community, the Tohono O'odham Nation, the Hopi Tribe, Fort Yuma – Quechan Tribe, and other interested Indian tribes to identify places of traditional importance.

Partnerships

- Coordinate with partner groups, interest groups, interested individuals, local communities, and other stakeholders on Anza NHT issues and projects.
- Consult and collaborate with the NPS, the administrator of the Anza NHT.

2.12.4 FRED J. WEILER GREEN BELT RESOURCE CONSERVATION AREA

The Fred J. Weiler Green Belt along the Gila River was established as an RCA in 1970 and allocated for management of wildlife, recreation, and cultural resources. The parts of the green belt that fall within the Planning Area include 45,978 acres of the Gila River channel and floodplain from Sierra Estrella Park

on the east to the Planning Area boundary on the west. Approximately 20,000 additional acres fall within the BLM's Yuma Field Office for a total of approximately 63,000 acres in the green belt. Only the acres that fall within the Planning Area would be discussed further in this document.

Within the area now known as the Green Belt, Public Land Order 1015 (PLO 1015) withdrew 6,896 acres of land from the DOI to the USFWS in 1954. At this time, the USFWS entered into a cooperative management agreement with the AGFD to manage these withdrawn lands for wildlife, notably waterfowl and migratory birds. These lands were segregated from all forms of appropriation under the public land laws, including the mining laws but not the mineral leasing laws. Grazing and existing withdrawals for power purposes were specifically exempted from the segregation.

In 1967, approximately 63,000 acres in the Gila River floodplain, including the PLO 1015 lands, were studied, and it was determined that they would be retained under the Classification for Multiple Use Act of 1964. A classification for multiple use was placed on the subject lands, segregating the 63,000 acres from appropriation under the public land and mining laws. Mineral leasing, however, was not excluded. The multiple-use classification was established to allow for the management of nesting areas for white-winged dove, mourning dove, and songbirds; public recreation; historical significance; and flood and erosion control. In 1970, the 63,000 acres were designated as the Fred J. Weiler Green Belt Resource Conservation Area.

Since the Green Belt was designated in 1970, the AGFD has continued to manage the PLO 1015 lands within the Green Belt as part of their Lower Gila River Wildlife Management Area Complex. However over the past 30 years new laws have been enacted, along with the implementation of new policy and guidance, and the cooperative agreements between the BLM, USFWS and AGFD have not been updated accordingly. The jurisdictional management responsibility remains unclear for certain resources and uses, such as cultural resources and travel management. The BLM believes that management of some of these still belong to the BLM and certain management decisions have been made in this RMP with that assumption. The BLM would work in cooperation with the AGFD to ensure that access to, and management of, their wildlife management complex would not be impacted by designations or management actions in the final RMP.

2.12.4.1 Existing Management Decisions, Alternative A (No Action)

No specific management prescriptions the Fred J. Weiler Green Belt RCA are in existing LUPs.

2.12.4.2 Action Alternatives for Fred J. Weiler Green Belt Resource Conservation Area

Program Goals

- Goal 1: The Fred J. Weiler Green Belt would be a productive and functioning riparian system supporting healthy, diverse, and abundant populations of wildlife and riparian-dependent wildlife and plant species with an emphasis on migratory birds.

Management Actions and Allowable Uses

Table 2-42, Management Actions and Allowable Uses for Resource Conservation Areas, describes management actions and allowable uses for resource conservation areas.

Table 2-42
Management Actions and Allowable Uses for Resource Conservation Areas

Decision Area		Alternative				Management Actions and Allowable Uses
Goal 1: The Fred J. Weiler Green Belt would be a productive and functioning riparian system supporting healthy, diverse, and abundant populations of wildlife and riparian dependent wildlife and plant species with an emphasis on migratory birds.						
Objective 1.1: Manage the Fred J. Weiler Green Belt to support migratory birds and other native wildlife and plant species.						
LS		B	C	D	E	GB.1.1: The Fred J. Weiler Green Belt would continue to be managed as a RCA as designated in 1970 (63,000).
LS		B	C	D	E	GB-1.2: The Green Belt would be managed consistent with the Lower Gila Terraces and Historic Trails SCRMA in alternatives B and C, and consistent with the Lower Gila Terraces and Historic Trails ACEC in alternatives D and E.
LS		B	C	D	E	GB.1.3: The use of mechanical, chemical, and biological treatment methods would be coordinated with AGFD and USFWS to remove invasive plants such as tamarisk in the Green Belt for the purpose of restoring ecological conditions and function and reducing fuel hazards.
LS		B	C	D	E	GB.1.4: The Green Belt would be managed with an emphasis on protection and restoration, and treatments would focus on reestablishment of willows and cottonwoods, as well as other riparian vegetation, to support migratory game birds and other wildlife species.
LS		B	C	D	E	GB-1.5: The existing withdrawal for locatable mineral entry and all public land laws within the PLO 1015 portions of the Green Belt would remain in effect.
LS		B	C	D	E	GB-1.6: The Green Belt would be closed to mineral leasing and mineral material disposals including sales and free use permits. The three inactive free use community pits (Buckeye Hills in T1S, R3W. Secs. 20 and 30; T1S, R4W, Sec. 25) would be terminated, and the former free use site (Narramore Pit in T1S, R3W, Sec. 24) would not be available for reauthorization.
LS		B	C	D	E	GB-1.7: The Green Belt would be an exclusion area for utility-scale renewable energy development and exploration, and major linear LUAs (multiuse utility corridors).
LS		B	C	D	E	GB-1.8: The Green Belt would be an avoidance area for minor LUAs and utility-scale renewable energy development and exploration, and multiuse utility corridors.
LS		B	C	D	E	GB-1.9: The portions of the Green Belt outside of the PLO 1015 lands would be an avoidance area for minor linear and nonlinear LUAs. Permits would be approved on a case-by-case basis if management objectives of the area are mitigated.

2.13 TRIBAL INTERESTS, PUBLIC SAFETY, AND SOCIAL AND ECONOMIC CONDITIONS

2.13.1 HAZARDOUS MATERIALS AND PUBLIC SAFETY

There are many federal, state and local laws and regulations, in addition to bureau policies and guidance which govern public safety, hazardous materials and solid wastes. Federal laws and regulations include:

- The Comprehensive Environmental Response Compensation and Liability Act (CERCLA; 42 USC 9601 et seq.);
- Federal Aid Highways Act (23 USC 317);
- Federal Compliance with Pollution Control Standards (EO 12088, October 13, 1978);
- Federal Compliance with Right to Know Laws and Pollution Prevention Requirements (EO 12856, August 3, 1993);
- Federal Environmental Pesticide Control Act (7 USC 136); Pollution Prevention Act (42 USC 13101 et seq.);
- Resource Conservation and Recovery Act (42 USC 6901 et seq.);
- Solid Waste Disposal Act (42 USC 6901 et seq.);
- Superfund Implementation (EO 12580, January 23, 1987) and
- Toxic Substances control Act (15 USC 2601 et seq.)

The BLM has to address many public health and safety concerns within the LSFO-SDNM. The primary concerns in the Planning Area are:

- Abandoned Mines,
- Unexploded Ordnance (UXO),
- International Border issues and
- Hazardous Materials and Solid Waste.

See Chapter 3, Affected Environment for a full discussion of these issues. The BLM would continue to respond to all known, or reports of, illegal activities related to these issues and evaluate all proposed actions to minimize impacts to public health and safety and future occurrences of hazardous materials and dumping on public lands.

2.13.1.1 Existing Management Decisions, Alternative A (No Action) for Hazardous Materials and Public Safety

Since most actions are governed by existing laws and regulations, there were no valid existing management decisions from previous land use plans.

2.13.1.2 Action Alternatives for Hazardous Materials and Public Safety

Program Goals

- Goal 1: Manage hazards and public use to protect public health and safety.
- Goal 2: Protect public safety by dealing with all hazardous materials and solid wastes on public lands.
- Goal 3: Minimize or eliminate the potential for intentional or accidental releases of hazardous materials or wastes and solid waste.

Land Use Allocations Summary

Not applicable.

Management Actions and Allowable Uses

Table 2-43, Management Actions and Allowable Uses for Hazardous Materials and Public Safety, describes management actions and allowable uses for hazardous materials and public safety.

Table 2-43
Management Actions and Allowable Uses for Hazardous Materials and Public Safety

Decision Area		Alternative				Management Actions and Allowable Uses
Goal 1: Manage hazards and public use to protect public health and safety.						
Objective 1.1: Identify naturally occurring or manmade public safety hazards on public lands and take appropriate action to protect public health and safety.						
LS	SDNM	B	C	D	E	PS-1.1.1: Priorities for remediation of physical safety hazards would be set using the following criteria: • Where a death or injury has occurred; • Where site is on or in immediate proximity to a recreation site or a known high use area; • Where a formal risk assessment has determined a high or extremely high risk level. • The site is eligible for listing in the Abandoned Mines Cleanup Module of Protection and Response Information System
LS	SDNM	B	C	D	E	PS-1.1.2: Priorities for remediation due to water quality issues would be set using the following criteria: • The state has identified the watershed as a priority based on:

Table 2-43
Management Actions and Allowable Uses for Hazardous Materials and Public Safety

Decision Area		Alternative				Management Actions and Allowable Uses
						water laws or regulations, threat to public health or safety, threat to environment; • The project is a collaborative effort among multiple agencies or jurisdictions.
LS	SDNM	B	C	D	E	PS-1.1.3: Post signs to identify hazardous situations when warranted to protect public safety. Emphasize the risks to visitors of entering public lands and taking responsibility for their own safety.
LS	SDNM	B	C	D	E	PS-1.1.4: If illegal activities threaten the safety of the public or BLM employees, or damage Monument objects, areas can be closed to access by the authorized officer. The area can be closed for up to 90 days pending a study or review of the level of impacts and longer term actions may be necessary to provide public safety
LS		B	C	D	E	PS-1.1.5: The Sentinel Plain area south of I-8 is restricted to entry by permit only to protect the public from possible unexploded ordinances.
	SDNM	B	C	D	E	PS-1.1.6: The Sand Tank Mountains south of I-8, formerly known as "Area A," is restricted to entry by permit only
Goal 2: Protect public safety by dealing with all hazardous materials and solid wastes on public lands.						
Objective 2.1: Investigate all reported hazardous-materials and solid-wastes sites. Plan necessary containment and/or cleanup responses on a case-by-case basis as soon as possible upon report.						
LS	SDNM	B	C	D	E	PS-2.1.1: Establish priorities for investigating releases and planning/implementing responses based on the order in which releases are discovered unless other factors, such as the immediacy of the public-health threat, elevate the response urgency.
LS	SDNM	B	C	D	E	PS-2.1.2: Identify the probable scope of needed containment and clean-up efforts.
LS	SDNM	B	C	D	E	PS-2.1.3: Rank all sites according to relative priority for treatment planning and action. Priorities to consider include: • High levels of heavy metals in waste, • Ground- or surface-water quality degradation, • Ongoing, active resource damage, • Safety hazards near established recreation areas or other areas frequented by public land users, • Other site-specific factors
LS	SDNM	B	C	D	E	PS-2.1.4: Inspect mining and milling sites to determine appropriate management for hazardous materials.
LS	SDNM	B	C	D	E	PS-2.1.5: Conduct active investigations to identify potentially responsible parties and recover planning, containment, cleanup, monitoring, investigation, and enforcement costs associated with spill/release responses.
LS	SDNM	B	C	D	E	PS-2.1.6: Complete site-specific inventories when lands are being disposed or acquired. It is departmental policy to minimize potential liability of the

Table 2-43
Management Actions and Allowable Uses for Hazardous Materials and Public Safety

Decision Area		Alternative				Management Actions and Allowable Uses
						DOI and its bureaus by acquiring property that is not contaminated unless directed by Congress, court mandate, or as determined by the Secretary.
Goal 3: Minimize or eliminate the potential for intentional or accidental releases of hazardous materials or wastes and solid waste.						
Objective 3.1: Pursue locations of solid waste and wildcat dumpsites. Remove hazardous materials and solid waste, remediate, and, if appropriate, restore sites.						
LS	SDNM	B	C	D	E	PS-3.1.1: Investigate all reported hazardous-materials and solid-waste sites.
LS	SDNM	B	C	D	E	PS-3.1.2: Establish a reporting system and encourage other agencies and citizens to report suspected spill and dump sites or suspected dumping activities.
LS	SDNM	B	C	D	E	PS-3.1.3: Establish an inventory of known historic and active mining sites and other areas on public lands where hazardous materials or solid wastes are known or suspected to be present.
LS	SDNM	B	C	D	E	PS-3.1.4: Evaluate all BLM actions (including land use authorizations, mining and milling activities, and unauthorized land uses) for their potential to prevent production or dumping of hazardous or solid wastes on public lands. Minimize releases of hazardous materials through compliance with current regulations. Identify appropriate mitigation for activities associated with all types of hazardous materials and waste management and all types of fire management.

Administrative Actions

- Provide public safety information through BLM visitor-use brochures, websites, the BGR/Cabeza Prieta National Wildlife Refuge (NWR)/Sand Tank Mountains visitor-entry permit system, and various direct contacts with members of the public. Include information on hazards associated with abandoned mines, recreational shooting, unexploded ordnance, smuggler and undocumented alien (UDA) traffic, other criminal activities, natural resource conditions, or other conditions.

- Post signs in the field to identify certain hazardous situations when warranted to protect public safety. Emphasize visitor acceptance of the risks of entering public lands and responsibility for their own safety.

- To reduce human-caused fires, the BLM would undertake education, enforcement, and administrative fire-prevention measures. Education measures would include various outreach efforts, including a signing program, information as to the natural role of fire within local ecosystems, and participation in fairs, parades, and public contacts. Enforcement would be accomplished by providing training opportunities for employees interested in fire cause

determination. Administration includes expanded prevention and education programs with other cooperator agencies.

2.14 SCIENTIFIC RESEARCH, EDUCATION, AND PUBLIC OUTREACH

2.14.1 SCIENTIFIC RESEARCH

The BLM would partner with agencies and the academic and scientific community to develop a strategy for orderly scientific research of public lands. Scientific research would be evaluated and approved on a case-by-case basis. A priority would be placed on research likely to enhance management and understanding of public land resources and public uses. Researchers would be required to coordinate with the BLM, including providing a research plan, on proposed research and provide reports and supporting data that describe the outcome of the research.

Approved scientific research would contribute to management of natural and cultural resources and achieving desired future conditions. The collection of any objects in the Monument is authorized only by permit for scientific research or use to ensure compatibility and reporting of results. A reasonable amount of disturbance to soils and/or vegetation may occur during approved research activities in order to meet the research goals. Effects of disturbance are likely to be transient or may require mitigation or rehabilitation of sites.

Collaborative research partnerships would be established with interested organizations, such as local scientific museums or organizations, agencies, academic institutions, professional and nonprofit organizations, vocational organizations, and other entities, for an orderly process of research, recordation, and education about public land resources and uses. These partnerships would support survey, evaluation, recordation, mitigation, protection, and management of various resources, including biological, cultural, scenic, paleontological, geologic, and caves, and public uses including recreation, grazing, mining, and others.

By developing a strategy to encourage scientific research and inventory, the understanding of resources and management needs would improve. A priority would be placed on the development and implementation for inventory, recording, and evaluation of the Monument, ACECs, and other sensitive areas and resources.

Increased monitoring of public use, vegetation and wildlife habitat, cultural sites, and other resources, with particular focus on sensitive resources and easily accessible and regularly visited areas, would help to ensure the integrity of resources are maintained. Monitoring of public uses, wildlife, and other resources would be enhanced by the use of volunteers, scientific and academic organizations, and other interested groups.

2.14.2 INTERPRETATION, ENVIRONMENTAL EDUCATION, AND OUTREACH

The BLM would work with partners in agencies, academia, and other organizations to develop an effective environmental education and outreach strategy to enhance public understanding and

appreciation of public land resources, and help the BLM achieve its mission and the desired outcomes of this PRMP.

The BLM would support existing educational and interpretive programs and initiatives such as Project Archaeology, Leave No Trace, Tread Lightly!™, Project Learning Tree, and other proven national, state, regional, and local programs. An emphasis would be placed on reuse of existing educational materials.

Additionally, the BLM would work with partners to pursue interpretation and environmental education opportunities, outreach, development, and implementation of on-site and off-site programs for adults and children. The office would work with willing staff from schools, school districts, and other learning institutions to develop curricula that incorporate various learning styles in program design and delivery and focus on the BLM's mission.

To help disseminate information to the public, websites, brochures, maps, access guides, and information sheets would be developed. BLM personnel would also participate in public events, such as fairs and open houses, with information and displays showing public land management. Information would emphasize Leave No Trace and Tread Lightly!™ practices.

Topics may include:

- Resource protection and management,
- Recreational access,
- Use etiquette,
- OHV rules and regulations,
- Public safety,
- Fire,
- OHV and special recreation vehicle information,
- Other information as needed.

2.14.2.1 Resources Education

Throughout the area, (with particular focus sensitive resource areas, including the Monument, ACECs, WHAs, SCRMAs, and threatened and endangered species habitat), emphasis would be placed on resource importance through interpretation, education, signing, and/or brochures.

A public education program would accomplish the following:

- Provide information about resources and their importance,
- Provide information directly related to procedures to be followed if sensitive resources are found,

- Provide safety information to the public and identify any resource protection actions required for public use,
- Specify any pertinent fines for resource damage.

2.14.2.2 Public Uses and Visitor Information

Visitor information would be developed to guide recreational uses in the Decision Areas. Information could include identifying recreational opportunities, locations where certain uses are or are not appropriate, an appreciation and respect for other public land users and uses, and methods to avoid conflict.

2.14.2.3 Public Safety and Fire Education

Educational material would be available regarding public safety, definitions of hazardous materials and solid wastes, and regulations controlling the use and disposal of hazardous materials and solid wastes on public lands. Methods to disseminate information may include brochures at recreational sites, websites, signs at known or likely dumping sites, BGR/Cabeza Prieta NWR/Sand Tank Mountains visitor entry permit system, and various types of direct contact with visitors. Information on hazards associated with abandoned mines, recreational shooting, unexploded ordnance, smuggler and UDA traffic, natural resource or other conditions also may be included.

To protect public safety, when warranted, signs would be posted to identify certain hazardous situations.

Visitor acceptance of the risks of entering public land and responsibility for their own safety would be emphasized.

The BLM would undertake education, enforcement, and administrative fire prevention mitigation measures to reduce human-caused fires. Education measures may include various media, including signs, information on the natural role of fire within local ecosystems, participation in fairs or parades, and other public contacts. Enforcement would be accomplished by providing training opportunities for employees interested in fire caused determinations. Administration includes expanded prevention and education programs with other cooperating agencies.

2.15 IMPLEMENTATION, ADAPTIVE MANAGEMENT, AND MONITORING

2.15.1 IMPLEMENTATION AND PARTNERSHIPS

Many LUP decisions are implemented or become effective upon approval of the RMP's record of decision (ROD). These decisions include:

- Goals and objectives,
- Land use allocation decisions,
- All special designations, such as ACECs.

Management actions that require more site-specific project planning would require further environmental analysis. Where implementation decisions are made as part of the land use planning process, they are still subject to the appeals process (to the Office of Hearing and Appeals, Interior Board of Land Appeals) or other administrative review as prescribed by the specific resource program regulations.

To succeed in achieving the goals, objectives, and actions of this plan, the BLM, along with other agencies, organizations, and the public, must make a long-term commitment of working together.

Implementation of this plan would require the involvement of many partners. The BLM invites citizens to help the implementation of this plan and achieve the goals laid out. The BLM would continue to involve and collaborate with the public while implementing this plan. Opportunities to become involved in the plan implementation and monitoring would include development of partnerships and community-based citizen working groups. The BLM and citizens can collaboratively develop site-specific implementation plans that mutually benefit public land resources, local communities, and the people who live, work or play on public lands.

- Motorized route and non-motorized trail maintenance and monitoring;
- Development, maintenance, and monitoring of recreational facilities;
- Development of interpretive materials;
- Restoration of wildlife habitat;
- Monitoring of biological and cultural resources;
- Prevention and restoration of areas impacted by litter/dumping;
- Development of community support;
- Delivery of environmental and resource education.

Collaborative efforts may help ensure consistent management between partners, enhance the public experience, maintain open space, provide use opportunities, and protect natural and cultural resources. By engaging a diverse group of stakeholders in a collective effort to conserve and manage the ecological, cultural, open space, recreation, and other use values, resources can be sustainably managed for the long-term, and the area remain a place where people want to live, work, and recreate.

2.15.2 ADAPTIVE MANAGEMENT

Adaptive management is a formal, systematic, and rigorous approach to learning from the results of management actions, accommodating change, and improving management. It involves synthesizing existing knowledge, exploring alternative actions, and making explicit forecasts about their results. Management actions and monitoring programs are carefully designed to generate reliable feedback and clarify the reasons underlying results. Actions and objectives are then adjusted based on this feedback and improved understanding to try to achieve the desired outcomes. In addition, decisions, actions, and

results are carefully documented and communicated to others so that knowledge gained through experience is passed on, rather than lost when individuals move or leave the organization. Desired outcomes (goals and objectives), as well as the boundaries of land use allocations or special designations are not adaptable and require an RMP amendment to change. Actions to achieve the desired outcomes may be adapted to achieve the desired outcomes. Implementation or activity level decisions also may be adapted.

This PRMP recommends an adaptive management strategy. This process is flexible and generally involves four phases: planning, implementation, monitoring, and evaluation. As the BLM works with partners to obtain new information, it is able to evaluate monitoring data and other resource information to periodically refine and update management decisions and actions. This allows for the continual refinement and improvement of management prescriptions and practices.

2.15.3 MONITORING AND PARTNERSHIPS

Monitoring of actions related to implementing LUPs is an important part of adaptive management because it provides information on the relative success of strategies. Monitoring is the collection and analysis of repeated observations to track the status of a variable or system, and can be used to determine whether management actions are being implemented as written (implementation monitoring) or to evaluate success in achieving desired outcomes (effectiveness monitoring).

Adaptive management relies on monitoring that is sufficiently sensitive to detect relevant ecological changes. Ongoing monitoring helps to adjust management decisions and strategies related to implementing LUPs. The BLM monitors many activities and events; grazing utilization and vegetation trends are measured to support decisions on allotment Standards and Guidelines evaluations. OHV events are monitored to determine if permit stipulations are followed and necessary site rehabilitation undertaken.

This PRMP recognizes that many monitoring needs would require further design and planning. There are several ways to design an effectiveness-monitoring program. Model-based approaches rely on a small number of sites to represent an ecosystem class; however, it can be exceedingly difficult to find these, and it sometimes is difficult to draw broad conclusions from those sites. Design-based approaches rely on a carefully planned sampling. In this approach, the sample size must be large enough to make reliable references, which may be costly. A significant challenge in designing a program to monitor ecological conditions is integrating habitat monitoring with the species of special interest. Additionally, the BLM faces the challenge of monitoring uses on public lands. The BLM invites citizens and partners to help it develop an effective monitoring and evaluation plan for implementation decisions on public land resources, local communities, and users.

2.16 REQUIREMENTS FOR FURTHER ENVIRONMENTAL ANALYSIS

This PRMP/FEIS is a programmatic statement describing the impacts of implementing the LUP decisions and management actions described for the Planning Area.

Decisions that are implemented upon approval of the RMP do not require any further environmental analysis or documentation. Whenever implementation-level plans (e.g., ACEC management plans) are

prepared, more environmental analysis and documentation is required. Individual management actions or projects requiring more site-specific project planning require more environmental analysis.

Site-specific environmental analysis and documentation, including the use of categorical exclusions and determinations of NEPA adequacy, where suitable, may be prepared for one or more individual projects in accordance with management objectives and decisions established in the approved LUP. In addition, the BLM would ensure that the environmental review process includes evaluation of all critical elements to include cultural resources and threatened and endangered species, and completes required USFWS Section 7 consultations and coordination with SHPO in accordance with the BLM Cultural Resources National Programmatic Agreement and Arizona's BLM-SHPO Protocol.

Interdisciplinary impact analysis would be based on this and other applicable EISs. If the analysis prepared for site-specific projects finds potential for significant impacts not already described in an existing EIS, additional NEPA analysis for that site-specific project may be warranted.

Upon providing public notice of a decision, supporting environmental documentation would be sent to all affected interests and made available to other publics on request. Decisions to implement site-specific projects are subject to administrative review when such decisions are made.

2.17 INTERRELATIONSHIPS

The BLM conducts many activities that require coordination between itself and state or other federal agencies. Coordination has been ongoing throughout this planning effort. Coordination is required when implementing LUP decisions through project development and site-specific activities.

As a part of this planning effort and implementing on-the-ground activities, the BLM conducts Section 7 consultation with the USFWS, as prescribed under the ESA. In 2003, the BLM and USFWS finalized a consultation agreement to establish an effective and cooperative Section 7 consultation process. The agreement defines the process, products, actions, schedule, and expectations of the BLM and USFWS on project consultation. One biological assessment (BA) would be prepared to determine the effect of the PRMP on all relevant listed, proposed, and candidate species and associated critical habitat. The BA would disclose all expected environmental effects, conservation actions, mitigations, and monitoring, including analysis of all direct and indirect effects of plan decisions and any interrelated and interdependent actions. As this plan's decisions are implemented, actions determined through environmental analysis to potentially affect listed or candidate species would initiate more site-specific consultation on those actions.

Consultation with the Arizona SHPO is also conducted in compliance with Section 106 of the NHPA. The BLM's actions would also comply with other federal environmental legislation, existing programmatic environmental analyses, LUPs, and vegetation treatment documents, such as the Clean Air Act, Clean Water Act, Safe Drinking Water Act, and with state and local government regulations (**Appendix B**, Applicable Laws, Regulations, and Policies).

The Sikes Act (16 USC 670 et seq.) authorizes the DOI, in cooperation with state agencies responsible for administering fish and game laws, to plan, develop, maintain, and coordinate programs for conserving and rehabilitating wildlife, fish, and game on public lands within its jurisdiction. The plans must conform to overall land use and management plans for the land involved. The plans could include habitat-

improvement projects and related activities, and adequate protection for species of fish, wildlife, and plants considered endangered or threatened.

The BLM must also coordinate with suitable state agencies in managing state-listed plant and animal species when the state has formally made such designations.

The BLM is responsible for managing wildlife habitats on public lands, while AGFD is responsible for managing wildlife populations and game harvest. Proclamation 7397 states, "Nothing in this proclamation shall be deemed to enlarge or diminish the jurisdiction of the State of Arizona with respect to fish and wildlife management." Continued efforts would be made to coordinate with AGFD to enhance wildlife habitat, species diversity, and riparian health. Coordination occurs between the agencies on management plans and activities to achieve the optimum health of wildlife species and populations. Currently, coordination efforts are conducted consistent with a statewide MOU. In addition, an MOU has been signed giving AGFD cooperating agency status on RMP efforts in Arizona. To further promote interagency coordination, a cooperative agreement was signed between the agencies, establishing a liaison position in the AGFD. This liaison is assigned coordination responsibility on all ongoing LUPs and spends a portion of his/her work schedule in the Arizona State Office.

Regional transportation planning and construction of roadways and highways is generally conducted by state or regional agencies, such as ADOT, county departments of transportation, and city transportation departments. Coordination efforts would be consistent with MOUs (e.g., ADOT, BLM, or FHWA MOUs) or other documents in effect at the time of the project. When these agencies plan and develop roadways that cross public lands, the BLM is involved in their design and contributes to environmental impact analysis. In that process, the BLM would coordinate with the responsible agency to develop design features that minimize the fragmenting effect of the planned roadway. It would work with the responsible agency to evaluate and incorporate safe and effective wildlife crossings to ensure long-term species viability and maintain habitat connectivity. Where planned roadways potentially fragment other resources, such as but not limited to recreation routes, grazing allotments or mining operations, the BLM would work with the responsible agency to provide continued connectivity for those purposes as well. The BLM also would work with the agency to provide continued safe access to public land from any developed roadway for recreation and other public uses.

2.18 COMPARISON OF IMPACT INTENSITIES

In an effort to demonstrate the intensity of an impact, a range of qualitative terms have been created to summarize impacts from one management program on another. Some programs have specifically defined these terms for their managed resource or resource use with clearly outlined thresholds. Program specific intensity definitions can be found in the beginning of each program's impacts analysis in **Chapter 4**, Environmental Consequences, while the general definitions of these terms can be found in **Section 4.1.5**, Qualitative Terms for the Intensity of Impacts. For impacts that reach the major intensity level, a summary of those impacts is provided within the tables.

Table 2-44
Comparison of Impact Intensities

From:	A (No Action)	B	C	D	E (Proposed RMP)
Impacts on Air Resources					
Air Quality	Lower Sonoran: None; SDNM: None				
Cave Resources					
Cultural and Heritage Resources					
Paleontological Resources					
Soil Resources					
Vegetation Resources					
Visual Resource Management	Lower Sonoran Negligible; SDNM: Negligible				
Water Resources	Lower Sonoran: None; SDNM: None				
Wild Horse and Burro Management					
Wilderness Characteristics					
Wildland Fire Management	Lower Sonoran: Minor; SDNM: Minor				
Wildlife and Special Status Species	Lower Sonoran Negligible; SDNM: Negligible				
Lands and Realty	Lower Sonoran: Minor; SDNM: Minor	Lower Sonoran: Minor to Moderate; SDNM: Minor		Lower Sonoran: Minor; SDNM: Negligible	Lower Sonoran: Minor to Moderate; SDNM: Negligible
Livestock Grazing Management	Lower Sonoran: Minor; SDNM: Minor			Lower Sonoran: Negligible; SDNM: Negligible	Lower Sonoran: Minor; SDNM: Minor
Minerals Management	Lower Sonoran: Minor; SDNM: Negligible				

Table 2-44
Comparison of Impact Intensities

From:	A (No Action)	B	C	D	E (Proposed RMP)
Recreation Management	Lower Sonoran: Minor to Moderate; SDNM: Minor to Moderate		Lower Sonoran: Minor; SDNM: Negligible	Lower Sonoran: Minor; SDNM: Minor	Lower Sonoran: Minor to Moderate; SDNM: Minor to Moderate
Travel Management	Lower Sonoran: Minor to Major; SDNM: Minor to Moderate	Lower Sonoran: Minor to Moderate; SDNM: Minor to Moderate		Lower Sonoran: Minor to Moderate; SDNM: Minor	Lower Sonoran: Minor to Moderate; SDNM: Minor to Moderate
Special Designations	Lower Sonoran: Negligible; SDNM: Negligible				
Public Safety and Hazardous Materials	Lower Sonoran: None; SDNM: None				
Impacts on Climate Change					
Air Quality	Lower Sonoran: None; SDNM: None				
Cave Resources					
Cultural and Heritage Resources					
Paleontological Resources					
Soil Resources					
Vegetation Resources	Lower Sonoran: Negligible; SDNM: Negligible				
Visual Resource Management					
Water Resources	Lower Sonoran: None; SDNM: None				
Wild Horse and Burro Management					
Wilderness Characteristics	Lower Sonoran: Negligible; SDNM: Negligible				
Wildland Fire Management					
Wildlife and Special Status Species	Lower Sonoran: None; SDNM: None				

Table 2-44
Comparison of Impact Intensities

From:	A (No Action)	B	C	D	E (Proposed RMP)
Lands and Realty	Lower Sonoran: Negligible; SDNM: Negligible				
Livestock Grazing Management					
Minerals Management					
Recreation Management					
Travel Management					
Special Designations					
Public Safety and Hazardous Materials	Lower Sonoran: None; SDNM: None				
Impacts on Cave Resources					
No caves and cave resources have been identified in the Decision Areas, though Paleozoic limestone outcrops and lava tubes do exist.					
Impacts on Cultural and Heritage Resources					
Air Quality	Lower Sonoran: None; SDNM: None				
Cave Resources					
Cultural and Heritage Resources	Lower Sonoran: Negligible to Minor; SDNM: Negligible to Minor	Lower Sonoran: Minor to Moderate; SDNM: Minor to Moderate	Lower Sonoran: Negligible to Minor SDNM: Negligible to Minor	Lower Sonoran: Negligible to Minor; SDNM: Negligible to Minor	Lower Sonoran: Negligible to Minor; SDNM: Negligible to Minor
Paleontological Resources	Lower Sonoran: None; SDNM: None				
Soil Resources	Lower Sonoran: Negligible; SDNM: Negligible				
Vegetation Resources	Lower Sonoran: Minor; SDNM: None	Lower Sonoran: Negligible to Minor; SDNM: None		Lower Sonoran: Negligible to Minor; SDNM: Negligible	
Visual Resource Management	Lower Sonoran: Moderate to Major; SDNM: Moderate to Major	Lower Sonoran: Minor to Major; SDNM: Minor	Lower Sonoran: Minor to Major; SDNM: Minor	Lower Sonoran: Negligible to Minor; SDNM: Negligible	Lower Sonoran: Minor to Major; SDNM: Minor

Table 2-44
Comparison of Impact Intensities

From:	A (No Action)	B	C	D	E (Proposed RMP)
Water Resources Wild Horse and Burro Management	Lower Sonoran: None; SDNM: None				
Wilderness Characteristics	Lower Sonoran: Minor to Moderate; SDNM: Minor to Moderate		Lower Sonoran Negligible; SDNM: Negligible		
Wildland Fire Management	Lower Sonoran: Negligible to Minor; SDNM: Negligible to Minor				
Wildlife and Special Status Species	Lower Sonoran: Negligible to Minor; SDNM: Negligible to Minor		Lower Sonoran Negligible; SDNM: Negligible	Lower Sonoran: Negligible to Minor; SDNM: Negligible to Minor	Lower Sonoran: Negligible to Minor; SDNM: Negligible to Minor
Lands and Realty	Lower Sonoran: Negligible to Major; SDNM: Negligible to Major				
Livestock Grazing Management	Lower Sonoran: Negligible to Moderate; SDNM: Negligible to Moderate	Lower Sonoran: Negligible to Moderate; SDNM: Minor	Lower Sonoran: Negligible to Moderate; SDNM: Negligible to Minor	Lower Sonoran: Negligible; SDNM: Negligible	Lower Sonoran: Negligible to Moderate; SDNM: Negligible to Minor
Minerals Management	Lower Sonoran: Minor to Moderate; SDNM: Minor			Lower Sonoran: Negligible to Minor; SDNM: Minor	Lower Sonoran: Minor to Moderate; SDNM: Minor
Recreation Management	Lower Sonoran: Negligible to Minor; SDNM: Negligible to Moderate		Lower Sonoran: Minor; SDNM: Negligible to Moderate	Lower Sonoran: Negligible to Minor; SDNM: Negligible to Minor	Lower Sonoran: Negligible to Minor; SDNM: Negligible to Moderate
Travel Management	Lower Sonoran: Negligible to Major; SDNM: Negligible to Major	Lower Sonoran: Minor; SDNM: Minor		Lower Sonoran: Negligible; SDNM: Negligible	Lower Sonoran: Minor; SDNM: Minor

Table 2-44
Comparison of Impact Intensities

From:	A (No Action)	B	C	D	E (Proposed RMP)
Special Designations	Lower Sonoran: Negligible; SDNM: Negligible to Major	Lower Sonoran: Minor to Moderate; SDNM: Minor to Moderate	Lower Sonoran: Minor; SDNM: Minor	Lower Sonoran: Minor to Major; SDNM: Negligible	Lower Sonoran: Minor to Major; SDNM: Negligible
Public Safety and Hazardous Materials	Lower Sonoran: Negligible to Moderate; SDNM: Negligible to Moderate				
Impacts on Geologic and Paleontological Resources					
Limited paleontological resources have been found in the Planning Area; therefore impacts on these resources are not discussed in detail.					
Impacts on Soil Resources					
Air Quality Cave Resources Cultural and Heritage Resources Paleontological Resources Soil Resources	Lower Sonoran: None SDNM: None				
Vegetation Resources	Lower Sonoran: Minor; SDNM: Negligible	Lower Sonoran: Moderate to Major; SDNM: Moderate to Major	Lower Sonoran: Moderate to Major; SDNM: Moderate	Lower Sonoran: Moderate to Major; SDNM: Moderate to Major	Lower Sonoran: Moderate to Minor; SDNM: Minor to Moderate
Visual Resource Management Water Resources Wild Horse and Burro Management Wilderness Characteristics	Lower Sonoran: None SDNM: None				
Wildland Fire Management	Lower Sonoran: Negligible to Major; SDNM: Negligible to Major				
Wildlife and Special Status Species	Lower Sonoran: Minor; SDNM: Minor	Lower Sonoran: Negligible; SDNM: Negligible			

Table 2-44
Comparison of Impact Intensities

From:	A (No Action)	B	C	D	E (Proposed RMP)
Lands and Realty	Lower Sonoran: Minor to Major; SDNM: Minor to Moderate	Lower Sonoran: Moderate; SDNM: Minor to Moderate		Lower Sonoran: Minor to Major; SDNM: Negligible to Moderate	Lower Sonoran: Minor to Moderate; SDNM: Minor to Moderate
Livestock Grazing Management	Lower Sonoran: Minor to Moderate; SDNM: Negligible to Minor	Lower Sonoran: Minor; SDNM: Minor	Lower Sonoran: Minor; SDNM: Minor to Moderate	Lower Sonoran: Minor to Major; SDNM: Minor to Moderate	Lower Sonoran: Minor to Moderate; SDNM: Negligible to Minor
Minerals Management	Lower Sonoran: Major; SDNM: None to Moderate			Lower Sonoran: Negligible to Moderate; SDNM: Minor to Moderate	Lower Sonoran: Major; SDNM: Minor to Moderate
Recreation Management	Lower Sonoran: Minor; SDNM: Minor	Lower Sonoran: Minor to Moderate; SDNM: Minor	Lower Sonoran: Minor; SDNM: Minor		Lower Sonoran: Minor to Moderate; SDNM: Minor
Travel Management	Lower Sonoran: Minor to Major; SDNM: Moderate to Major	Lower Sonoran: Moderate; SDNM: Moderate		Lower Sonoran: Minor to Moderate; SDNM: Moderate	
Special Designations	Lower Sonoran: Negligible; SDNM: Negligible	Lower Sonoran: Negligible; SDNM: Negligible to Minor		Lower Sonoran: Major: SDNM: Negligible to Minor	
Public Safety and Hazardous Materials	Lower Sonoran: Negligible to Major SDNM: Negligible to Major				
Impacts on Vegetation Resources					
Air Quality	Lower Sonoran: None; SDNM: None				
Cave Resources					
Cultural and Heritage Resources	Lower Sonoran: Negligible to Minor; SDNM: Negligible to Minor				

Table 2-44
Comparison of Impact Intensities

From:	A (No Action)	B	C	D	E (Proposed RMP)
Paleontological Resources	Lower Sonoran: None; SDNM: None				
Soil Resources	Lower Sonoran: Negligible to Moderate; SDNM: Negligible to Moderate				
Vegetation Resources	Lower Sonoran: Negligible to Moderate; SDNM: Negligible to Minor				
Visual Resource Management	Lower Sonoran: Negligible to Minor; SDNM: Negligible to Minor	Lower Sonoran: Negligible to Minor; SDNM: Negligible		Lower Sonoran: Negligible; SDNM: Negligible	Lower Sonoran: Negligible to Minor; SDNM: Negligible to Minor
Water Resources	Lower Sonoran: None; SDNM: None				
Wild Horse and Burro Management					
Wilderness Characteristics	Lower Sonoran: None; SDNM: None		Lower Sonoran: Negligible; SDNM: Negligible		Lower Sonoran: Minor; SDNM: Negligible
Wildland Fire Management	Lower Sonoran: Moderate to Major; SDNM: Moderate to Major				
Wildlife and Special Status Species	Lower Sonoran: Minor; SDNM: Minor	Lower Sonoran: Negligible to Minor; SDNM: Negligible to Minor	Lower Sonoran: Negligible; SDNM: Negligible to Minor		
Lands and Realty	Lower Sonoran: Negligible to Minor; SDNM: Negligible to Minor	Lower Sonoran: Negligible to Major; SDNM: Negligible to Minor	Lower Sonoran: Negligible to Major; SDNM: Negligible to Moderate	Lower Sonoran: Negligible to Moderate; SDNM: Negligible	

Table 2-44
Comparison of Impact Intensities

From:	A (No Action)	B	C	D	E (Proposed RMP)
Livestock Grazing Management	Lower Sonoran: Moderate to Major; SDNM: Negligible to Moderate	Lower Sonoran: Minor to Moderate; SDNM: Minor to Moderate		Lower Sonoran: Negligible to Moderate; SDNM: Negligible to Moderate	Lower Sonoran: Minor to Major; SDNM: Negligible to Moderate
Minerals Management	Lower Sonoran: Negligible to Major; SDNM: None to Moderate			Lower Sonoran: Negligible; SDNM: None	Lower Sonoran: Negligible to Major; SDNM: None
Recreation Management	Lower Sonoran: Negligible to Major; SDNM: Negligible to Moderate	Lower Sonoran: Negligible to Moderate; SDNM: Negligible to Minor		Lower Sonoran: Negligible to Minor; SDNM: Negligible	Lower Sonoran: Negligible to Moderate; SDNM: Negligible to Minor
Travel Management	Lower Sonoran: Minor; SDNM: Negligible to Moderate		Lower Sonoran: Minor; SDNM: Negligible	Lower Sonoran: Minor; SDNM: Negligible	Lower Sonoran: Minor; SDNM: Negligible
Special Designations	Lower Sonoran: Negligible to Minor SDNM: Negligible to Minor				
Public Safety and Hazardous Materials	Lower Sonoran: None SDNM: None				
Impacts on Visual Resources Management					
Air Quality	Lower Sonoran: None; SDNM: None				
Cave Resources					
Cultural and Heritage Resources					
Paleontological Resources					
Soil Resources					
Vegetation Resources					

Table 2-44
Comparison of Impact Intensities

From:	A (No Action)	B	C	D	E (Proposed RMP)
Visual Resource Management	Lower Sonoran: Negligible to Major; SDNM: Negligible to Major	Lower Sonoran: Negligible to Major; SDNM: Negligible to Moderate;	Lower Sonoran: Negligible to Moderate; SDNM: Negligible to Moderate	Lower Sonoran: Negligible to Moderate; SDNM: Negligible to Minor	Lower Sonoran: Negligible to Major; SDNM: Negligible to Moderate
Water Resources	Lower Sonoran: None; SDNM: None				
Wild Horse and Burro Management					
Wilderness Characteristics					
Wildland Fire Management	Lower Sonoran: Minor; SDNM: Minor				
Wildlife and Special Status Species	Lower Sonoran: None; SDNM: None				
Lands and Realty	Lower Sonoran: Minor to Moderate; SDNM: Negligible to Minor	Lower Sonoran: Moderate; SDNM: Negligible to Minor	Lower Sonoran: Minor; SDNM: Negligible to Minor	Lower Sonoran: Negligible to Minor; SDNM: Negligible to Minor	Lower Sonoran: Minor: SDNM: Negligible to Minor
Livestock Grazing Management	Lower Sonoran: Minor; SDNM: Minor				
Minerals Management	Lower Sonoran: Minor to Major; SDNM: Minor to Major				
Recreation Management	Lower Sonoran: Minor to Major; SDNM: Minor	Lower Sonoran: Moderate; SDNM: Minor	Lower Sonoran: Negligible to Moderate; SDNM: Minor	Lower Sonoran: Negligible to Minor; SNDM: Minor	Lower Sonoran: Negligible to Moderate; SDNM: Minor
Travel Management	Lower Sonoran: Minor to Moderate; SDNM: Minor to Major	Lower Sonoran: Minor; SDNM: Negligible to Moderate	Lower Sonoran: Negligible to Minor; SDNM: Negligible to Minor		

Table 2-44
Comparison of Impact Intensities

From:	A (No Action)	B	C	D	E (Proposed RMP)
Special Designations Public Safety and Hazardous Materials	Lower Sonoran: None SDNM: None				
Impacts on Water Resources					
Air Quality	Lower Sonoran: Negligible to Minor; SDNM: Negligible to Minor				
Cave Resources Cultural and Heritage Resources Paleontological Resources Soil Resources	Lower Sonoran: None; SDNM: None				
Vegetation Resources	Lower Sonoran: Minor; SDNM: None			Lower Sonoran: Negligible to Minor; SDNM: None	
Visual Resource Management Water Resources Wild Horse and Burro Management Wilderness Characteristics Wildland Fire Management	Lower Sonoran: None; SDNM: None				
Wildlife and Special Status Species	Lower Sonoran: Negligible to Minor; SDNM: None	Lower Sonoran: Negligible; SDNM: None		Lower Sonoran: Minor; SDNM: None	Lower Sonoran: Negligible to Minor; SDNM: None
Lands and Realty	Lower Sonoran: Minor to Moderate; SDNM: Minor to Moderate	Lower Sonoran: Minor to Moderate; SDNM: Minor to Moderate	Lower Sonoran: Minor to Major; SDNM: Negligible to Moderate	Lower Sonoran: Negligible to Moderate; SDNM: Negligible to Minor	Lower Sonoran: Minor; SDNM: Negligible

Table 2-44
Comparison of Impact Intensities

From:	A (No Action)	B	C	D	E (Proposed RMP)
Livestock Grazing Management	Lower Sonoran: Minor; SDNM: Minor	Lower Sonoran: Minor; SDNM: Negligible to Minor	Lower Sonoran: Negligible to Minor; SDNM: Negligible to Minor	Lower Sonoran: Negligible; SDNM: Negligible	Lower Sonoran: Minor; SDNM: Negligible to Minor
Minerals Management	Lower Sonoran: Negligible to Moderate; SDNM: None to Minor	Lower Sonoran: Negligible to Moderate; SDNM: None to Minor	Lower Sonoran: Negligible to Moderate; SDNM: None to Minor	Lower Sonoran: Negligible to Minor; SDNM: None to Minor	Lower Sonoran: Negligible to Moderate; SDNM: None to Minor
Recreation Management	Lower Sonoran: Minor; SDNM: Minor			Lower Sonoran: Negligible to Minor: SDNM: Minor	Lower Sonoran: Minor; SDNM: Negligible
Travel Management	Lower Sonoran: Negligible to Moderate; SDNM: Minor	Lower Sonoran: Minor to Moderate; SDNM: Negligible to Minor	Lower Sonoran: Minor; SDNM: Minor	Lower Sonoran: Moderate; SDNM: Minor	Lower Sonoran: Moderate; SDNM: Moderate
Special Designations	Lower Sonoran: Negligible to Minor; SDNM: Minor		Lower Sonoran: Minor; SDNM: Minor	Lower Sonoran: Negligible; SDNM: Minor	Lower Sonoran: Negligible to Minor; SDNM: Minor
Public Safety and Hazardous Materials	Lower Sonoran: None SDNM: None				
Impacts on Wild Horse and Burro Management					
The intent of the existing decisions and proposed alternative decision is to remove all wild horses and burros from the Painted Rock Herd Area, and any impacts from other program areas on the Wild Horse and Burro program would be negligible. Therefore, impacts from other resources would not be discussed in detail.					
Impacts on Wilderness Characteristics					
Air Quality	Lower Sonoran: Minor to Moderate; SDNM: Negligible to Minor				

Table 2-44
Comparison of Impact Intensities

From:	A (No Action)	B	C	D	E (Proposed RMP)
Cave Resources	Lower Sonoran: None; SDNM: None				
Cultural and Heritage Resources	Lower Sonoran: Negligible to Minor; SDNM: Negligible to Minor	Lower Sonoran: Minor; SDNM: Minor		Lower Sonoran: Negligible; SDNM: Negligible	Lower Sonoran: Minor; SDNM: Minor
Paleontological Resources	Lower Sonoran: None; SDNM: None				
Soil Resources	Lower Sonoran: Minor to Moderate; SDNM: Minor to Moderate				
Vegetation Resources	Lower Sonoran: Minor to Major; SDNM: Minor to Moderate	Lower Sonoran: Minor to Moderate; SDNM: Minor to Moderate	Lower Sonoran: Minor; SDNM: Negligible to Minor	Lower Sonoran: Minor; SDNM: Minor to Moderate	
Visual Resource Management	Lower Sonoran: Moderate; SDNM: Negligible	Lower Sonoran: Minor to Moderate; SDNM: Minor	Lower Sonoran: Minor to Moderate; SDNM: Negligible	Lower Sonoran: Minor; SDNM: Negligible	Lower Sonoran: Minor to Moderate; SDNM: Negligible to Minor
Water Resources Wild Horse and Burro Management	Lower Sonoran: None; SDNM: None				
Wilderness Characteristics	Lower Sonoran: Negligible to Major; SDNM: Negligible to Major		Lower Sonoran: Minor to Major; SDNM: Minor to Moderate	Lower Sonoran: Negligible to Minor; SDNM: Negligible to Minor	Lower Sonoran: Minor to Major; SDNM: Minor to Moderate
Wildland Fire Management	Lower Sonoran: Negligible to Major; SDNM: Negligible to Major				

Table 2-44
Comparison of Impact Intensities

From:	A (No Action)	B	C	D	E (Proposed RMP)
Wildlife and Special Status Species	Lower Sonoran: Minor to Moderate; SDNM: Negligible to Minor	Lower Sonoran: Minor; SDNM: Negligible to Minor	Lower Sonoran: Moderate; SDNM: Minor	Lower Sonoran: Moderate to Major; SDNM: Moderate to Major	Lower Sonoran: Moderate; SDNM: Minor
Lands and Realty	Lower Sonoran: Negligible to Major; SDNM: Minor to Moderate	Lower Sonoran: Negligible to Major; SDNM: Negligible to Minor	Lower Sonoran: Negligible; SDNM: Negligible	Lower Sonoran: Negligible; SDNM: Negligible	Lower Sonoran: Negligible to Major SDNM: Negligible to
Livestock Grazing Management	Lower Sonoran: Minor to Moderate; SDNM: Negligible to Moderate		Lower Sonoran: Minor; SDNM: Minor	Lower Sonoran: Negligible; SDNM: Negligible	Lower Sonoran: Minor to Moderate; SDNM: Negligible to Minor
Minerals Management	Lower Sonoran: Negligible to Major; SDNM: Negligible to Moderate		Lower Sonoran: Negligible to Moderate; SDNM: Negligible to Moderate	Lower Sonoran: Minor to Moderate; SDNM: Negligible to Moderate	Lower Sonoran: Negligible to Moderate; SDNM: Negligible to Moderate
Recreation Management	Lower Sonoran: Minor to Moderate; SDNM: Negligible to Minor	Lower Sonoran: Negligible to Moderate; SDNM: Negligible to Moderate	Lower Sonoran: Negligible to Minor; SDNM: Negligible to Minor	Lower Sonoran: Negligible; SDNM: Negligible	Lower Sonoran: Moderate; SDNM: Negligible to Minor
Travel Management	Lower Sonoran: Moderate; SDNM: Negligible to Major		Lower Sonoran: Minor to Moderate; SDNM: Moderate	Lower Sonoran: Minor; SDNM: Minor to Major	Lower Sonoran: Minor to Moderate; SDNM: Moderate
Special Designations	Lower Sonoran: Negligible; SDNM: None	Lower Sonoran: Minor; SDNM: None	Lower Sonoran: Minor; SDNM: Negligible to Moderate	Lower Sonoran: Moderate to Major; SDNM: None	Lower Sonoran: Moderate; SDNM: Negligible
Public Safety and Hazardous Materials	Lower Sonoran: Negligible SDNM: Negligible				

Table 2-44
Comparison of Impact Intensities

From:	A (No Action)	B	C	D	E (Proposed RMP)
Impacts on Wildland Fire Management					
Air Quality	Lower Sonoran: Minor; SDNM: Minor				
Cave Resources	Lower Sonoran: None; SDNM: None				
Cultural and Heritage Resources	Lower Sonoran: Minor; SDNM: Minor				
Paleontological Resources	Lower Sonoran: None; SDNM: None				
Soil Resources	Lower Sonoran: Minor; SDNM: Minor				
Vegetation Resources	Lower Sonoran: Negligible; SDNM: Negligible				
Visual Resource Management	Lower Sonoran: Negligible; SDNM: Negligible			Lower Sonoran: Negligible to Minor; SDNM: Negligible to Minor	
Water Resources Wild Horse and Burro Management	Lower Sonoran: None SDNM: None				
Wilderness Characteristics	Lower Sonoran: Negligible; SDNM: Negligible		Lower Sonoran: Negligible to Minor; SDNM: Negligible to Minor		
Wildland Fire Management	Lower Sonoran: Minor SDNM: Minor				
Wildlife and Special Status Species	Lower Sonoran: Minor SDNM: Minor				
Lands and Realty	Lower Sonoran: Negligible to Minor; SDNM: Negligible to Minor			Lower Sonoran: Minor; SDNM: Minor	Lower Sonoran: Negligible to Minor; SDNM: Minor
Livestock Grazing Management	Lower Sonoran: Negligible;	Lower Sonoran: Negligible to Minor; SDNM: Negligible to Minor		Lower Sonoran: Minor to Moderate;	Lower Sonoran: Negligible;

Table 2-44
Comparison of Impact Intensities

From:	A (No Action)	B	C	D	E (Proposed RMP)
	SDNM: Negligible			SDNM: Minor to Moderate	SDNM: Negligible
Minerals Management	Lower Sonoran: Negligible to Minor; SDNM: Negligible			Lower Sonoran: Negligible; SDNM: Negligible	Lower Sonoran: Negligible to Minor; SDNM: Negligible
Recreation Management	Lower Sonoran: Minor to Moderate; SDNM: Minor to Moderate		Lower Sonoran: Minor; SDNM: Minor	Lower Sonoran: Negligible; SDNM: Negligible	Lower Sonoran: Minor; SDNM: Minor
Travel Management	Lower Sonoran: Minor; SDNM: Minor		Lower Sonoran: Minor to Moderate; SDNM: Minor to Moderate	Lower Sonoran: Moderate; SDNM: Moderate	Lower Sonoran: Minor to Moderate; SDNM: Minor to Moderate
Special Designations	Lower Sonoran: Minor SDNM: Minor				
Public Safety and Hazardous Materials	Lower Sonoran: Minor to Major SDNM: Minor to Major				
Impacts on Wildlife and Special Status Species					
Air Quality	Lower Sonoran: None SDNM: None				
Cave Resources					
Cultural and Heritage Resources					
Paleontological Resources					
Soil Resources					
Vegetation Resources					
Visual Resource Management					
Water Resources					
Wild Horse and Burro Management					

Table 2-44
Comparison of Impact Intensities

From:	A (No Action)	B	C	D	E (Proposed RMP)
Wilderness Characteristics	Lower Sonoran: None SDNM: None		Lower Sonoran: Negligible to Minor SDNM: Negligible		
Wildland Fire Management	Lower Sonoran: Negligible to Major SDNM: Negligible to Major				
Wildlife and Special Status Species	Lower Sonoran: Negligible to Moderate; SDNM: Negligible to Moderate	Lower Sonoran: Negligible to Major; SDNM: Negligible to Moderate	Lower Sonoran: Negligible to Moderate; SDNM: Negligible to Moderate	Lower Sonoran: Negligible to Minor; SDNM: Negligible to Minor	
Lands and Realty	Lower Sonoran: Negligible to Moderate; SDNM: Negligible to Minor	Lower Sonoran: Negligible to Moderate; SDNM: Negligible to Minor		Lower Sonoran: Negligible to Minor; SDNM: Negligible to Minor	
Livestock Grazing Management	Lower Sonoran: Negligible to Major. SDNM: Negligible to Moderate	Sonoran: Negligible to Minor; SDNM: Minor	Lower Sonoran: Negligible to Minor; SDNM: Minor to Moderate	Lower Sonoran: Negligible to Major; SDNM: Negligible to Major	Lower Sonoran: Negligible to Minor; SDNM: Moderate
Minerals Management	Lower Sonoran: Negligible to Moderate SDNM: Negligible to Minor				Lower Sonoran: Negligible to Minor; SDNM: Negligible to Minor
Recreation Management	Lower Sonoran: Negligible to Major; SDNM: Negligible to Moderate	Lower Sonoran: Negligible to Major; SDNM: Negligible to Minor	Lower Sonoran: Negligible to Major SDNM: Negligible to Minor		

Table 2-44
Comparison of Impact Intensities

From:	A (No Action)	B	C	D	E (Proposed RMP)
Travel Management	Lower Sonoran: Negligible to Major; SDNM: Negligible to Moderate	Lower Sonoran: Negligible to Major; SDNM: Negligible to Moderate	Lower Sonoran: Negligible to Moderate; SDNM: Negligible to Moderate	Lower Sonoran: Negligible to Moderate; SDNM: Negligible to Moderate	Lower Sonoran: Negligible to Moderate; SDNM: Negligible to Minor
Special Designations	Lower Sonoran: Negligible to Moderate; SDNM: Negligible to Minor	Lower Sonoran: Negligible to Moderate; SDNM: Negligible	Lower Sonoran: Negligible to Minor; SDNM: None	Lower Sonoran: Negligible to Minor; SDNM: None	Lower Sonoran: Negligible to Minor; SDNM: None
Public Safety and Hazardous Materials	Lower Sonoran: None SDNM: None				
Impacts on Lands and Realty Management					
Air Quality	Lower Sonoran: Negligible to Minor SDNM: Negligible to Minor				
Cave Resources	Lower Sonoran: Negligible SDNM: Negligible				
Cultural and Heritage Resources	Lower Sonoran: Negligible; SDNM: Negligible	Lower Sonoran: Minor to Moderate; SDNM: Negligible	Lower Sonoran: Major; SDNM: Minor to Moderate	Lower Sonoran: Minor; SDNM: Minor	
Paleontological Resources	Lower Sonoran: Negligible SDNM: Negligible				
Soil Resources	Lower Sonoran: Negligible SDNM: Minor				
Vegetation Resources					
Visual Resource Management	Lower Sonoran: Negligible to Moderate; SDNM: Minor to Moderate	Lower Sonoran: Minor; SDNM: Minor	Lower Sonoran: Minor to Moderate; SDNM: Minor	Lower Sonoran: Minor; SDNM: Moderate	Lower Sonoran: Minor to Moderate; SDNM: Moderate

Table 2-44
Comparison of Impact Intensities

From:	A (No Action)	B	C	D	E (Proposed RMP)
Water Resources	Lower Sonoran: Minor SDNM: Minor				
Wild Horse and Burro Management	Lower Sonoran: None SDNM: None				
Wilderness Characteristics	Lower Sonoran: None SDNM: None		Lower Sonoran: Moderate SDNM: Moderate		
Wildland Fire Management	Lower Sonoran: Negligible to Minor SDNM: Negligible to Minor				
Wildlife and Special Status Species	Lower Sonoran: Minor; SDNM: Minor		Lower Sonoran: Moderate SDNM: Negligible		
Lands and Realty	Lower Sonoran: Negligible to Major; SDNM: Minor to Major	Lower Sonoran: Minor to Major; SDNM: Minor to Major	Lower Sonoran: Minor to Major: SDNM: Major	Lower Sonoran: Moderate to Major; SDNM: Major	
Livestock Grazing Management	Lower Sonoran: Negligible SDNM: Negligible				
Minerals Management	Lower Sonoran: Negligible SDNM: Minor				
Recreation Management	Lower Sonoran: Minor SDNM: Minor	Lower Sonoran: Moderate; SDNM: Minor		Lower Sonoran: Negligible; SDNM: Negligible	Lower Sonoran: Negligible; SDNM: Minor
Travel Management	Lower Sonoran: Moderate to Major; SDNM: Minor	Lower Sonoran: Moderate to Major; SDNM: Moderate to Major		Lower Sonoran: Major SDNM: Negligible	Lower Sonoran: Moderate to Major; SDNM: Negligible
Special Designations	Lower Sonoran: Minor to Moderate; SDNM: Negligible	Lower Sonoran: Minor to Moderate; SDNM: Negligible		Lower Sonoran: Major SDNM: Negligible	Lower Sonoran: Minor to Moderate; SDNM: Negligible
Public Safety and Hazardous Materials	Lower Sonoran: None SDNM: None				

Table 2-44
Comparison of Impact Intensities

From:	A (No Action)	B	C	D	E (Proposed RMP)
Impacts on Livestock Grazing Management					
Air Quality	Lower Sonoran: None SDNM: None				
Cave Resources	Lower Sonoran: Negligible SDNM: Negligible				
Cultural and Heritage Resources	Lower Sonoran: Negligible to Minor; SDNM: Negligible to Minor		Lower Sonoran: Minor; SDNM: Negligible to Minor	Lower Sonoran: Negligible; SDNM: Negligible to Minor	Lower Sonoran: Negligible to Minor; SDNM: Negligible to Minor
Paleontological Resources	Lower Sonoran: Negligible SDNM: Negligible				
Soil Resources	Lower Sonoran: Minor SDNM: None				
Vegetation Resources	Lower Sonoran: Negligible to Minor SDNM: Negligible to Major				
Visual Resource Management	Lower Sonoran: Minor; SDNM: Negligible to Major			Lower Sonoran: Negligible; SDNM: Negligible to Major	Lower Sonoran: Minor; SDNM: Negligible to Major
Water Resources	Lower Sonoran: Minor SDNM: None				
Wild Horse and Burro Management	Lower Sonoran: None SDNM: None				
Wilderness Characteristics	Lower Sonoran: Negligible; SDNM: Negligible	Lower Sonoran: Negligible; SDNM: Negligible	Lower Sonoran: Minor; SDNM: Minor	Lower Sonoran: Negligible; SDNM: Negligible	Lower Sonoran: Minor; SDNM: Minor
Wildland Fire Management	Lower Sonoran: Negligible to Major; SDNM: Negligible to Major				

Table 2-44
Comparison of Impact Intensities

From:	A (No Action)	B	C	D	E (Proposed RMP)
Wildlife and Special Status Species	Lower Sonoran: Negligible to Minor; SDNM: Negligible to Major	Lower Sonoran: Minor; SDNM: Negligible		Lower Sonoran: Negligible; SDNM: Negligible	Lower Sonoran: Minor; SDNM: Negligible
Lands and Realty	Lower Sonoran: Negligible to Major; SDNM: Negligible to Moderate	Lower Sonoran: Minor to Major; SDNM: Negligible	Lower Sonoran: Negligible to Major; SDNM: Negligible	Lower Sonoran: Negligible; SDNM: Negligible	Lower Sonoran: Minor to Major; SDNM: Negligible
Livestock Grazing Management	Lower Sonoran: Negligible to Major; SDNM: Negligible to Moderate	Lower Sonoran: Major SDNM: Major	Lower Sonoran: Negligible to Major; SDNM: Moderate to Major	Lower Sonoran: Major SDNM: Major	Lower Sonoran: Negligible to Major; SDNM: Negligible to Major
Minerals Management	Lower Sonoran: Minor SDNM: Negligible			Lower Sonoran: Negligible SDNM: Negligible	Lower Sonoran: Minor; SDNM: Negligible
Recreation Management	Lower Sonoran: Negligible to Moderate; SDNM: Negligible to Minor	Lower Sonoran: Negligible to Moderate; SDNM: Negligible to Minor	Lower Sonoran: Negligible to Moderate; SDNM: Negligible to Moderate	Lower Sonoran: Negligible to Minor; SDNM: Negligible	Lower Sonoran: Negligible to Moderate; SDNM: Negligible to Minor
Travel Management	Lower Sonoran: Minor; SDNM: Minor	Lower Sonoran: Minor; SDNM: Minor to Moderate	Lower Sonoran: Minor; SDNM: Negligible to Moderate	Lower Sonoran: Negligible; SDNM: Negligible	Lower Sonoran: Minor SDNM: Minor
Special Designations	Lower Sonoran: Negligible to Minor SDNM: Minor				
Public Safety and Hazardous Materials	Lower Sonoran: None SDNM: None				

Table 2-44
Comparison of Impact Intensities

From:	A (No Action)	B	C	D	E (Proposed RMP)
Impacts on Minerals Management					
Air Quality	Lower Sonoran: Minor SDNM: Minor				
Cave Resources	Lower Sonoran: None SDNM: None				
Cultural and Heritage Resources	Lower Sonoran: Minor SDNM: Minor		Lower Sonoran: Minor to Moderate; SDNM: Minor		
Paleontological Resources	Lower Sonoran: None SDNM: None				
Soil Resources					
Vegetation Resources	Lower Sonoran: Minor to Moderate SDNM: Minor to Moderate				
Visual Resource Management	Lower Sonoran: Minor SDNM: Minor		Lower Sonoran: Minor to Moderate; SDNM: Minor to Moderate	Lower Sonoran: Moderate to Major; SDNM: Moderate to Major	Lower Sonoran: Minor to Moderate; SDNM: Minor to Moderate
Water Resources	Lower Sonoran: Negligible to Minor SDNM: Negligible to Minor				
Wild Horse and Burro Management	Lower Sonoran: None SDNM: None				
Wilderness Characteristics	Lower Sonoran: None SDNM: None		Lower Sonoran: Moderate; SDNM: Moderate	Lower Sonoran: Moderate to Major; SDNM: Moderate to Major	Lower Sonoran: Moderate; SDNM: Moderate
Wildland Fire Management	Lower Sonoran: None SDNM: None				
Wildlife and Special Status Species	Lower Sonoran: Minor SDNM: Minor		Lower Sonoran: Minor to Moderate; SDNM: Minor	Lower Sonoran: Moderate to Major; SDNM: Moderate to Major	Lower Sonoran: Minor to Moderate; SDNM: Minor to Moderate

Table 2-44
Comparison of Impact Intensities

From:	A (No Action)	B	C	D	E (Proposed RMP)
Lands and Realty	Lower Sonoran: Negligible SDNM: Negligible				
Livestock Grazing Management	Lower Sonoran: None SDNM: None				
Minerals Management	Lower Sonoran: Negligible SDNM: None	Lower Sonoran: Minor SDNM: None	Lower Sonoran: Minor SDNM: None	Lower Sonoran: Minor SDNM: None	Lower Sonoran: Minor SDNM: None
Recreation Management Travel Management	Lower Sonoran: Negligible to Minor SDNM: Negligible to Minor				
Special Designations	Lower Sonoran: Minor; SDNM: Minor		Lower Sonoran: Moderate; SDNM: Moderate		
Public Safety and Hazardous Materials	Lower Sonoran: Minor; SDNM: Minor				
Impacts on Recreation Management					
Air Quality	Lower Sonoran: Moderate to Major SDNM: Moderate to Major				
Cave Resources	Lower Sonoran: Negligible SDNM: Negligible				
Cultural and Heritage Resources	Lower Sonoran: Minor; SDNM: Minor	Lower Sonoran: Major; SDNM: Major	Lower Sonoran: Moderate; SDNM: Moderate	Lower Sonoran: Negligible to Minor; SDNM: Minor	
Paleontological Resources	Lower Sonoran: Negligible SDNM: Negligible				
Soil Resources	Lower Sonoran: Negligible to Minor SDNM: Negligible to Minor				
Vegetation Resources	Lower Sonoran: None SDNM: None				
Visual Resource Management	Lower Sonoran: Negligible SDNM: Negligible				

Table 2-44
Comparison of Impact Intensities

From:	A (No Action)	B	C	D	E (Proposed RMP)
Water Resources	Lower Sonoran: None SDNM: None				
Wild Horse and Burro Management	Lower Sonoran: None SDNM: None				
Wilderness Characteristics	Lower Sonoran: None SDNM: None		Lower Sonoran: Negligible to Minor SDNM: Negligible to Minor		
Wildland Fire Management	Lower Sonoran: Minor SDNM: Minor				
Wildlife and Special Status Species	Lower Sonoran: Minor to Major SDNM: Minor to Major				
Lands and Realty	Lower Sonoran: Minor SDNM: Minor				
Livestock Grazing Management	Lower Sonoran: Minor to Moderate; SDNM: Negligible to Moderate	Lower Sonoran: Minor; SDNM: Negligible to Minor	Lower Sonoran: Negligible; SDNM: Minor to Moderate	Lower Sonoran: Negligible; SDNM: Negligible	Lower Sonoran: Minor to Moderate; SDNM: Minor to Moderate
Minerals Management	Lower Sonoran: Negligible to Minor SDNM: Negligible				
Recreation Management	Lower Sonoran: Negligible to Minor; SDNM: Moderate	Lower Sonoran: Moderate; SDNM: Negligible to Major	Lower Sonoran: Moderate; SDNM: Moderate	Lower Sonoran: Negligible; SDNM: Negligible	Lower Sonoran: Moderate; SDNM: Moderate
Travel Management	Lower Sonoran: Minor; SDNM: Minor	Lower Sonoran: Minor SDNM: Negligible to Moderate			
Special Designations	Lower Sonoran: Negligible; SDNM: Negligible	Lower Sonoran: Negligible to Moderate; SDNM: Negligible		Lower Sonoran: Negligible to Major; SDNM: Negligible	Lower Sonoran: Negligible to Moderate; SDNM: Negligible

Table 2-44
Comparison of Impact Intensities

From:	A (No Action)	B	C	D	E (Proposed RMP)
Public Safety and Hazardous Materials	Lower Sonoran: Minor; SDNM: Minor				
Impacts on Travel Management					
Air Quality	Lower Sonoran: Negligible to Minor SDNM: Minor	Lower Sonoran: Negligible to Major; SDNM: Minor to Moderate		Lower Sonoran: Minor; SDNM: Minor	Lower Sonoran: Negligible to Major; SDNM: Minor
Cave Resources	Lower Sonoran: Negligible; SDNM: Negligible				
Cultural and Heritage Resources	Lower Sonoran: Negligible to Minor; SDNM: Negligible to Moderate	Lower Sonoran: Minor; SDNM: Moderate	Lower Sonoran: Minor; SDNM: Minor	Lower Sonoran: Minor; SDNM: Minor to Moderate	Lower Sonoran: Minor; SDNM: Minor
Paleontological Resources	Lower Sonoran: None SDNM: None				
Soil Resources	Lower Sonoran: Negligible to Moderate; SDNM: Minor	Lower Sonoran: Moderate; SDNM: Moderate		Lower Sonoran: Moderate; SDNM: Moderate to Major	Lower Sonoran: Moderate; SDNM: Moderate
Vegetation Resources	Lower Sonoran: Minor; SDNM: Minor to Moderate		Lower Sonoran: Moderate SDNM: Moderate		
Visual Resource Management	Lower Sonoran: Negligible; SDNM: Negligible	Lower Sonoran: Minor SDNM: Minor			Lower Sonoran: Negligible; SDNM: Minor
Water Resources	Lower Sonoran: None SDNM: None				
Wild Horse and Burro Management	Lower Sonoran: None SDNM: None				

Table 2-44
Comparison of Impact Intensities

From:	A (No Action)	B	C	D	E (Proposed RMP)
Wilderness Characteristics	Lower Sonoran: None; SDNM: None		Lower Sonoran: Moderate; SDNM: Minor to Moderate	Lower Sonoran: Minor to Moderate SDNM: Major	Lower Sonoran: Negligible to Minor; SDNM: Minor
Wildland Fire Management	Lower Sonoran: None; SDNM: None				
Wildlife and Special Status Species	Lower Sonoran: Moderate; SDNM: Minor to Moderate	Lower Sonoran: Minor to Moderate; SDNM: Minor to Moderate	Lower Sonoran: Moderate; SDNM: Negligible to Major	Lower Sonoran: Moderate; SDNM: Moderate	Lower Sonoran: Moderate to Major; SDNM: Minor
Lands and Realty	Lower Sonoran: Minor; SDNM: None	Lower Sonoran: Minor; SDNM: Minor to Moderate	Lower Sonoran: Minor to Moderate; SDNM: Negligible	Lower Sonoran: Negligible; SDNM: Negligible	Lower Sonoran: Negligible; SDNM: Minor
Livestock Grazing Management	Lower Sonoran: Negligible to Moderate; SDNM: Negligible	Lower Sonoran: Minor SDNM: Minor		Lower Sonoran: Minor SDNM: Minor	Lower Sonoran: Negligible to Minor; SDNM: Minor
Minerals Management	Lower Sonoran: Minor SDNM: Moderate				Lower Sonoran: Minor; SDNM: Negligible
Recreation Management	Lower Sonoran: Minor; SDNM: Minor		Lower Sonoran: Minor; SDNM: Minor to Moderate	Lower Sonoran: Moderate to Major; SDNM: Moderate	Lower Sonoran: Minor; SDNM: Minor to Moderate
Travel Management	Lower Sonoran: Negligible to Moderate; SDNM: Negligible to Moderate	Lower Sonoran: Minor; SDNM: Minor to Major	Lower Sonoran: Minor to Major; SDNM: Minor to Major	Lower Sonoran: Negligible; SDNM: Major:	Lower Sonoran: Minor to Major; SDNM: Minor to Major

Table 2-44
Comparison of Impact Intensities

From:	A (No Action)	B	C	D	E (Proposed RMP)
Special Designations	Lower Sonoran: Minor; SDNM: Minor	Lower Sonoran: Negligible SDNM: Negligible	Lower Sonoran: Negligible; SDNM: Moderate	Lower Sonoran: Major; SDNM: Moderate	Lower Sonoran: Negligible; SDNM: Moderate
Public Safety and Hazardous Materials	Lower Sonoran: Negligible SDNM: Negligible				
Impacts on Special Designations					
Air Quality	Lower Sonoran: None SDNM: Negligible	Lower Sonoran: None SDNM: Negligible			
Cave Resources	Lower Sonoran: None SDNM: Negligible				
Cultural and Heritage Resources	Lower Sonoran: Negligible SDNM: Negligible	Lower Sonoran: Negligible SDNM: Negligible	Lower Sonoran: Negligible SDNM: Negligible	Lower Sonoran: Negligible SDNM: Negligible	Lower Sonoran: Negligible SDNM: Negligible
Paleontological Resources	Lower Sonoran: None SDNM: None				
Soil Resources	Lower Sonoran: Negligible SDNM: Negligible	Lower Sonoran: Negligible to Minor SDNM: Negligible	Lower Sonoran: Negligible to Minor SDNM: Negligible	Lower Sonoran: Negligible to Minor SDNM: Negligible	Lower Sonoran: Negligible to Minor SDNM: Negligible
Vegetation Resources	Lower Sonoran: Negligible; SDNM: Negligible to Minor	Lower Sonoran: Negligible to Moderate; SDNM: Negligible to Minor	Lower Sonoran: Negligible; SDNM: Negligible to Minor	Lower Sonoran: Negligible; SDNM: Negligible to Minor	Lower Sonoran: Negligible; SDNM: Negligible to Minor
Visual Resource Management	Lower Sonoran: Negligible to Minor; SDNM: Minor to Moderate	Lower Sonoran: Moderate; SDNM: Moderate	Lower Sonoran: Negligible to Minor; SDNM: Negligible	Lower Sonoran: Minor to Negligible; SDNM: Minor to Negligible	Lower Sonoran: Negligible to Moderate; SDNM: Minor

Table 2-44
Comparison of Impact Intensities

From:	A (No Action)	B	C	D	E (Proposed RMP)
Water Resources	Lower Sonoran: Negligible to Major SDNM: Negligible				
Wild Horse and Burro Management	Lower Sonoran: None SDNM: None				
Wilderness Characteristics	Lower Sonoran: Negligible SDNM: Negligible		Lower Sonoran: Negligible; SDNM: Negligible		
Wildland Fire Management	Lower Sonoran: Negligible to Moderate SDNM: Negligible to Moderate				
Wildlife and Special Status Species	Lower Sonoran: Negligible to Minor SDNM: Negligible to Moderate				
Lands and Realty	Lower Sonoran: Minor to Moderate; SDNM: Minor to Moderate	Lower Sonoran: Moderate; SDNM: Negligible Moderate	Lower Sonoran: Minor; SDNM: Negligible to Minor	Lower Sonoran: Negligible; SDNM: Negligible	Lower Sonoran: Minor; SDNM: Minor
Livestock Grazing Management	Lower Sonoran: Negligible to Minor; SDNM: Negligible to Minor		Lower Sonoran: Negligible to Minor; SDNM: Negligible to Minor	Lower Sonoran: Negligible to Major; SDNM: Negligible to Minor	Lower Sonoran: Negligible to Moderate; SDNM: Negligible to Minor
Minerals Management	Lower Sonoran: Negligible to Moderate SDNM: Negligible to Moderate				
Recreation Management	Lower Sonoran: Negligible; SDNM: Negligible to Minor	Lower Sonoran: Moderate; SDNM: Negligible to Moderate	Lower Sonoran: Negligible to Moderate; SDNM: Negligible to Moderate	Lower Sonoran: Minor; SDNM: Minor	
Travel Management	Lower Sonoran: Negligible; SDNM: Minor	Lower Sonoran: Negligible to Moderate; SDNM: Negligible Moderate		Lower Sonoran: Negligible to Moderate; SDNM: Minor	

Table 2-44
Comparison of Impact Intensities

From:	A (No Action)	B	C	D	E (Proposed RMP)
Special Designations	Lower Sonoran: Negligible SDNM: Negligible				
Public Safety and Hazardous Materials					
Impacts on Hazardous Materials and Public Safety					
Air Quality	Lower Sonoran: None SDNM: None				
Cave Resources					
Cultural and Heritage Resources					
Paleontological Resources					
Soil Resources					
Vegetation Resources					
Visual Resource Management					
Water Resources					
Wild Horse and Burro Management					
Wilderness Characteristics					
Wildland Fire Management	Lower Sonoran: Negligible to Major SDNM: Major				
Wildlife and Special Status Species	Lower Sonoran: None SDNM: None				
Lands and Realty	Lower Sonoran: Negligible to Minor; SDNM: Negligible to Minor	Lower Sonoran: Minor; SDNM: Minor		Lower Sonoran: Negligible to Minor; SDNM: Negligible to Minor	Lower Sonoran: Negligible to Minor; SDNM: Negligible to Minor
Livestock Grazing Management	Lower Sonoran: Negligible to Minor SDNM: Negligible to Minor			Lower Sonoran: Negligible; SDNM: Negligible	Lower Sonoran: Minor; SDNM: Minor

Table 2-44
Comparison of Impact Intensities

From:	A (No Action)	B	C	D	E (Proposed RMP)
Minerals Management	Lower Sonoran: Minor to Major SDNM: Minor to Major				
Recreation Management	Lower Sonoran: Minor to Moderate SDNM: Minor to Moderate				
Travel Management	Lower Sonoran: Moderate SDNM: Moderate				
Special Designations	Lower Sonoran: Negligible to Minor SDNM: Negligible to Minor				
Public Safety and Hazardous Materials	Lower Sonoran: Minor to Major SDNM: Moderate				
Impacts on Socioeconomics					
Air Quality	Lower Sonoran: Negligible SDNM: Negligible				
Cave Resources	Lower Sonoran: None SDNM: None				
Cultural and Heritage Resources	Lower Sonoran: Negligible to Minor SDNM: Negligible to Minor				
Paleontological Resources	Lower Sonoran: None SDNM: None				
Soil Resources	Lower Sonoran: Negligible SDNM: Negligible				
Vegetation Resources	Lower Sonoran: Negligible SDNM: Negligible				
Visual Resource Management	Lower Sonoran: Negligible to Moderate; SDNM: Negligible to Moderate		Lower Sonoran: Negligible to Minor; SDNM: Negligible to Minor		
Water Resources	Lower Sonoran: Negligible SDNM: Negligible				
Wild Horse and Burro Management	Lower Sonoran: None SDNM: None				

Table 2-44
Comparison of Impact Intensities

From:	A (No Action)	B	C	D	E (Proposed RMP)
Wilderness Characteristics	Lower Sonoran: Minor to Moderate; SDNM: Minor to Moderate		Lower Sonoran: Negligible to Moderate; SDNM: Minor to Moderate	Lower Sonoran: Negligible to Minor; SDNM: Minor to Moderate	Lower Sonoran: Negligible to Moderate; SDNM: Minor to Moderate
Wildland Fire Management	Lower Sonoran: Negligible SDNM: Negligible				
Wildlife and Special Status Species	Lower Sonoran: Minor SDNM: Minor				
Lands and Realty	Lower Sonoran: Negligible to Major SDNM: Negligible to Minor				
Livestock Grazing Management	Lower Sonoran: Negligible; SDNM: Negligible to Minor	Lower Sonoran: Negligible; SDNM: Minor	Lower Sonoran: Negligible to Minor; SDNM: Negligible to Minor	Lower Sonoran: Minor to Major; SDNM: Minor to Major	Lower Sonoran: Negligible; SDNM: Negligible to Minor
Minerals Management	Lower Sonoran: Negligible to Moderate SDNM: Negligible				
Recreation Management	Lower Sonoran: Negligible to Minor; SDNM: Negligible to Minor	Lower Sonoran: Moderate SDNM: Negligible to Minor			
Travel Management	Lower Sonoran: Negligible; SDNM: Negligible to Minor	Lower Sonoran: Negligible to Minor SDNM: Negligible to Minor			
Special Designations	Lower Sonoran: Negligible SDNM: Negligible				

Table 2-44
Comparison of Impact Intensities

From:	A (No Action)	B	C	D	E (Proposed RMP)
Public Safety and Hazardous Materials	Lower Sonoran: Negligible SDNM: Negligible				
Impacts on Tribal Interests					
Air Quality Cave Resources	Lower Sonoran: None SDNM: None				
Cultural and Heritage Resources	Lower Sonoran: Minor SDNM: Minor				
Paleontological Resources Soil Resources	Lower Sonoran: None SDNM: None				
Vegetation Resources	Lower Sonoran: Minor SDNM: Minor				
Visual Resource Management	Lower Sonoran: Minor to Moderate SDNM: Minor to Moderate				
Water Resources Wild Horse and Burro Management	Lower Sonoran: None SDNM: None				
Wilderness Characteristics	Lower Sonoran: Negligible SDNM: Negligible				
Wildland Fire Management	Lower Sonoran: Negligible SDNM: Negligible				
Wildlife and Special Status Species	Lower Sonoran: Minor SDNM: Minor				
Lands and Realty	Lower Sonoran: Negligible to Minor SDNM: Negligible to Minor				
Livestock Grazing Management	Lower Sonoran: Negligible to Minor SDNM: Negligible to Minor				
Minerals Management	Lower Sonoran: Negligible to Minor SDNM: Negligible to Minor				

Table 2-44
Comparison of Impact Intensities

From:	A (No Action)	B	C	D	E (Proposed RMP)
Recreation Management	Lower Sonoran: Negligible SDNM: Negligible				
Travel Management	Lower Sonoran: Negligible to Minor SDNM: Negligible to Minor				
Special Designations	Lower Sonoran: Minor SDNM: Minor				
Public Safety and Hazardous Materials	Lower Sonoran: None SDNM: None				

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CHAPTER 3

AFFECTED ENVIRONMENT

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MAPS

Note: Maps referenced in this chapter may be found in Volume 4, Map Book.

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CHAPTER 3
AFFECTED ENVIRONMENT

3.1 INTRODUCTION

This chapter describes the environment within the Lower Sonoran Planning Area that would potentially be affected by actions proposed under the alternatives described in **Chapter 2**, Alternatives. While the BLM is only responsible for managing BLM-administered lands within the Planning Area (i.e., the Lower Sonoran and Sonoran Desert National Monument Decision Areas), proposed decisions may affect environmental components outside the Decision Areas. Therefore, unless indicated otherwise, discussion and analysis in this section encompasses the Planning Area as a whole.

The environmental components potentially impacted consist of resource and management activities listed below. The foreseeable environmental effects of the alternatives on these same resource and management activities are described in **Chapter 4**, Environmental Consequences.

The data and descriptions of these categories are drawn from the Analysis of the Management Situation (AMS) (BLM 2005d) and subsequent, completed resource assessments on several of the environmental components occurring within the Planning Area. The AMS is available for public review at the BLM's Phoenix District Office (PDO).

Resources
Air Quality
Cave Resources
Climate Change
Cultural and Heritage Resources
Wildlife and Special Status Species
Geology
Paleontological Resources
Soil Resources
Vegetation Resources
Visual Resources
Water Resources
Wild Horse & Burro Management
Wilderness Characteristics
Wildland Fire Management

Resource Uses
Lands & Realty
Livestock Grazing Management
Minerals Management
Recreation Management
Travel Management

Special Area Designations
National Landscape Conservation System
Administrative Designations

Social and Economic
Tribal Interests
Hazardous Materials and Public Safety
Economic Conditions

3.2 RESOURCES

3.2.1 AIR QUALITY

3.2.1.1 Regulatory Framework

The BLM's role in air resource management includes managing air resources consistent with the FLPMA, ensuring that agency activities comply with applicable air quality standards, and ensuring that BLM-authorized leases and permits include conditions and stipulations that require compliance with applicable air quality rules and standards.

This is done through interagency coordination, participation in state implementation plans (SIPs), environmental impact analyses as required by NEPA, and adaptive management practices as outlined in BLM Handbook H-1601-1.

3.2.1.2 National Ambient Air Quality Standards

The Clean Air Act (CAA) requires the EPA to set time-averaged National Ambient Air Quality Standards (NAAQS) for pollutants harmful to public health or the environment. There are two types of national standards: primary standards to protect health, and secondary standards to protect welfare. The EPA sets NAAQS for six principal or "criteria" pollutants. The pollutants are carbon monoxide (CO), lead, nitrogen dioxide (NO_2), ozone (O_3), sulfur dioxide (SO_2), and two categories of particulate matter (particulate matter with an aerodynamic diameter of 10 microns or less [PM_{10}] and particulate matter with an aerodynamic diameter of 2.5 microns or less [$PM_{2.5}$]). States may set their own ambient air quality standards, but these standards must be at least as stringent as the national standards. The State of Arizona has adopted the NAAQS to regulate air pollution in the state.

Geographic areas are designated as attainment, nonattainment, or unclassified for each of the criteria pollutants with respect to NAAQS. An area is designated as "attainment" if pollutant concentrations meet the NAAQS, "nonattainment" if pollutant concentrations exceed the NAAQS, or "unclassified" if the status of attainment has not been verified through data collection. For planning and permitting purposes, unclassified areas are treated as attainment areas. All counties making up portions of the Planning Areas, with the exception of Yuma County, contain some areas that are designated as nonattainment with respect to specific criteria pollutants, including PM_{10}, SO_2, CO, and O_3 (ADEQ 2006a). The air pollution nonattainment areas are shown in **Map 3-1**, Air Pollutant Nonattainment Areas.

Prevention of Significant Deterioration

Prevention of Significant Deterioration (PSD) regulations prevent areas that are in attainment of the NAAQS from being polluted up to the level of the NAAQS. PSD regulations place limits on the total increase in ambient pollution levels above established baseline levels for SO_2, NO_2, and PM_{10}. Air quality control regions are classified either as Class I, II, or III to indicate the degree of air quality deterioration that the state or federal government will allow while not exceeding the NAAQS.

Class I areas are defined in the CAA as national parks larger than 6,000 acres, and wilderness areas and memorial parks larger than 5,000 acres, existing in 1977. Class I areas are special areas of natural

wonder and scenic beauty, where air quality should be given the most stringent protection. Actions located farther than 100 kilometers from Class I areas are generally presumed to not impact air quality-related values of the Class I area. There is one Class I area—Superstition Wilderness—within the Planning Area. There are five Class I areas in the vicinity of the Planning Area, including the following:

- Gailiuro Wilderness (approximately 65 miles, or 104 kilometers, from the Planning Area border);
- Mazatzal Wilderness (approximately 12 miles, or 19 kilometers from the Planning Area border);
- Saguaro Wilderness West (less than five miles, or 8 kilometers, from the Planning Area border);
- Saguaro Wilderness East (approximately 30 miles, or 48 kilometers from the Planning Area border); and
- Sierra Ancha Wilderness (approximately 15 miles, or 24 kilometers, from the Planning Area border).

Map 3-2, Airshed Resources, depicts the Class I areas in and around the Planning Area.

All federally managed lands that are not designated as Class I areas have been designated Class II. Class II areas allow a moderate change in air quality due to industrial growth while still maintaining air quality that meets the NAAQS. States may redesignate Class II areas as Class III areas with less air quality protection if certain federal requirements are met. No Class III areas have been designated in the US.

Emission Sources

Diverse emission sources within the Planning Area collectively affect air quality on a local and regional scale, including major, minor, non-permitted, mobile, and fugitive emission sources. The northern part of the Lower Sonoran Planning Area is most likely to be affected by automobile emissions, including CO, carbon dioxide (CO_2), SO_2, and PM_{10} due to road density and proximity to the Phoenix metropolitan area. Such emission sources could also affect the northern-most portion of SDNM. Traffic on I-8 and State Highways 85 and 238 (SR 85 and SR 238), as well as the railroad corridor, are significant contributors of emissions in the Monument's central and southern portions. Travel on unpaved roads also results in fugitive dust emissions.

Major Sources

For permitting purposes, a major source is defined as an emission source that has the potential to emit 100 tons or more per year of any single criteria pollutant, 10 tons per year of any single hazardous air pollutant, or 25 tons per year of any combined hazardous air pollutants. Major sources include industrial facilities such as gas-fired power plants, natural gas pipeline compressor stations, landfills, mineral processing facilities, and various manufacturing plants with large fuel combustion equipment or that use substantial quantities of volatile organic materials, typically in application of finishes and coatings.

Minor Sources

A minor source is defined as an emission source that has the potential to emit pollutants at a level greater than the "significance" thresholds determined by the state's minor New Source Review program, but less than the major source threshold. The significance threshold provides an emission baseline for criteria pollutants that determines which facilities must obtain permits. These thresholds vary by pollutant and range from 0.6 ton per year for lead, 15 tons per year for PM10, 100 tons per year for CO, and 40 tons per year for other criteria pollutants. Minor sources include industrial and commercial facilities of many kinds, especially in the more developed portions of the Planning Area. Although minor emission sources vary outside the metropolitan Phoenix area, common sources are rock-product plants that produce crushed and screened materials, and hot-mix asphalt and concrete plants. These plants can be found in the Lower Sonoran Planning Area and are often portable, which means that they can be moved as the local demand for the product moves. The primary emissions from these sources are particulate matter; however, NO_2 can also be significant if any equipment operates using fuel-fired generators.

Non-permitted Sources

Many small stationary emission sources such as agricultural operations and large-scale construction projects do not produce air pollution levels that would substantially affect regional air quality and are not required to have an operating permit. Such sources may occur in the Planning Area on occasion. However, emissions from these facilities, mostly in the form of particulates, can affect local air quality due to the arid soil conditions. While non-permitted sources are not tracked as closely as permitted sources, these must also comply with applicable federal, state, and local regulations.

Mobile Sources

Vehicle travel on paved roads, especially in the metropolitan Phoenix area, represents the largest single emission source in and surrounding the Planning Area. When CO from vehicle emissions combines with extreme desert heat, O_3 is created. Other primary contributors in the Planning Area include traffic on interstates and other major thoroughfares, including interstates (I-10, I-17, and I-8); US Highways (US 60 and US 89); and State Highways (SR 87). In a similar fashion, railroad corridors can be significant emissions contributors in the Planning Area's central portions. Particulate matter carried onto paved roadways from wind and rain events and soil tracked onto highways by vehicles entering from unpaved roads are common sources of PM_{10} pollution.

Fugitive Sources

Most vehicle routes in the Decision Areas are unpaved. Travel on unpaved routes results in particulate emissions, or fugitive dust. Fugitive dust can affect local air quality, especially in areas of concentrated travel on unpaved roads and during periods of high winds.

The largest source of particulate matter emissions in the Planning Area is surface-disturbing activities, including construction, mining, and off-highway (recreation-related) travel, all of which occur in the Planning Area. State and local nonpoint-source rules govern these activities.

Maricopa County recommends best management practices (BMPs) such as applying water or chemical dust suppressants on disturbed, unpaved areas to reduce particulate matter emissions.

3.2.1.3 Meteorological Conditions

The Planning Area is typical of the Sonoran Desert (i.e., warm and dry), and air quality is closely linked to an area's meteorological conditions.

Average annual maximum temperatures vary across the Planning Area. Long-term data indicate an average annual maximum temperature of 89 degrees Fahrenheit (°F) in the western portion of the Planning Area and 76°F in the eastern portion, with temperatures ranging from 79°F in the north to 84°F in the south. Minimum temperatures range from 56°F in the western portion of the Planning Area to 47°F in the eastern portion and from 61°F in the north to 59°F in the south (Western Regional Climatic Center [WRCC] 2003a). Average monthly temperatures in the western part of the Planning Area, where most of the Decision Areas' lands are located, range from the mid-40s in the winter to the mid-90s in the summer.

Annual average mean precipitation levels range from 6 to 16 inches west to east, with rainfall ranging from 6 to10 inches in the west and south and higher rainfall levels to the northeast (WRCC 2003a). Precipitation is almost entirely in the form of rain and is unevenly distributed throughout the year. On average, more rain falls in July and August during the summer monsoon season.

The average annual wind speeds range from 5.5 to 7.7 miles per hour (mph), with the average monthly wind speed ranging throughout the year from 4.0 to 8.9 mph (WRCC 2003b).

These climate and meteorological factors often contribute to the generation of fugitive dust, especially from vehicular travel on unpaved roads, earthmoving activity, and mineral material handling.

Quantifiable Indicators

Quantifiable indicators associated with air quality include criteria air pollutants and observed levels of visibility. Visibility varies with the levels of criteria air pollutants in the atmosphere.

Pollutants

A review of air monitoring data required by Arizona Revised Statutes (ARS) 49-424.10 indicates considerable progress has been made in reducing airborne pollutants throughout the state. The most drastic change has occurred in CO concentrations in the highly urbanized areas of Tucson and Phoenix. Such concentrations, which regularly exceeded standards in neighborhoods and near busy intersections in Phoenix (and to a lesser extent in Tucson), are now well below the eight-hour CO NAAQS. Ozone concentrations have shown slight decreases in the metropolitan areas of Tucson and Phoenix, though a very slight increase has been observed in some rural areas.

Trends in PM_{10} are quite variable and location dependent. Long-term trend sites in Phoenix show a slight decrease in PM_{10} concentrations for most areas, though there may be localized unimproved areas. The Tucson metropolitan area, on the other hand, has seen a general increase in PM_{10} concentrations, but the overall concentration is significantly less than in Phoenix. Monitoring of $PM_{2.5}$ is a new program

begun in the late 1990s. While there is insufficient data to assess $PM_{2.5}$ trends confidently, the variability in concentration of these fine particles over time appears to be relatively constant, with Phoenix and Nogales having the greatest concentrations.

A substantial number of air quality monitors, scattered in and around the Planning Area, measure and record ambient air concentrations for criteria air pollutants. In 2004, all monitors with recorded data indicated compliance with the NAAQS for all pollutants except O_3 (8-hour standard) and PM_{10} (24-hour and annual standards). Such data allow a review of historic trends for certain pollutants. Data trends for criteria air pollutants measured and recorded at various monitors were evaluated based on data obtained from annual Air Quality Reports issued by ADEQ.

A small portion of the SDNM—about 3,500 acres downwind from the City of Phoenix—is within the nonattainment area of the Maricopa Intrastate Air Quality Control Region. The 3,500 acres encompass sections of Woolsey Peak, North Maricopa Mountains, and the Sierra Estrellas. It should be noted that ozone production in the lower atmosphere is mostly an inner-city condition. Ground-level ozone is caused by, among other things, motor-vehicle exhaust, industrial emissions, and gasoline vapors, as well as natural sources that emit nitrogen oxides (NO) and volatile organic compounds (VOCs).

A portion of the Monument is within the area designated by Maricopa County as "Area A" for PM_{10}. All projects and program components within this area must comply with Section 176(c) of the CAA, as amended, and regulations under 40 CFR part 93 subpart W, concerning conformity of general federal actions to the applicable SIP for nonattainment and maintenance areas. Under those authorities, "no department, agency, or instrumentality of the federal government shall engage in, support in any way or provide financial assistance for, license or permit, or approve any activity which does not conform to an applicable implementation plan." Therefore, a federal agency must determine that a federal action conforms to the applicable implementation plan before it is done.

No PM_{10}, SO_2, CO, or O_3 standards were violated in the Planning Area's western region, which encompasses most of the Lower Sonoran (e.g., Ajo Block and Saddle and Gila Bend Mountains). Most areas where standards are exceeded are in the immediate vicinity or to the northeast of metropolitan Phoenix (see **Map 3-1**, Air Pollutant Nonattainment Areas), which includes the northernmost portion of the Lower Sonoran. Trends here have been variable.

Carbon Monoxide, Nitrogen Dioxide, and Sulfur Dioxide. With few exceptions in the Planning Area, CO monitoring data indicate a general decrease in pollutant levels since 1997, with no exceedance of air quality standards. In January 2005, the Phoenix metropolitan area was in attainment with CO standards. Nitrogen dioxide showed a general increase for hourly and daily measurements from 1998 to 2000, then decreases in pollutant levels since 2001. Overall, the annual pattern of emissions has remained steady and within standards. Sulfur dioxide shows variable 3-hour and daily concentrations, but overall concentrations are steady or decreasing and within standards. The Ajo and Globe-Miami areas historically were nonattainment areas for SO_2, primarily due to emissions related to large copper mines; however, in 2004, Ajo was re-designated as in attainment, and Miami-Globe has been recommended for attainment status.

Ozone: Ozone was measured under a one-hour standard that was revoked by EPA in 1997; it is now measured under an eight-hour standard. In 2005, EPA changed the Phoenix metropolitan area designation to attainment of the one-hour O_3 standard. That same year, EPA designated the Phoenix

metropolitan area as nonattainment for the eight-hour O_3 standard. In the Phoenix metropolitan area and the northeast portion of the Planning Area, O_3 levels have been variable, with no prominent trends since 1998. The Gila Bend Mountains and Saddle Mountain areas have had decreasing trends in O_3 over this period. In December 2011, the EPA indicated its intent to support Arizona's recommended designation of the Phoenix-Mesa area as nonattainment for the primary eight-hour O_3 standard issued in 2008. The EPA plans to issue final area designations under this standard in Spring 2012.

Particulate Matter: Particulate matter is monitored for both PM_{10} and $PM_{2.5}$. In both particulate sizes, the Phoenix area, including much of Maricopa and Pinal Counties, is exceeding the standards. In 2004, the 24-hour standard was exceeded 41 times at 12 sites in the metropolitan Phoenix area, and five sites exceeded the annual standard. Primary pollution sources contributing to this nonattainment were windblown dust from construction sites, agricultural fields, unpaved roads and parking lots, and disturbed vacant lots.

Data on $PM_{2.5}$ are collected in only a few locations and show no clear trend except that concentrations have been relatively stable (EPA 2012). Based on 1997 air quality standards, the entire state of Arizona is in attainment of the $PM_{2.5}$ standard. In 2006, however, the EPA created more stringent standards. Based on data collected from 2007 through 2009, two areas in Arizona are in nonattainment with the 2006 $PM_{2.5}$ standards: West Central Pinal County within the Planning Area and Nogales, Arizona, in the adjacent Tucson Field Office Planning Area. As a result, the ADEQ and county departments of environmental quality have been looking closely at $PM_{2.5}$ emissions.

For PM_{10}, annual averages have been stable in most locations since 2000; however, hourly and daily standards occasionally have been exceeded. In October 2010, the EPA proposed a new PM_{10} nonattainment area comprised of western Pinal County. The Ajo PM_{10} nonattainment area has been recommended for attainment status because it has not exceeded the standard since 1998.

Visibility Conditions

Visibility and regional haze conditions in the Planning Area are a function of the nature and emission height of certain air pollutants and meteorological conditions. The Cooperative Institute for Research in the Atmosphere operates a network of monitoring stations and publishes Integrated Monitoring of Protected Visual Environments (IMPROVE) data to identify and evaluate patterns and trends in regional visibility. Data pertaining to the Planning Area show that visible haze patterns measured in the Sonoran Desert characterize typical sites in the Southwest.

The monitoring results revealed the following:

- Fine and coarse particulate concentrations were the largest contributors to poor visibility in the spring, then summer and fall, and lowest in the winter.
- Contributions to visibility degradation consisting of sulfates, organics, and soil in the fine particulate mass measurements were highest in the summer, and then fall, spring, and again lowest in the winter (IMPROVE 2000).

Based on the above observations, the haziest days in the Sonoran Desert occur in the summer, and the best visibility occurs in the winter.

In 2004, the visibility conditions at the Tonto National Monument IMPROVE monitor, which is located northeast of the Superstition Class I Wilderness area, were 110, 155, and 220 kilometers for the worst, typical, and best visual range values, respectively (Visibility Information Exchange Web System [VIEWS] 2006). That is, on the worst days, someone could identify a dark object against the horizon up to 110 kilometers away. Downtown Phoenix visibility also has been measured in recent years. Data from 2010 indicate that 80 percent of the days were considered good or excellent and 20 percent were considered fair or poor (ADEQ 2012).

Phoenix area parks had five cameras installed to monitor visibility conditions. Camera locations include the Superstition Mountains, Estrella Mountain Regional Park, and South Mountain Park within the Planning Area. These cameras can be used to assess visibility trends. Based on data available from 1991-2001, there was an improvement in visibility and standard visible range. Visibility distances on the worst days ranged from 87 to 103 kilometers and on the best days ranged from 176 to 199 kilometers (VIEWS 2003a, 2003b). Actions that decrease O_3 and particulate matter are likely to improve visibility.

3.2.2 CAVE RESOURCES

The BLM is required to comply with the Federal Cave Resources Protection Act (FCRPA) regarding caves in the Planning Area. Caves on federal lands are managed under 43 CFR, Part 37. These regulations provide guidance for identifying, nominating, evaluating, and designating significant cave resources. According to FCRPA, a cave is "any naturally occurring void, cavity, recess, or system of interconnected passages which occurs beneath the surface of the earth or within a cliff or ledge and which is large enough to permit an individual to enter, whether or not the entrance is naturally formed or manmade. Such term shall include any natural pit, sinkhole, or other feature, which is an extension of the entrance."

The Planning Area contains Paleozoic sedimentary deposits and Tertiary volcanic rocks known to contain caves elsewhere in Arizona. While Paleozoic limestone occurs in the Sand Tank Mountains, no caves or cave resources have been found in the Decision Areas; however, two lava tubes are known to occur in Sentinel Plain. Small rock overhangs and shallow openings are present in some rock units; however, these are not deep enough to meet the criteria to be considered a cave. Two lava tubes have been identified in the Decision Areas as cave resources.

There may be additional undocumented caves located in geologically suitable areas. Any newly discovered caves would be evaluated for scientific, educational, and recreational value according to the FCRPA.

3.2.3 CLIMATE CHANGE

Greenhouse gases (GHG) are chemical compounds in the Earth's atmosphere that allow incoming short-wave solar radiation but absorb long-wave infrared radiation re-emitted from the Earth's surface, trapping heat. Most studies indicate that the Earth's climate has warmed over the past century due to increased emissions of GHGs and that human activities affecting emissions to the atmosphere are likely an important contributing factor (US Energy Information Administration 2009).

Computer-based modeling suggests that rising GHG concentrations generally produce an increase in the average temperature of the Earth, which may produce changes in sea levels, rainfall patterns, and intensity and frequency of extreme weather events. Collectively, these effects are referred to as "climate change." The Intergovernmental Panel on Climate Change (IPCC), in its Fourth Assessment Report, stated that warming of the Earth's climate system is unequivocal and that warming is very likely due to anthropogenic GHG concentrations (IPCC 2007).

Climate is the composite of a region's generally prevailing weather conditions throughout the year, averaged over a series of years. Historical weather patterns within the Planning Area are characterized by mild winters, hot summers, and low levels of rainfall consistent with the Sonoran Desert's arid climate. Temperatures in the Planning Area show a consistent warming trend since recording began in 1896 (National Weather Service Forecast Office 2009), and recent warming in the Southwest has been "among the most rapid in the nation" (US Global Change Research Program 2010). Across the West, the increase in average temperature during the past five years has been 70 percent higher than in the world as a whole (Saunders et al. 2008). In Arizona, average temperature increases during winter and spring months have been greater than during the summer or fall, and increases in daily minimum temperatures have been more common than increases in daily maximum temperatures. Winter minimum temperatures in the Sonoran Desert now are higher, and freeze-free periods are longer, than at any time during the 20th century, a trend likely to continue into the future (Weiss and Overpeck 2005). Climate models' projections for the future of the western US consistently predict higher temperatures. Increases of 3.6°F (2°C) in both summer and winter are likely by 2050, as are annual increases of 7.2 to 9°F (4-5°C) by 2099 (Garfin et al. 2007).

3.2.3.1 Emission Sources

Greenhouse gases include carbon dioxide (CO_2), methane (CH_4), nitrous oxide (N_2O), water vapor, and several trace gases. Some GHGs, such as CO_2, occur naturally and are emitted into the atmosphere through both natural processes and human activities, while others are created and emitted solely through human activities. The GHGs that enter the atmosphere due to human activities include CO_2 from the burning of fossil fuels, solid waste, and trees and wood products; CH_4 emitted during the production and transport of coal, natural gas, and oil, as well as by livestock, deforestation, and agricultural practices; N_2O from agricultural and industrial activities and the combustion of fossil fuels and solid waste; and fluorinated gases that result from a variety of industrial processes.

Total GHG emissions in the US rose 14.7 percent from 1990 to 2006. The primary GHG emitted by human activities in the United States is CO_2. It totals approximately 84.8 percent of all GHG emissions, with the largest source being fossil fuel combustion. According to the EPA Inventory of US Greenhouse Gas Emissions and Sinks (EPA 2008), CO_2 emitted in the US totaled 7,054.2 teragrams in 2006. These GHG emissions are partly offset by carbon sequestration in forests, trees, urban areas, and agricultural soils, which, in aggregate, offset 12.5 percent of total US emissions in 2006 (EPA 2008).

Global Effects

The Earth's global mean surface temperature rose 1.3°F (0.74°C) from 1906 to 2005 (IPCC 2007). In 2007, the IPCC predicted that by the year 2100, global average surface temperatures will rise 2.0-11.5°F (1.1-6.4°C) above 1990 levels. Increasing concentrations of GHGs are likely to accelerate the rate of climate change in the future, and there is evidence of this happening already (IPCC 2007). However,

uncertainties remain as to how climate change will affect different regions. Computer model predictions indicate increases in temperature will not be equally distributed but are likely to be accentuated at higher latitudes. Data collected by the Goddard Institute for Space Studies (2007) indicate that northern latitudes have exhibited temperature increases of nearly 2.1°F since 1900, with a nearly 1.8°F increase since 1970.

Regional Effects

The average temperature in the Southwest has already increased approximately 1.5°F (0.83°C) above a baseline period of 1960-1990 and is projected to rise 4.0-10.0°F (2.2°C-5.6°C) by the end of the century (Justus and Fletcher 2007). It is not possible to predict with certainty the effects of climate change on local- or regional-scale ecosystems, but climate change is certain to affect natural and human systems within the Planning Area and is likely to have a large impact on BLM management strategies. The 2007 US Government Accountability Office (GAO) Report on Climate Change states:

Federal land and water resources are vulnerable to a wide range of effects from climate change, some of which are already occurring. These effects include, among others:

- Physical effects, such as droughts, floods, glacial melting, and sea level rise;
- Biological effects, such as increases in insect and disease infestations, shifts in species distribution, and changes in the timing of natural events; and
- Economic and social effects, such as adverse impacts on tourism, infrastructure, fishing, and other resource uses (GAO 2007).

In the Sonoran Desert, the most likely effects of climate change include the following:

- Higher average temperatures, particularly at night;
- Scarcer water supplies due to lower overall rainfall and earlier melting of upstream snowpack, resulting in earlier peak stream flows in the Salt, Verde, Gila, and Colorado Rivers in spring and potentially reduced flows in summer;
- More variable precipitation patterns than what is observed currently, including longer, more frequent droughts and more intense storms bringing increased flooding;
- Higher rates of soil erosion;
- Increased invasive plant species, particularly non-native annual grasses;
- Increased frequency and intensity of wildfires;
- Shifting habitats for wildlife, including the development of "novel" ecosystems in which species that have been geographically separate in the past begin to share habitat; and
- Worsening air pollution problems as increased temperatures and drought contribute to ozone and PM_{10} production.

Water Supplies

The most important way climate change is likely to affect the Planning Area is by decreasing already scarce water resources. Drought and flood cycles lasting months, years, or even decades are already a regular occurrence in the Sonoran Desert. An extended drought has gripped Arizona since the 1990s, and the total amount of water available for all uses—including wildlife and plants, ecosystem services, and human needs—is expected to decline as climate change advances (US Global Change Research Program 2010).

Currently, annual precipitation in Phoenix, which is adjacent to the Planning Area, averages 7.63 inches, with wide seasonal variations. Historically, most rain falls during the summer monsoon and winter rainy seasons, while the spring and fall "shoulder" seasons may see no rain at all. The monsoon season, typically mid-July to mid-September, is defined by a shift in wind patterns that brings moisture up from the Gulf of California, the Gulf of Mexico, and the eastern Pacific.

Average rainfall increases during this time from just over a tenth of an inch in June to an inch or more in July (0.97 inch), August (1.03 inch), and September (0.84 inch) (National Weather Service Forecast Office 2009). The other half of the region's rain typically falls from December through March, when the winter rainy season brings in storms from the west and northwest. On average, these storms drop between three-quarters to one inch of rain per month, with December posting the highest monthly average (0.93 inch) from 1896-2008 (National Weather Service Forecast Office 2009). However, yearly rainfall is highly variable and rarely fits the "average" pattern (Sheppard et al. 2002). Under most climate change scenarios, storm intensity and attendant flooding are likely to become more common as the timing, location, and, potentially, the amount of precipitation shifts (Archer and Predick 2008). Nonetheless, the effect climate change will have on the overall amount of precipitation in Arizona is not clear.

The effect that higher temperatures, both observed and projected, will have on the region's water supplies is much clearer. Snowpack currently supplies approximately 70 percent of all water in the West (Saunders et al. 2008) and almost all the water to the rivers that flow into the Planning Area. The timing and capacity of these supplies are dependent on overall precipitation and temperature, which determines when the snowpack melts. Recent years have seen snowmelt push the timing of peak stream flows in spring as much as a month earlier than normal, thereby reducing flows in the summer and fall, when demand typically peaks (Saunders et al. 2008; US Global Change Research Program 2010). Reduced stream flows in the summer will leave ecosystems more dependent on increasingly uncertain summertime rains. Further exacerbating this vulnerability is the increasing tendency of rain to fall during infrequent, large-scale events that drain quickly and cause flooding and soil erosion. Such changes to the hydrologic cycle of the Sonoran Desert could have massive impacts on the region's wildlife and vegetation.

Wildfires

Climate change-related shifts from desert to grassland ecosystems will also increase the risk of wildfire throughout the Sonoran Desert (GAO 2007; Archer and Predick 2008). Higher winter temperatures and earlier peaks in spring snowmelt runoff already have led to increases in both the frequency and intensity of wildfires in higher elevations of the Rocky Mountains (Westerling et al. 2006).

Species Migration and Extinction

Current conditions in the Sonoran Desert represent the extreme range for many plant species, and the combination of increasing temperatures and decreasing water availability is likely to shift the range of many plants and animals northward or even cause them to become extinct (Saunders et al. 2008; Weiss and Overpeck 2005). Increasing CO_2 concentrations also lead to fertilization and growth of specific plant species. Such shifts could bring the woody, herbaceous plants common to northern Mexico into areas now dominated by iconic succulents such as the saguaro cactus and native grasses (Saunders et al. 2008; Weiss and Overpeck 2005).

The "novel" ecosystems created by climate change-induced habitat shifts also could lead to significant management challenges as plants and animals that once were geographically distinct combine in new ways.

Air Pollution

As climate change causes an increase in air temperatures in the Planning Area, pollutants such as O_3 and PM_{10} that are formed more readily in warm air are likely to increase and cause a decline in air quality. The Phoenix Metropolitan Area has already been designated as nonattainment for the eight-hour O_3 standard, and the Phoenix Area and Western Pinal County are nonattainment areas for PM_{10} standards. In Spring 2012, the EPA plans to designate the Phoenix-Mesa area as nonattainment for the revised primary eight-hour O_3 standard issued in 2008. As air quality decreases further due to climate change, there is a possibility that additional areas within Arizona and the Planning Area could be designated as nonattainment areas for these pollutants.

3.2.4 CULTURAL AND HERITAGE RESOURCES

Cultural and heritage resources within the Planning Area represent evidence of more than 10,000 years of human occupation of the region. There are many thousands of historic districts, buildings, and structures within the Planning Area, but the great majority of these are located in urban areas not managed by the BLM. Most of the cultural resources on public lands are archaeological sites reflecting both pre-Columbian and post-contact occupation. The BLM estimates that about 80 percent of the sites on public lands reflect aboriginal occupation and 13 percent Euro-American occupation, with a high percentage of sites of unknown age or cultural affiliation.

3.2.4.1 Paleoindian Era

The peopling of the New World has been a lively topic of American archaeology for decades. During the last two to three decades, more and more challenges have arisen to the received model that the early Paleoindians, known as the Clovis culture, were the first occupants of the North and South American continents. Some of the early claims for much greater antiquity of human occupation were based on flaked stone tools that were heavily coated with desert varnish. These tools, found among the rocks of desert pavement in many very arid places of western Arizona and adjacent regions, lacked stratigraphic or other chronometric evidence to support the claims. Unfortunately a technique for dating varnish formation that once held promise for being a reliable chronological tool has been found to be based on flawed assumptions.

Evidence of Paleoindians in the Planning Area remains extremely rare, and no substantial discoveries have been made in the region in the last 25 years. Given the greatly increased pace of survey, some researchers have concluded that negative evidence must mean occupation of the region was very limited during the Paleoindian era.

The perspective of the Paleoindian or pre-Paleoindian occupation of the Southwest probably will be formed to a large degree by research through the Western Hemisphere. Better understanding of the Paleoindian occupation of southern Arizona will no doubt depend on new dating technologies or serendipitous discoveries. Although there are no hints that such discoveries might be made on public land in the Planning Area, it could happen.

3.2.4.2 Archaic Era

The understanding of the Archaic era of southern Arizona has changed considerably over the last 25 years. Several excavations within the planning area have found pit house villages that date to the late Archaic period or even Middle Archaic. The excavations have shown that these communities were growing maize, indicating that the revolutionary transition from a hunting/gathering subsistence strategy to an agricultural lifeway began much earlier than had been appreciated. However, the adoption of maize, development of sizeable villages, and the making of pottery – the hallmarks of the Formative era – do not appear to have led to a major dependence on farming for some time.

More and more evidence of a plain ware ceramic tradition and limited maize agriculture is being recognized in southern Arizona. The morphing of the Late Archaic into a more fully Formative lifestyle has led to growing appreciation for a pre-Hohokam population of farmers in the region. The early Red Mountain phase sites that had been thought of as the early end of the Hohokam sequence are now being viewed as the late period of the pre-Hohokam early agriculturalists. The shortening of the early Pioneer period of the Hohokam sequence makes the development of large villages and extensive irrigation canal networks during the Colonial a more abrupt intensification of occupation of the region.

Many of the substantial new discoveries of Archaic stiessites have been made in deeply buried alluvial deposits along rivers or in aggrading fan deposits. Because there is relatively little land along rivers in the Planning Area, the potential for discoveries such as those along the Santa Cruz River appear to be low. But discoveries such as those on the alluvial fans on the western bajada of the McDowell Mountains in the Phoenix Basin hint at more potential for buried Archaic sites on the upland public land of the Planning Area.

3.2.4.3 Formative Era

Cultural resource management studies of the last three decades have greatly expanded the understanding of the complexity of the Hohokam socioeconomic system. Much of that complexity was focused on irrigation canal systems in the Salt and Gila River valleys, where there is relatively little public land. However, surveys in upland settings well away from the rivers, such as Vekol Valley and the Sand Tank Mountains (and even in the extremely arid valleys farther west on the Goldwater Range), have documented unexpectedly intensive occupations. The Hohokam have long been recognized as master irrigation canal builders, but they also were experts at manipulating rainfall runoff for farming in upland settings and exploiting the native food plants of the Sonoran Desert. A recent survey in the vast block of public land in the Ajo vicinity suggests that the Formative-era occupation in that area also might have

been more intensive than generally recognized. Other minimally explored blocks of public land in the Maricopa Mountains and Gila Bend Mountains also might have at least pockets of more intensive Formative-era occupation than suspected.

Recent analysis of large burial populations at the Pueblo Grande site in the Phoenix Basin demonstrated that the demise of the Hohokam was intimately related to severe nutritional stress. The evidence suggests that the Hohokam era may have come to an end simply because they had insufficient food to maintain their population. The Pueblo Grande community seems to have burgeoned during the Classic period, perhaps by internal growth as well as migration of populations from other areas that may have been experiencing deteriorating environments, or perhaps due to warfare with antagonistic groups. The evidence of the use of uplands on the public lands in the Planning Area is likely to be important for understanding the entire Hohokam system.

The one aspect of the Formative era that has witnessed few advances is the understanding of what the distribution of Patayan ceramics means. Research that is being initiated to source Patayan pottery tempering materials holds considerable promise for better understanding local interactions in the Papagueria and lower Gila River valley. There are numerous single component Patayan sites as well as sites with mixtures of Hohokam and Patayan ceramics on the public lands of the Planning Area that would be candidates for further research about this relationship.

3.2.4.4 Protohistoric Era

Protohistoric sites are uncommon in southern Arizona. More than 40 ethnohistoric components, mostly Tohono O'odham, have been recorded on public land in the Planning Area. They hold considerable potential for a direct historical approach to better understanding of the transition from prehistory to history.

A significant change in perspectives about the ethnohistoric era involves what might be called the rebirth of the Hia C-ed O'odham who once occupied the very arid regions of northwestern Sonora and southwestern Arizona. Researchers had pronounced this culture extinct some decades ago, but descendants of Hia C-ed, mostly among members of the Tohono O'odham Nation, are reclaiming ethnic heritage.

3.2.4.5 Mining History in Arizona

The mineral industry had a great impact on the historic-era settlement and growth of Arizona. The Mining Law of 1872 was codified to bring some order to the procedures for claiming and mining on public land since the California Gold Rush, and also to promote settlement of the West. The law declared public land to be open to any citizen, or anyone intending to become a citizen, to explore for minerals and stake claims (each up to 600 feet wide and 1,500 feet long) in areas they thought had potential to yield gold, silver, cinnabar, lead, tin, copper, or other valuable minerals. The Mining Law of 1872 stipulated that claimants had to expend $100 in labor or improvements annually to keep a claim valid, but the claimant did not have to pay rent or royalties. Claimants who demonstrated that valuable minerals were present in sufficient quantities, expended at least $500 in labor or improvements, and marked and surveyed their claim could acquire ownership (a patent) for the claim by paying $5 per acre (about $100 for a full-size claim).

Therefore, portions of areas where valuable minerals were found in economic quantities typically were transferred from the public domain to private ownership, and archaeological and historical sites related to discoveries of valuable minerals often are no longer in federal ownership. This process occurred in the Globe-Superstition Mountains and the Ajo area of the Planning Area, where major mineral discoveries were made. The mining-related sites on public land typically reflect prospecting and annual assessment efforts on claims where valuable minerals were not found or where the discoveries were not substantial enough for claimants to pursue patents. The archaeological and historical sites that have been recorded within the Planning Area appear to fall within that category. Although a few sites appear to reflect considerable investment and mining activity, they were not major producers.

Because major discoveries led to continued and expanded mining, physical remnants of historic mining in those areas commonly have been obliterated. One advantage of the less substantial, less successful, or unsuccessful mining-related sites that remain on public land is that many are relatively intact. However, equipment and facilities at any given location usually were salvaged and removed for reuse in other localities. At other sites, there may never have been much development before operations were abandoned.

The available information indicates that unrecorded mining-related sites on public lands in the Planning Area are unlikely to represent the earliest eras of historic mining that focused on the precious metals of gold and silver. Instead, historic mining activity in the Planning Area appears to date to the first half of the twentieth century and was focused on copper mining. Although copper mining is one of the five traditionally identified dominant "C" themes of Arizona (along with cattle, cotton, citrus, and climate), a historic context for copper mining in Arizona has not yet been written to guide historic preservation efforts. If or when it is prepared, some sites in the Planning Area might be identified as some of the best representatives of that theme.

3.2.4.6 Cultural and Heritage Resources in the Planning Area

It is a major challenge to inventory and evaluate the cultural and heritage resources known or thought to occur within the Planning Area. Available information indicate that between 5 and 6 percent of the Planning Area has been surveyed for cultural resources, and more than 6,300 archaeological and historical sites have been recorded (see **Table 3-1**, Estimated Extent of Cultural Resources Survey and Recorded Resources). Only four percent of the Lower Sonoran has been surveyed, with 588 sites recorded, while six percent of the SDNM has been surveyed, with more than 300 sites recorded.

Densities of 5 to 15 archaeological sites per square mile are common. Based on this estimated site density, there could be more than 100,000 archaeological sites within the Planning Area, with 13,000 in the Lower Sonoran and 5,000 within the SDNM. Because these estimates are based on incomplete and sometimes ambiguous data collected over many decades, they are subject to an unknown margin of error.

Evaluating the significance of archaeological and historical sites recorded on public lands is an ongoing aspect of BLM's cultural resource management program. Most of the sites found on public lands are archaeological, and if they are found NRHP eligible, it is under Criterion D (see criterion definitions above). Additionally, a majority of the currently recorded archaeological sites within the Planning Area are allocated to the scientific use category.

Table 3-1
Estimated Extent of Cultural Resources Survey and Recorded Resources

	Planning Area (including Private Inholdings and Non-BLM Land)			Applicable Decision Areas (BLM-Administered Land Only)		
	Lower Sonoran	SDNM	Entire Planning Area	Lower Sonoran	SDNM	Both Decision Areas
Size (acres)	8,371,400	496,600	8,868,000	930,200	486,400	1,416,600
Percentage of total area	94%	6%	100%	66%	34%	100%
Surveyed for cultural resources (acres)	466,578	29,826	496,404	36,804	29,708	66,512
Percentage of all surveys	94%	6%	100%	55%	45%	100%
Percentage of total area that has been surveyed	5.6%	6.0%	5.6%	4.0%	6.1%	4.7%
Number of recorded cultural resources	6,038	307	6,345	588	291	879
Density (sites/mile^2)	8.3	6.5	8.2	10.1	6.3	8.5
Projected number of resources	99,800	5,000	104,800	12,800	4,800	17,600

Source: AZSITE Cultural Resource Inventory (supplemented with additional information from BLM files) 2003.

There are a total of 322 individual properties and 17 districts within the Planning Area listed in the NRHP. The Juan Bautista de Anza NHT is one of 19 congressionally designated national scenic and historic trails in the US and the only NHT within the Decision Areas. Approximately 165 miles of the Anza NHT runs through the Planning Area, with 32.5 miles situated within the Lower Sonoran and 16.75 miles within the SDNM. The setting of the trail through the SDNM probably has been altered less since its original use than any other segment of the entire 1,200 mile route (National Park Service 1996). Historic documents indicate the Anza Expedition camped 10 times along the Trail within the Planning Area, including one camp in the SDNM.

Although no physical evidence of these camps has been found to date, these locations have public interpretation potential. In the 1840s, the Mormon Battalion built a wagon road along the same corridor. In the late 1850s and early 1860s, the Butterfield Overland Stage improved the route, and subsequently, tens of thousands of immigrants traveled west along this route to California.

Factors threatening the historical integrity of cultural resources include disturbance or destruction by various development projects or land uses, natural erosion, route proliferation, and unauthorized excavation and artifact collecting by vandals or uninformed recreational users. Available data indicate that approximately 40 projects, on average, have been reviewed annually since 1980, and an average of eight sites annually have been affected by development projects. Some sites were avoided by project modifications, but archaeological data recovery studies were conducted at an average of five sites annually to mitigate project impacts. Reviews and treatment plans associated with these data-recovery

projects were conducted in consultation with the State Historic Preservation Office (SHPO) and concerned Native American tribes.

Roughly five percent of monitored archaeological and historical sites on public lands are being damaged by erosion. Intentional vandalism and unauthorized collection of artifacts have damaged cultural resources, but there is little quantified information about the extent of this threat. Proliferation of unauthorized travel routes within the Decision Areas has increased over the last 10 years to the point that some cultural resources, formerly considered to be in remote locations with difficult access, have become quite easy to access by vehicle. In many cases, routes were discovered leading to sites or cutting through site areas. These additional routes, and the overall increases in all-terrain vehicle (ATV) use, have led to far higher rates of vehicle damage to many sites and increased site visitation.

The BLM has responded to these threats with several different strategies. One of the most successful is providing systematic site monitoring through the statewide Site Steward Program. Physical protection measures are employed when damage or threats are perceived. Barriers to limit access and signs to inform visitors about laws protecting sites are installed as needed.

Administrative measures, such as road closures, or special management designations, such as the Monument, also are used to protect cultural resources. One other way to provide protection to selected sites is to develop them for public interpretation. Interpretive site development includes intensive planning and installation of protective measures and interpretive media that enhances visitor experiences.

An examination of historical inventory data allows for a projection of future cultural resource work in the Planning Area to be an annual average of 10 to 15 square miles surveyed and 70 to 90 sites recorded. These projections cover roughly the next 10 years. At this projected rate of coverage, the vast majority of sites in the Decision Areas would still be unrecorded by 2020. Most previous cultural resource inventory was done for project compliance reviews under Section 106 of the National Historic Preservation Act. In recent years, some federal funds have been allocated to document and research the archaeological and historical sites on public lands, but Section 106 surveys for major development projects (funded by project proponents) will undoubtedly continue to be the primary source of inventory information in the foreseeable future.

The scope and scale of development projects on public lands and the level of cultural resource threats they pose, vary widely, but the historical trend indicates an increasing number of projects on BLM-administered public lands are being reviewed each year. This trend suggests an average of 60 to 80 reviewed projects on public lands annually within the next 10 to 15 years. Recent years witnessed a substantial increase over the historical trend, and could indicate an even faster growth in the level of threats from various developments. The number of resources threatened but avoided by projects each year has fluctuated considerably from year to year. The historical trend suggests 10 to 20 sites threatened annually, but avoided by project modifications over the next 10 to 15 years. Similarly, the number of archaeological sites studied to mitigate project impacts is increasing, and could double to about 10 sites annually over the next 10 to 15 years. This represents a small fraction of the estimated 17,000 to 18,000 archaeological and historical sites on the Lower Sonoran and SDNM.

Historical trend data indicates that 20 to 30 sites might be protected annually over the next 10 to 15 years through various administrative and physical measures. Installation of physical measures such as

signs, fences, and gates are common responses to specific instances of resource damage. The historical data indicate annual monitoring of 50 to 80 sites is likely over the next 10 to 15 years. Over the last decade, the BLM's cultural resource management program has devoted more effort to public interpretation, and this trend is likely to receive more emphasis in the future. Interest in cultural resource-based heritage tourism is expected to increase, particularly within the Monument.

3.2.5 GEOLOGICAL AND PALEONTOLOGICAL RESOURCES

The Lower Sonoran and SDNM lie completely within the Basin and Range physiographic province. The province is characterized by numerous mountain ranges and intervening basins. The geology of the mountain ranges is generally complex and variable. The nearly parallel mountain ranges that trend north to northwest are separated by broad valleys filled with sediments. The geology of these basins or valleys is poorly known due to their sediment cover. The Basin and Range Province contains areas with evidence of volcanism, such as the Sentinel Plain lava flow- a stark landscape of lava 15 to 45 meters thick, the largest flow in the state of Arizona (see **Map 3-3**, Geologic Resources).

Paleontological resources include vertebrate and invertebrate animal fossils, plant fossils, and trace fossils. The latter are preserved indicators that an animal was present (e.g., footprints, burrows, borings, and waste droppings). These resources are a fragile and nonrenewable scientific record of the history of life on earth. Fossils have been found in many parts of Arizona and in almost all of the geologic deposits from Cambrian through the Quaternary. In the Planning Area, vertebrate fossils are typically found in unconsolidated Quaternary silt, sand, and gravel deposits and Tertiary sedimentary rocks. Various invertebrate marine fossils, including coral, trilobites, brachiopods, cephalopods, and bryozoans have been found in Cretaceous sedimentary rocks.

While paleontological resources in central and south-central Arizona generally are considered less abundant or less scientifically significant as those found in northern or southeastern Arizona, the BLM considers any discovery of vertebrate fossils as well as invertebrate and plant fossils of paleontological interest as important. Within the Planning Area, such fossils are most likely to be found during ground-disturbing activities in Quaternary sedimentary deposits, while others may also be found in Paleozoic and Mesozoic deposits. Increased ground-disturbing activities in these deposits may increase the threat to noteworthy fossils.

No significant paleontological resources are known to occur in either the Lower Sonoran or SDNM. It is the scarcity of fossils in these Decision Areas that makes subsequent finds even more significant. Fossils of mammals, birds, and fish are present but not common in unconsolidated Quaternary and Tertiary sedimentary rocks. Although not significant or abundant, invertebrate marine fossils occur in Paleozoic limestones in southwest Pinal and southeast Maricopa counties, and are found in Cretaceous sedimentary rocks in the Decision Areas.

3.2.6 SOIL RESOURCES

Soils are primarily the product of climate, parent material (i.e., underlying bedrock lithology or alluvium), and landscape. The Natural Resources Conservation Service (NRCS), formally known as the Soil Conservation Service (SCS), completed five soil surveys that, when combined, cover most of the Planning Area: Maricopa County, Central Part (SCS 1977); Eastern Maricopa and Northern Pinal

Counties (SCS 1974); Pinal County, Western Part (SCS 1991); Gila River Indian Reservation (NRCS 1991); and Gila Bend-Ajo Area (NRCS 1997). (See **Map 3-4**, Soil Types.) A small part of the Planning Area, principally the Sand Tank Mountains in the Monument, falls outside these published reports.

Landforms in the Planning Area consist of broad, alluvial basin floors separated by basaltic or granitic mountains, hills, and rock outcrops, dissected by several major drainages and numerous ephemeral ones. In the western half, which includes most of the public land managed in the Lower Sonoran, the dominant basin soils are deep, usually calcareous, sandy loams (Gunsight, Denure, and Rillito soils). In the eastern and southeastern portions, including areas in the Santa Cruz Basin, Casa Grande and Mohall soils are more common. Casa Grande soils developed in sediments deposited along the axis of the Santa Cruz River, with Mohall soils forming on tributary alluvial fans (NRCS 1991; SCS 1991). Organic material and sodium contents are low in soils throughout the Planning Area.

Upland parts of the basins are carved by desert washes with soils that are coarse- to medium-textured and cobbly to gravelly on the surface. Glocker (SCS 1991) notes several fan surfaces preserved in the area, which have some of the oldest soils in the Planning Area. Soils located higher on broad alluvial fans often derive directly from upslope bedrock, and underlain by a caliche (hardened calcium carbonate) layer (i.e., Cipriano). Farther down on the alluvial fan, soils, such as Denure and Dateland, often occur with loamier texture in the upper horizons and less distinct carbonate layering.

Several large desert ephemeral (i.e., xeroriparian) washes divide the Planning Area. Deep, stratified sands, silts, and cobbles underlie the channels and floodplains with textures dependent on flow regimes. Some cobbly reaches along the Gila and Salt rivers are relics of the period before upstream dams diverted the rivers' perennial flows. More loamy soils exist on the higher floodplains. In the areas inundated by Painted Rock Dam, silt and clay layers of desiccation and salt accumulation are found, and, in some places, these layers are scoured by subsequent flood events. Terrace soils that parallel the main channel of these rivers on one or both sides are coarse, gravelly, and stratified with low organic content (less than 1 percent), and recently active sediments overlaying older, valley alluvium or bedrock. Dunes are occasionally found where fine sand and consistent winds are common.

Current soil conditions are evaluated on grazing allotments, which make up a large percentage of the Decision Areas. Quantitative soil-resource data is available from the NRCS soil surveys; however, the broad scale of survey data does not allow for site-specific analysis of many soil properties. Some additional quantitative and qualitative data are collected for the Arizona Standards for Rangeland Health grazing-allotment evaluations. The site data estimate the current condition and trends of soil resources based on periodic measurement of surface condition indicators.

Five indicators for which some observations have been made include:

- Total vegetative canopy cover: These data are collected on line transects that are usually established as permanent monitoring sites, called key areas, in two or three key areas of each grazing allotment. The land health standard for cover has been set as the percent cover that is appropriate for each ecological site. Nearly all allotments are meeting land health standards showing that the percentage of canopy cover is sufficient to protect most of the soil surfaces in the Lower Sonoran and SDNM from accelerated erosion. This conclusion is supported by direct observation of existing erosion in the Decision Areas,

which currently shows slight erosion in all but a few severely disturbed surfaces, such as roads, ROWs, and at livestock watering sites.

- Bare ground: Other cover data that is collected at key areas to factor into soil stability includes percentage of gravel and stone cover, litter presence, and cryptogams (biotic crusts), all of which help prevent soil erosion, and bare ground. Bare ground is an important measure of erosion potential. The proportion of bare ground on arid ecological sites is relatively high even on sites that are meeting standards. These sites may produce comparatively high runoff during precipitation, but rates of surface erosion are not abnormal or accelerated. As in the case of the cover indicator, most of the Decision Areas are meeting standards, which is consistent with observations that, except on or near roads and other major surface disturbances, little accelerated erosion is occurring in the Decision Areas.

- Density of unsurfaced roads: The average density of unsurfaced roads (i.e., roads without asphalt, gravel, or long-lasting palliative) is relatively low in both Decision Areas: below 1.2 miles of road per section throughout most of the Decision Areas. Road density is much greater within a few areas, such as Buckeye Hills and other northern areas of the Lower Sonoran and the area near the west end of the Anza Trail in the SDNM that have a density of 1.4 miles per section or higher.

- Miles of roads or other disturbances that are on soils sensitive to wind or water erosion: About 20 percent of the roads in the Decision Areas that are currently open are on soils that are classified by NRCS as sensitive to wind and water erosion. Some water erosion has already been observed on or near roads that have channeled runoff in the north portion of the Lower Sonoran and north of SR 238 in the SDNM. Eighty-eight miles of roads have been temporarily closed to motorized vehicle traffic due to the risk of wind and water erosion from roads with fine-textured surfaces that have been damaged by the disturbance of traffic.

- Area of protective desert pavement or biological soil crusts that have been disturbed: Desert pavement and biological soil crusts are located throughout both Decision Areas. They are very effective in preventing soil erosion, but are quite vulnerable if disturbed. Fine material that sifts below desert pavement is easily displaced by wind or water if the protective layer on the surface is disturbed. Similar effects occur when biological soil crusts are disturbed. Due to the lack of data on the total area covered by desert pavement or biological soil crusts in the Decision Area, this indicator is qualitative in nature.

Desert pavement, found in parts of the Planning Area, is a dense surface layer of rounded stones, sometimes coated with desert varnish and underlain by a porous, skeletal layer of wind-transported silt or fine sand. The formation of desert pavement appears to be the result of surface heaving, which allows wind-deposited, fine-grained particles to sort downward and exposes the coarser layer (McFadden et al. 1998).

Biological soil crusts, also known as biotic crusts or cryptogamic soils, are found throughout the Planning Area and can be composed of cyanobacteria, green algae, lichen, mosses, microfungi, and other bacteria (Belnap et al. 2001). In the Sonoran Desert, these crusts most commonly include heterocystic

cyanobacteria, gelatinous lichen, squamulose lichen, and short mosses and are most often present in areas with flat topography (unlike cooler, higher-elevation basin and range deserts). These soils represent a critical component of the arid West's ecology because they tend to fix nitrogen and contribute to the sparse nutrients available to desert plants.

Both biotic crusts and desert pavement provide protection against wind and surface-sheet erosion. Biological soil crusts appear to be indicators of rangeland health (Cameron 1960; Kade and Warren 2002) and may require considerable time to revegetate (Kade and Warren 2002). Little study or mapping of either desert pavement or biological soil crusts has occurred in the Sonoran Desert. Disturbed areas are most often found in close proximity to livestock waters, where the livestock generate heavily used trails, and in areas where intense cross-country OHV use creates new routes. Available trend data show generally static conditions for desert pavement and biological soil crusts.

Soil disturbance and compaction are present in long-term use areas, including livestock-congregation sites, roads, and parking areas. Larger areas of accelerated erosion and sedimentation are mainly in the Vekol Valley south of I-8. Historical uses, such as construction of water-spreading dikes in areas with higher erosion hazards, created these effects. While uses that could cause soil resource degradation have increased in the Planning Area over the last 20 years, protective and restoration practices have generally kept pace. On the other hand, ongoing drought and intensive dispersed uses, such as illegal off-road travel, continue to threaten soil resource conditions, as indicated by BLM grazing allotment records, NRCS ecological site guides, NRCS range health reference sheets, and NRCS soils surveys. If the current regional drought continues, impacts from recreation, livestock grazing, and other ground-disturbing uses could be compounded. Similarly, if urban demands for water increase on lands adjacent to the Decision Areas, soil loss could worsen.

Based on best-available data and analysis in the allotment evaluations, accelerated soil erosion occurs infrequently. Water-erosion hazard is highest on the coarse-textured, steeper soils found in the granitic soils in the western and southwestern portions of the Planning Area. Wind-erosion hazards are highest on the fine-textured, irrigated soils of the major drainages. Except for data collected on allotments, very little soil condition data is collected that could be used to indicate trends.

Table 3-2, Lower Sonoran and SDNM Decision Area Soils (BLM-Administered Land), identifies major soil associations and erosion potential, while **Map 3-5,** Soil Erosion Potential (Wind) shows areas of wind-erosion potential. These are typically areas of Mohall, Dateland, Denure, Indio, and Casa Grande soils. Younger soils with silty surfaces and little cover, often occurring on drainage floodplains in the Planning Area, are the most susceptible to wind erosion.

Soils in the SDNM have many soil series and associations in common with the Lower Sonoran. On the other hand, there is a significant difference between the geology of Oatman Mountains and Sentinel Plains in the Lower Sonoran and that of the Maricopa Mountains in the Monument. The dominant bedrock parent material in the Lower Sonoran is basaltic, while in the SDNM, granitic parent material predominates with gneiss (metamorphic rock) mixed in. The vegetation communities are similar desert shrub types, and the potential use and management is also similar, but granitic material is often more prone to water erosion. Rutting and roadway damage from vehicle use in the area between the North and South Maricopa Mountains is consistent with the more fragile soil types.

Table 3-2
Lower Sonoran and SDNM Decision Area Soils (BLM-Administered Land)

Scattered Parcels							
Map Name	**Texture**	**Slope (%)**	**Water Erosion Potential**	**Wind Erosion Potential**	**Elevation of Occurrence**	**Acres**	**% of Total**
Hyder-Coolidge-Cipriano-Cherioni	basalt flow, colluvium, cobbly	1%-65%	moderate	slight	430-4,400	389,700	28%
Gunsight- Rillito-Denure-Chuckawalla	gravelly, sandy loam	1%-40%	moderate/ high	slight	430-3,100	477,500	34%
Mohall-Denure-Coolidge	gravelly, sandy loam	0%-8%	moderate/ high	high	350-2,400	228,500	16%
Rock outcrop-Quilotosa-Momoli	granitic colluvium, stony	3%-55%	severe	slight	800-2,800	216,600	15%
Rock outcrop-Quilotosa-Hyder-Gachado	extremely gravelly sand	5%-65%	severe	slight	1,150-3,100	38,500	3%
Denure-Dateland	loam	0%-8%	slight	moderate	1,140-2,000	34,000	2%
Why-Wellton-Gunsight-Growler-Denure	loam	0%-7%	very slight	moderate	550-800	9,900	1%
Spudrock-Rock outcrop-Cellar	no data	25%-60%	moderate/ high	no data	3,300-5,200	3,700	<1%
Tremant-Pinamt-Ebon	gravelly loam	0%-12%	moderate/ high	no data	1,400-2,600	2,600	<1%
Pinaleno-Eba	no data	5%-30%	moderate/ high	no data	3,650-3,900	200	<1%

3.2.7 VEGETATION RESOURCES

The Planning Area lies within two different Major Land Resource Areas, as defined by the NRCS's soil surveys. They are the Sonoran Basin and Range and Arizona Mogollon Chaparral. A Major Land Resource Area is a broad geographic area characterized by a particular pattern of soils, climate, water resources, vegetation, and land use. Each Major Land Resource Area has subdivisions based on precipitation zones in which rangeland and forestland occur, and is further divided into ecological sites. The most common ecological sites within the Planning Area are identified in the plant community descriptions below.

There are 36 invasive weed species known to occur within the Phoenix District. Invasive plant species most often occurring in the LSFO and SDNM Decision Areas include, but are not limited to, Russian knapweed (*Acroptilon repens),* camelthorn (*Alhagi maurorum).* red brome (*Bromus rubens),* Malta starthistle (*Centaurea melitenisis),* Bermuda grass (*Cynodon dactylon),* buffelgrass (*Pennisetum ciliare),* Russian thistle (*Salsola targus),* and Tamarisk (salt cedar, *Tamarix* spp.). Most of these species tend to invade areas that have been previously disturbed, such as along road sides and agricultural fields, in riparian areas (e.g., the

Gila River), and around livestock watering facilities. They then spread into the uplands through vectors such as wind, water, livestock and wildlife fur, and OHV tires. Public lands support a variety of upland vegetation communities and a riparian plant community along the Gila River. These vegetative communities are determined in large part by site-specific topography, soil type, and climatic conditions. Vegetative community classifications follow the USGS's Gap Analysis Program (GAP) vegetation community map system.

3.2.7.1 Vegetation Communities

Eight major vegetation communities are found on the Decision Areas. These are detailed **in Table 3-3**, Vegetative Communities on Public Lands in the Planning Area and illustrated on **Map 3-6**, Vegetation Communities. Although boundaries between vegetative communities are not precise, as several types or developmental stages may be found in any vegetative community, the grouping system can be used to describe vegetation over vast regions, such as the Planning Area.

Table 3-3
Vegetative Communities on Public Lands in the Planning Area

	Acres and Percent of Vegetative Community			
	Total on BLM-administered Lands		Applicable Decision Areas	
Vegetative Community	**Acres**	**Percent**	**LSFO**	**SDNM**
Creosote Bush-Bursage	777,300	54.87%	597,700	179,600
Palo Verde-Mixed Cacti	615,300	43.43%	312,000	303,300
Riparian (within Fred J. Weiler Green Belt)	447	0.03%	447	0
Apacherian-Chihuahuan Mesquite Upland Scrub	3,800	0.27%	3,400	400
Sonoran Mid-Elevation Desert Scrub (Woodlands)	3,800	0.27%	1,800	2,000
Mogollon Chaparral	1,500	0.11%	1,400	100
Desert Grassland	1,054	0.07%	0	1,054
Desert Washes (Xeroriparian), Linear Inclusion of Other Vegetation Communities	2,628 miles[1]	N/A	1,658 miles[1]	970 miles[1]
Total public lands in Planning Area	1,416,600[2]	99.05%	930,200[2]	486,400[2]

[1]Data Source: USGS 1:100,000 scale topographic quadrangles. Desert washes are measured in miles, not acres, so are not included in area totals. Vegetation community mapping is currently not available at a high enough resolution to distinguish desert wash communities from dominant vegetation communities surrounding them.
[2]Totals do not add up because some plant communities are too small to be included in this list.

Creosote Bush-Bursage

The creosote bush-bursage is considered a subgroup of the Sonoran desert scrub vegetative community. It covers a greater percentage of Planning Area public lands than all other vegetative communities combined (55 percent). Occurring at elevations from 400 to 3,000 feet above sea level, it is the most arid of the vegetation communities, consisting primarily of creosote bush and white or

triangle leaf bursage (Shreve 1951; Brown 1994). This vegetative community is most commonly associated with the limy fan, limy upland deep, and sandy loam deep ecological sites in the 2-inch to 7-inch, 7-inch to 10-inch, and 10-inch to 13-inch precipitation zones.

Palo Verde-Mixed Cacti

The palo verde-mixed cacti vegetative community is another subgroup of the Sonoran desert scrub community and is the second most prevalent on public lands in the Planning Area, covering 44 percent of public lands. It is found at elevations from approximately 1,500 to 4,500 feet above sea level. Compared to the creosote bush-bursage community, this community is found in areas with different soil types, higher rainfall, and higher elevation gradients and contains a greater diversity of plant and wildlife species. Vegetation in the community consists of extensive stands of saguaro cacti interspersed with cholla, barrel cacti, palo verde, brittlebush, creosote bush, ocotillo, mesquite, cat claw acacia, and ironwood (Shreve 1951; Brown 1994; Marshall 2000).

This vegetative community is most commonly associated with the Limey upland, Granitic hills, Volcanic hills, and Basalt hills ecological sites in the 2-inch to 7-inch, 7-inch to 10-inch, and 10-inch to 13-inch precipitation zones.

Apacherian-Chihuahuan Upland Scrub

Vegetation for this shrubland community typically is dominated by mesquite species (*Prosopis glandulosa* or *Prosopis velutina*) and succulents. Other desert scrub/trees that may co-dominate or dominate includes acacia species (*Acacia neovernicosa* or *Acacia constricta*) or junipers (*Juniperus monosperma* or *Juniperus coahuilensis*). Perennial grass cover is typically low due to deep soils and unavailable moisture. Less than 0.3 percent of the Decision Areas consists of Apacherian-Chihuahuan upland scrub. The NRCS has not completed a soil survey and the associated Ecological Site Description for this community.

Mogollon Chaparral

The Mogollon Chaparral vegetative community is a warm, temperate scrubland containing woody species such as shrub live oak, mountain mahogany, desert ceanothus, and cliffrose. While such vegetation types are found mainly at elevations between 3,400 and 6,000 feet, they can also be found at higher elevations with drier and warmer slopes. Only 0.1 percent of the public lands in the Planning Area consist of Mogollon chaparral, with the main concentrations occurring in the Globe-Miami area. Periodic, naturally occurring, wildland fires are important in maintaining the plant community. Depending upon the fire's intensity, Mogollon Chaparral shrubs typically re-sprout from root crowns or germinate from long-lived seeds following fire.

Woodland species now dominate the community, especially near urban areas, with a concomitant reduction in important understory species due to current and past fire suppression strategies. This vegetative community is most often associated with the Granitic ecological site in the 12-inch to 16-inch precipitation zone.

Sonoran Mid-Elevation Desert Scrub (Woodlands)

The Sonoran mid-elevation desert scrub community is found mainly near mountain peaks surrounded by the palo verde-mixed cacti community. It covers approximately 3,800 acres of the Planning Area, receives higher precipitation, and has a higher diversity of native plants than that of the surrounding communities. The vegetation typically is composed of an open shrub layer of creosote bush, narrow leaf goldenbush (*Ericameria linearifolia*), or flattop buckwheat (*Eriogonum fasciculatum*) with taller shrubs, such as crucifixion thorn (*Canotia holacantha*) or jojoba (*Simmondsia chinensis*). The herbaceous layer generally is sparse. Relic communities of juniper, yucca, and elephant tree have also been observed in the Sonoran mid-elevation desert scrub community (BLM 1989; PBI 2003). Due to the more remote location of this vegetation type, it has generally escaped human-related impacts. This vegetative community is associated with the Volcanic and Basalt Hills ecological sites in the 7-inch to 10-inch and 10-inch to 13-inch precipitation zones.

Riparian

The proportion of public land occupied by riparian vegetation is extremely small in relation to many of the other vegetation types (less than 0.03 percent), but this community's biological and ecological importance is greater than its limited geographic occurrence. The only riparian area in the Planning Area is associated with the Fred J. Weiler Green Belt along the Gila River, established as a resource conservation area in 1970. The Green Belt includes 45,978 acres of the Gila River channel and floodplain allocated for wildlife and migratory bird management. The BLM manages approximately 447 acres, or one percent of the Green Belt, with riparian vegetation.

The remaining 99 percent of the Green Belt is in mixed ownership and under various withdrawals for use by other state and federal agencies. The Gila River once was lined with native cottonwoods, willows, and mesquite bosques, but now contains only small pockets of native vegetation. The majority of it has been replaced with non-native salt cedar or tamarisk (*Tamarix ramosissima* and *T. chinensis*), a shift encouraged by changes in functionality and water flow from water impoundments, agriculture, and groundwater pumping. Such changes have resulted in an increased risk of unnatural, high-intensity wildland fires (BLM 2003a). Areas appropriate for firebreaks in the Fred J. Weiler Green Belt have been identified to reduce wildfire severity, increase public safety, reduce tamarisk invasion, and restore vegetation to a more native composition.

Desert Washes (Xeroriparian)

The desert wash, or xeroriparian, vegetative community occurs as small inclusions in large areas of upland sites. They typically flow only briefly in direct response to significant precipitation events. The vegetation of desert washes is quite variable, ranging from sparse and patchy to moderately dense, and usually occurs along the banks but may occur within the channel. The woody layer typically is intermittent to open, and may be dominated by shrubs and small trees.

Common species include mesquite, catclaw acacia, blue palo verde, and desert ironwood. While such plant species also are found in upland habitats, species growing in ephemeral washes commonly are larger and occur at higher densities than in adjacent uplands. This plant community is associated with the Sandy Wash ecological site in the 2-inch to 7-inch, 7-inch to 10-inch, and 10-inch to 13-inch precipitation zones.

Desert Grassland

The desert grassland community is characterized as a warm, temperate grassland dominated by tobosa grass and ranging in elevation from 2,300 to 4,900 feet. Only 0.07 percent of public lands in the Planning Area consist of desert grassland. In fact, the only area supporting this community occurs in the southeast portion of the Monument, abutting the Tohono O'odham Indian Reservation. This plant community likely supported occasional wildfire historically, although it is quite arid in nature. It is associated with the Clayey Swale ecological site in the 7-inch to 10-inch precipitation zone.

3.2.7.2 Special Status Plant Species

There are five special status plants within the planning area: one endangered, one candidate and three BLM sensitive. Of these five species four of them are known to occur within the Decision Areas: Acuña Cactus, Kofa Mountain Barberry, Arizona Sonoran Rosewood, and the Tumamoc Globeberry. The Acuña cactus occurs within both the LSFO and SDNM Decision areas, one population is located in the Coffeepot Mountains and the other is located in the Sand Tank Mountains. There is one population of the Kofa Mountain Barberry that occurs in the SDNM Decision Area located in the Sand Tank Mountains, there are two populations of the Arizona Sonoran Rosewood that occur in the SDNM Decision Area located in the Sand Tank Mountains, and one population of the Tumamoc Globeberry known to occur in the SDNM Decision Area located in the Vekol Valley. The Arizona Hedgehog Cactus is believed to be located near Globe, Arizona, however; there are no known recorded populations of this species within either Decision Area. The species that occur or potentially occur in the Decision Areas are listed in **Table 3-4**, Special Status Plants.

Table 3-4
Special Status Plants

Common Name	Scientific Name	Status
Acuña Cactus	*Echinomastus erectocentrus var. acunensis*	Federal Candidate
Kofa Mountain Barberry	*Berberis harrisoniana*	BLM Sensitive
Arizona Sonoran rosewood	*Vauquelinia californica spp. sonorensis*	BLM Sensitive
Tumamoc Globeberry	*Tumamoca macdougalii*	BLM Sensitive

Acuña Cactus. The Acuña cactus (*Echinomastus erectocentrus* var. *acunensis*) is a candidate species for listing under the ESA. Eight populations are currently known, six in the US and two in Sonora, Mexico. Four out of the six US populations occur in the Planning Area on Forest Service and private lands but not on BLM-administered lands: one location is on NPS lands in Organ Pipe Cactus National Monument (OPCNM); two locations are on public lands in Coffeepot ACEC (Lower Sonoran) and SDNM; and one location is on private land in Ajo. The cactus is restricted to well-drained knolls and gravel ridges between major washes in Sonoran desert scrub habitat at elevations ranging from 1,300 to 2,000 feet. The amount and quality of habitat for this species are currently not possible to assess due to limited information on its distribution. Recently monitored populations in OPCNM and SDNM range from 40 individuals (Arcadis, Geraghty & Miller and SWCA 1997) to more than 300 individuals (OPCNM 1998; BLM unpublished). Because this species grows in small, widely scattered populations and only a small part of its potential range has been surveyed, it is probable that additional populations have not been detected. The NPS and BLM populations of the Acuña cactus are located solely on federal lands and are

relatively secure; however, they are susceptible to drought conditions and poaching. Individual plants have been illegally removed from OPCNM population study plots (OPCNM 1998). The SDNM population is remote and relatively inaccessible; therefore, it is less at risk from poaching and currently appears relatively stable. The Coffeepot ACEC population is monitored annually and has experienced some decline due to drought conditions. The Ajo population, which is on private land, has been reduced due to impacts associated with mining.

Kofa Mountain Barberry. The Kofa Mountain barberry (*Berberis harrisoniana*), also known as Harrison's barberry, is a rounded, evergreen shrub that can grow to over six-feet tall. Their range includes the Kofa Mountains in Yuma and La Paz counties, Sand Tank Mountains in Maricopa County, and north end of the Ajo Mountains in Pima County. The Kofa Mountain Barberry occurs at one location within the Sand Tank Mountains in the SDNM Decision Area. Threats to the species are believed to be drought and poaching. The population is remote and relatively inaccessible; therefore, it is less at risk from poaching and currently appears to be stable and drought is a common occurrence in the Sonoran Desert. Population numbers are believed to be between 20 and 50 individual plants. The species has 1.6 to 3.5-inch long trifoliate leaves, with three leaflets that taper to a short, stout spine. The plant flowers mid-February to March and fruits in late March to April. The flowers are bright yellow and the fruits are blue-black berries. The Kofa Mountain barberry prefers bottoms of deep, shady, rocky canyons with soils derived from andesite or rhyolite, at 2,200 to 3,500 feet in elevation.

Arizona Sonoran Rosewood. The Arizona Sonoran rosewood (*Vauquelinia californica* ssp. *sonorensis*) is a medium-sized tree with a dense, dark green canopy that typically grows up to 16 feet tall but can range from 10 to 16 feet tall as a large shrub or small tree. The plants' habitat is mainly in southwestern Arizona in the Ajo, Diablo, Mesquite, and Santa Rosa mountains of Pima County, and Sand Tank Mountains of Maricopa County. The plant can be identified by its leathery leaves that are green on top and white-hairy on bottom. The leaves are approximately ¼ inch to nearly ½ inch wide and up to 4 inches long, with serrated margins and pronounced spines. Flowers are white, approximately ¼ inch to ½ inch wide, and clustered in flat-topped corymbs 2 to 3 inches broad. The Arizona Sonoran Rosewood occurs at two separate locations within the Sand Tank Mountains within the SDNM Decision Area. Threats to the species are believed to be drought and poaching. The populations are remote and relatively inaccessible; therefore, it is less at risk from poaching and currently appears to be stable and drought is a common occurrence in the Sonoran Desert. Population numbers are not well recorded for this species, however there is an estimated total 20 to 60 individual plants.

Tumamoc Globeberry. Tumamoc globeberry (*Tumamoca macdougalii*) is a perennial vine of the gourd family that produces fruit. In Arizona, the species' habitat exists from southern Pinal and Maricopa counties into Pima County. In the SDNM, it is known to occur within the Vekol Valley. It grows from a tuberous root and features a smooth, slender stem and grasping tendrils. The stems sprout annually and die back after fruiting. The roots typically are two to six inches long and united into a woody crown with a short stem. The plants' lacy leaves have three main lobes, each with narrow, linear secondary lobes ½ inch to 1.5 inches long. When the foliage is touched, it gives off a fetid smell. Globeberry flowers are pale yellow to greenish yellow and are united below their middle with male and female organs born in separate flowers. Male flowers outnumber female flowers, and male flowers form in racemes of two to six flowers. The perianth lobes narrow to 1⁄5 of an inch long. Female flowers have shorter lobes and are born singly in axils. Fruits are succulent and berry-like, resembling tiny, round watermelons that are pale green with darker stripes becoming yellow, then turning red when ripe.

Seeds consist of two to several per fruit, and are ¼-inch long, quadrate, tubercular-rugose. The Tumamoc Globeberry was delisted under the Endangered Species Act in 1993. Threats to the species are believed to be drought and grazing. Grazing was removed from the area in the early 2000s therefore authorized grazing is no longer an issue, and drought is a common occurrence in the Sonoran Desert. The Tumamoc Globeberry occurs within the Vekol Valley within the SDNM Decision Area and currently appears to be stable. Population numbers are not well recorded for this species, however there is an estimated total of 20 to 100 individual plants.

3.2.8 VISUAL RESOURCES

The BLM manages the scenic values of public lands through the Visual Resource Management (VRM) program. In a two-step visual resource inventory (VRI) process, objectives are established for four "classes" of visual management. In the first step of the VRI process, the BLM inventories scenic resources through three indicators: scenic quality, viewer sensitivity, and distance zones. Scenic quality, which considers the character and diversity of landform, vegetation, water, color, and man-made features, measures the inherent visual appeal of a landscape on a rating scale of "A" (highest appeal) to "C" (lowest appeal). Views with similar ratings are grouped to produce a map, or overlay, of scenic quality units over the Planning Area.

Viewer sensitivity is a measure of expected public concern for change to the scenic quality of each rating unit, and is determined on a scale of high, moderate, or low, based on such factors as user type, amount of use, public interest, adjacent land uses, and presence of special areas. Distance zones establish the relative visibility of landscapes from major travel routes or observation points, characterized as foreground-middleground, background, and seldom seen.

For the second step of the process, the three indicator maps are overlaid across the Decision Areas, and areas of similar interaction between the three indicators are grouped into VRI Class I, II, III, or IV. See **Map 3-7**, Visual Resource Inventory classes, for the VRI classes identified for the Decision Areas.

The VRI was conducted by Otak, Inc. from October to December 2009 to determine visual values within the Decision Areas at a specific point in time as outlined in BLM VRI Handbook, H-8410-1. Visual resource inventory classes provide the basis for considering visual values in the RMP process. They do not establish management direction and are not used as a basis for evaluating surface-disturbing activities.

The extent of VRI classes in the Lower Sonoran and SDNM is shown in **Table 3-5**, Extent of VRI Class Assignments. Approximately 72 percent of the Lower Sonoran is inventoried as Class III or IV. In contrast, approximately 66 percent of the SDNM is inventoried as Class I or II due to a higher percentage of designated wilderness (which by policy is classified as Class I) and visual sensitivity of the area. Presidential Proclamation 7397 that created the Monument does not specifically refer to scenic resources, but the visual quality of the Monument's landscapes inherently contributes to the natural and cultural resources for which the Monument was established. Wilderness areas and the Juan Batista de Anza NHT within the SDNM could be impacted through visual landscape changes. **Table 3-6**, Visual Resource Inventory Components, describes the acreages of scenic quality, sensitivity, and distance zone categories with the Planning Area, the Lower Sonoran, and the SDNM.

Table 3-5
Extent of VRI Class Assignments

VRI Class	LSFO		SDNM	
	Acres	Percent of Total	Acres	Percent of Total
I	91,750	10%	157,700	33%
II	166,850	18%	158,600	33%
III	290,700	31%	169,900	35%
IV	380,900	41%	200	0%
Total	*930,200*	*100%*	*486,400*	*100%*

Table 3-6
Visual Resource Inventory Components

Scenic Quality		Sensitivity		Distance Zones	
Category	**Acres**	**Category**	**Acres**	**Zone**	**Acres**
Planning Area Total					
A	36,500	High	619,800	Foreground/ Middleground	1,129,800
B	471,700	Moderate	369,500	Background	131,100
C	658,400	Low	177,300	Seldom Seen	157,400
Total[1]	*1,166,600*	*Total*	*1,166,600*	*Total*	*1,418,300*
Lower Sonoran					
A	36,500	High	282,900	Foreground/ Middleground	727,800
B	295,200	Moderate	368,200	Background	89,000
C	495,900	Low	176,400	Seldom Seen	113,300
Total	*827,600*	*Total*	*827,500*	*Total*	*930,100*
SDNM					
A	0	High	336,900	Foreground/ Middleground	402,000
B	176,500	Moderate	1,300	Background	42,100
C	162,500	Low	900	Seldom Seen	44,100
Total	*339,000*	*Total*	*339,100*	*Total*	*488,200*

Source: BLM 2012a

[1] Acreages are rounded to the nearest 100 acres. Not all areas of the Planning Area had GIS inventory information for scenic quality and sensitivity; however, the entire Planning Area was inventoried for distance zone. Therefore, the acreage amounts for scenic quality and sensitivity do not total to the same amount as distance zone.

Based on the VRI, the BLM assigned VRM classes to the Decision Areas to define management objectives for each of the alternatives identified in **Chapter 2**, Alternatives. While the assignment of classes is a management decisions made in the RMP, visual values must be considered throughout the planning process. All proposed actions resulting in surface disturbances must consider the impacts a project may have on visual resources. Management decisions in the RMP must reflect these important

values, and may be the driving force for some decisions. Current VRM Class assignments for the Lower Sonoran and SDNM are shown in **Table 3-7**, Extent of VRM Class Assignments.

Table 3-7
Extent of VRM Class Assignments

	LSFO		SDNM	
VRM Class	**Acres**	**Percent of Total**	**Acres**	**Percent of Total**
I	91,800	10%	158,700	33%
II	116,300	13%	91,600	19%
III	279,600	30%	116,400	24%
IV	442,500	48%	119,700	25%
Total	*930,200*	*100%*	*486,400*	*100%*

The objectives for VRM classes are:

- Class I: The objective is to preserve the existing character of the landscape. This class provides for natural ecological changes; however, it does not preclude very limited management activity. The level of change to the characteristic landscape should be very low and must not attract attention.

- Class II: The objective is to retain the existing landscape character. The level of change to the characteristic landscape should be low. Management activities may be seen, but should not attract, the attention of the casual observer. Any changes must repeat the basic elements of form, line, color, and texture found in the predominant natural features of the characteristic landscape.

- Class III: The objective is to partially retain the existing character of the landscape. The level of change to the characteristic landscape should be moderate. Management activities may attract attention but should not dominate the view of the casual observer. Changes should repeat the basic elements found in the predominant natural features of the characteristic landscape.

- Class IV: The objective is to provide for management activities that require major modification of the existing landscape character. The level of change to the characteristic landscape can be high. These management activities may dominate the view and be the major focus of viewer attention; however, every attempt should be made to minimize the impact of these activities, through careful location, minimal disturbance, and repeating of the basic elements.

3.2.8.1 Visual and Scenic Resources

The scenic quality of the Lower Sonoran and SDNM consists of classic Sonoran Desert views, made up of jagged and isolated mountain ranges that are often thickly vegetated along the flanks with "forests" of columnar cactus and scrubby trees and jut dramatically from vast, flat valleys. Valley floors typically are vegetated with unbroken expanses of low growing, woody shrubs. Dominant colors range from dark browns and tans to gray, with textures ranging from coarse and broken in the mountain ranges to

smooth on the valley floors. The colors and contrasts provided by permanent water usually are absent; however, ephemeral drainage washes across the valley floors produce intricate, dendritic lines of greener vegetation that relieve the unbroken expanses.

Modifications to landscape views in the form of residential developments and infrastructure (e.g., highways, pipelines, transmission lines) have greatly increased during the last 15 years. Viewer sensitivity to visual changes in dominant landscapes increases with residential growth. Although numerous factors fuel residential growth, the rugged and open nature of the Sonoran Desert landscape plays a role in attracting increased numbers of residents. Through public meetings and comments during the planning process, the BLM has learned that the interested public places high concern and value on open space, natural landscapes, and mountain views.

Distance zones may also be affected by residential growth as new and expanded subdivisions provide viewing locations from which additional, landscape change may be noticeable to more residents. Distance zones may also be affected as new travel routes are constructed to accommodate increased population or as heavier traffic occurs on existing routes.

3.2.9 WATER RESOURCES

3.2.9.1 Groundwater

Most groundwater in the Planning Area lies in sand-and-gravel alluvium, filling the basins between rock outcrops and surrounding mountain ranges. The quantity of water stored in these basins varies widely because the numerous rock outcrops and shallow bedrock form barriers to groundwater flow. The alluvial stratigraphy, or layers, is similar in all of the larger basins. It is defined primarily by bedrock structure and associated variations in sedimentary-layer thicknesses that serve to isolate the groundwater and produce large variations in depths and availability.

Three hydro-stratigraphic units are in the larger sub-basins: (1) an Upper Unit of coarse-grained basin fill; (2) a Middle Unit that contains finer-grained and evaporate (salt lake) units; and (3) a deep, conglomeratic Lower Unit.

Groundwater Quantity

The main subsurface sources of groundwater in the Planning Area are the Middle Unit and upper interval of the Lower Unit. Over the last 100 years, the Upper Unit has largely been dewatered through use as groundwater levels dropped below its lower boundary. Groundwater withdrawal is continuing throughout the Planning Area.

Deep groundwater monitoring in wells is done in terms of water levels, well yields, and water quality concentrations. Current and past groundwater monitoring show that groundwater withdrawal for irrigation and potable water for urban development is continuing, as new subdivisions are developed in the Planning Area and near the Decision Areas. Most other uses are small. Increasing water demand for solar energy development in the Decision Areas is probable. Arizona's 1980 Groundwater Management Act defined boundaries for the state's five Active Management Areas (AMAs) by identifying areas where groundwater pumping has significantly exceeded recharge. The law established guidelines for long-term management, designed to mitigate the effects of groundwater pumping in excess of recharge rates,

including subsidence (collapse of a depleted aquifer resulting in sinking and fissuring of the ground at the surface) and other immediate impacts.

The Planning Area includes portions of twelve groundwater basins, including portions of special-management areas in the Harquahala Irrigation Non-Expansion Area and the Phoenix, Pinal, and Tucson AMAs (**Map 3-8**, Groundwater Basins). The rules for groundwater pumping in an AMA are stricter than in adjacent rural areas, and include sustainability targets for both water quantity and quality. The ADWR also places restrictions on increasing irrigated acreage in an Irrigation Non-Expansion Area. Available groundwater in the Phoenix AMA was quantified in the Third Management Plan (ADWR 1999a), which shows that the current rate of groundwater pumping will cause levels under the Planning Area to decline; however, the effects will vary in different locations. The Pinal AMA shows a similar trend, with most impacts caused by irrigation pumping.

The ADWR monitors groundwater depletion in the AMAs. The USGS and ADWR predict that ground subsidence, due to groundwater withdrawal, is likely to continue in the areas where it currently occurs, and in additional areas of significant groundwater depletion (Carpenter 1999). Although subsidence has occurred in many parts of the Planning Area, none has been detected in the Decision Areas.

Groundwater Quality

Most groundwater quality issues in the Planning Area are caused by the infiltration of polluted agricultural irrigation water, particularly in the Gila and Salt River valleys. Groundwater quality in other parts of the Planning Area is not well documented. The Pinal Active Management Report (ADWR 1999b) reports little evidence of groundwater pollutants outside the Planning Area's urban and agricultural zones. No groundwater quality trend has been addressed within the report. The Phoenix AMA includes the northern third of the SDNM. Groundwater uses primarily are limited to livestock watering. Groundwater quality monitoring wells were drilled in the SDNM about 30 years ago, but no recent data is available. Few, if any, new water developments other than wildlife waters are expected in the Monument.

3.2.9.2 Surface Water

Although perennial surface water is uncommon on public lands in south-central Arizona, ephemeral, intermittent, and effluent-dependent lotic (streams) and lentic (standing) water are both common and important. (See **Table 3-8**, Monthly Mean Discharge (Flow) of Key Streams in Planning Area, for stream-flow data.) Desert washes are key resources in the Planning Area; however, most flow has been impounded for various purposes. Small water-control devices including spreader dikes, berms, dirt tanks, and remnant impoundments from mining activities are scattered across the Planning Area to capture rainfall and ephemeral flows in desert washes for use by livestock and wildlife. The Gila River is the primary watercourse and is ephemeral for its entire length in the Planning Area except for the discharge of treated effluent, which flows to about SR 85 most of the year. When there is precipitation and runoff, which mostly likely occurs in the summer (see **Table 3-9**, Monthly Temperature and Precipitation for Planning Area (Gila Bend Weather Station) for climate data), flow occasionally continues into Painted Rock Reservoir.

All water quality issues discussed above for the Planning Area apply to the Lower Sonoran Decision Area. Nearly all water quality issues relate to the Gila River. Portions of all 12 surface-water sub-basins

occur in the Lower Sonoran Decision Area. About 40 percent of the LSFO's northwest portion, all public land in San Tan Mountain area and near Apache Junction, is included in the Phoenix AMA. As identified in **Table 3-9**, summer is the wettest season, followed by winter, while spring and fall are the driest. This is only partly reflected in monthly mean discharges of key streams in the Planning Area (see **Table 3-8**) because other factors such as natural water regimes being restricted by impoundments and water being diverted for irrigation purposes greatly influences stream flows.

Table 3-8
Monthly Mean Discharge (Flow) of Key Streams in Planning Area

	January		April		July		October	
Gage (USGS Reference Number)	**Record high flow (ft^3/s) (year)**	**Mean flow (ft^3/s)**	**Record high flow (ft^3/s) (year)**	**Mean flow (ft^3/s)**	**Record high flow (ft^3/s) (year)**	**Mean flow (ft^3/s)**	**Record high flow (year)**	**Mean flow (ft^3/s)**
Salt River at 51st Ave. (09512406)	5,484 (2005)	808	4.92 (2007)	1.5	7.46 (2006)	2.2	9.15 (2005)	2.0
Gila River near Maricopa (09479350)	0	0	0.3 (2005)	0.02	8.1 (2006)	0.54	8.4 (2006)	0.63
Gila River at Estrella Parkway near Goodyear (09514100)	53,880 (1993)	3,480	5,104 (1993)	388	55.6 (1993)	3.9	62 (1993)	11
Hassayampa River near Arlington (09517000)	133 (2001)	79	69 (2007)	47	121 (1999)	46	311.6 (2000)	77
Centennial Wash at Southern Pacific RR Bridge near Gila Bend (09517490)	85 (1993)	4.0	2.8 (1982)	0.17	18 (1996)	2.9	21.1 (2000)	0.94
Below Painted Rock Reservoir (09519800)	6,348 (1993)	390	16,160 (1993)	793	3,286 (1980)	265	3,996 (1980)	226

Source: USGS 2010

Table 3-9
Monthly Temperature and Precipitation for Planning Area (Gila Bend Weather Station)

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	An-nual
Average Max. Temperature (F)	69.0	73.6	79.8	88.0	96.7	106	108.9	107.2	103.1	92.1	78.5	69.2	89.3
Average Min. Temperature (F)	38.7	41.8	46.1	51.7	59.6	68.2	78.1	76.8	70.0	57.2	45.2	38.7	56.0

Average Total Precipitation (in.)	0.62	0.63	0.63	0.22	0.11	0.05	0.73	1.02	0.51	0.40	0.51	0.69	6.13

Source: Western Regional Climate Center, http://www.wrcc.dri.edu/cgi-bin/cliMAIN.pl?azgila, accessed Sept. 26, 2010

Surface Water Basins

The nation's watersheds are organized into a hierarchy of hydrologic units, each with a unique hydrologic unit code. Under the hydrologic watershed naming system, the entire Planning Area lies in the Lower Colorado Region. Within that region, most of the Planning Area is in either the Lower Gila or the Salt sub-region, identified by four-digit hydrologic unit codes. Going down the hierarchy, the next subdivision is the basin, or six-digit hydrologic unit codes. Sub-basins (eight-digit hydrologic unit codes) are most commonly used to describe state-level drainage areas. Watersheds (ten-digit hydrologic unit code) and sub-watersheds are commonly used in project-level planning but are too numerous to be individually described in this plan.

There are parts of 20 fourth-order hydrologic units or sub-basins (as defined in **Table 3-10**, Definition of Hydrologic Unit Codes in the Planning Area) in the Planning Area (**Table 3-11**, Surface Water Sub-basins in Planning Area and **Map 3-9**, Surface Water Sub-Basins). The San Cristobal, San Simon (near Ajo), Lower Santa Cruz, Santa Rosa Wash, Roosevelt Lake, Lower Salt, Middle Gila, Lower Gila, Lower Gila-Painted Rock Reservoir (which includes the SDNM), Centennial Wash, and Tenmile Wash (Gila Bend Mountains area) comprise most of the Decision Areas. The Lower Verde, Sonoyta Valley, San Carlos, Colorado (Yuma-Mexico), and Brawley Wash sub-basins occupy only a small proportion of the Planning Area and are not discussed further.

San Cristobal and San Simon Sub-basins. The surface-water resources in these two sub-basins are not well documented. The San Cristobal Sub-basin, located south and west of Ajo, consists of ephemeral watercourses. The San Simon Wash Sub-basin contains over 1.4 million acres; however, only a small portion of the upper watershed in the sub-basin is within the Lower Sonoran.

Lower Santa Cruz Sub-basin. The Lower Santa Cruz Sub-basin is characterized by the lower Santa Cruz River, which is an ephemeral river. This river's single, topographically defined channel runs from the eastern boundary of the Planning Area to the confluence with the Gila River, albeit is often difficult to follow.

Roosevelt Lake Sub-basin. Only the southern tip of the Roosevelt Lake Sub-basin (sometimes referred to as the Upper Salt Sub-basin) is included in the Planning Area. It also includes the eastern-most portion of the Lower Sonoran, near the Globe-Miami communities. Drainages in this sub-basin flow to the Salt River and Roosevelt Lake, the latter being the largest of the Salt River Project (SRP) reservoirs on the river.

Lower Salt Sub-basin. The Lower Salt Sub-basin includes the Salt River from Roosevelt Dam to its confluence with the Gila River. The stream is highly urbanized within the Planning Area, and has a great deal of influence on downstream water resources, including critical parts of the Lower Sonoran. The Salt River originates in the White Mountains and drains 5,980 square miles. It is ephemeral as it passes through the Planning Area on the way to its confluence with the Gila River. A chain of dams operated by SRP control the flow of the Salt River and creates a number of reservoirs, including Roosevelt, Apache, Canyon, and Saguaro lakes. Downstream from the last reservoir is Granite Reef Diversion

Dam, which is not used to store water but to divert the entire river's flow into SRP's irrigation-canal system.

Table 3-10
Definition of Hydrologic Unit Codes in the Planning Area

Order	No. of Digits	Name	Unit Size
1	2	Region	Avg. 177,560 square miles
2	4	Subregion	Avg. 16,800 square miles
3	6	Basin	Avg. 10,596 square miles
4	8	Sub-basin	Avg. 703 square miles
5	10	Watershed	Range: 40,000-250,000 acres
6	12	Sub-watershed	Range: 10,000-40,000 acres

Based on Missouri Information Network (University of Missouri 2002)

Table 3-11
Surface Water Sub-basins in Planning Area

Name	Acres within Planning Area	% of Planning Area
Agua Fria Sub-basin	11,347	0.1%
Aguirre Valley Sub-basin	408,471	4.6%
Brawley Wash	36,626	0.4%
Centennial Wash	286,064	3.2%
Colorado (Yuma-Mexico)	43,105	0.5%
Hassayampa	24,470	0.3%
Lower Gila	294,981	3.3%
Lower Gila-Painted Rock Reservoir	1,291,772	14.6%
Lower Salt	505,992	5.7%
Lower Santa Cruz	559,450	6.3%
Lower Verde	111,892	1.3%
Middle Gila	1,058,211	11.9%
Roosevelt Lake	150,967	1.7%
San Carlos	26,362	0.3%
San Cristobal Wash	893,832	10.1%
San Simon Wash	1,373,521	15.5%
Santa Rosa Wash	783,352	8.8%
Sonoyta Valley	267,466	3.0%
Tenmile Wash	741,013	8.4%
Tonto	88	<0.1%
Total	8,868,982	100%

Middle Gila Sub-basin. The Middle Gila Sub-basin comprises the main stem of the Gila River from the outfall of San Carlos Reservoir to its confluence with the Salt River. This is one of the most heavily impacted streams in the Planning Area in terms of water quantity; however, very little of the watershed lies within the Lower Sonoran boundaries. Because it is a large watershed draining most of southeastern Arizona, peak flows on the Gila River can be large relative to other Arizona rivers. Most of the Gila River between San Carlos Reservoir and Ashurst-Hayden Dam is dependent on irrigation releases from the reservoir.

Lower Gila/Painted Rock Sub-basin. The Lower Gila/Painted Rock Sub-basin contains a large portion of the Decision Areas, including the SDNM and several wilderness areas, and receives most of the flow from all the previously discussed drainages.

Lower Gila Sub-basin. The Lower Gila Sub-basin below Painted Rock Dam receives runoff from the extreme western part of the Planning Area, including the Sentinel Plain area.

Centennial Wash Sub-basin. Centennial Wash extends about 100 miles from the Gila River up to Wenden, Arizona, then runs east to about 10 miles west of Wickenburg, Arizona. Centennial Wash drains many parts of the Lower Sonoran, including Saddle Mountain and parts of Woolsey Peak and Signal Mountain wildernesses.

Tenmile Wash Sub-basin. Tenmile Wash is a long, ephemeral watercourse that drains a large amount of public land in the Lower Sonoran. It contains numerous water bodies protected for their riparian values. The wash goes through public lands a few miles east of Ajo, and includes most of the current flows emanating from the New Cornelia Mine and associated tailings pile located in the Ajo mining district. Any flows or contaminants from the mining district are transported to adjacent public lands. The wash also enters and bisects the BGR, and joins the lower Gila River near Dateland. There are no active USGS gauging stations in the Tenmile Wash Sub-basin.

Surface Water Quality

The ADEQ assesses water quality in specific stream segments, or reaches, by determining if it is sufficient to carry out its designated uses. The assessment results are published every other year as part of the biennial State of Arizona 305(b) Report to Congress. The last report was issued in November 2008 (ADEQ 2008), although it did not include any new data since the 2006 report. A full report with new sampling data was released as a draft version in January 2012 and is available for public comment. The 305(b) report includes the 303(d) list, which lists all state stream segments with impaired water quality for their designated uses, and the pollutants causing the impairment.

The Clean Water Act (as amended) requires that every stream placed on the 303(d) list must have a water quality improvement plan prepared. A key element of these plans is the development of a total maximum daily load (TMDL), which is the concentration of a pollutant allowed for the stream to meet state water quality standards. Each TMDL is specific to a given stream, its uses, and the pollutants that impair it.

In 1998, ADEQ classified all the sub-basins in Arizona as part of the Arizona State Unified Watershed Assessment (ADEQ 1998). All watersheds that included impaired streams, at that time, were designated Category 1 watersheds; however, this classification system currently receives little use. More common

is the EPA classification system for impaired streams, which classifies streams in Categories 1-5. Category 1 refers to specific stream segments that have no impairment, while Category 5 refers to streams on the 303(d) List.

The three ADEQ water quality basins that cover the Planning Area are the Santa Cruz/Rio Magdalena/ Rio Sonoyta, Middle Gila, and Colorado/Lower Gila. The Santa Cruz/Rio Magdalena/Rio Sonoyta water quality basin includes all ephemeral washes draining the southeastern quadrant of the Planning Area. The most common water quality pollutants identified for this basin by ADEQ include the following:

- Bacteria, chlorine, and cyanide from the Nogales International Wastewater Treatment Plant on the upper Santa Cruz River;
- Historical mining uses causing copper, zinc, and other metals to enter water bodies and washes;
- Mercury in fish at Arivaca and Peña Blanca Lakes;
- Ammonia, chlorine, copper, and E. coli in Nogales Wash.

There are ten impaired stream segments in the Santa Cruz/Rio Magdalena/Rio Sonoyta water quality basin, but none in the Decision Areas. It is unlikely that any of the impaired segments could affect or be affected by any future BLM decisions. Within the Decisions Areas, the EPA listed the Gila River (from Sand Tanks to Painted Rocks Reservoir) as Category 5 impaired waters for pollutants including DDT, toxaphene, and chlordane (in fish tissue) (EPA 2008). There are no known waters in the Decision Areas listed as impaired for organic matter.

The Middle Gila and Colorado/Lower Gila River water quality basins have impairments that could influence BLM management actions. While the BLM manages more than a quarter of the land in the Middle Gila watershed, nearly all of which is in the Planning Area, the only public land stream reaches are along the Gila River between the Salt River and Painted Rock Reservoir. There are 11 water bodies (i.e., stream segments and lakes) in this water quality basin on the 303(d) list, including those listed by EPA as not meeting standards for pesticides and with fish-consumption advisories.

The designated uses of the Gila River as it passes through the Gila River Indian Community are ephemeral aquatic and biota, partial immersion recreation, and fish consumption. Parts of the Salt River under Gila River Indian Community jurisdiction are designated for effluent-dependent, aquatic and wildlife, warm water fishery, and livestock watering. The Arizona reaches of the Gila River above the Gila River Indian Community are designated for aquatic and wildlife, ephemeral, partial body contact, and livestock watering, except for a short reach below the Florence Wastewater Treatment Plant that is effluent-dependent. From the Gila River Indian Community to Gillespie Dam, the designated uses are partial body contact, fish consumption, irrigation, and livestock watering. Below Gillespie Dam to Painted Rock Reservoir and on to the Planning Area's western boundary, the designated uses are aquatic and wildlife, full body contact, fish consumption, livestock watering and irrigation; however, there is a fish-consumption advisory for Dichlorodiphenyltrichloroethane (DDT) and other pesticides. All stream segments with fish-consumption advisories are on the 303(d) list. The ADEQ also assesses use attainability of the Grand Canal for agricultural livestock and livestock watering.

The USGS reports that past use of agricultural pesticides and herbicides in the west Salt River Valley is the origin of these compounds along the Gila River, from below the confluence with the Salt River to Painted Rock Reservoir (Cordy et al. 1998). Arizona Department of Environmental Quality studies have shown a sharp decrease in pesticides in fish over recent years (Marsh 2002). During 1999, collected fish tissue samples suggested much lower DDT levels than previous studies. Nevertheless, DDT levels were still high enough to trigger EPA advisories on fish consumption. Some samples contained high concentrations of toxaphene, an insecticide used heavily in agricultural treatments until banned in 1990.

The Gila River reach within the Planning Area, between Gillespie Dam and Centennial Wash, continue to exceed standards for boron and selenium, but the sources and trends of these impairments have not been determined. If the boron stream concentration remains at the current level (0. 370-2. 7 mg/l), there may be some effects on boron-sensitive riparian plants. The potential for this impact is unknown.

Gila River TMDL standards for boron and selenium will begin in 2012. The ADEQ recognizes the risks involved to the Yuma clapper rail and southwestern willow flycatcher resulting from exceeding water quality standards for selenium, making it a high priority TMDL, although complicated by large numbers of potential sources of the pollutants and seasonal influences. Pesticides impair the entire length of the Gila River, from the Salt River to Painted Rock Reservoir. Pesticide TMDLs in all reaches should be completed in 2011.

Painted Rock Borrow Pit Lake exceeds state (EPA-approved) standards for dissolved oxygen and pesticides. The TMDL determination started in 2009, and is scheduled for completion when the lake refills. Fecal coliform criteria changed in the last Arizona triennial review of water quality standards: Painted Rock Reservoir may be removed from the 303(d) list after the 2012 triennial review.

In the Planning Area and above it on the Salt and Gila rivers, much of the surface water has been impounded behind dams for irrigation, industrial, municipal, and other uses. Dozens of stock ponds and other structures in the Decision Areas, such as water bars, spreader dikes, and impoundments designed to capture rainfall or ephemeral water flows in desert washes, may be contributing to a loss in flow by evaporation or infiltration; however, these are very small amounts compared to naturally occurring evaporation and infiltration.

3.2.9.3 Water Rights

The Planning Area is in the Gila River System and Source General Stream Adjudication (Gila Adjudication). Such judicial proceedings determine the nature, quantity, and priority (i.e., seniority) of water rights in Arizona. The majority of both Decision Areas lie in the Gila River Watershed, but small areas are also included in the Upper Salt River, Upper Gila River, and Upper Santa Cruz watersheds. Although the Gila Adjudication began in 1974, litigation is still unsettled in the San Pedro Basin. See **Table 3-10**, Definition of Hydrologic Unit Codes in the Planning Area for definitions of hydrologic unit codes in the Planning Area.

The BLM has filed claims in the Gila Adjudication for state appropriative water rights and well permits on numerous springs, small reservoirs, wildlife-water developments, and wells for stock watering, wildlife, or recreation purposes. The BLM has no in-stream flow water rights within the Decision Areas because there are no suitable perennial or intermittent streams on public lands.

The six wilderness areas in the Planning Area, designated by the 1990 Arizona Desert Wilderness Act, created an expressly stated, federally reserved water right for each wilderness area upon designation. The BLM has inventoried, quantified, and submitted notification of its federal reserved rights to ADWR for Signal Mountain, Woolsey Peak, North Maricopa Mountains, South Maricopa Mountains, Table Top, and Sierra Estrella wildernesses. The sources claimed by notification to ADWR are for small amounts from springs, seeps, and potholes. No perennial or intermittent surface water exists in the wilderness areas, other than that which may flow for short distances from springs.

The Gila Stream Adjudication in Arizona is ongoing and will eventually address claims for water in the Planning Area. Current adjudication activity is limited to the San Pedro Basin, and the schedule for adjudicating water rights in the Middle and Lower Gila Basins is uncertain. The enabling Presidential Proclamation for SDNM explicitly states that the Monument has no water reservation, with exception of lands in North Maricopa, South Maricopa, and Table Top wildernesses. If water is needed for use outside of the wilderness areas in the SDNM, the BLM must secure water rights for those uses by appropriation from the state.

3.2.10 WILD HORSE AND BURRO MANAGEMENT

The Painted Rock Herd Area is located approximately 85 miles southwest of the metro Phoenix area and approximately 11 miles west of Gila Bend, Arizona, and surrounds the Painted Rock Reservoir area. The herd area encompasses approximately 38,737 acres, of which 31,106 acres are BLM-administered land, 4,834 acres are private lands, and 2,796 acres are Arizona state lands. The herd area includes portions of three allotments: Artex, Painted Rock, and Dendora Valley. All three allotments are classified as ephemeral. The herd area has been home to wild burros and a small band of horses over the years. Management of the herd area applies only to the Lower Sonoran Decision Area. No Herd Management Areas (HMAs) have been allocated within either Decision Area. The Painted Rock Herd Area is shown on **Map 3-10**, Livestock Grazing Allotments & Wild Horse and Burro Herd Area.

The habitat of the Painted Rock Herd Area consists about 10,700 acres of braided rocky dry washes, formed by the Gila River, between the Painted Rock Dam and Oatman Mountain. Approximately 28,000 acres of the Herd Area are upland volcanic flow in a region known as the Sentinel Plain. This area consists of broad lower Sonoran Desert plains cut by sandy washes and low mountain ranges. Vegetation consists of palo verde, cacti, creosote bush, and sage. The Gila River drainage, which is dry throughout the area, bisects the northern portion of the herd area and is characterized by salt cedar and mesquite. Wildlife species that also inhabit the area include desert mule deer, javelina, dove, quail, and a variety of small mammals, birds, amphibians, and reptiles.

In 1971, Congress passed the Wild Free-Roaming Horses and Burros Act (the Act). The overall goal of the BLM's Wild Horse and Burro Program is to preserve the health of the land and water resources by managing wild horse and burro populations so as to restore and maintain a thriving natural ecological balance. Appropriate management levels for the herds, the habitat requirements of the animals, the relationships with other uses of the public and adjacent private lands, are analyzed to determine the health of both the animals and the rangeland resources (43 CFR 4710.3-1). Wild horses and burros are to be managed as self-sustaining populations of healthy animals in balance with other uses and the productive capacity of their habitat, while maintaining their free-roaming behavior (43 CFR 4700.0-6).

However, wild horses and burros must be managed within the limits the animals' herd areas (43 CFR 4710.4).

Wild burros appear to use the herd area in a transitory manner due to a lack of perennial forage plants on a vast majority of the herd area. The only water available is on private lands, which are presently used to produce agricultural crops. These private lands also produce, in most years, the only reliable forage for the wild burros and occasional horses. The wild horses move from the mountains to the northeast of the herd area to the farms occasionally. Since 1992, a total of 7 burros and 58 horses have been removed from the area.

In 1980, the population in the Painted Rock Herd Area was estimated to be between 15 and 25 animals. In 1993, an herd area inspection indicated the presence of 20 to 40 animals. In 1999, BLM removed 42 horses from the herd area and offered them for adoption due to concerns over impacts on privately owned farmlands. Another inspection later in 1999 found no animals. The Lower Gila South RMP called for Painted Rock to be managed for a zero population of wild burros. In 1999, it was determined by the Phoenix Field Manager that, at the time the Act was passed, there were wild horses present on the herd area and that horses currently utilizing the herd area in fact fell within the definition of wild horses as found in the Act. This determination in no way changed existing Land Use Plan Decisions relating to the Painted Rock Herd Area, and immediately following this determination, wild horses were removed and placed into the Adoption Program. Details of these issues are provided in **Appendix M**, Painted Rock Herd Manageability Analysis.

Rationale for a zero population of wild horses and burros is based on the fact that the herd area does not produce perennial forage on an annual basis sufficient to support a population of wild burros and/or wild horses. The only perennial water available within the herd area is found on private lands. To attempt to manage for a population of wild horses or burros within the Painted Rock Herd Area would conflict with existing policy, the regulations, or the Act, as amended.

3.2.11 WILDERNESS CHARACTERISTICS

3.2.11.1 Background

Inventories for wilderness characteristics were conducted by the BLM between 2003 and 2012. In addition, citizens' proposals were submitted to the BLM by interested publics. The BLM assessed the Planning Area for wilderness characteristics as part of the land use planning process, in response to input received during scoping, and in response to public comments provided on the DRMP/DEIS.

3.2.11.2 Field Assessments

Assessment of lands with wilderness characteristics was developed from the following four sources:

1. A review of Wilderness Review, Arizona: Intensive Inventory of Public Lands Administered by BLM, Decision Report (BLM 1980) and Wilderness Review, Arizona: Initial Inventory of Public Lands Administered by BLM, Decision Report (BLM 1979). These documents are comprehensive evaluations of wilderness characteristics on public lands in Arizona that were conducted during 1978-1980, as directed by Section 603 of FLPMA.

2. Public input received during scoping and the public comment process on the DRMP/DEIS that delineated tracts of public lands reported to possess wilderness characteristics.

3. Fieldwork conducted by the BLM in 2003, 2005, 2011, and 2012 to ascertain the continuing validity of the findings of the 1980 inventory and appraise input and new information received from the public during scoping.

4. Citizen groups' wilderness characteristics proposals submitted between 2003 and 2005 and during the public comment period on the DRMP/DEIS. Some citizen proposals were highly detailed reports. Other proposals were maps of areas considered by citizen groups to possess wilderness characteristics, or written sentiments that certain areas possessed such characteristics.

The BLM field-checked public lands using 1978-1980 inventory records and field assessments conducted in 2003, 2005, 2011, and 2012. Findings were documented following guidance in IM 2011-154, Requirement to Conduct and Maintain Inventory Information for Wilderness Characteristics and to Consider Lands with Wilderness Characteristics in Land Use Plans. All inventory findings were focused on naturalness and outstanding opportunities for solitude and primitive and unconfined recreation. Lands found to have wilderness characteristics by the BLM are considered in the range of action alternatives in the PRMP/EIS (see **Map 3-11**, Wilderness Characteristics).

3.2.11.3 Findings

Wilderness characteristics were considered in the DRMP/DEIS. Based on public comments received on the DRMP/DEIS, several areas were newly inventoried or re-inventoried in accordance with Instruction Memorandum 2011-154, Requirement to Conduct and Maintain Inventory Information for Wilderness Characteristics and to Consider Lands with Wilderness Characteristics in Land Use Plans. **Table 3-12**, Units Inventoried for Wilderness Characteristics details the field inventory status of each unit proposed for wilderness characteristics consideration and documents whether the consideration of the unit was initiated by BLM, by a citizens' proposal, or by both BLM and a citizens' proposal. Comparison of the 1978-1980 wilderness characteristics review with fieldwork conducted between 2003 and 2012 identified five findings or trends. They are:

1. Overall, the Decision Areas maintained a high degree of naturalness. There were no large-scale or incompatible land uses with long-lasting or irreversible effects on naturalness occurring over the intervening period since 1980.

2. More acres of public lands in the Decision Areas exhibited potential wilderness characteristics in 2012 (compared to the original inventory in the 1980s), mainly due to either additional lands (acres) not considered in the 1980 wilderness review or changing land uses coupled with natural reclamation. Changing land uses often reflected less mineral exploration and assessment.

Table 3-12
Units Inventoried for Wilderness Characteristics

Unit Name	Inventoried Acres	Origin of Inventory Unit	Acres with Wilderness Characteristics[1]
Lower Sonoran			
Batamote Mountains East	11,120	BLM & Citizens' Proposal	11,120
Batamote Mountains West	29,330	BLM & Citizens' Proposal	29,330
Black Mountain	10,724	Citizens' Proposal	10,724
Cortez Peak[2]	26,331	Citizens' Proposal	26,331
Cuerda de Lena Wash	32,973	Citizens' Proposal	0
Dixie Peak[3]	-	-	-
Face Mountain[2]	32,973	Citizens' Proposal	32,973
Gila Bend Mountains (Red Rock Canyon)	25,321	Citizens' Proposal	0
Oatman Mountain	18,036	Citizens' Proposal	0
Painted Rock Mountains North	9,002	Citizens' Proposal	9,002
Painted Rock Mountains South[4]	-	-	-
Palo Verde Hills	12,139	BLM	12,139
Pozo Redondo	19,550	Citizens' Proposal	0
Saddle Mountain	25,983	Citizens' Proposal	17,540
Sentinel Plain Complex - North [5]	47,060	Citizens' Proposal	38,812
Sentinel Plain Complex - Central [4]	-	-	-
Sentinel Plain Complex NE [4]	-	-	-
Sentinel Plain Complex NW A	8,198	Citizens' Proposal	0
Sentinel Plain Complex NW B	9,573	Citizens' Proposal	0
Sentinel Plain - South	57,957	BLM & Citizen's Proposal	25,685
Seven Mile Mountain (Sierra Estrella Wilderness Addition)	26,264	Citizens' proposal	0
Sikort Chuapo (Sauceda Mountains)	10,173	BLM	10,173
Woolsey Peak Wilderness Extension	10,202	Citizen's Proposal	10,202
Why	7,624	Citizens' Proposal	0
Yellow Medicine Butte/Dixie Peak	29,293	Citizens' Proposal	29,293
Total Acres Considered for Wilderness Characteristics	*455,415*	*Total Acres Determined to Possess Wilderness Characteristics*	*263,324*[2]
SDNM			
Blue Plateau (Sand Tank Mountains West)	56,064	BLM & Citizens' Proposal	56,064
Butterfield Stage Memorial	9,606	Citizens' Proposal	9,606
Javelina Mountain (Sand Tank Mtns. East)	52,649	BLM & Citizens' Proposal	52,649
Margie's Peak	13,980	Citizens' Proposal	13,980
South Maricopa Mountain Extension	9,520	BLM	9,520
White Hills	13,030	BLM	13,030

Table 3-12
Units Inventoried for Wilderness Characteristics

Unit Name	Inventoried Acres	Origin of Inventory Unit	Acres with Wilderness Characteristics[1]
Total SDNM Acres Considered for Wilderness Characteristics	*154,849*	*Total SDNM Acres Determined to Possess Wilderness Characteristics*	*154,849*

[1] Presence or absence of wilderness characteristics confirmed by BLM through field inventory of unit and in accordance with Instruction Memorandum 2011-154, Requirement to Conduct and Maintain Inventory Information for Wilderness Characteristics and to Consider Lands with Wilderness Characteristics in Land Use Plans.

[2] 10,500 acres of the Cortez Peak unit, 2,000 acres of the Face Mountain unit, and 600 acres of the Sentinel Plain Complex unit are located outside the Lower Sonoran Field Office. Wilderness characteristic allocations and management actions prescribed by the action alternatives brought forward by the LSFO/SDNM PRMP/EIS do not have jurisdiction on lands outside the Lower Sonoran Field Office. This PRMP/FEIS prescribes land use allocations and management actions only for the 250,100 acres of lands with wilderness characteristics within LSFO.

[3] Dixie Peak area was examined as part of Yellow Medicine Butte inventory unit.

[4] Area(s) inventoried as part of the Sentinel Plain Complex - North.

[5] Sentinel Plain Complex – North: includes the Painted Rock Mountains South, Sentinel Plain NE, and Sentinel Plain Central inventory units.

3. The 2003-2012 fieldwork indicated that three former WSAs found to have wilderness characteristics in 1980, but not included as part of the congressionally designated wilderness areas, continue to exhibit such character since their release from FLPMA Section 603 protection in the Arizona Desert Wilderness Act of 1990. Wilderness study areas released in their entirety in 1990 were Saddle Mountain, Face Mountain, and the Butterfield Stage Memorial. Parts of the Woolsey Peak WSA and South Maricopa Mountains WSA released from wilderness study and Section 603 protection in the Arizona Desert Wilderness Act of 1990 also continue to exhibit wilderness characteristics.

4. The 1978-1980 wilderness review did not include an evaluation of about 146,000 acres of withdrawn lands administered by the US Air Force and re-conveyed to BLM with the passage of the National Defense Authorization Act for Fiscal Year 2000. These lands primarily consisted of the Sand Tank Mountain area (formerly Area A) of the SDNM and Sentinel Plain South area of the Lower Sonoran Field Office. Public lands next to the military lands, previously inventoried for wilderness characteristics in 1978-1980, were re-evaluated for wilderness characteristics in context with these contiguous re-conveyed lands. While much of the Sand Tank Mountains and adjoining areas were not inventoried in 1980, the area was found to have wilderness characteristics during the recent inventories. These areas make up about 79 percent of the 154,849 acres in the Monument assessed for wilderness characteristics.

5. Finally, the BLM's field assessments and BLM's comprehensive inventory of vehicle routes found a rise in motorized public visitation and the popularity of many areas for driving four-wheel-drive vehicles and ATVs. Many washes, and most upland routes, were being used for

motorcycle and ATV travel – motorized uses not common in this area in 1980, as ATV use and technologies were not yet developed or readily available to recreationists at that time.

Summary of Findings - Lower Sonoran Field Office Decision Area

Batamote Mountains (East and West): The units both possess wilderness characteristics and are highly natural with few human intrusions. Their large size, configuration, rugged topography, and plant cover offer outstanding opportunities for solitude and primitive and unconfined recreation. Special features present include habitat for the acuña cactus and desert bighorn sheep.

Black Mountain: The area is natural and has some outstanding opportunities for primitive and unconfined recreation--mainly day hiking and climbing Black Mountain. Opportunities for solitude are constrained due to limited topographic variability and poor vegetative screening on the lands surrounding the base of Black Mountain.

Cortez Peak: The unit possesses wilderness characteristics. As bounded, the area is nearly pristine with its few human intrusions substantially unnoticeable. Solitude opportunities are outstanding due to topographic variation and thick plant cover. There are countless rolling hills, tree-lined washes, and rugged peaks. The landscape also supplies outstanding opportunities for hiking, hunting, nature study, and wildlife observation.

Cuerda de Lena Wash: The area is generally natural but does have a profusion of off road vehicle travel along upland vehicle routes and within washes. There are no outstanding opportunities for solitude due to the lack of topographic diversity. The rolling to near-level terrain offers lackluster primitive recreation opportunities. The unit's namesake wash suffered from substantial wood harvesting in the past, thus part of the area does not look natural. OHV use is evident throughout.

Dixie Peak: This area possesses wilderness characteristics when considered in conjunction with the Yellow Medicine Butte inventory area to the west.

Face Mountain: The area retains wilderness characteristics as documented in BLM's 1980 wilderness inventory.

Gila Bend Mountains (Red Rock Canyon): The BLM's wilderness inventory findings from 1980 remain valid, and the area lacks wilderness characteristics. The western and northern parts of the unit are impacted by human activities such as mining, ranching, and OHV travel. The mountainous core of the unit is natural, and there are colorful and scenic outcrops in some canyons and washes. The paucity of easily traveled canyons and washes and few secluded spots restrict opportunities for solitude and primitive and unconfined recreation. While some opportunities are good, none are considered, either individually or collectively, to be outstanding.

Oatman Mountain: The desert flats and rolling bajadas surrounding Oatman Mountain are nearly devoid of human impacts save some jeep routes and fence lines, but the area does not possess wilderness characteristics. Several roads penetrate the unit climbing conspicuously to the summit of Oatman Mountain. The mountain is unnatural in appearance, dominated by two or more large groupings of communication facilities, buildings, and antennas. These facilities are noticeable from many surrounding areas within the unit, and their presence is largely unavoidable.

Painted Rock Mountains North: The area is natural with few human imprints. There are no outstanding opportunities for solitude due to the unit's small size and modest plant cover. Primitive recreation opportunities are outstanding due to the colorful and rugged topography of the locale, which offers good hunting, photography, hiking, and geologic sightseeing.

Painted Rock Mountains South: This area was inventoried in conjunction with the Sentinel Plain Complex – North inventory area

Palo Verde Hills: The area is generally natural in appearance and offers some outstanding opportunities for solitude and primitive and unconfined recreation, primarily in its small well-screened interior. However, the open aspect of the volcanic hills and terrain allows outside sights and sounds of highways, farms, and residences to impact the periphery of the unit. These influences are especially notable on the unit's north and east sides. The biggest interior impacts on naturalness are jeep routes, fence lines, vehicle-based camp sites, and some livestock watering facilities.

Pozo Redondo: The area does not possess wilderness characteristics, and the 1980 findings of BLM's wilderness inventory remain valid. The area retains the natural appearance it possessed in 1980s wilderness inventory. The lack of topographic relief and monotonous terrain makes primitive recreation opportunities neither unconfined nor outstanding. The general absence of landscape diversity and plant screening throughout most of the area limits opportunities for persons to avoid the sights, sounds, and evidence of others in the unit.

Saddle Mountain: Upon full reassessment of the public lands in this area, Saddle Mountain's original 5,500 acre WSA area and another 12,040 acres of surrounding desert flats and foothills were determined to possess wilderness characteristics. The area's canyons, foothills, incised washes, and bajadas offer limited, but outstanding, opportunities for solitude. Scenery, volcanic features, colorful geology, and Sonoran Desert ecology offer visitors outstanding opportunities for primitive and unconfined recreation, along with non-technical climbs to the summit of Saddle Mountain. Significant outside sights and sounds of human activity are sometimes present, but the unit's diversity enables visitors to avoid these intrusions for varying lengths of time.

Sentinel Plain Complex – North: About 75 percent of this area possesses wilderness characteristics. The unit is made up of the Sentinel Plain Complex Central and Northeast areas and the Painted Rock Mountains south inventory areas, containing the southern portion of the Painted Rock Mountains and the northeastern part of the Sentinel Plain. The large basaltic flatlands of the Sentinel Plain form most of the unit, with various incised washes and large 1000-acre expanses of volcanic desert pavements. Secluded valleys, remote and thickly vegetated washes, a deeply cut arroyo named Wild Horse Canyon, and large empty expanses of desert pavement provide outstanding opportunities for solitude. The area is notable for its natural quiet and the near absence of human sounds. Outstanding primitive recreation opportunities include hunting, hiking, and study or photography of the area's impressive array of cultural and geologic resource features.

Sentinel Plain Complex – Central: This area was inventoried in conjunction with the Sentinel Plain Complex – North inventory unit.

Sentinel Plain Complex NE: This area was inventoried in conjunction with the Sentinel Plain Complex – North inventory unit.

Sentinel Plain Complex NW A: The unit lacks wilderness characteristics. Its small size, narrow two-mile width, and modest terrain and limited plant mixture offer less than outstanding opportunities for solitude and primitive and unconfined recreation. There are some opportunities for seclusion in the center of the area within a 2,000 acre canyon/wash badlands area. However, the confined nature of this drainage offers only good, not outstanding, opportunities for hiking, exploration, and seclusion. The unit's seclusion is more a factor of its remote location rather than any distinctive landscape-related wilderness resource values.

Sentinel Plain Complex NW B: The unit lacks wilderness characteristics. Its small size, narrow configuration, and lack of topographic relief and plant cover provide less than outstanding opportunities for solitude and primitive and unconfined recreation. The unit averages only 1.5 miles wide between boundary roads.

Sentinel Plain Complex South: The eastern two-thirds of the area possess wilderness characteristics due to its near-pristine condition and opportunities for outstanding hiking and nature study of plants and volcanic landscapes. There are no opportunities for outstanding solitude due to incessant road noise from Interstate 8 and the frequent sights and sounds of military aircraft training to the south. However, when training operations cease, the natural quiet and solitude are good. The western third of the area is bisected by well-maintained roads providing critical access to the Barry M. Goldwater Air Force Range. Maintained access is also needed for military ordinance clean-up and Border Patrol operations.

Seven Mile Mountain (Sierra Estrella Wilderness Addition): The unit does not possess wilderness characteristics and is not considered natural. The unit is separated from the Sierra Estrella Wilderness by roads and jeep trails. Additional roads and jeep trails occur throughout and a large 500-kilovolt power line visible from much of the area traverses the unit from south to north. The terrain is generally flat and monotonous and lacks outstanding opportunities for solitude or primitive recreation. Moreover, the commenter provided no information to question BLM's prior wilderness inventory findings documented in 1979 and 1980.

Sikort Chuapo (Sauceda Mountains): The unit has wilderness characteristics. It is highly natural in appearance with few noticeable human intrusions. The unit's scenic and rugged mountains and dense vegetation cover provide outstanding opportunities for solitude and primitive and unconfined recreation. Organ pipe cacti are present; these plants are uncommon on BLM lands in this area.

Yellow Medicine Butte: The unit is highly natural with few human intrusions. The area's multiple buttes and mesas, intricate and vegetation lined washes and many mountain peaks offer ample opportunities for outstanding solitude and primitive and unconfined recreation. The interior of the unit is crossed from south to north by two major washes, Fourth of July Wash and another wide unnamed wash. Both are highly traveled four-wheel drive, ATV, and motorcycle routes valued for driving, hunting, exploring, sightseeing, and camping. The washes, while heavily traveled, are not maintained roads. Two roads enter the unit from both the north and the south, providing access to game waters, campsites, and washes.

Why: The BLM's 1979 wilderness inventory findings remain valid. This generally small, flat, and uninteresting area offers limited solitude and few areas of relevance to primitive recreationists.

Woolsey Peak Wilderness Extension: The area retains wilderness characteristics as documented in BLM's 1980 wilderness inventory.

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Blue Plateau (Sand Tank Mountains West): This large and natural area has wilderness characteristics as documented in BLM's 2004 and 2011 wilderness characteristic assessments.

Butterfield Stage Memorial: The unit retains borderline wilderness characteristics as documented in BLM's 1980 wilderness inventory and 2011 assessment. The area, however, is less natural than documented in 1980 due to impacts on naturalness from OHV use, trail and route creation, campsite proliferation, and damage to plants and rocks from target shooting.

Javelina Mountain (Sand Tank Mountains East): The large area is natural and has outstanding wilderness characteristics as documented by BLM's 2004 and 2011 wilderness characteristic assessments.

Margie's Peak: The unit possesses the typical wilderness characteristics anticipated in an area of its size and configuration, and is largely run-of-the-mill mainly due to unremarkable scenery and a lack of special features. These findings were documented by BLM's 2011 assessment. Outstanding opportunities are present for solitude and primitive and unconfined recreation, but these opportunities are limited to small areas and restrained to some degree by the unit's size and location.

South Maricopa Mountain Extension: The area retains wilderness characteristics as documented in BLM's 1980 intensive wilderness inventory and the 2011 inventory assessment.

White Hills: The unit is near-pristine in character and possesses wilderness characteristics as documented by BLM's 2004 and 2011 wilderness field inventory assessments. Long vegetation-lined desert washes and groupings of rolling and disarrayed hills offer outstanding opportunities for solitude and primitive and unconfined recreation.

3.2.12 WILDLAND FIRE MANAGEMENT

3.2.12.1 Fire Ecology

In natural desert scrub communities the distance between shrubs is too great for fire to spread, unless annual plant growth in the interplant spaces is sufficient to carry fire along between shrubs. As a result, such communities experience long fire-return intervals, with frequencies extending hundreds of years (McAuliffe 1995; Rogers and Steele 1981). Wildland fire is thus not a major natural process in the Sonoran Desert ecosystem, and associated vegetation types are not dependent on or adapted to fire (BLM 2002c). Wildland fire is a general term describing any non-structure fire that occurs in the wildland. Wildland fires are categorized into two types: wildfires, which are unplanned ignitions or prescribed fires that are declared wildfires; and prescribed fires, which are planned ignitions (WFLC 2009). Wildfires, whether of human or natural causes, are relatively rare and typically do not exceed one or two acres before burning out naturally. Above-average winter precipitation, such as that which occurred in the winter of 2005, can generate sufficiently dense grasses and other annual plants to carry wildfire over a more widespread area than normal. This also occurs in years of typical precipitation in the upland and mountainous areas of the Decision Areas where high annual plant densities and steep slopes combine to create conditions to carry fire. The upslope effects of wind and convection are often factors in propagating fires in these circumstances.

Within Sonoran desert scrub habitats, the establishment and spread of non-native grass species such as red brome (*Bromus rubens*) has increased wildfire frequency. Historically, interplant spaces within this community have had low fuel levels that would not carry fire. However, because introduced, non-native annual grasses are prolific seed producers and grow rapidly, especially during wet years, they occupy interplant spaces and enable fire to carry throughout the non-fire adapted community. With increased fire frequency, native grasses and shrubs cannot compete, resulting in a loss of native plant communities. In addition, fires fueled by these non-native species burn hotter and farther, reducing the natural mosaic pattern typical of desert scrub communities (i.e., patchy distribution of plants and open space) (Esque et al. 2003). Since such fires have the potential to burn uncharacteristically in terms of intensity, severity, and extent, and could have long-term, adverse impacts on ecosystem components and processes (e.g., biodiversity, soil productivity, and hydrologic processes), they are considered wildfires of special concern.

There is little evidence of extensive wildland fires in southwestern floodplain ecosystems prior to European settlement. Lightning and human-induced fires now occur across a variety of low-elevation, riparian ecosystems where non-native plant species, such as salt cedar (*Tamarix spp.*), have invaded (Busch 1995, cited in Ellis et al. 1998). Colonization and naturalization of non-native plant species affect native ecosystems by altering historical fire regimes. The deciduous nature of salt cedar, combined with periodic flooding suppression needed in river floodplain ecosystems to decrease forest-floor litter, has resulted in increased accumulation of fuels, rendering the riparian communities highly susceptible to wildfires (Ohmart and Anderson 1982, cited in Ellis et al. 1998). In addition, these conditions put floodplain ecosystems at high risk of unnatural, high-intensity wildfire events (BLM 2003a).

In some cases wildland fire frequency in riparian ecosystems has increased, with fire return intervals being as short as five-to-fifteen years. This increase in fire frequency can create monotypic stands of salt cedar in the ecosystems. Salt cedar sprouts prolifically after a fire, but native riparian vegetation, including cottonwood, is not well adapted to severe fire (Ohmart and Anderson 1982; Busch 1995, cited in Ellis et al. 1998). The increasing frequency of wildfires in riparian ecosystems can further change the vegetation composition and structure and may have detrimental effects on riparian-obligate species.

3.2.12.2 Fire and Fuels Management

All public lands within the Planning Area are assigned to one of the following allocations for fire management (BLM 2004e):

- Allocation 1: Management of wildland fire to meet multiple objectives (areas suitable for managing fires to achieve resource objectives) is allowed.
- Allocation 2: Initial action is suppression (areas not suitable for managing fires to achieve resource objectives). These lands are not typically fire adapted. Therefore using wildfire to meet resource objectives is not an appropriate action on these lands.

Within the Planning Area, there are limited lands in Allocation 1. Most lands are in Allocation 2 and consist of large areas dominated by desert scrub communities. Fire is not a part of the natural regime in these communities and is typically human-caused.

The goal of the Arizona BLM Wildland Urban Interface (WUI) Strategy is to implement an efficient and effective fuels reduction program. The WUI is defined as the line, area, or zone where structures and other human development meet or intermingle with undeveloped wildland or vegetative fuels (NWCG 2008). One of the BLM's fire-management goals is to collaborate with communities at risk for wildfire property loss within the WUI to develop plans for risk reduction. Fuels treatments within the Lower Sonoran, both WUI and non-WUI, focus on reducing the size and frequency of wildfires within the non-fire adapted Sonoran Desert ecosystems, as well as the residual, native riparian plant communities, with WUI fuels treatments being the priority. These treatments are conducted utilizing fire, mechanical equipment, manual, herbicide, and biological treatments (e.g., grazing). The desired resource condition is to maintain fuels at non-hazardous levels in WUI areas to provide for public and firefighter safety.

Fire Management Units

Fire Management Units (FMUs) are specific land management areas defined by fire management objectives, management constraints, topographic features, access, values to protect, political boundaries, and fuel types. The Planning Area is subdivided into three FMUs: Phoenix District (PHD) Desert South of I-10, Phoenix District Wilderness Areas, and the SDNM. **Table 3-13**, Fire Management Units in Phoenix District that Overlap the Planning Area provides descriptions of the geographical locations and areas of the FMUs.

Table 3-13
Fire Management Units in Phoenix District that Overlap the Planning Area

Fire Management Area	Location	Acres
PHD Desert South of I-10	The Lower Sonoran minus wildernesses areas	845,454
Phoenix District Wilderness Areas	Signal Mountain, Woolsey Peak, North and South Maricopa Mountains, Sierra Estrella, and Table Top Wilderness Areas	249,450
SDNM	The SDNM minus wilderness areas	408,646

Source: BLM In press. BLM 2012a

Table 3-14, Communities at Risk in the Planning Area by Fire Management Unit, shows the communities at risk within the Planning Area by FMU. The FMU with urbanized communities of concern is the Phoenix District (PHD) Desert South of I-10 FMU. The current description of communities at risk could change as wildland fire risk assessments are accomplished through Maricopa, Pinal, and Gila County Community Wildfire Protection Plan (CWPP) efforts over the next few years.

Table 3-14
Communities at Risk in the Planning Area by Fire Management Unit

Fire Management Unit	Wildland Urban Interface/Communities at Risk
PHD Desert South of I-10 FMU	Pinal County: Maricopa, Stanfield, Casa Grande, Florence, Apache Junction, Queen Creek
PHD Desert South of I-10 FMU	Gila County: Globe
PHD Desert South of I-10 FMU	Maricopa County: Apache Junction, Avondale, Buckeye, Buckeye Valley, Gila Bend, Goodyear, Avondale

Source: Maricopa County and Pinal County Community Wildfire Protection Plan

3.2.12.3 Fire Regimes and Condition Classes

Fire regime refers to the nature of fires occurring over long periods of time and their immediate effects that generally characterize an ecosystem (Brown 2000b). Fire regimes can be defined through the attributes of frequency, seasonality, size/spatial extent, rotation (or fire cycle), predictability (or variation in fire frequency), and magnitude (both intensity and severity) (Agee 1993; Morgan et al. 2001). Fire regimes can be subdivided into components that vary in time, space, and magnitude. However, fire regime descriptions are often limited to frequency and severity. See **Table 3-15**, Historical Fire Regimes Based on Fire Frequency and Severity, for a full description of fire regimes in the Planning Area.

Table 3-15
Historical Fire Regimes Based on Fire Frequency and Severity

Fire Regime Group	Fire Frequency and Severity	Vegetative Communities	Acres of Vegetative Community		
			Planning Area	LSFO	SDNM
I	0-35 years; low (surface fire most common) severity	None in the Planning Area	0	0	0
II	0-35 years; high (stand replacement) severity	Desert Grassland and Apacherian-Chihuahuan Mesquite Upland	4,854	3,400	1,054
III	35-100+ years; mixed severity	None in the Planning Area	0	0	0
IV	35-100+ years; high (stand replacement) severity	Sonoran Mid-Elevation Desert Scrub and Mogollon Chaparral	5,300	3,200	2,100
V	> 200 years; high (stand replacement) severity	creosote bush-bursage, Palo Verde-Mixed Cacti, Sonoran-Mohave Mixed Salt Desert Scrub, and Riparian	1,401,400	918,500	482,900

Source: Hann et al. 2004; National Interagency Fuels, Fire, and Vegetation Technology Transfer 2008; BLM 2012a

Fire regimes vary considerably by both vegetation types and landscape characteristics. **Table 3-15** displays the historical/natural fire regimes, based on fire frequency and severity, for the lands in the Planning Area. They are classified as Fire Regime III (fire frequency of 35 to over 100 years with mixed severity) and Fire Regime IV (fire frequency of 35 to over 100 years and high severity). These fire regime groups are generalized and address only the primary types of fire that occur in the Planning Area (see **Map 3-12**, Fire Regime Groups).The current condition of a vegetative community is a function of the degree of departure from historical fire regimes, resulting in alterations of key ecosystem components, such as species composition, structural stage, stand age, and canopy closure. This departure may have resulted from a number of factors, including fire exclusion or suppression, vegetation resources, grazing, introduction and establishment of exotic plant species, insects or disease (introduced or native), or other past management activities (Hann and Bunnell 2001).

To identify departures from historical conditions, the Planning Area lands are organized in condition classes (CCs) as indicators of fire-management needs (see **Table 3-16**, Current Fire Regime Condition Classes by Vegetative Community). Condition Class 1 (CC1) describes lands that are within or near historical ranges, CC2 describes lands where fire regimes have changed moderately from historical ranges, and CC3 are fire regimes significantly altered from historical ranges (See **Map 3-13**, Fire Regime Condition Classes).

Table 3-16
Current Fire Regime Condition Classes by Vegetative Community

Vegetative Community by Condition Class	Acres and Percent of Vegetative Community			
	Planning Area		Decision Area	
	Acres	Percent	LSFO	SDNM
Creosote bush-bursage – CC1	738,952	52.16%	564,965	173,987
Creosote bush-bursage – CC2	27,940	1.9%	25,713	2,227
Creosote bush-bursage – CC3	4,132	0.29%	4,132	0
Palo Verde-Mixed Cacti – CC1	583,870	41.22%	295,080	288,790
Palo Verde-Mixed Cacti – CC2	31,162	2.20%	16,718	14,444
Palo Verde-Mixed Cacti – CC3	98	0.01%	98	0
Apacherian-Chihuahuan Mesquite Upland – CC1	1,759	0.12%	1,433	326
Apacherian-Chihuahuan Mesquite Upland – CC2	1,987	0.14%	1,963	24
Apacherian-Chihuahuan Mesquite Upland – CC3	0	0%	0	0
Sonoran Mid-Elevation Desert Scrub – CC1	2,470	0.17%	1,395	1,075
Sonoran Mid-Elevation Desert Scrub – CC2	456	0.03%	272	184
Sonoran Mid-Elevation Desert Scrub – CC3	119	0.01%	119	0
Sonoran-Mohave Mixed Salt Desert Scrub – CC1	4,791	0.34%	2,426	2,365
Sonoran-Mohave Mixed Salt Desert Scrub – CC2	296	0.02%	287	9
Sonoran-Mohave Mixed Salt Desert Scrub – CC3	0	0%	0	0
Mogollon Chaparral – CC1	557	0.04%	528	29
Mogollon Chaparral – CC2	891	0.06%	823	68
Mogollon Chaparral – CC3	62	0%	62	0
Desert Grassland –CC1	0	0%	0	0
Desert Grassland –CC2	1,054	0.07%	0	1,054
Desert Grassland –CC3	0	0%	0	0
Riparian – CC1	1,299	0.09%	779	520
Riparian – CC2	6,681	0.47%	6,457	224
Riparian – CC3	1,563	0.11%	1,563	0
Total BLM Land in Planning Area[1]	1,410,139	99.54%	924,813	485,326

Sources: Hann et al. 2008; National Interagency Fuels, Fire, and Vegetation Technology Transfer 2008. BLM 2012a

[1]Riparian vegetation class combines the following plant communities: invasive southwestern riparian woodland and shrubland, North American warm desert riparian mesquite bosque, and North American warm desert riparian woodland and shrubland. This total only includes the vegetated land classes in the Planning Area and does not include some minor vegetation communities that are too small to be included in this list.

Landscape-level fire and fuels management strategies, including wildland-fire suppression, vegetation and fuel treatments, and prescribed fires, are used in the Planning Area to reduce the fire hazard and risk in wildland and WUI areas. Actions related to fire and fuels management generally should reduce the amount of lands characterized as Fire Regime CC2 and CC3. Fuel hazard reduction may include prescribed fire, mechanical, manual, biological, and chemical treatments, or a combination thereof. The fuel treatment strategies reduce both existing fuel levels and the risk of large, damaging wildfires.

Landscape-level fire and fuels management strategies are designed to limit wildland fire extent, modify fire behavior, protect values at risk, and improve terrestrial ecosystem conditions. Fire management and fuel treatment strategies allow land/resource managers to control fires and set priorities that protect fire fighters, public life and property, and natural resources.

3.2.12.4 Fire History

Wildfire history is closely related to vegetation and climatic patterns in terrestrial ecosystems. Patterns of fire frequency, season, size, severity, and uniformity are functions of existing vegetation conditions, weather, elevation, physiographic features, ignition sources, and fire-suppression activities.

Between 1989 and 2009, approximately 70 percent of the total number fires in the Planning Area occurred in the PHD Desert South of I-10 FMU, and approximately 98 percent of all fires in the Planning Area were human-caused. Most of these fires occurred along main travel corridors and rivers. An increasing portion of the fires within the Planning Area is associated with undocumented aliens or drug trafficking operations.

Fire numbers vary from year to year and generally occur between the months of March and September. The 20-year average is four fires a year that burn approximately 4,610 acres in total. Multiple fire days, consisting of two or more fires per day, have occurred two times in the past 20 years. There were no historically significant fires within the Planning Area until the 2005 fire season, when above average fall and winter rains caused an abundance of annual grass that fueled over 20 fires totaling over 80,000 acres. The largest single fire that has occurred in the Decision Areas was the Tracks Fire, which burned in the Maricopa Mountains of the SDNM during summer 1994 and grew to over 5,000 acres.

3.2.13 WILDLIFE AND SPECIAL STATUS SPECIES

In Arizona, the BLM manages habitat for many different categories of priority wildlife species:

- Special status species including species listed as threatened or endangered, or those proposed for listing, under the Endangered Species Act (ESA), and candidate and BLM sensitive species (BLM Manual 6840);
- Bats;
- Migratory birds, including birds of conservation concern;
- Raptors;

- Game species;
- Species for which there is a signed conservation agreement or strategy.

A number of priority animal species inhabit the Planning Area. A priority species list for wildlife and fish can be found in **Appendix J**, Wildlife and Plant Priority Species. The BLM focuses most of its wildlife-management efforts on the habitats of priority species as required by a variety of laws, regulations, policies, plans, manuals, and agreements.

3.2.13.1 Regulatory Framework

Endangered Species Act

The Endangered Species Act (ESA) of 1973 (16 USC 1531 et seq.), as amended, provides for the conservation of federally listed plant and animal species and their habitats. The ESA directs federal agencies to conserve listed species and imposes an affirmative duty on these agencies to ensure that their actions are not likely to jeopardize the existence of a listed species or destroy its habitat. Each species listed is required to have designated critical habitat. Critical habitat is the specific geographic areas that are most essential for the conservation and protection of a listed species.

BLM Manual 6840

BLM policy, as specified in BLM Manual 6840, is "to provide policy and guidance for the conservation of BLM special status species and the ecosystems upon which they depend on BLM-administered lands." Objectives of the BLM special status species policy are to 1) conserve and/or recover ESA-listed species and the ecosystems on which they depend so that ESA protections are no longer needed for these species; and 2) initiate proactive conservation measures that reduce or eliminate threats to BLM sensitive species to minimize the likelihood of and need for listing of these species under the ESA.

Migratory Bird Treaty Act

The Migratory Bird Treaty Act of 1918, as amended (16 USC §§ 703-712) makes it unlawful to, among other things, pursue, hunt, take, capture, kill, or possess any migratory bird or part, nest, or egg of such bird listed in four separate wildlife protection treaties between the US and Great Britain (on behalf of itself and Canada), Mexico, Japan, and the former Union of Soviet Socialist Republics. The Migratory Bird Treaty Act currently covers 1,007 species, as specified in 50 CFR Section 10.13.

Bald and Golden Eagle Protection Act

The Bald and Golden Eagle Protection Act (16 USC 668–668d, 54 Stat. 250, as amended), prohibits the taking or possession of, or commerce in, bald and golden eagles, with limited exceptions for permitted scientific research and Native American religious purposes. The 1978 amendment authorizes the Secretary of the Interior to permit the taking of golden eagle nests that interfere with resource development or recovery operations.

Because the priority species label covers many different types of wildlife species, the following discussion on habitat requirements for priority species is pertinent to most, if not all, wildlife species in the Planning Area. Therefore, there will not be a separate "general wildlife" discussion in this chapter.

BLM sensitive species are those species that require special management consideration to avoid listing under the ESA and are designated as sensitive by a BLM state director in cooperation with the state agency responsible for its management. The BLM sensitive species designation is given to species on public lands whose conservation status can be significantly affected by BLM management. The AGFD has a list of Threatened Native Wildlife in Arizona (AGFD 1988) that has not been updated in recent years. However, the Arizona State Wildlife Action Plan provides a treatment of priority species called Species of Greatest Conservation Need (SGCN), each of which meets one or more vulnerability criteria and is priority ranked as Tier 1A or 1B (AGFD 2011 draft).

In general, wildlife populations have declined over the last 10 years. This is likely due to a combination of causes including drought, habitat loss due to urban development, habitat degradation and fragmentation from roads and other developments, and increased recreational use. Few species have been tracked closely enough to determine specific trends; however, AGFD does track game species such as bighorn sheep and mule deer.

Generally, mammal populations are expected to diminish without active management due to extended drought conditions, urban expansion, and habitat loss and fragmentation. Small mammal populations are cyclic and become depressed during years of below-normal precipitation when forage plants, water, and seeds are scarce or less nutritious. Predator populations will eventually follow and are expected to drop due to fewer prey species and other factors. Human-wildlife interactions are expected to increase under drought conditions because wildlife could potentially be forced farther from their home ranges into urban areas to find food and water.

3.2.13.2 Wildlife Habitats

While the BLM keeps abreast of wildlife-population trends and takes appropriate steps to conserve or improve the habitats that sustain species, responsibility for animal-population management is delegated to the state, specifically the AGFD. For federally listed species, population-management responsibility falls to the US Fish and Wildlife Service (USFWS), which collaborates with state agencies, academics, and other recognized technical experts. The USFWS also regulates hunted migratory species.

Vegetation resources management provides the foundation for wildlife and habitat management on public lands. Wildlife typically occupies or avoids habitats in predictable ways based on life history requirements of individual species. The Planning Area supports a variety of natural vegetative communities and landscape features that offer a diversity of wildlife habitat types.

While these habitat types correspond with the associated vegetative communities, they are also defined by a number of distinct landscape features such as rock outcrops and hillsides, cliffs and taluses, mesquite bosques, and mines. All such features contribute to the diversity and abundance of wildlife in the Planning Area as they generally provide a microhabitat for wildlife uniquely adapted to, or dependent upon, these features. To maintain diverse, viable, and abundant populations of wildlife, a mosaic of biologically and structurally diverse habitat types is thus necessary.

Habitat Connectivity/Fragmentation

While maintaining patches of diverse habitats is important, ensuring connectivity of these habitat patches also is important to provide plants and wildlife the ability to move along elevation gradients and between habitat areas. As climatic conditions change, both wildlife and plants must be able to adapt to their associated changing niches by expanding and contracting their range; however, developments related to human population growth such as subdivisions, highways, and related infrastructure create barriers to wildlife and plant movement, resulting in what is known as habitat fragmentation.

While the Planning Area includes numerous isolated tracts of public lands that are interspersed with other federal, state, tribal, and private lands, most of the public lands consist of large, consolidated areas that have the potential to provide connectivity between important habitat patches for various wildlife species. Despite this, habitats on public lands are fragmented. This is due to the existing transportation network crisscrossing public lands (including one interstate highway, several state highways, county roads, and numerous roads, primitive roads, and trails) and utility and energy ROWs. Certain large tracts of public land also are separated from nearby public lands by population centers, agricultural areas, and other such developments.

Wildlife Movement Corridors

In order to reduce habitat fragmentation and ensure connectivity in important areas, the BLM took into consideration recommendations from the Arizona's Wildlife Linkages Workgroup strategy of 2006 to develop movement corridors that maintain habitat connectivity. The Workgroup is a collaborative effort between public- and private-sector organizations formed to address habitat fragmentation through a comprehensive, systematic approach. Through this partnership and commitment, a statewide assessment was conducted to identify large blocks of habitat, potential wildlife-movement corridors between and through these habitats, and factors that could threaten linkage zones for wildlife. The Workgroup took the first step in a process to identify areas of importance for wildlife movement throughout the state. As a part of the workgroup, the BLM embraces the ideology of linkage corridors and is proposing movement corridors for wildlife to migrate from one habitat area to another, especially within priority species habitats where the BLM has management authority.

Wildlife Water Developments

While most wildlife species within the Planning Area are adapted to drought conditions and limited sources of permanent water, approximately 45 wildlife-water catchments and spring developments occur on public lands within the Planning Area. These catchments and spring developments provide intermittent or perennial sources of water that support wildlife diversity.

Few, if any, new wildlife-water developments have been constructed in the past 10 years as it is more cost effective to modify and enlarge existing catchments. Modifying and expanding existing developments reduces the need for maintenance and water to replenish the catchments. The location of wildlife-water catchments varies depending on the priority wildlife species under consideration and the distance to other water sources. For example, wildlife-water sources constructed in lower elevations, primarily for collared peccary (javelina) (*Pecari tajacu*) and mule deer (*Odocoileus hemionus*), would be placed primarily in the creosote bush-bursage, palo verde-mixed cacti, or xero-riparian communities. By contrast, higher elevation water sources for use by bighorn sheep (*Ovis canadensis mexicana*) are constructed primarily in

the palo verde-mixed cacti and Sonoran Desert mountain communities or in the creosote bush-bursage community adjacent to mountains used by bighorn sheep. Numerous livestock waters have been modified to accommodate wildlife use. Many wildlife species use these water sources and return to them regularly. Bats also forage over water developments as they are attracted by the increased abundance of flying insects. Resident bird species may nest and forage in or near water developments year-round, while migratory bird species may forage and rest in these areas during their migration.

3.2.13.3 Threatened, Endangered, and Candidate Wildlife Species

This section focuses on species on public lands within the Planning Area that are addressed in Manual Section 6840 and species listed under the ESA (1973) as threatened or endangered, proposed for listing, candidate species, and those within five years of being delisted. Federally listed species were identified through the USFWS Arizona Ecological Service Office website on January 19, 2012 (USFWS 2012).

Four special status species that occur or potentially occur on public lands in the Planning Area are federally listed under the ESA: the lesser long-nosed bat (*Leptonycteris curasoae yerbabuenae*), Sonoran pronghorn (*Antilocapra americana sonoriensis*), southwestern willow flycatcher (*Empidonax traillii extimus*), and Yuma clapper rail (*Rallus longirostris yumanensis*). Three species occurring or potentially occurring on public lands are listed as candidate species: the Acuña cactus (*Echinomastus erectocentrus* var. *acunensis*), the yellow-billed cuckoo (*Coccyzus americanus*), the Sonoran desert tortoise (*Gopherus agassizii*), and the Tucson shovel-nosed snake (*Chionactis occipitalis klauberi*). The Sonoran Desert population of the bald eagle (*Haliaeetus leucocephalus*) was recently delisted.

Lesser Long-nosed Bat. The endangered lesser long-nosed bat is a nectar-, pollen-, and fruit-eating bat that migrates seasonally from Mexico to southern Arizona and southwestern New Mexico (Arita 1991). The species typically arrives in Arizona in early April, inhabits mainly desert scrub habitats, and departs in mid to late September. The bats roost in caves, abandoned mines, and unoccupied buildings at the base of mountains where agave, saguaro, and organ pipe cacti are present, and fly long distances from their day roosts to forage each night. Potential foraging habitats, in the form of columnar cacti (e.g., saguaros and organ pipe cacti) or agave stands, occur in the Decision Areas (**Map 3-14**, Wildlife & Plant Federally Protected Species). There is one known roost near Ajo on BLM lands, and four known maternity colonies occur near the Arizona-Mexico border on lands not administered by the BLM.

The most significant threat to the survival of the lesser long-nosed bat is loss of roosting habitat. The species must have suitable roosts in proximity to adequate food sources both in the southwestern US, where the young are born during the summer, and at their wintering grounds throughout the arid areas of Mexico (USFWS 1995). While many roost sites in the US and Mexico receive some legal protection and are relatively safe because their locations are remote and unknown to the general public, even very slight human disturbance to roosts can displace the species. For example, Fleming (1993) has documented bats temporarily abandoning their roost after only one brief visit by humans. In Mexico, some roosts are severely threatened by efforts to control the vampire bat, which is often confused with other species by farmers and other stakeholders (53 FR 38456).

Threats to food plants also indirectly threaten the lesser long-nosed bat. There is a complex, mutually beneficial relationship between columnar cacti, agaves, and long-nosed bats (Fleming et al. 1996). As native vegetation is increasingly removed for development, other projects, and through grazing, food sources become less and less available near roost sites and along migration routes. The over-harvesting

of agave for the legal and illegal manufacture of tequila is particularly detrimental to food sources for the lesser long-nosed bat (53 FR 38456).

There is no widespread consensus on the current status of the overall population of this bat species. Disagreements about the validity of census techniques have kept estimations, even to a higher order of magnitude, from being made (USFWS 1995). Because surveys in Arizona and Mexico conducted between the mid-1970s and 1985 failed to document large numbers of lesser long-nosed bats, it was federally listed as endangered in 1988. Since listing, the species appears to be much more abundant than previously thought, but is still vulnerable because of its gregarious roosting behavior. As many as 150,000 adults and sub-adults may forage in southwestern Arizona on any given summer night. In 1992-1993, a census of 17 roosts in Arizona and Mexico produced estimates of 200 to 130,000 individuals living in any particular roost (USFWS 1995). Ten years of monitoring data (1996-2005) from one known maternity roost within the boundaries of the Lower Sonoran Planning Area (but not on public lands) indicates a general increase in population size.

Sonoran pronghorn. The Sonoran pronghorn is listed as a federally endangered subspecies of the American pronghorn that was found over much of southwestern Arizona, northwestern Mexico, and southeastern California in the late 1800s. By the mid-1900s, its numbers and distribution were greatly reduced from historic norms.

Estimates of the Sonoran pronghorn population in Arizona have been collected since 1925. Although these estimates are not directly comparable because of the variety of methods used and geographical areas studied, they all indicate that relatively low numbers of pronghorn (50 to 150 animals) were present in southwestern Arizona within an increasingly small area of distribution. Hunting contributed to the decline of the Sonoran pronghorn before the 1930s but has since been banned (Wright and deVos 1986).

In more recent years, fragmentation, human disturbance, disease, and loss of habitat have been the major factors threatening the subspecies. The most significant habitat fragmentation occurs along the Mexico/US border, particularly with the installation of the border fence, which inhibits the population's movement between the two countries. Sonoran pronghorn management is further complicated by differing recovery efforts on either side of the border.

The US population primarily is limited to the Barry M. Goldwater Range (BGR), Cabeza Prieta NWR, Organ Pipe Cactus National Monument, and public lands in the Ajo area west of SR 85 in the Lower Sonoran. This animal also is found periodically in the Sentinel Plain south of I-8. Although recovery of the Sonoran pronghorn is an important management priority on public lands where it occurs, these lands constitute less than four percent of this animal's current range in the US (USFWS 2003b).

The area of the Ajo Block in which Sonoran pronghorn occurs lies within the Coyote Flat, Childs, and Cameron grazing allotments (**Map 3-15**, Sonoran Pronghorn Classification Areas). The Cameron allotment is the only allotment on which this species has been observed in recent years. Although the Ajo Block and Sentinel Plain are both minor components of this animal's active habitat, of the two areas, the Ajo Block currently appears to be more important to the species. In 1997, the USFWS issued a biological opinion for the Ajo Block allotments and concluded that the proposed grazing activities were not likely to jeopardize the continued existence of the pronghorn (USFWS 1997). In response to a sharp decline in the US Sonoran pronghorn population in 2002 and the continuing severe drought

conditions, the BLM amended the Lower Gila South RMP in 2004 to close the Cameron allotment to livestock grazing and acquire range improvements from the permit holder.

Emergency recovery actions were initiated in an attempt to reverse the recent decline in the status of the US sub-population of the Sonoran pronghorn. The construction of a semi-captive breeding facility in Cabeza Prieta NWR and of water sources and forage enhancement plots in the Planning Area are expected to temper the effects of drought. The US population was at an all-time low in 2002 with drought eliminating all but 22 animals, down from 135 animals the previous year. In 2008-09, the US Sonoran population was estimated at approximately 68 wild animals with another 73 animals in the semi-captive breeding enclosure. Surplus animals are released from the pen annually.

While drought was the direct cause of the Sonoran pronghorn's decline during 2002, the high level of human activities and disturbance on the US side of the pronghorn's range has intensified the effects of drought. The US sub-population of Sonoran pronghorn has been and is subject to myriad human activities that have the potential to adversely affect the species and its habitat. Such activities include livestock grazing, recreation, military activities on the BGR, and an increasing influx of UDAs and smugglers and corresponding response from the US Border Patrol and other law-enforcement agencies. Further, the range of the US pronghorn subpopulation is limited by highways, fences, canals, railroads, vehicle barriers, and towns that act as physical barriers to movement and prevent pronghorn from accessing foraging areas (USFWS 2003c). Historically, these animals were able to travel many tens of miles across barrier-free habitat to seek out more favorable forage and water (USFWS 2003b). Livestock and ROW fences can be a significant cause of pronghorn mortality when they restrict the animals' movements to procure food and water or to escape predation (Yoakum 1978). The species have difficulty jumping over or going through fences; however, fences can be modified to allow safe passage for the pronghorn, as was done within the Cameron, Coyote Flat, and Why grazing allotments (USFWS 1997).

Bald Eagle. The bald eagle is a large bird with a wingspan of 6 to 7.5 feet. Adults are dark brown with a white head and tail and a large yellow beak. Immature eagles are dark with mottled white under the wings and at the base of the tail. The feet of both adults and immature eagles are bare of feathers.

The USFWS classified the bald eagle in 1978 as endangered in 43 states (including Arizona) and threatened in five other states. The species was not listed in Alaska and it does not occur in Hawaii. In 1995, the species was down-listed to threatened in all recovery regions of the lower 48 states. In 1999, the USFWS proposed to remove the bald eagle from the federal threatened and endangered species list nationwide. The USFWS removed the bald eagle from federally threatened and endangered species list in August 2007, except for the population in the Sonoran Desert of Arizona, south of the Mogollon Rim. This includes the bald eagle population within the Planning Area. The population was delisted in September 2011.

In Arizona, bald eagles typically place their nests within a mile of a creek, lake, or river, although there are some rare exceptions. Nests are placed mostly on cliff edges, rock pinnacles, and in cottonwood trees; however, nests have been found in artificial structures, junipers, pinion pines, sycamores, willows, ponderosa pines, and snags.

Within the Planning Area, a pair of bald eagles has successfully nested near the confluence of the Gila and Salt Rivers in an area referred to as the Pee Posh Wetlands in 2009. These eagles likely forage up and down the rivers and on the adjacent uplands, including portions of the Decision Areas.

Southwestern Willow Flycatcher. The southwestern willow flycatcher is a small (5.75 inches), olive-colored or grayish-brown, neotropical migratory bird that is federally listed as an endangered species. This flycatcher is a riparian obligate species found throughout the Southwest, where it breeds in dense riparian habitats along rivers, streams, or wetland areas where trees and shrubs are adjacent to or near surface water.

Throughout its range, the southwestern willow flycatcher has shown both historic and recent population declines. Its breeding range once extended across southern California, extreme southern Nevada, southern Utah, Arizona, New Mexico, southwestern Colorado, western Texas, and northernmost Sonora and Baja California del Norte (Hubbard 1987; Unitt 1987; Browning 1993). Historically, the southwestern willow flycatcher was widespread in riparian areas throughout the Southwest. Its current range is similar to the historical range, but the quantity of suitable habitat within that range is much reduced from historical levels (USFWS 2002).

The most significant factor in the cause of these declines is the extensive loss, fragmentation, and adverse modification of riparian breeding habitat, particularly cottonwood-willow associations (Katibah 1984; Johnson et al. 1987; Unitt 1987; USFWS 1995a). These losses have occurred in connection with urban and agricultural development, fire, water diversion and impoundment, channelization, livestock grazing, off-road vehicle use and recreation, replacement of native habitats by introduced plant species, and hydrological changes resulting from these and other land uses (USFWS 1993; Tibbitts et al. 1994). Brood parasitism by the brown-headed cowbird (*Molothrus ater*) is another major threat to the southwestern willow flycatcher (Brown 1988; Sogge 1995a and 1995b; USFWS 1993 and 1995a; Whitfield and Strong 1995).

In 2002, approximately 1,153 southwestern willow flycatcher territories were located among 243 sites in suitable riparian areas throughout the Southwest (Sogge et al. 2003). Currently, there are approximately 430 pairs of southwestern willow flycatchers documented at 37 sites within Arizona. The AGFD has conducted periodic flycatcher surveys along the Gila River within the Planning Area since 2002. One flycatcher was detected once in 2002 in a thin strip of salt cedar that was judged to be marginal habitat.

Critical habitat was formally designated for the species on October 19, 2005, which includes 15 management units totaling 737 miles of river in Arizona, California, Nevada, Utah, and New Mexico (70 FR 60886). There are 0.2 miles of proposed critical habitat along the Gila River.

Yuma Clapper Rail. The Yuma clapper rail is a chicken-sized bird about 14 inches long. It is listed as endangered (32 FR 4001, March 11, 1967) without critical habitat. It is a marsh bird with long legs and a short tail. Its bill is long, slender, and curved downward slightly. Its anterior coloration is mottled brown with a gray background. Its flanks and underside are dark gray with narrow vertical white stripes that produce a barred effect.

Associated with dense riparian and marsh vegetation, the Yuma clapper rail inhabits freshwater or brackish stream sides and marshlands under 4,500 feet in elevation. It requires a wet substrate, such as

a mudflat, sandbar, or slough bottom that supports cattail and bulrush stands of moderate to high density adjacent to shorelines.

The range of historically occupied habitat is uncertain. The Yuma clapper rail may have occurred in the marshes of the Lower Colorado River and its tributaries in Mexico and the US. There are no records of the species in the US before 1902. A type specimen was taken near Laguna Dam in 1921 in Yuma County, Arizona.

The Yuma clapper rail is known to occur along the Colorado River (Yuma, La Paz, and Mohave counties, Arizona), from Lake Mead to Mexico; on the Gila and Salt rivers upstream to the area of the Verde confluence (Maricopa and Pinal counties, Arizona); at Picacho Reservoir (Pinal County, Arizona); and on the Tonto Creek arm of Roosevelt Lake (Gila County). The Yuma clapper rail may be expanding into other suitable marsh habitats in western and central Arizona. Within the Planning Area, suitable habitat for the clapper rail occurs along the Gila River.

Yellow-Billed Cuckoo. The Western yellow-billed cuckoo is a medium sized neotropical migratory bird considered a candidate species by the USFWS. In 2001, the species was determined to warrant listing under the ESA but was precluded by other, higher-priority listing actions (66 FR 38611).

As recently as the 1990s, cuckoo pairs were observed along the Gila River in Maricopa County (Corman 2005). In 1999, 168 pairs and 80 single birds were located in Arizona, based on preliminary results from a statewide survey that covered 265 miles of river and creek bottoms (USFWS 2004). From these results, it is evident that cuckoo numbers in 1999 are substantially less than some previous estimates for Arizona, including a 1976 estimate of 846 pairs for the lower Colorado River and five major tributaries (Groschupf 1987).

The yellow-billed cuckoo historically ranged from southern British Columbia to northern Mexico (Bent 1940). Arizona is believed to contain the largest remaining population of yellow-billed cuckoos. Breeding pairs are found in south, central, and extreme northeast Arizona. Within the Planning Area, cuckoos may be found in riparian woodlands, particularly along the Salt and Gila rivers (Corman 2005).

Habitat loss, degradation, and fragmentation from groundwater pumping, surface-water impoundment, agricultural and urban conversion, invasive species, and overgrazing are the main threats to survival of the western yellow-billed cuckoo (USFWS 2001). Fragmentation effects include the loss of patches large enough to sustain local populations, leading to local extinctions and the potential loss of migratory corridors affecting the birds' ability to recolonize habitat patches (Hunter 1996). Losses have been greatest at lower elevations (below about 3,000 feet) along the Lower Colorado River and its major tributaries, which have been strongly affected by upstream dams, flow alterations, channel modification, and clearing of land for agriculture (Groschupf 1987). Habitat conservation efforts are ongoing in Arizona outside the Planning Area (USFWS 2004).

Tucson Shovel-Nosed Snake. The Tucson shovel-nosed snake was named a candidate species in March 2010 (75 FR 16050). It was recently petitioned for listing as an endangered species; however, its listing is precluded by higher priority actions. The Tucson shovel-nosed snake is a subspecies of shovel-nosed snakes that is considered regionally vulnerable due to habitat loss, which has restricted its range (The Nature Conservancy [TNC] 2004). Much of the lowland valley floor habitat within the species' restricted range has been cleared or severely impacted by agricultural and urban development. The

snake's distribution is currently limited to portions of Pinal, Maricopa, and Pima counties, with its greatest abundance believed to be west of Mobile in the SDNM (P. Rosen, personal comm.).

The shovel-nosed snake is found in areas with soft, sandy loams; loose soil; fine, wind-blown sands (such as in washes); or occasionally on rocky hillsides with pockets of sand among rocks (Stebbins 1985; Pima County 2001; TNC 2004). The snake requires these deep valley fill soils for burrowing and nesting. The western shovel-nosed snake utilizes the soil substrate around creosote bushes as foraging habitat (Pima County 2001). Creosote bushes also serve as escape habitat (Stebbins 1985; Pima County 2001).

The Tucson shovel-nosed snake was found at sites with soils that have a high percentage (ranging from 49 to 85 percent) of fine sand, silt, and clay (classified as sandy loams, loamy sands, gravelly-sandy loams, and silty-sandy loams (TNC 2004). The species was found in areas of the SDNM that correspond to creosote bush-bursage desert scrub and valley xero-riparian scrub (i.e., ephemeral wash) communities.

Sonoran Desert Tortoise. There are two populations of desert tortoise: the Mojave and the Sonoran. The Mojave population is federally listed as a threatened species and inhabits the area north and west of the Colorado River. The Sonoran population includes tortoises south and east of the Colorado River in Arizona and extends south into Mexico (Murphy et al. 2011). Under Arizona State Law, it is unlawful to collect wild desert tortoises or release captive desert tortoises into the wild (ARS 17-101).

Only the Sonoran population occurs in the Planning Area, and in December of 2010, the Sonoran desert tortoise was added to the USFWS's candidate species list (75 FR 78094). The USFWS determination indicated that sufficient scientific and commercial data existed to warrant protection as a Distinct Population Segment under the ESA. The findings noted that the threats to the population results from habitat loss and movement barriers relating to environmental factors, increasing human population growth and urban interfaces. Threats include loss of Sonoran habitat, degradation from OHV use and firewood collection, habitat fragmentation, genetic contamination, illegal collection, predation and introduction of diseases from captive tortoises (USFWS 2010). The BLM has a disproportionate responsibility for the conservation of desert tortoise because the agency manages the majority of desert tortoise habitat across the species' entire range (BLM 1990). To address its management responsibilities, the BLM has developed a management plan for desert tortoise on public lands and a strategy for carrying out the plan in Arizona, Strategy for Desert Tortoise Habitat Management on Public Lands in Arizona: A Rangewide Plan (BLM 1990). The BLM characterizes tortoise habitat on BLM-administered lands into three categories (see **Map 3-14**, Wildlife & Plant Federally Protected Species). Category I desert tortoise habitat includes habitat that is necessary to maintain populations with the highest densities, which are stable or increasing, and experiences the fewest conflicts with current land uses. Category II habitats may support stable populations and/or are contiguous with medium to high-density habitat. Category III habitats are the least manageable and contain medium to subpar habitats; however, these areas do exist between Category I and II habitats and should be managed for dispersal between Category I and II habitats. The goal of the BLM is to maintain stable and viable populations with no net loss of habitat in Category I and II habitats and to limit population declines to the extent possible in Category III habitats by mitigating impacts.

The Decision Areas are regionally significant for desert tortoise conservation as they contain a large portion of the total Category I habitat in Arizona, including a portion of the largest contiguous Category I habitat (238,790 acres) in the Sand Tank and Sauceda mountains. As delineated by the BLM, the

majority of desert tortoise habitat in the Decision Areas occurs on rocky slopes where tortoises are free from most human impacts and associated disturbance. Paved and unpaved roads, primitive roads, and trails dissect desert tortoise habitat and may represent a mortality risk or an impediment to movement across otherwise suitable habitat.

Regional trends in land use and other human activities potentially threaten the Sonoran population of desert tortoise. Sustained urban expansion in the Phoenix and Tucson areas continues to lead to loss of habitat for the tortoise. In addition to habitat loss, other correlates of human development potentially affect the desert tortoise in the region, which include tortoise collection, release of pet tortoises that introduce diseases into native desert tortoise populations, feral animals that prey on tortoises, and removal of habitat components such as boulders which desert tortoises use for shelter sites. While desert tortoise are long lived, they typically have low recruitment rates. As a result, increases in mortality rates above natural rates may not be offset (Murphy et al. 2011). The habitat preference for the Sonoran populations of the desert tortoise consists of palo verde-mixed-cacti vegetation communities on rocky or bouldery slopes below 4,000 feet in elevation.

Cactus Ferruginous Pygmy-Owl. The cactus ferruginous pygmy-owl is a small, non-migratory bird approximately 6.75 inches in length. Its diet includes other birds, lizards, insects, and small mammals (USFWS 2003a). The pygmy-owl is primarily diurnal but can be active at dawn and dusk. Fledging and dispersal occurs from June through August.

Although the cactus ferruginous pygmy-owl was federally listed in 1997 as endangered in the Arizona portion of its range (62 FR 10730), the USFWS delisted the species in 2006 (71 FR 19425) following litigation. While pygmy-owls are currently not listed, the species has been petitioned for listing under the ESA. The USFWS issued a 90-day finding on the petition, finding it was valid and presented substantial evidence that listing of the pygmy-owl may be warranted (73 FR 31418). The USFWS currently is working on the status review of this species to determine if listing is warranted. Until such review is completed and a final decision is made, the pygmy-owl is not protected under the ESA. The species continues to receive federal protection under the Migratory Bird Treaty Act.

A significant threat to the pygmy-owl in Arizona is the loss and fragmentation of habitat. The complete removal of vegetation and natural features, as well as the infrastructure required for many large-scale residential developments, directly and indirectly influences pygmy-owl survival and recovery. In addition, livestock grazing may threaten the pygmy-owl through the destruction or modification of its habitat (BLM 1988c).

In 2002, the USFWS issued a Biological Opinion for the five grazing allotments near Ajo. The opinion concluded that grazing activities may, but are not likely to, adversely affect the pygmy-owl when implementing the conservation measures.

3.2.13.4 BLM Sensitive and other Priority Wildlife Species

With the exception of the federally listed and candidate species discussed above, the main groups of priority species are discussed below. Fish species are not discussed due to the limited amount of water and suitable habitat available for management on public lands within in the Planning Area.

Reptiles and Amphibians

In addition to desert tortoise, the Planning Area supports a variety of reptiles, including priority species, due to a diversity of vegetation communities and habitat types. Some reptiles prefer dense brushy or rocky areas, such as rosy boas (*Lichanura trivirgata*) and chuckwallas (*Sauromalus ater*), whereas others inhabit areas that are more open, such as sidewinders (*Crotalus cerastrus*) and desert iguanas (*Dipsosaurus dorsalis*).

The Decision Area's general lack of open water severely limits habitat for amphibians, which require wetland sites or ponds for at least part of their life cycle. These sites are generally limited to ephemeral rainwater collection areas such as impoundments, including the water retention spreader dikes in the Vekol Valley; earthen livestock waters; and depressions in rocks. These areas support priority amphibian species such as the Sonoran green toad (*Bufo retiformis*), Great Plains narrow-mouthed toad (*Gastrophryne olivacea*), Sonoran Desert toad (*Bufo alvarius*), and lowland burrowing treefrog (*Smilisca fodiens*). Some portions of the Gila River are perennial and provide habitat for amphibians, including the invasive American bullfrog.

Amphibian populations have seen dramatic declines worldwide. Disease, drought, environmental pollution, invasive species, and habitat loss appear to be the primary contributors to the decline of amphibians. Reptile populations are subject to habitat loss, direct mortality from vehicle traffic, drought, disease, and collection. Specific trend information for reptiles and amphibians is not available for the Planning Area. Protection of valley bottoms, vegetation structure, and rocky substrates could potentially maintain healthy reptile and amphibian populations.

Raptors

Golden Eagle. The plumage color of golden eagles ranges from black-brown to dark brown, with a striking golden-buff crown and nape. The upper wings also have an irregular lighter area. Immature birds resemble adults, but have a duller more mottled appearance, a white-banded tail, and a white patch at the carpal joint. Such colors gradually disappear until full adult plumage is reached in the fifth year. Golden eagles nest on rock ledges of cliffs or in large trees and generally occur in open country and barren areas, especially in hilly or mountainous regions.

In North America, golden eagle populations have declined over the past century; however, the populations are faring better than populations on a global scale. The main threat is habitat destruction, which by the late 19th century already had driven golden eagles from some regions they used to inhabit. In the 20th century, organochloride and heavy metal poisonings were also commonplace, but these have declined due to tighter regulations on pollution. Within the US, the golden eagle is legally protected under the Bald and Golden Eagle Protection Act.

While golden eagles are uncommon throughout the Planning Area, they have been observed in many parts of the Decision Areas. There are no documented golden eagle nests in the Planning Area; however, systematic surveys for nesting golden eagles have not been conducted.

Other Raptors. Red-tailed hawks (*Buteo jamaicensis*), Harris' hawks (*Parabuteo unicinctus*), and American kestrels (*Falco sparvarius*) are some raptors that occur within the Planning Area. Many raptor species such as golden eagles and peregrine falcons (*Falco peregrinus*) use cliff faces and rocky ledges to roost or

nest. Owl species documented include western screech owl (*Megascops kennicottii*), great-horned owl (*Bubo virgineanus*), elf owl (*Micrathene whitneyi*), barn owl (*Tyto alba*), and cactus ferruginous pygmy-owl.

Trend information for birds is difficult because of migration timing and patterns, climatological changes and events, and human-caused effects. Some of these changes may positively affect one species while negatively affecting another species. Specific trend information, by species, beginning in 1966 is available in the USGS North American Breeding Bird Survey at http://www.mbr-pwrc.usgs.gov/bbs/.

Game and Other Species of Interest

Small Game Species. In Arizona, small game species include but are not limited to small mammals, upland game birds, and migratory game birds. Common small-game species on public lands in the Planning Area include cottontail rabbits (*Sylvilagus audubonii*), Gambel's quail (*Callipepla gambelii*), mourning dove (*Zenaida macroura*), and white-winged dove (*Z. asiatica*).

Populations of mourning doves in the Western Management Unit, which includes Arizona, have shown a downward trend since 1966, the year population-trend data collection began (Dolton and Rau 2006). Quail reproduction in Arizona depends on winter/spring precipitation to produce abundant forage and insects to sustain the coveys. The lack of precipitation during this critical time results in low reproduction and decreased population levels.

Furbearers and Predators. Furbearers in the Decision Area include but are not limited to raccoons (*Procyon lotor*), ringtail cats (*Bassariscus astutus*), and bobcats (*Lynx rufus*). Bobcats are also grouped with predators along with coyotes (*Canis latrans*), gray foxes (*Urocyon cinereoargenteus*), striped and spotted skunks (*Mephitis mephitis* and *Spilogale putorius*), and badgers (*Taxidea taxus*).

Big Game Animals. Big game animals found on public lands in the Planning Area include desert bighorn sheep *(Ovis canadensis mexicana*), javelina (*Pecari tajacu*), mountain lion (*Puma concolor*), mule deer (*Odocoileus hemionous crooki*), and white-tailed deer (*O. virginianus couesi*). See **Map 3-15**, Sonoran Pronghorn Classification Areas, for known mapped habitats.

Bighorn Sheep. Bighorn sheep typically are found in dry, inaccessible mountainous areas in foothills near rocky cliffs and seasonally available water sources. Bighorn sheep disperse between mountain ranges and most often are observed crossing during cooler weather (Monson and Sumner 1980). Wildlife movement corridors between mountain ranges are an important habitat and genetic diversity component for bighorn sheep and other wildlife in the Planning Area. The BLM participates with the AGFD and other agencies in the ongoing effort of identifying appropriate linkage corridors to allow the management of multiple resource uses and fragmented land parcels in such a way as to facilitate movements of wildlife and aid in maintaining genetic diversity The BLM published an ecosystem-management strategy for desert bighorn sheep habitat on public lands (BLM 1995b). Guidelines set forth in the Rangewide Plan (BLM 1988b, 1995b) include providing maximum habitat protection to lambing grounds, migration routes, mineral licks, and permanent water sources. The guidelines also propose fencing standards requiring mitigation plans and surface use stipulations, supporting habitat enhancement projects, research, and outreach in bighorn sheep habitat.

Domestic livestock, particularly domestic sheep, can transmit certain diseases to bighorn sheep. The major disease posing a threat is Pasturella, which is a bacterium that occurs in nasal passages of both

bighorn sheep and domestic sheep and goats. When Pasturella is introduced to big horn sheep, it can cause respiratory issues such as pneumonia, which can ultimately lead to mortality of individuals or entire herds.

Bureau of Land Management Instruction Memorandum (IM) No. 98-140, Revised Guidelines for Management of Domestic Sheep and Goats in Native Wild Sheep Habitats, sets forth guidelines that pertain to the management of domestic sheep and goats in native sheep habitats. This document outlines mitigation, adaptive management, and best management practices for native wild sheep populations. Such guidelines include not allowing domestic sheep grazing within 9 miles of wild sheep habitats, which would reduce the potential for disease introduction from domestic sheep and goats into native sheep habitats and populations.

Map 3-16, Game Management Units & Game Distributions, includes more information on the game species described above.

Migratory Birds

All migratory birds receive protection under the Migratory Bird Treaty Act, while Executive Order (EO) 13186 (Responsibilities of Federal Agencies to Protect Migratory Birds, signed in January 2001) requires the BLM to evaluate the effects of federal actions on migratory birds. In addition, there is a Memorandum of Understanding (MOU) between the BLM and USFWS to promote the conservation of migratory birds. The purpose of the MOU is to strengthen migratory bird conservation by identifying and implementing strategies that promote conservation and avoid or minimize adverse impacts on migratory birds through enhanced collaboration between the two agencies, in coordination with state, tribal, and local governments.

There are approximately 450 non-game bird species native to Arizona, with about 291 species documented as breeding in the state. Of the breeding species, 237 are neotropical migrants, or birds that breed in the US or Canada and winter to the south, from Mexico to South America. While a migratory bird inventory has not been completed, 163 of Arizona's neotropical migrants are known to nest in the Planning Area regularly or irregularly (AGFD 2001a). Such species depend on quality habitats containing adequate substrate and cover for nesting purposes, as well as diverse vegetation to supply food for brood rearing. The Decision Areas contain breeding, nesting, brood rearing, and wintering areas, as well as migration routes that are important for migratory birds.

Bats

Bat species are considered sensitive species in Arizona and are best protected by conserving roosting sites and foraging areas. Although little information is available specifically for bats, a number of bat species occur on or near public lands in the Planning Area. Mines and natural caves, as well as crevices associated with cliffs, provide potential roosting habitat for bats. Bats may also roost on trees, beneath loose tree bark, under bridges, and in open buildings. The big brown bat (*Eptesicus fuscus*), cave myotis (*Myotis velifer*), occult little brown bat (*Myotis lucifugus occultus*), California leaf-nosed bat (*Macrotus californicus*), pallid bat (*Antrozous pallidus*), western pipistrelle (*Pipistrellus hesperus*), and fringed myotis (*Myotis thysanodes*) are most likely to inhabit public lands.

3.2.13.5 Non-native Invasive Animal Species

Invasive species occur throughout the Planning Area and generally can be defined as "alien species whose introduction does or is likely to cause economic or environmental harm or harm to human health" (BLM 1999). Invasive species, which have often been introduced accidentally or purposely into ecosystems by humans, can be detrimental to the environment by directly causing harm to native species through either predation or competition (Van Devender et al. 1997). This, in turn, can affect general ecosystem functions.

Invasive animals, both terrestrial and aquatic, include, but are not limited to, starlings (*Sturnus vulgaris*), Eurasian collared doves (*Streptopelia decaocto*), crayfish (*Orconectes virilis* and *Procambarus clarkia*, which is less widespread), bullfrogs (*Rana catesbeiana*), and Rio Grande leopard frogs (*Rana berlandieri*). Infestation by some of these species is so great that some native species are threatened with extirpation due to competition as well as habitat degradation and destruction.

3.3 RESOURCE USES

3.3.1 LANDS AND REALTY

The lands and realty program for the Planning Area consists of three distinct parts: (1) land use authorizations, which includes ROWs, (2) land tenure (disposal and acquisitions of lands), and (3) withdrawals. The lands and realty program processes renewable energy applications related to solar, wind, and biomass energy. Geothermal applications are handled through the minerals program and are discussed in **Section 3.3.3**, Minerals Management. The lands and realty program administers public lands within a framework of laws, regulations, and guidance, which are discussed in **Appendix B**, Applicable Laws, Regulations, and Policies.

3.3.1.1 Land Use Authorizations

Land use authorizations focus on requests for ROWs, permits, leases, and easements. A ROW is typically authorized through a grant, although sometimes a permit or lease may be issued. Permits are generally short-term authorizations (not to exceed three years) that have a negligible impact on the land. Leases are usually long-term authorizations requiring a significant capital investment.

Rights-of-Way

Rights-of-way grants are used for gas and water pipelines, electric transmission and distribution lines, roads, and communication lines such as telephone or cable. In general, a BLM ROW is granted for a term appropriate to the life of a project. A ROW authorizes the holder to construct, operate, maintain, and/or terminate a new or existing facility over, under, upon, or through public lands. The majority of ROWs granted are authorized under Title V of FLPMA (43 USC 1761-1771) and the Mineral Leasing Act (Section 28 of the Mineral Leasing Act of 1920, as amended, 43 USC 185). It is the policy of the BLM to authorize ROW applications at the discretion of the authorized officer in a responsible, efficient, and economical manner. The BLM in Arizona, which includes LSFO, currently participates in an MOU with the Federal Highway Administration and Arizona Department of Transportation, related to authorizing ROWs across federal lands.

In 1988, the BLM, granted an unusually high number of ROWs for roads, power facilities, and water facilities, to address a backlog of applications. Roads accounted for half of the ROW grants, the remainder were mostly ROWs for water and power facilities (LR2000 Case Recordation Reports Lands Year End Report 2010). Since 1988, ROWs issued in the Planning Area has remained constant at about nine authorizations per year. In general, these ROW applications are for access across public lands to private parcels, other transportation routes, utility distribution systems, communication facilities (e.g., cellular towers), telephone lines, water facilities, and pipelines.

Utility Corridors

An objective of the LSFO is to strive to meet the public's needs on public lands, while also attempting to minimize impacts on resources and meet multiple use objectives. One way the LSFO meets these objectives is by allocating utility corridors for linear utility facilities.

There are currently ten one-mile wide corridors that cross BLM-administered lands within the LSFO Decision Area (BLM Master Title Plats, March 2011), which are listed below:

- El Paso Natural Gas (EPNG) Utility Corridor, 50.6 miles
- Palo Verde-Devers Utility Corridor, 8.8 miles
- San Diego Gas & Electric Utility Corridor, 21.8 miles
- Palo Verde-Kyrene Utility Corridor, 7.6 miles
- Liberty-Gila Bend Utility Corridor, 9.6 miles
- Gila Bend-Ajo Utility Corridor, 0.9 miles
- Santa Rosa-Gila Bend Utility Corridor, 0.1 miles
- Interstate 8 Utility Corridor, 21.7 miles
- Tucson Electric Power (TEP) Utility Corridor, 30.6 miles
- Interstate 10 Utility Corridor, 1 mile

Major utility systems such as transmission lines greater than 230 kilovolts, pipelines greater than 10 inches in diameter, and primary paved roads, as defined by the BLM's Planning and Conducting Route Inventories Technical Reference Guide 9113-1, have been authorized within these corridors.

There are currently three 1-mile wide corridors that cross BLM-administered lands within the SDNM Decision Area (BLM Master Title Plats, March 2011), which are listed below:

- Interstate 8 Utility Corridor, 22.4 miles
- Santa Rosa-Gila Bend Utility Corridor, 18 miles

- Tucson Electric Power (TEP) Utility Corridor, 7 miles

Permits, Leases, and Easements

Applications for leases, permits, and easements are processed under the guidance of FLPMA and other applicable laws and regulations pursuant to 43 CFR 2900 and as described in **Appendix B**, Applicable Laws, Regulations, and Policies. Issuance of leases and permits is a discretionary action. These authorizations may include but are not limited to airport leases, apiary permits, film permits, R&PP leases, special-use permits and leases under 43 CFR 2920. Approximately two permits are authorized each year within the Planning Area. Apiaries constitute the most common type of permit issued. No leases, except R&PP leases, or easements have been authorized within the Lower Sonoran since 1988. R&PP leases are authorized under the Recreation and Public Purposes Act, which allows state and local governments, as well as qualified nonprofit organizations, the opportunity to lease (and potentially patent) public land where there is a strong public need for a particular use. Approximately ten R&PP leases have been authorized since 1989 and approximately seven R&PP patents have been completed in the Planning Area since 1989.

The R&PP Act provides for the transfer, at a reduced cost, of public lands to a state, state agency, political subdivision of a state, or a qualified non-profit organization for recreation such as a park, or a public purpose such as a fire station (BLM 1996a). R&PP actions have resulted in the transfer (i.e., patent or lease) of approximately 2,005 acres out of public surface estate in the Planning Area; however, 130 acres were returned to BLM administration when the Arizona State Parks Department relinquished an R&PP patent at Painted Rocks State Park. Approximately 7,687 acres of public land eligible for patent or lease are pending application. Most R&PP applications come from government agencies, especially the State of Arizona or local jurisdictions. A majority of the acreage transferred to date under the R&PP Act was by the State of Arizona (this does not include pending leases or patents). Although the cities have received nearly double the number of patents and leases compared to the state, the acreage transferred to cities was less. Of the issued and pending leases and patents, which make up the majority of the R&PP actions, approximately 90 percent of the acreage has been related to parks and recreational facilities, while fewer acres have been requested for other public purposes (e.g., municipal facilities) (BLM 2004b).

Communication Sites

The BLM typically issues leases for communications facilities through Communications Use Leases. The Planning Area has one designated communication site that is managed through the Oatman Mountain Communication Site Plan. This site is located in the Gila Bend Mountains in Section 25, Township 4S, Range 9W, Gila and Salt River Meridian. Since 1988, six facilities have been constructed within the site. The site is currently near capacity because the unique topography of the area and limited development space. However, co-location with existing facilities remains a viable option.

Utility-scale Renewable Energy Development

Utility-scale renewable energy developments were not specifically addressed as a part of the lands and realty program in previous LUPs, nevertheless, the BLM has facilitated environmentally responsible commercial development of solar energy projects on BLM-administered lands and implemented the use of solar-energy systems on BLM facilities, where feasible. Responding to increased interest in solar-

energy development, the BLM issued national guidance to facilitate the processing of ROW applications for solar-energy projects on public lands. All applications for renewable energy projects are processed as major, site-specific ROWs under FLPMA.

As of spring 2011, there were seven pending applications for utility-scale solar-energy developments in the LSFO. Market trends are based on the assumption that there is limited potential for biomass or wind energy in the Planning Area; therefore, the focus has been on the development of solar energy. As a result, no applications for biomass or wind energy development have been submitted or authorized.

3.3.1.2 Withdrawals

Withdrawals are formal lands actions that set aside, withhold, or reserve federal land by statute or administrative order for public purposes. A withdrawal creates a title encumbrance on the land. Withdrawals are established for a wide variety of purposes such as power site reserves, military reservations, administrative sites, recreation sites, national parks, reclamation projects, and wilderness areas. Withdrawals are most often used to preserve sensitive environmental values and major federal investments in facilities or other improvements, to support national security, or to provide for public health and safety. Withdrawals can be designated by Congress through a public land order or statute, or processed by the BLM administratively through FLPMA and 43 CFR 2300.

Classification of lands is the process of determining whether the lands are more valuable or suitable for transfer or use under particular or various public land laws than for retention in federal ownership for management purposes. The classification process is currently used for potential disposals under the R&PP Act. The segregation of lands is an action such as a withdrawal or allowed application (e.g., R&PP) that suspends the operation to entry under all or portions of the public land laws, which includes the mining and mineral leasing laws.

Existing withdrawals where the BLM does not retain any management authority are limited to the BGR for military purposes. The BLM retains specific management responsibilities, such as fire management or grazing, based on the specific legislation guiding withdrawals to other federal agencies such as the Bureau of Reclamation and the Army Corps of Engineers for dams, reservoirs, and canals, or the USFWS for wildlife-management purposes.

Lands within congressionally designated wilderness areas also are withdrawn from all forms of appropriation under the mining laws and from disposition under mineral leasing laws. Prior existing claims or leases with valid existing rights may be developed, though mineral development within wilderness areas is rare. Within the Planning Area, 249,500 acres have been withdrawn under the Wilderness Act of 1964, as amended. Withdrawn lands (with surface estate not currently managed by the BLM) are displayed on land use authorization **Maps 2-6a** to **2-6e**.

3.3.1.3 Land Tenure

Land tenure refers to actions that result in the disposal of public lands or the acquisition of non-federal land or interests.

Land tenure adjustments are accomplished through acquisitions, exchanges, or sales. Section 205, 206 and 208 of the Federal Land Policy and Management Act, Public Law 94-579, enacted October 21, 1976,

authorized the Secretary to acquire lands and interests in lands, enter into land exchanges and to dispose of lands provided in part, there is a public benefit through the land tenure adjustment.

The existing surface-management pattern within the Planning Area is shown on **Map ES-1**, Surface Management. The BLM administers approximately 1,416,600 acres of surface estate in the LSFO and SDNM; this includes 486,400 acres in the SDNM and 930,200 acres in the LSFO. The current land-tenure pattern can be difficult to manage in areas where there are scattered and isolated parcels or where there is split estate (where the subsurface estate owner is not the surface owner). Larger blocks of land generally allow for management that is more efficient.

Land Disposals through FLPMA Exchanges and Competitive Sales

Bureau of Land Management adjustments to land tenure can occur under a variety of realty actions, exchanges, and sales. Public lands selected for disposal typically meet the following criteria:

- Isolated and fragmented from larger tracts of BLM-administered lands;
- Adjacent to urbanizing private and state lands subject to future development;
- Currently leased under the R & PP Act and eligible to be patented;
- Present an economic and management challenge to retain under public ownership;
- Not within existing NLCS units;
- Not within designated wildlife corridors;
- Not occupied by species listed or proposed as threatened or endangered under the ESA;
- Not designated or proposed critical habitat for listed or proposed threatened or endangered species;
- Not supporting listed or proposed threatened or endangered species if such transfer would conflict with recovery of the listed or proposed species; and
- Not supporting federal candidate species if such action would contribute to the need to list the species as threatened or endangered.

Under the authority of FLPMA, the BLM can sell public lands through both direct and competitive sales and exchange lands with other land management agencies and private landowners. Federal lands can only be sold at fair market value, that is, at a price comparable to private land sales.

There have been no land exchanges and only one competitive sale within the Planning Area since the Lower Gila South RMP Amendment was signed in 2005. The competitive sale was for a 282-acre parcel south of the City of Goodyear. Since September 2008, real estate values and sales have decreased significantly in the Planning Area; therefore, the LSFO is not anticipating growth in competitive land sale proposals in the foreseeable future.

Subsurface Estate Disposals

The BLM regulations establish procedures under Section 209 of FLPMA for conveyance of mineral interests owned by the United States where the surface is or will be in non-federal ownership. The objective is to allow consolidation of surface and subsurface or mineral ownership where there are no "known mineral values" or in those instances where the reservation interferes with or precludes appropriate non-mineral development and such development is a more beneficial use of the land than the mineral development.

Since the adoption of the Phoenix RMP (BLM 1989), Lower Gila North Management Framework Plan (BLM 1983), and Lower Gila South RMP (BLM 1989), as amended, surface-estate changes within the Planning Area have been minimal, with only 9,952 acres disposed. As indicated by the acreages of land transferred, minimal changes in land status have occurred since previous plans were adopted. The two main factors that have caused a decrease in land status changes were a legal determination that the Arizona State Land Department did not have the authority to exchange lands under the Arizona Constitution and the Planning Area's location in a volatile market with land prices that were above the national average.

Land Acquisitions

Acquisitions can occur through purchases, exchanges, easements, and other land transfers. Acquired land is always designated for retention. Purchases, easements, exchanges, and directed sales are completed based on appraised market value. Competitive sales are completed based on a minimum of appraised fair market value, but may exceed that value based on competitive bidding. No land acquisitions have taken place within the Planning Area since the adoption of the Phoenix RMP (BLM 1989), Lower Gila North Management Framework Plan (BLM 1983), and Lower Gila South RMP (BLM 1989), as amended.

3.3.2 LIVESTOCK GRAZING

Livestock grazing in Arizona is managed under 43CFR 4100, and is based on the Taylor Grazing Act (43 USC 315, 315a-315r), FLPMA (43 USC 1701 et seq.), the Public Rangeland Improvement Act (43 USC 1901 et seq.), and other executive and public land orders. Grazing leases and permits are issued according to 43 CFR 4130.2(d) and generally last 10 years. The BLM can change allotment schedules, stocking rates, classes of livestock, or other grazing practices if a resource concern arises. When leases or permits are scheduled for renewal, the BLM evaluates resource conditions within the allotments consistent with the Arizona Standards for Rangeland Health and Guidelines for Grazing Administration (S & Gs). Approved in 1997, the S & Gs are now also referred to as Land Health Standards and Arizona Guidelines for Grazing Administration (See **Appendix L**, Guidelines for Grazing Administration, and **Appendix B**, Applicable Laws, Regulations, and Policies). Grazing practices are managed to achieve resource and grazing objectives, as described in the terms and conditions of the grazing permit or lease.

3.3.2.1 Rangeland Health and Condition

The overall objective of the Planning Area's rangeland management program is to manage soil and vegetation communities to meet land health standards and multiple-use objectives. The purpose of the

S & Gs at 43 CFR 4180 is to provide a measure (i.e., standard) to determine land health and methods (i.e., guidelines) to improve the health of public rangelands. The BLM's job is to maintain the health of the land or make appropriate changes on the ground where land health standards are not being met. The standards help the BLM, public land users, and others to focus on a common understanding of acceptable resource conditions. The standards communicate current and desired resource conditions among the various groups. Guidelines describe or communicate techniques for managing activities to achieve those desired conditions. Guidelines for grazing management emphasize multiple use by incorporating needs for wildlife habitat, soil, watershed, riparian areas, and recreation.

The specific program goals and objectives are accomplished through activity-level planning, with attention given to proper season of use; suitable grazing systems; plant and animal requirements; kind, class, and distribution of livestock; and placement of rangeland improvements. Together with livestock operators, other affected agencies, and interested publics, the BLM examines the indicators addressed by the standards, and assesses whether or not they are being achieved through the evaluation process. If resource monitoring shows standards are met or progress is being made towards meeting them, existing management can continue. Resource monitoring can include the collection of vegetation and soil attributes (i.e., cover, frequency, and species composition, etc.), utilization levels of key forage plants, actual livestock use, and climate data from permanently established plots within allotments. If progress is not being made towards achieving standards and current livestock grazing is determined to be a significant causal factor, then appropriate actions including changes to permits, grazing systems and practices can be implemented in order to ensure progress towards achievement of standards. Appropriate actions can consist of:

- Actions taken pursuant to 43 CFR 4110, 4120, 4130, and 4160 that will result in significant progress toward fulfillment of the standards and significant progress toward conformance with the guidelines (43 CFR 4180.2(c)).

- Implementing and issuing a final decision pursuant to 43 CFR 4110, 4120, 4130, and 4160 upon determining that existing grazing management needs to be modified to ensure that the Fundamentals of Rangeland Health exist (43 CFR 4180.1).

Historic Livestock Use

Livestock grazing in the Planning Area began in the late 1700s, based out of American Indian rancherias along the Gila River. At that time, livestock were confined to the flood plains of the Gila River, which was the only available and reliable water source to support livestock year-round. It is likely that the mountains and bajadas adjacent to the river would have received some livestock use, particularly during wetter periods when temporary waters were available in potholes, tinajas, or the few springs in the area.

Settlers began to move into the area along the Gila River in the 1860s and started farming operations. Livestock from these farms also were likely confined to the river floodplain and the adjacent bajadas. In addition, livestock brought in by miners and prospectors would have been scattered throughout the Planning Area.

More widespread livestock use of the drier valleys and mountains in the Gila Bend, Tonopah, and Ajo areas did not occur until the widespread use of dirt stock tanks began in the late 1800s, followed by

well drilling in the early 1900s. In the Ajo area, the first dirt stock tanks were established in the 1890s. The first dirt stock tank close to the Monument was built around 1900 in the Little Rainbow Valley, just north of the present boundary. The first wells in the area were drilled in Rainbow Valley from 1910 to 1912. At that time, the only waters in the Vekol Valley area consisted of a couple of dirt pools that provided temporary water for cattle for the Tohono O'odham people. The Vekol Valley was not developed for additional livestock use until the 1920s and 1930s.

At the beginning of the 20th century, ranching in the Planning Area consisted of yearlong cow-calf operations, with herds limited only by climatic conditions, water, and available forage. Management limitations on livestock numbers did not occur until 1934 with the passage of the Taylor Grazing Act. During the following years, regulations were established pertaining to operators, allotments, kind and number of livestock, and season-of-use on public lands. Although such regulations were prescribed in 1934, it was not until after World War II that large numbers of steers were brought in to utilize the ephemeral forage from a wet winter and/or spring. Sheep grazing has occurred in the past but was limited to occasional ephemeral authorizations on a few allotments.

The Phoenix Grazing District Office opened in 1938 and consisted of two federal employees and a Grazing Advisory Board, comprised of ranchers from Buckeye, Casa Grande, Arlington, and Tucson. Their job was to establish livestock grazing allotments, set livestock numbers, and issue grazing permits in the Maricopa Grazing District No. 3 (Collins 2006).

Even as far back as the 1930s, it was recognized that winter-spring seasonal and ephemeral use was the most practicable time for livestock use in southwestern Arizona. The June 28, 1939 edition of "The Grazing Bulletin" stated:

> District No. 3 . . . is comprised principally of desert ranges, which, in favorable years, produce a very heavy crop of annual vegetation and at such times will carry great numbers of cattle. While there is considerable yearling stocking in this district, for the most part it will be heavy seasonable stocking during favorable winter and spring seasons (Collins 2006).

Major organizational changes occurred in 1946, when the Grazing Service was merged with the General Land Office to form a new agency: the US Bureau of Land Management. In addition to administering grazing, the BLM's duties now included classifying land, approving mining and homestead entries, issuing right-of-way permits, etc. Throughout the 1950s and 1960s, several more reorganizations took place, and boundaries were occasionally redrawn (Collins 2006).

BLM lands in the Phoenix District are still leased under the authority of the Taylor Grazing Act, but the significance of the "Maricopa Grazing District" has faded away, largely because of two reasons (Collins 2006):

1) In 1968, the BLM issued a "Livestock Grazing: Ephemeral Range" order, and the Phoenix District soon reclassified many of its allotments as "Ephemeral." This Special Ephemeral Rule changed the pattern of livestock use in most of the desert areas of the Phoenix District from yearlong use to sporadic springtime use.

2) Beginning in the early 1970s, the District Grazing Advisory Boards were phased out, and BLM assumed a stronger role in managing livestock on public lands on Section 3 grazing

permits (inside the Maricopa Grazing District) and on Section 15 grazing leases (public lands outside the Maricopa Grazing District).

Additionally, the 1970s saw the passage of several Acts, such as the Archaeological Resource Protection Arc (ARPA), the Endangered Species Act, the National Environmental Policy Act (NEPA), and the Federal Land Policy and Management Act (FLPMA) that dramatically changed how many federal agencies operated, including the BLM (see **Appendix B** for more information on laws, polices, and regulations that guide BLM actions on public lands).

Current Livestock Use

In Arizona, BLM grazing allotments are classified as perennial, ephemeral, or perennial-ephemeral. Perennial means the allotment consistently produces enough forage to support a livestock operation year-round and has an established forage limit, based on the quality and quantity of perennial plants for a defined period, stated in animal-unit months (AUMs). An AUM is a measure of forage that will support a cow and its calf for one month. The amount and length of grazing use, on ephemeral allotments and allotments with ephemeral forage, is based on vegetation production and determined prior to authorizing use. In addition, grazing allotments are assigned in three management categories (improve, maintain, or custodial) based on the present resource condition, management needs, ecological potential, conflicts with other resource values, and economic potential for improvement.

Livestock operations in the Planning Area on allotments not classified as ephemeral only are generally yearlong cow-calf operations and involve raising calves for market from a base cattle herd. These operations usually encompass a mixed ownership of private, Arizona State Trust, and public lands within allotment boundaries. Although the operations are yearlong, they may only use the federal rangelands seasonally. Ephemeral, perennial, and perennial-ephemeral allotments that utilize ephemeral authorizations may turn out large numbers of steers to take advantage of annual grass and forb species that can produce significant forage amounts for several months during winter and spring. These livestock can have high weight gains, up to several hundred pounds, during particularly wet years before being shipped back to summer ranges in the northern US or to feedlots. Currently, no sheep or goats are authorized on any allotments in either Decision Area.

Three allotment management categories define the management level needed to properly administer grazing lands in accordance with BLM Washington Office IM 2009-018. As allotments are evaluated, the categories, in consultation with affected operators, are reviewed and revised, where needed, to respond to changing resource conditions. All allotments are placed into these categories according to management needs, resource conflicts, potential for improvement, and BLM funding/staffing constraints. The allotment categories and management are defined as:

- Category I (Improve): Category I allotments are those where the current level of livestock grazing or use on public lands is or is expected to be a significant causal factor in the non-achievement of land health standards, or where a change in mandatory terms and conditions in the grazing authorization is or may be necessary. Identifying Category I allotments requires a review of critical habitat conditions and whether projects have been proposed specifically for implementing the Healthy Lands Initiative.

- Category M (Maintain): Category M allotments are those where land health standards are met, where livestock grazing on public land is not a significant causal factor for not meeting the standards, and where current livestock management is in conformance with guidelines developed by the state directors in consultation with Resource Advisory Councils. It also covers allotments where an evaluation of land-health standards has not been completed, but where existing monitoring data indicates that resource conditions are satisfactory.

- Category C (Custodial): Category C allotments are public lands that produce less than 10 percent of the forage in the allotment or are less than 10 percent of the land area. An allotment should generally not be designated Category C if the public lands in the allotment contain critical habitat for a threatened or endangered species or wetlands negatively affected by livestock grazing.

Livestock Permits

The Lower Sonoran Decision Area currently has 45 permitted grazing allotments, 21 of which are ephemeral only, with a perennial permitted capacity of 17,541 AUMs. Portions of six Lower Sonoran allotments, one of which is ephemeral only, are also located within the SDNM. These allotments have a perennial permitted capacity of 8,703 AUMs. **Appendix P**, Grazing Allotment Information, shows allotment names and numbers, permitted AUMs, and livestock numbers and types for both Decision Areas. Also see **Map 3-10**, Livestock Grazing Allotments & Wild Horse and Burro Herd Areas.

The number of AUMs in the SDNM and Lower Sonoran for the 10-year period from 1998 to 2007 is shown in **Table 3-17**, Animal Unit Months 1998–2007. This table is based on the permittees' billed amount for each year during the period. During several of the listed years, AUM amounts are substantially below permitted use levels, reflecting years when permittees elected non-use in anticipation of, or response to, drought conditions or times when additional livestock were unavailable for restocking due to livestock markets. The ephemeral AUM column indicates years with exceptionally wet winters when ephemeral permits were issued, in addition to the perennial permits, to take advantage of additional available forage.

Table 3-17
Animal Unit Months 1998–2007

	SDNM Decision Area			LSFO Decision Area		
Year	Perennial AUMs	Ephemeral AUMs	Total AUMs	Perennial AUMs	Ephemeral AUMs	Total AUMs
1998	2,995	4,594	7,589	17,244	5,713	22,957
1999	6,168	0	6,168	10,887	0	10,887
2000	5,325	393	5,718	20,298	5,287	25,585
2001	7,556	1,054	8,610	14,550	24,920	39,470
2002	1,928	11	1,939	6,110	0	6,110
2003	5,049	162	5,211	15,192	6,334	21,526
2004	4,801	379	5,180	16,323	3,254	19,577
2005	5,929	4,861	10,790	16,309	21,870	38,179
2006	8,178	1,719	9,897	16,309	0	16,309

2007	6,747	1,781	8,528	13,900	1,488	15,388

Note: SDNM allotments include portions of the allotment outside SDNM boundaries.
Source: BLM 2009

Drought conditions in the mid 1990s and again in 2002 reduced perennial and ephemeral forage production. When this occurs, livestock use is reduced in Decision Area allotments, or temporarily reallocated, which allows allocation of the remaining available forage specifically for wildlife use. Overall, livestock use in the Planning Area has decreased over time, although the actual number varies yearly. Grazing and grazing management is dependent on precipitation and corresponding improvement in the abundance and vigor of forage, as well as non-forage species that support the general health and condition of soil and plant communities.

3.3.2.2 Grazing in the SDNM

The Monument Proclamation allowed federal grazing on five allotments south of I-8 to continue until the existing permits expired. Four of these permits expired Feb. 28, 2008, and one expired Feb. 28, 2009, at which time livestock grazing in these areas ended. The public lands south of I-8 (155,900 acres), will remain unavailable for livestock use and the grazing preferences (7,884 AUMs) for permitted use on these allotments have been cancelled. These acres exclude the additional 78,000 acres south of I-8 located in the Sand Tank Mountains area, formerly withdrawn to BGR and known as Area A. These acres will remain unavailable to grazing as well resulting in a total of 233,900 acres being unavailable to grazing south of I-8. In addition, the proclamation stated, "grazing on federal lands north of Interstate 8 shall be allowed to continue only to the extent that the BLM determines that grazing is compatible with the paramount purpose of protecting the objects identified in this proclamation." A livestock grazing compatibility analysis (**Appendix E**, Compatibility Analysis: Livestock Grazing on the Sonoran Desert National Monument) for the public lands currently available for livestock grazing within SDNM north of I-8 has been completed. The results of the analysis indicate that livestock grazing on 8,498 acres of the 252,500 acres of the public lands are not compatible with protection of the Monument objects and will be considered unavailable for livestock grazing in the range of alternatives.

3.3.2.3 Range Improvements

A number of range improvement projects were constructed for both the enhancement and protection of watershed and wildlife values and the management of domestic livestock grazing. These projects consist of water developments (windmills, pipelines, stock ponds) and fences. All projects were authorized under cooperative agreements or permits, depending on overall benefits, objectives, and private investment levels. Under most alternatives, the construction of range improvement projects would continue where the project benefits watershed, wildlife, and livestock grazing. The disposition of existing range improvements will depend upon the alternative selected (see **Chapter 4**, Environmental Consequences, for details). Regulations pertaining to range improvements can be found at 43 CFR 4120.

3.3.3 MINERALS MANAGEMENT

The BLM mineral resources within the Planning Area include both federally owned mineral estate underlying BLM-administered surface lands, and those minerals under lands where the federal government has disposed of the surface rights but retained the minerals (called "split estate"). Split estate also includes lands where BLM manages the surface but a different entity (e.g., the State of

Arizona) owns the mineral estate (also referred to as "reverse split estate"). **Table 3-18**, Mineral Estate, and **Map 3-17**, Mineral Estate, show mineral estate and surface acres in the Planning Area and in

Table 3-18
Mineral Estate

Mineral Estate	Acres	Percent
Planning Area		
Total Acres (All Owners)	8,868,300	100
BLM Mineral Estate – BLM Surface	1,338,300	15
BLM Mineral Estate – Non-Federal Surface (Split Estate)	210,000	2
All other owners, including other Federal (Park Service, Forest Service, Fish & Wildlife Service, Bureau of Reclamation, Department of Defense), tribal communities, state, counties, cities, and private	7,320,300	83
Lower Sonoran and Sonoran Desert National Monument Decision Areas		
Total Acres	1,548,300	100
BLM Mineral Estate – BLM Surface	1,338,300	86
BLM Mineral Estate – Non-Federal Surface (Split Estate)	210,000	14

Source: BLM 2012a

both Decision Areas. Although the Planning Area encompasses nearly nine million surface and mineral estate acres, the BLM manages both the surface and mineral estate on only 15 percent (1,338,300 acres).

Of the 1,338,300 acres of BLM-administered mineral estate under BLM surface, approximately 53 percent (713,300 acres) is open to mineral activities, along with 66 percent (139,000 acres) of BLM mineral estate under non-federal surface (**Table 3-19,** BLM-administered Mineral Estate).

Table 3-19
BLM-administered Mineral Estate

	Acres	Percent
BLM Surface with BLM-administered Mineral Estate		
Total (BLM-administered mineral estate under BLM surface)	1,338,300	100
Closed to Minerals Activity (includes 461,000 acres of BLM-administrative Sub-surface Mineral Estate within the Sonoran Desert National Monument, wilderness, and other mineral withdrawals)	625,000	47
Open to Minerals Activity	713,300	53
Non-Federal Surface with BLM-administered Mineral Estate		
Total (BLM-administered mineral estate under non-Federal surface)	210,000	100
Closed to minerals activity (primarily regional parks)	71,000	34
Open to minerals activity	139,000	66

Source: BLM 2012a

By presidential proclamation, 461,000 acres of BLM mineral estate in the SDNM are closed to the location of new mining claims, mineral leasing, and mineral materials disposals, representing 74 percent

of the acreage closed to mineral activity in the Decision Areas. There are no existing locatable minerals rights in the SDNM as all previous mining claims have lapsed. Nor are there any existing mineral leases, mineral materials sales, or free use permits in the SDNM. For this reason, mineral resources for the SDNM will not be discussed further in this section.

There are approximately 210,000 acres of split estate within the Lower Sonoran (**Map 3-17**, Mineral Estate). Of those lands, approximately 71,000 acres (34 percent) are withdrawn from mineral entry consisting primarily of the following regionals parks: San Tan Mountain, Usury Mountain, South Mountain, Estrella Mountain, and Buckeye Hills. The remaining land is open to mineral activities under the various mining and minerals laws.

3.3.3.1 Categories of Minerals on BLM Lands

By statute, three categories of mineral resources have been established on public lands: locatable, leasable, and saleable. federal laws, regulations, and legal decisions define these categories.

Locatable Minerals

Locatable minerals include both metallic minerals such as gold, silver, and copper and nonmetallic minerals such as gemstones, silica, and perlite. Locatable mineral rights are established by staking a mining claim in accordance with federal and state laws and regulations. Related mining operations are governed by federal, state, and local environmental and safety laws and regulations, including 43 CFR 3802 (Exploration and Mining, Wilderness Review Program), 43 CFR 3809 (Surface Management), and 43 CFR 3715 (Use and Occupancy under the Mining Laws).

Various mineral resources have been mined to different extents throughout the Planning Area for hundreds of years. Evidence suggests that Native Americans as well as early Spanish explorers prospected and mined within the region. With the entry of Europeans into the area, those activities increased tremendously. Virtually all of the mountains within the Planning Area exhibit evidence of some level of activity in search of minerals. Few of the mines ever had the quantity or quality of ore to sustain a viable operation for any period of time, but two areas containing large metal deposits, primarily copper, were discovered near Ajo and in the Globe-Miami area. These major districts began as large underground mines and eventually evolved into massive open-pit operations, along with their attendant milling and smelting facilities. Levels of activity at these sites have varied over the years, primarily as a reaction to fluctuations in the market price of metals. Most of the lands within these two areas are no longer in federal ownership, having been patented through processes established under the 1872 Mining Law. Other patented individual claims and small groups also exist at scattered locations throughout the Planning Area.

There are 65 metallic mineral districts in five Arizona counties: 25 in Pima; 23 in Pinal; 11 in Maricopa; 5 in Gila; and 1 in Yuma. Many established mining districts within the Planning Area contain metallic or nonmetallic mineral resources or both. All of the districts historically have been explored and mined to varying extents; many still host active mining claims, but activity on the ground is infrequent.

As of June 2009, the most notable active operations in the Planning Area were three copper mines in the Globe-Miami area of Gila County: BHP Billiton's Pinto Valley/Miami Mine, Quadra's Carlota Mine, and Freeport-McMoRan Copper & Gold's Miami Complex. These operations are located on a mix of

private and Forest Service lands. In some places, they adjoin public lands, suggesting the possibility of additional mineral deposits on public lands. Other locatable minerals activities in the Planning Area are comparatively small.

Some mineral districts were mined historically for nonmetallic minerals, including asbestos, barite, feldspar, mica, quartz, silica, and gypsum; gemstones such as amethyst and turquoise; and industrial-grade limestone and clay deposits. The most notable active nonmetallic mines are Tolleson Mine (clay, Clinton-Campbell Contracting Inc.); Superior Perlite Mine (perlite, Harborlite Corporation); Copper Hill Mine (silica, Kessen and Kessen); and Sleeping Beauty Mine (turquoise, Sleeping Beauty Turquoise).

Table 3-20, Locatable Mineral Potential in the Lower Sonoran Decision Area, describes locatable mineral potential in the Lower Sonoran on BLM mineral estate. Moderate- and high-potential areas are located primarily in the mountain ranges—with known mineral occurrences in the Ajo area, Gila Bend Mountains, and Buckeye Hills—and on public lands in northeast Pinal and Gila counties—primarily around Superior and Globe-Miami (URS 2004) (**Map 3-18**, Locatable Minerals Potential.)

Over the past 25 years, the trend in locatable minerals has been toward a reduction in mining activity. Rising mining costs have led to a decrease in the number and size of mining operations, particularly for metallic minerals. However, increases in metal prices have resulted in increased interest in opening new or inactive copper mines near Superior, Globe-Miami, and Ajo.

Table 3-20
Locatable Mineral Potential in the Lower Sonoran Decision Area

Potential	Acres	Percent
Open to Minerals Activity		
Low	591,600	69
Moderate	246,500	29
High	14,200	2
Closed to Minerals Activity		
Low	153,400	65
Moderate	76,900	33
High	4,700	2

Source: BLM 2012a

Acres and percentages are for the BLM mineral estate regardless of surface ownership. As such, acreage includes BLM-administered minerals under BLM-administered surface estate, in addition to BLM-administered minerals under subsurface owned by other federal agencies and non-federal jurisdictions, such as state land, parks, county land, and private land. Acres and percentages are only for the Lower Sonoran Decision Area.

Leasable Minerals

Leasable minerals include fluid minerals such as oil, gas, and carbon dioxide (CO_2); solid minerals such as coal and sodium; and geothermal resources. No exploration or lease activity, planned lease sales, or drilling activity for fluid minerals such as oil, gas, CO_2, helium, or geothermal resources have taken place in or near the Planning Area in at least 20 years.

Oil and Gas: Oil and gas are nonrenewable, fluid mineral resources typically discovered by drilling exploration wells into "targets" defined from prior geophysical and geological exploration. If exploitable resources are discovered, additional development wells are drilled for efficient production from the oil or gas field.

Since 1913, 33 exploratory oil and gas wells have been drilled in the Planning Area. Although some of these found indications of oil and gas, they were not present in economic quantities. Of the BLM-administered lands open to mineral activity, there are no acres with high potential for oil and gas resources, and approximately 116,700 acres (14 percent) have moderate potential (**Table 3-21**, Leasable Mineral Potential in the Lower Sonoran Decision Area and **Map 3-19**, Oil and Gas Potential). Moderate potential exists in two regional geologic structures: the Chihuahua Trough/Bisbee Basin in eastern Pima County, and the Arizona-New Mexico Trough in northeastern Pinal and Gila counties. There also is moderate potential in the Tertiary alluvial basins between the mountain ranges (URS 2004).

Table 3-21
Leasable Mineral Potential in the Lower Sonoran Decision Area

	Oil and Gas		Geothermal		Sodium	
Mineral Resource Potential	**Acres**	**Percent**	**Acres**	**Percent**	**Acres**	**Percent**
Open to Mineral Activity						
Low	735,600	86	163,600	19	753,900	88
Moderate	116,700	14	631,100	74	94,000	11
High	0	0	57,600	7	4,400	1
Closed to Mineral Activity						
Low	223,900	95	99,400	42	229,300	98
Moderate	11,100	5	132,700	57	4,700	2
High	0	0	2,900	1	1,000	0

Source: BLM 2012a

Acres and percentages are for the BLM mineral estate regardless of surface ownership. As such, acreage includes BLM-administered minerals under BLM-administered surface estate, in addition to BLM-administered minerals under subsurface owned by other federal agencies and non-federal jurisdictions, such as state land, parks, county land, and private land. Acres and percentages are only for the Lower Sonoran Decision Area. Percentages are the proportion of low, moderate, and high potential for each mineral.

Carbon Dioxide and Helium: Carbon dioxide and helium are nonrenewable, fluid mineral resources typically discovered during the drilling of exploratory oil and gas wells that encounter natural gas or nonflammable gas in sedimentary rocks. Three of the 33 exploratory wells drilled in the Lower Sonoran reported the presence of gas, but there is no information on whether the gas was tested for CO_2 or helium. Consequently, there are no known occurrences and low potential for CO_2 and helium in the Planning Area.

Geothermal: Geothermal resources are nonrenewable, fluid mineral resources. Geothermal energy sources include artesian hot springs and wells that tap into groundwater or dry rock at elevated temperatures resulting from high heat-flow gradients in the Earth's crust. Geothermal resources typically are discovered by drilling exploratory wells in areas of known or suspected high temperature gradients or by coincidence during water drilling.

There are 15 geothermal energy resource regions in the Planning Area ranging in temperature from 35 degrees to 120 degrees Celsius (95 degrees to 248 degrees Fahrenheit). These are considered low-temperature resources suitable only for residential or commercial space heating, greenhouse use, aquaculture, or heated swimming pools and spas (**Map 3-20**, Geothermal Resources Potential). **Table 3-21,** Leasable Mineral Potential in the Lower Sonoran Decision Area describes geothermal potential on the BLM mineral estate within the Lower Sonoran. High- and moderate-potential areas are located in deep alluvial basins, including the Picacho, Maricopa-Stanfield, Rainbow, Luke, Harquahala, and western Higley basins (URS 2004). There is low potential for geothermal resources in the mountain ranges.

Coal: Coal is a nonrenewable, solid mineral resource. It is typically exposed in outcrops of coal-bearing sedimentary rocks. No coal-bearing sedimentary formations or coalfields are known to exist in the Planning Area.

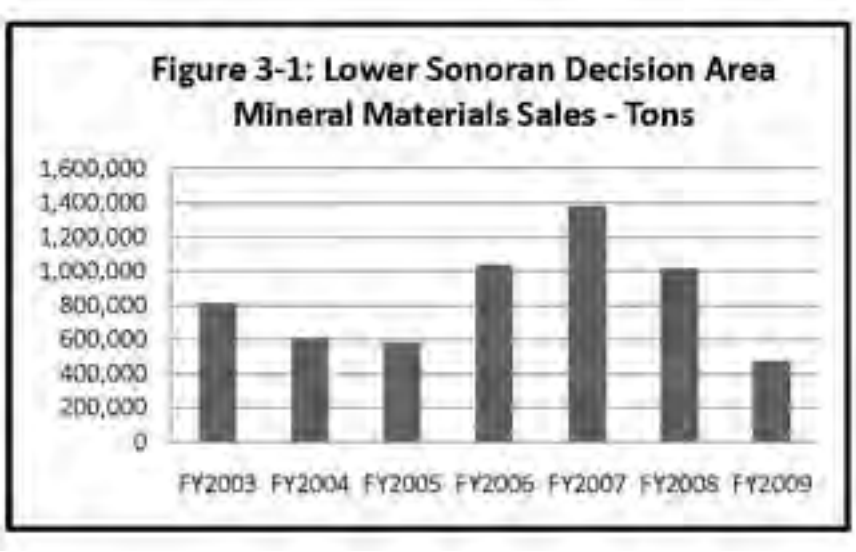
Sodium: Sodium is a nonrenewable, solid mineral resource that typically occurs as salt beds in deep-basin sediments. There is high potential for sodium in the Luke, Higley, Tonopah, and Picacho basins in the Planning Area; however, little of this potential exists on BLM-administered lands (**Table 3-21,** Leasable Mineral Potential in the Lower Sonoran Decision Area and **Map 3-21**, Sodium Potential). There is moderate potential for sodium in the remaining alluvial basins, which lie primarily within the Lower Sonoran (URS 2004). There is no leasing or development activity for sodium in the Planning Area; however, sodium is being extracted from the Luke Basin to the north.

Saleable Minerals (Mineral Materials Disposal)

High potential for saleable mineral resources (mineral materials) exists throughout most of the Planning Area (URS 2004) (**Map 3-22**, Mineral Materials Potential). Saleable mineral resources include common varieties of sand, gravel, aggregate, clay, limestone, cinders, and decorative rock, as well as building or dimensional stone including granite, decomposed granite, basalt, and other volcanics. Large volumes of saleable minerals are used in commercial, residential, and infrastructure construction within the Planning Area. Saleable minerals within the Lower Sonoran are predominantly sand, gravel, and decorative (or crushed) rock.

Within the Lower Sonoran, there are seven active commercial saleable mineral pits (crushed rock/decorative stone/aggregate): Arizona Pacific Materials, Bush Sand and Gravel, Chandler Rock, Kilauea Crushers (two locations), Red Mountain Mining, and Treasure Chest Granite Pit. Sand and gravel come from pits in Quaternary and Tertiary alluvial deposits in active or former stream channels, washes, floodplains, and alluvial fans. Decorative rock and building stone are mined or quarried from granitic, metamorphic, and volcanic rock outcrops. Mineral material pits and quarry locations are common throughout the Planning Area and usually are located close to cities and primary transportation arteries such as roads and railways.

The general trend for saleable minerals during most of the past 25 years has been toward increasing development and production. On all BLM-administered lands around metropolitan Phoenix, saleable minerals production increased from 1.29 million short tons in fiscal year (FY) 2003 to 2.4 million tons in FY 2007 before falling to 2 million tons in FY 2008 during the recent economic downturn. Production for FY 2009 fell to about 1.3 million tons, to 721,000 tons in FY 2010, and 826,000 tons in FY 2011 (BLM 2011).



Within the Lower Sonoran, saleable minerals production increased from 0.81 million tons in FY 2003 to 1.38 million tons in FY 2007 before falling to 1.01 million tons in FY 2008 (**Figure 3-1**, Lower Sonoran Decision Area, Mineral Materials Sales - Tons). Production for FY 2009 fell to about 0.5 million tons with production in FY 2010 at 346,000 tons and in FY 2011 at 336,000 tons (BLM 2011).

There are many large active sand and gravel pits in the Planning Area; however, sand and gravel production is not a significant activity within the Lower Sonoran because most operations are on private or state lands. The majority of the mineral materials production within the Lower Sonoran is decorative rock.

Table 3-22, Saleable Minerals Potential in the Lower Sonoran Decision Area, and **Map 3-22**, Mineral Materials Potential show the available mineral estate with potential for certain saleable products. Areas for saleable minerals are unranked and only designated as having potential based on being either bedrock or alluvial materials and sediments. In reality, almost any material can be mined and produced as saleable minerals, though the quality and level of processing needed vary greatly. The primary factors determining which sites are of interest for saleable minerals are market factors and transportation costs, with physical properties being dominant only for exceptional situations.

Table 3-22
Saleable Minerals Potential in the Lower Sonoran Decision Area

	Acres	Percent
Open to Minerals Activity	852,300	100
Areas with Potential for Crushed Stone, Decorative Rock, Boulders, Aggregate, and Related Products	406,200	48
Areas with Potential for Sand and Gravel, Aggregate, Fill Material, and Related Products	446,100	52

Source: BLM 2012a

Acres and percentages are for the BLM mineral estate regardless of surface ownership. As such, acreage includes BLM-administered minerals under BLM-administered surface estate, in addition to BLM-administered minerals under subsurface owned by other federal agencies and non-federal jurisdictions, such as state land, parks, county land, and private land. Acres and percentages are only for the Lower Sonoran Decision Area.

3.3.4 RECREATION MANAGEMENT

3.3.4.1 Background

The Planning Area is easily accessible from the southern Phoenix Metropolitan area and several small towns in south-central or southern Arizona such as Gila Bend and Ajo. The BLM-administered lands provide outstanding recreational opportunities to the residents of these areas in addition to many winter and regional visitors. The dramatic increase in population that occurred during the 1990s and early 2000s in the Phoenix metropolitan area brought increased demands for outdoor recreational opportunities in the nearby Lower Sonoran and SDNM Decision Areas. Much of this demand fell on BLM-administered lands adjacent to new residential communities in Maricopa, Tonopah, and Gila Bend and the rapidly growing cities of Goodyear and Buckeye. There has been widespread, lower-density residential development on private land throughout the Decision Areas. Increased OHV sales and new technology have resulted in a rising demand for motorized trails and recreational areas. Community demand for parks, open spaces, and non-motorized trails, on a local and regional basis has increased in Maricopa and Pinal counties.

3.3.4.2 Recreation Use in the Decision Areas

The Lower Sonoran and SDNM are used by visitors for a multitude of outdoor recreation activities. Popular casual use recreational activities for both Decision Areas include off-highway vehicle (OHV) touring and riding (using a variety of OHVs such as four-wheel drive trucks and jeeps, all-terrain vehicles, utility vehicles and motorcycles), hiking, camping, hunting, sightseeing, recreational target shooting, horseback riding, and mountain biking.

Based on estimates extrapolated from traffic counters, visitor register logs and personal observations from park rangers and recreation specialists, visitation averages 18,413 visitors per year in the Lower Sonoran, and 24,667 visitors per year in the SDNM. Painted Rock Petroglyph Site and Campground in the Lower Sonoran receives the most site visitation with nearly 2,444 visits per year.

General Recreation Uses

OHV use is prevalent in the Decision Areas largely due to the population growth combined with the new various types of vehicles that have become available and affordable over the past 15 years which have resulted in a huge increase in the number of sales. Activities range from general family two- and four-wheel drive touring in small utility vehicles and jeeps, to the weekend family outings with children riding all-terrain and utility vehicles and motorcycles along with the adults. The number of OHV clubs has increased putting more demand on agencies to provide recreational areas with trail systems for various vehicle types and all skill levels along with training areas and tot lots.

Hiking occurs throughout both Decision Areas, particularly in the mountain ranges. There are four designated, non-motorized trails within the Monument (Lava Flow, Table Top, Margie's Cove, and Brittlebush all within wilderness areas), and two within the Lower Sonoran (Quartz Peak in the Sierra Estrella Wilderness and Painted Rock Interpretive Trail). Designated non-motorized trails within the Monument and wilderness areas are minimally maintained, primitive, and in average condition.

Camping for social gathering is popular in the Lower Sonoran where the common areas are the Painted Rock Campground and the Gunsight Wash area south of Ajo. Dispersed camping is prevalent in both decision areas, especially during hunting season, while group camping from clubs such as the Boy Scouts is common in the SDNM.

In 1999, an area of public land approximately 10,000 acres in extent and adjacent to the Painted Rocks Petroglyph Site and Campground was closed to camping and off-road vehicle use except for use of designated/signed roads (Federal Register 64(18):4461.) This action also provided for the opportunity to camp continuously at the Painted Rocks Campground from October 1 through April 30, with the camping stay limit reverting to 14 days during May 1 through September 30. This closure and camping stay limit was established to assist BLM in reducing the incidence of unauthorized long-term occupancy on public lands, protect vegetation and soil resources, and eliminate the potential for health hazards associated with indiscriminate dumping of litter and human waste.

The BLM does not have data comparable to camping data, illustrating demand placed on the Decision Areas for recreational target shooting; however, this use has increased dramatically during the past five years. No improved or facilitated target shooting sites are managed by the BLM; most are informal gathering places adjacent to vehicle routes that commonly exhibit shooting damage to dominant vegetation, such as saguaro or trees, rock outcrops, and regulatory or informational signs. Large quantities of litter often are present, including spent shells and target debris, such as broken bottles, cans, wooden pallets, appliances, computers, TVs, cardboard boxes, propane bottles, and abandoned vehicles.

Horseback riding is a relatively minor use within the Decision Areas but has been occurring for many years. Equestrian use occurs on most non-motorized trails except Quartz Peak Trail, which is inaccessible to horses. Most rides have taken place near Gap Well along the Butterfield Stage Route and from camp areas along Vekol Wash.

Generally, recreation settings are remote and access is by unmaintained, primitive roads that require high-clearance, often four-wheel-drive, vehicles. Facilities are small and primitive, recreation use is dispersed over the landscape, and visitors rarely come into contact with BLM staff.

Permitted Uses

In addition to the casual recreational use, BLM issues special recreation permits (SRPs) on a case-by-case basis for a variety of commercial and organized group activities as a means to manage visitor use, and special stipulations can be attached to protect natural and cultural resources, prevent environmental impacts, and avoid conflicts with other uses. Demand for these permitted activities during the past five years has been light. There have been 17 Commercial SRPs issued by the SDNM since October 1, 2006. SRPs have been issued for outfitter-guides, equestrian rides, jeep tours, and Boy Scout encampments. The SDNM currently issues an average of two SRPs per year for equestrian rides and Boy Scout encampments (BLM 2012b; Ragsdale and Scarbrough). The LSFO has issued eight Commercial and two Organized Group SRPs over the past five years.

3.3.4.3 Recreation Use in the SDNM Since 2008

With the exception of a specific prohibition against off-road travel by motor vehicles, Presidential Proclamation 7397 did not refer to the provision and management of recreation and visitor services on the Monument. Nevertheless, since an intrinsic result of such a designation is to encourage visitation, it is expected that curious visitors would be interested in seeing, learning about, and experiencing the natural objects for which the Monument was designated. Since designation, visitation has increased on the Monument, and lack of facilitated recreational opportunities resulted in degradation of certain portions. In June 2008, approximately 54,817 acres adjacent to the North Maricopa Mountains Wilderness were closed to motor vehicles after off-road travel became rampant. Other areas of concentrated visitation include the three wilderness areas incorporated into the Monument, the Juan Bautista de Anza NHT, and areas used extensively for recreational target shooting adjacent to the Monument's northern boundary.

Planning Land Use Allocations

BLM-administered public lands are allocated to recreation management areas (RMAs) based on: recreation demand and issues, recreation setting characteristics, resolving use/user conflicts, compatibility with other resource uses, and resource protection needs. Areas are allocated to two types of administrative units: Special Recreation Management Areas (SRMAs) in which structured recreation opportunities are offered, or to Extensive Recreation Management Areas (ERMAs) in which management is of a custodial nature. Area allocations currently managed for recreation uses are indicated in **Table 3-23**, Recreation Land Use Allocations in the Decision Areas.

Recreation facilities managed by the BLM are available only in the ERMA at Painted Rock Petroglyph Site and Campground and at Quartz Peak Trailhead in the Lower Sonoran. In the SDNM, small, primitive recreation facilities (trailheads) are available in the Gila Trail SRMA adjacent to the North Maricopa Mountains Wilderness, and in the ERMA adjacent to Table Top Wilderness. See **Map 3-23**, Special Recreation Management Areas & BLM Recreation Sites.

Table 3-23
Recreation Land Use Allocations in the Decision Areas

Allocation	Area (acres)	Area (% of Decision Area)	Goals
Lower Sonoran			
Ajo SRMA	175,200	19%	Provide facilities and maintenance; protect resource values; visitor safety
Saddle Mountain SRMA	46,300	5%	Emphasize interpretation of geologic, cultural, and wildlife resources; protect scenic landscapes and vistas; promote recreational opportunities
Sentinel Plain SRMA	20,800	2%	Provide facilities and maintenance; protect resource values; visitor safety
Lower Gila Historic Trail SRMA (part)	137,100	15%	Provide facilities and maintenance; protect resource values; visitor safety
Total	*930,200*	*100%*	
SDNM			

Lower Gila Historic Trail SRMA (part)	143,900	30%	Provide facilities and maintenance; protect resource values; visitor safety
ERMA	342,500	70%	Provide primitive facilities for resource protection, visitor safety, and/or improvements or increase of recreational opportunities
Total	*486,400*	*100%*	

3.3.4.4 Recreation Opportunity Spectrum in Recreation Management Planning

For the past 30 years BLM has used a planning tool known as the Recreation Opportunity Spectrum (ROS) to inventory, classify, and map public lands according to physical and social settings which combine to offer specific types of recreational opportunities. As the name implies, such settings range across a spectrum of opportunities: from natural, low-use areas to highly developed, intensive use areas. The settings are Primitive, Semi-Primitive Non-Motorized, Semi-Primitive Motorized, Roaded Natural, Rural, and Urban. The classes are defined by setting, the types of recreational activities appropriate to that setting, and the types of recreation experience the setting offers to visitors. The primary factor is the setting. It is from these inventories that management decisions are formulated.

Table 3-24, Recreation Opportunity Spectrum Classes of the Decision Areas, displays inventoried ROS classes identified for both Decision Areas. Approximately 87 percent of the area inventoried within the Lower Sonoran was found to be ROS classes that accommodate or emphasize vehicle-dependent, recreational opportunities ranging from semi-primitive motorized to urban. Illustrative of the remote, unmaintained, and dispersed qualities in the Lower Sonoran, 69 percent of the area was found to represent a single ROS class: semi-primitive motorized. Only nine percent of the area inventoried was found to represent non-motorized classes of primitive and semi-primitive non-motorized. These classes occurred in wilderness.

Table 3-24
Inventoried Recreation Opportunity Spectrum Classes of the Decision Areas

ROS Class	Lower Sonoran (acres)	SDNM (acres)
Primitive	10,154	14,951
Semi-primitive non-motorized	71,812	142,391
Semi-primitive motorized	639,117	262,041
Roaded natural	141,067	49,355
Rural	24,919	17,347
Urban	979	0
Public lands not inventoried*	23,694	316
Total	930,200	486,400

*Private and State Trust Land in holdings

3.3.4.5 Barry M. Goldwater Military Range Relinquished Lands

Portions of the Decision Area contiguous with the BGR, Sentinel Plain, and a part of the SDNM were re-conveyed to BLM by the National Defense Authorization Act for Fiscal Year 2000 from the Department of Defense. Due to unique safety concerns posed by previous military training exercises on these lands and federal law, entry is managed through a permitting process that requires visitors to view

a brief safety video and sign a document acknowledging awareness of safety concerns. Combined, the US Air Force, Marine Air Corps, USFWS, and BLM annually issue approximately 9,000 free-access permits to the BGR and adjacent areas, including the SDNM's Sand Tank Mountains and the BLM-administered portions of Sentinel Plain south of Interstate 8. The BLM issues approximately 175 of these free-access permits annually. Commercial and competitive recreational use is limited.

3.3.4.6 SDNM Recreation Site Inventory

From 2003 to 2005, researchers from Northern Arizona University's Geography, Planning, and Recreation Department, determined the extent of recreation impacts to the SDNM with a comprehensive inventory of all recreation sites visible from the vehicle-route network. At each of the 410 sites identified, impacts were assessed for a variety of impact variables and sites were categorized into five levels of relative impact based on the presence of these impacts. Approximate area size of each site was also noted with 276 sites (81 percent) having minimal area disturbance area (less than 1,000 square feet) and 64 sites (19 percent) being larger than 1,000 square feet in size. **Map 3-24**, SDNM Inventoried Recreation Impact Sites depicts all known recreation impact sites. Sites also were categorized as "non-shooting sites" or "shooting sites," based primarily on the presence of shooting-related litter such as spent ammunition casings and clay pigeons (Foti and Chambers 2005). Approximately one-half of the total sites were identified for follow-up monitoring at three-year intervals to determine temporal changes in impacts, with the long-term objective to determine if impacts from recreation activities on SDNM resources were increasing, decreasing, or remaining relatively stable.

3.3.5 TRAVEL MANAGEMENT

3.3.5.1 Regional Travel Routes

Motorized vehicle travel is the dominant form of transportation throughout the Planning Area. The principal highways used to reach public lands in the Planning Area include I-8, I-10, SR 85, and State Route 86 (SR 86). (See **Map 3-25**, Travel Management.) Old US Highway 80 (US 80) is another key secondary highway accessing the Gila Bend Mountains area, and US 60 is the main highway for the BLM East Valley parcels. Maricopa Road/SR 238 is an important secondary highway frequently used to access the Monument.

The main transportation trend affecting the Planning Area is an expected continued increase in demand. Current RMPs governing travel in the SDNM and Lower Sonoran were written in the 1980s and 1990s. The Phoenix metropolitan area has experienced explosive growth since then, and seen considerable expansion of its freeway, arterial, and local street infrastructure. More importantly, from the perspective of public lands surface transportation, population growth has pushed road infrastructure into previously undeveloped areas near the Decision Areas. The number of high-standard, regional roads has increased in recent years to accommodate community growth in Mobile, Vekol Valley, Rainbow Valley, Goodyear, Tonopah, Buckeye, Maricopa, and Gila Bend. Numerous existing roads have been widened and paved, and new roads built throughout the Planning Area. In addition, the Maricopa Association of Governments (MAG), Maricopa and Pinal counties transportation departments, and ADOT all are studying additional freeway, parkway, and arterial connectors throughout the Planning Area. Many of these would bisect public lands.

The introduction of ATVs and other vehicles with the capability to travel into more remote areas has led to increased use of public lands for recreational vehicle use. New routes and extension of existing ones have emerged in the Decision Areas as vehicles with more technical capability (such as rock crawlers) become common. These trends are likely to continue into the future.

Transportation network changes on and around public lands include upgrades to existing roads traversing the Planning Area; new ROWs for freeways, arterials, and streets; access elimination in some areas and expansion in others due to new roads; and increasing demand for motorized vehicle access to public lands as population grows. Changes to the Planning Area road system are detailed in the *MAG's Draft Regional Transportation Plan 2010 Update* (MAG 2010).

The following is a description of planned highway and road projects expected to affect public lands:

Loop 202 (South Mountain Freeway): A new ROW that wraps around the southern and western edges of South Mountain Park will not only allow for easier access to the Lower Sonoran, it will increase demand for recreation and travel on public lands by encouraging residential and commercial development south and west of metro Phoenix's current boundaries.

Loop 303 (Estrella Freeway): A new ROW running west of the White Tank Mountains will connect US 60 to the north with Goodyear to the south, encouraging further urban growth in these areas and speed access. Both of these developments are likely to drive up demand for recreational uses of public lands.

State Route 801 (I-Reliever): New ROW planned to run parallel to I-10 in southwestern part of metropolitan Phoenix could increase the amount of traffic passing near the Lower Sonoran.

CANAMEX Corridor: Segments of I-8 and SR 85 that pass through the SDNM and Lower Sonoran are planned to be part of the CANAMEX Corridor, an international highway designed to promote commerce throughout North America (MAG 2003). The minimum duty rating for the CANAMEX Corridor is a four-lane, divided highway.

Arterial roads: An expansion of the arterial and local street system is expected in the SR 85 corridor between Buckeye and Gila Bend over the next 20 years. Agua Caliente Road, northwest of Gila Bend, is experiencing increased use, and a connection with Harquahala Valley may be requested by Maricopa County in the future. MAG has outlined a plan to expand SR 238 to a four-lane, arterial connector linking the communities of Gila Bend, Mobile, and Maricopa. Similarly, the Gas Pipeline-Komatke Road, linking Mobile to SR 85 and US 80, is planned to become four-lane, arterial connector, along with a one-mile square street grid to be developed in Rainbow Valley south of Buckeye and Goodyear. Although these road expansions would not be limited-access highways, they likely would affect existing, public motorized and non-motorized access to the Lower Sonoran and SDNM in Buckeye Hills East and Rainbow Valley.

3.3.5.2 Motorized Vehicle Access to Public Lands

Motorized vehicle access to each of the major areas within the Planning Area is possible via routes that include primary and secondary highways, improved (though often unmaintained) and primitive roads from adjacent BLM and other federal lands, and county or municipal roads and streets. The existing

collection of access routes includes a limited number of legally established public ROWs and non-public routes. While some of these routes cross state trust or private lands where public vehicle travel is not authorized, access is not physically barred or denied by posted notice. This situation, however, can change at any time, cutting off critical access points for visitors and administrative personnel to reach the Monument.

Legal public access is minimal in several key geographical areas and continued access is dependent on other landowners or jurisdictional agencies. Obtaining legal public access is necessary to ensure future access to the areas. These areas are identified as:

Buckeye Hills West: Currently, the only legal vehicle access to Buckeye Hills West is available from SR 85 at Robbins Butte Wildlife Area, managed by the AGFD, and Buckeye Hills County Park, managed by Maricopa County. On the west side of the area near Gillespie Dam, physical access exists by using a canal road beginning two miles south of public lands, which then connects to the main access road on public lands.

Gila Bend Mountains: Legal access to the southeastern boundary of this area is limited. Citrus Valley Road, formerly a county- maintained road along its length on public lands, provides access except when interrupted by Gila River flows from Painted Rock Reservoir. Access to Citrus Valley Road north of the Gila River is possible from AGFD land accessed from Painted Rock Road and Sisson Road, but the road is in poor condition and crosses private land. The Enterprise Road borders the eastern boundary of the Gila Bend Mountains, but is posted for private use only. While another primitive road exists that would allow access to the area, it traverses the San Lucy Indian Reservation and is gated and locked.

Saddle Mountain: Legal access is available to the northern part of the area from Courthouse Road at several junctions. Access to the south part of the area is available from Dobbins Road and Elliot Road at several junctions as it crosses public lands.

Sentinel Plain: Legal vehicle access to the Sentinel Plain, south of the Union Pacific Railroad, is only available from I-8 at Exit 87, which provides an at-grade public railroad crossing. Exit 78 (I-8) at Spot Road, located about one mile west of the Planning Area boundary, is used to access the Sentinel Plain area from the west. This access route, however, requires the use of a private crossing over the Union Pacific tracks.

SDNM: Currently, most of the public lands within the Monument north of SR 238 are closed to motorized use due to ongoing restoration work. When the area is re-opened, it may be reached from several routes highways, roads, and primitive roads. The area south of SR 238 is accessed from I-8 with limited legal vehicle access provided into the area from the interstate. This area can also be physically accessed from SR 238 under the railroad track at one concrete box culvert and two trestles. The nearest legal crossing of the railroad is 83rd Ave in Mobile several miles away from the Monument, although it involves crossing private and state land.

3.3.5.3 Existing Travel Management Situation in the Decision Areas

There are currently 2,283 miles of motorized vehicle routes and 39 miles of non-motorized trails that cross public lands in the Planning Area. (See **Map 3-24**, SDNM Inventoried Recreation Impact Sites.) Existing RMP decisions have designated public lands in the Lower Sonoran and SDNM as either limited

to existing or designated routes, or closed to vehicle use. There are no open areas for cross-country vehicle use within the Decision Areas. An inventory of existing routes was completed for this planning process (see Non-Motorized Travel under **Section 3.3.5**, Travel Management), which will be used to designate individual routes as open, limited, or closed to vehicle use during travel management planning. Routes within the SDNM will be formally designated in this RMP, and routes within the Lower Sonoran will be designated within 5 years of approval of the ROD.

In the LSFO Decision Area, 1,670 miles of existing routes are currently open for vehicle use and 15 miles are closed. The areas designated as closed include the Signal and Woolsey Peak, and Sierra Estrella Wilderness areas and the Coffee Pot-Batamote ACEC totaling 100,700 acres. Scattered parcels east of Phoenix in the Florence, Miami, and Globe areas have not been inventoried for routes at this time. Inventory in these areas will take place as staff time and resources become available.

In the SDNM, 587.9 miles of existing routes currently are open for vehicle use and 6.6 miles are closed. Hiking and equestrian trails, totaling 37 miles, are designated in the North Maricopa and Table Top mountains. The areas designated as closed include the South and North Maricopa Mountains and Table Top Wildernesses (157,600 acres) and the Vekol Valley Grasslands ACEC (3,500 acres). In all other parts of the Monument, vehicles are limited to existing or designated routes.

Interim Monument management requires that the inventoried route system in SDNM become the interim travel network. There are 971 miles of sand washes, of which 63 were inventoried as being a primitive road.

A temporary emergency closure to restore damaged lands is currently in place in the SDNM. The closure area is located north of SR 238 in the vicinity of the Anza NHT and extends north along the eastern edge of the North Maricopa Wilderness to the Gas Pipeline Road. No vehicle use is permitted on 54,817 acres, including 89 miles of existing primitive roads. This temporary closure began on June 13, 2008 and will remain in effect until the completion of this land use plan.

Visitors are required to obtain an annual safety briefing and access permit prior to entering the Sand Tank Mountain area (Area A). The ongoing access permit program informs visitors about both the military training activities at the BGR, and prohibitions on public travel from the Monument into restricted areas of the military range. Permit requirements include the use of licensed vehicles only within Area A.

3.3.5.4 Non-Motorized Travel

Non-motorized travel includes pedestrian, equestrian, and bicycling activities. Public access to the Decision Areas by pedestrian or equestrian travel, from external areas cross-country, is permissible wherever public use of adjacent lands is legally authorized. A number of non-motorized trails are designated for hiking and equestrian use. Bicycle use is limited to existing or designated vehicle routes, so such use is limited. Pedestrian and equestrian activities are permitted within the wilderness areas in both Decision Areas, while all mechanized modes of travel, including bicycles, are prohibited. Non-motorized, wheeled carriers may be used for cross-country game retrieval anywhere in the Decision Areas, except in wilderness areas where they are prohibited. There has been an increase in demand for non-motorized travel in the Decision Areas as more people move into new developments nearby. Use

of designated trails has grown along with increases in dispersed hiking, backpacking, and equestrian use. Little change in bicycle use has occurred.

In the Lower Sonoran, hiking is permitted in the Sierra Estrella Wilderness, although horse and pack-stock use is not recommended for the steep and narrow three-mile Quartz Peak Trail. A 0.2-mile designated, interpretive trail is available at the Painted Rocks Petroglyph Site. Development of private property and state trust land adjacent to or in the vicinities of the Decision Areas has reduced physical, and possibly legal, access for motorized and non-motorized use. Four existing designated trails are located in the Monument. Two trails, the nearly nine-mile Margie's Cove Trail and the six-mile Brittlebush Trail, are located in the North Maricopa Mountains Wilderness. The other two trails are within Table Top Wilderness. These trails include the 7.25-mile Lava Flow Trail and 3.5-mile Table Top Trail.

Five designated hiking trails were created in wilderness areas following wilderness designation in 1990. No other trails have been developed, although user-created trails have been identified in Saddle Mountain, and are likely to occur in other areas. In the Planning Area, Phase III of the Maricopa County Regional Trail System Plan (Maricopa County 2004) identifies a primary, county trail loop that incorporates Estrella Mountain and Buckeye Hills regional parks, and Phoenix's South Mountain Park. This trail traverses the East Buckeye Hills area. Options to link other parts of the Lower Sonoran or SDNM to the regional trail system have also been identified. Buckeye and Goodyear have identified potential trail corridors within the Decision Areas that could connect to neighborhoods in these cities.

3.3.5.5 Visitor Use and Travel Modes by Geographic Area

Area use by local and destination visitors is not equally distributed across public lands. Some areas are more popular for motorized or non-motorized travel modes. **Table 3-25**, Primary Use and Current Settings for Existing Travel Routes, represents an overview of the geographic areas and a general classification of the primary travelers.

Table 3-25
Primary Use and Current Settings for Existing Travel Routes

Geographic Area	Primary Use and Origin of Visitor and Current Settings
Ajo Block	Primary travelers: Local visitors use four-wheel drive and ATVs to access all areas. Day use is popular for recreational pursuits. Access to adjacent jurisdictions, such as BGR Area B and Cabeza Prieta NWR, is popular seasonally. Current Settings: Local visitors use four-wheel drive and ATVs to access areas. Recreational day use is popular. Most users enjoy informational and route signs and maps. Access to adjacent jurisdictions, such as BGR Area B and Cabeza Prieta NWR, is popular seasonally.

Table 3-25
Primary Use and Current Settings for Existing Travel Routes

Geographic Area	Primary Use and Origin of Visitor and Current Settings
Buckeye Hills and Rainbow Valley	Primary Travelers: In Buckeye Hills local and destination visitors use four-wheel drive, OHVs, horses, bicycles or hike in to access the area. Travelers use existing roads for camping, sightseeing, trail riding, and hunting. In Rainbow Valley, local and destination visitors use four wheel-drive vehicles, primarily to access designated wilderness areas for hunting and sightseeing. Current Settings: In Buckeye Hills, easily accessed areas and routes make day use of trails and areas popular by local visitors. Access points are limited and visitation is relatively low, yielding remote experiences near the city. A mix of motorized vehicle use and non-motorized use is common. In Rainbow Valley, areas near Phoenix and adjacent towns are easily accessed, where interaction with few people is desired. Vehicle access is necessary to reach popular hiking, sightseeing, and hunting destinations.
East Valley and Globe-Miami	Primary Travelers: Local and destination visitors drive passenger cars to access San Tan Regional Park and other easily accessible areas for trail-based, non-motorized travel. Visitors access scattered public lands using four-wheel drive vehicles for non-motorized activities. Local visitors drive four-wheel drive vehicles to access remote backcountry near Globe and Miami. Hunting and camping are primary uses of these areas. Current Settings: Structured, non-motorized travel with informational and trail signs and maps are emphasized at San Tan Regional Park. Other scattered public land parcels exhibit unstructured travel opportunities for non-motorized and motorized uses. In the Globe-Miami area, self-directed experiences are desired by locals, although some existing signing and maps are available. Four-wheel drive is usually required to access popular hunting, recreation, and other interesting sites.
Gila Bend Mountains and Sentinel Plain	Primary travelers: Destination visitors use four-wheel drive, ATV, and motorcycles to access the core area. Hiking and equestrian users visit designated wilderness areas and remote, unroaded areas. Local visitors, generally from Gila Bend, are day users accessing the area by four-wheel drive vehicles, ATVs, and motorcycles. In the northern portion of the Gila Bend Mountain area, including the Fourth of July Wash area, use is increasing by west valley visitors seeking day use and overnight OHV riding experiences. In Sentinel Plain, destination visitors predominately use four-wheel drive for sightseeing, stargazing, and overnight camping. Current Settings: Remote settings for traditional outdoor activities are enjoyed by many visitors. Vehicle access is required due to remoteness. Most visitors are self-directed and require little, if any, support. In the Sentinel Plain area, dark-sky areas are desired with easy access from a major highway or road.
Saddle Mountain	Primary travelers: Local visitors use four-wheel drive and ATVs to access the core area. Hikers primarily visit the area mountains for day use, but also for long-distance touring. Destination visitors drive two-wheel drive and four-wheel drive vehicles for camping, rock hounding, and sightseeing. Current Settings: Easy access for camping and passage through the area for sightseeing is available. Most users require informational and route signs and maps. Experiences are remote and self-directed, with only route signs and entry information kiosks.

Table 3-25
Primary Use and Current Settings for Existing Travel Routes

Geographic Area	Primary Use and Origin of Visitor and Current Settings
SDNM	Primary Travelers: Destination visitors use four-wheel drive vehicles to visit the SDNM. Local visitors access it through Rainbow Valley and adjacent lands near Mobile, using four-wheel drive, ATVs, motorcycles, and horses for sightseeing and trail riding. Current Settings: A temporary closure is in effect, which causes some visitors to seek new areas for camping, exploring, and Monument tourism. Out of town and local visitors receive guidance through signs and maps to visit popular Monument locations, including historic places and scenic areas. Vehicle access is required, yet primary uses are designated wilderness hiking, exploring, hunting, and camping.

3.3.5.6 Data Collection and Analysis for Travel Planning

All routes in the Decision Areas were inventoried on-the-ground using global positioning system technology. Conditions were noted and basic information about each route was gathered, using a statewide standard data dictionary. Later, routes were reviewed by an interdisciplinary team, using a standardized methodology or "route evaluation process," to systematically identify resource concerns, values, and legal requirements associated with each route. This method allowed for the identification of both area-wide and site-specific issues. Each numbered route has a corresponding route report and database entry detailing the findings from the evaluation process (see the detailed, large-scale SDNM Route Designations map on the accompanying CD version of the RMP). This database was used to gather specific details for the impact analysis.

Additional clarity regarding county roads needs to be investigated. County roads, historically, have been inadequately described regarding what is currently maintained and what is claimed as a county highway. This issue affects all counties in the planning area.

After the route evaluation process was completed in 2004, new guidance was issued directing field offices to designate roads and trails as specific types of travel-management assets. Asset types include road, primitive road, and trail and are established by the Roads and Trails Terminology Report issued with IM 2006-173. This guidance was superseded by the Travel and Transportation Manual 1626 in 2011. These definitions are contained in the glossary of terms. Roads under BLM management are maintained to specific standards, while primitive roads are not necessarily compliant with any engineering standards. The asset type primitive road fills the gap between roads and trails. The significance of the guidance for this plan revolves around the prohibition of off-road travel in the SDNM proclamation. The BLM interprets this to mean that travel off designated routes is cross-country travel, which is thus prohibited.

Additional guidance pertinent to the route designations was issued in 2009 as Washington Office guidance, IM 2009-132. Linear features in areas identified as WSAs or lands managed to protect wilderness characteristics will be classified as a Primitive Route.

3.4 SPECIAL DESIGNATIONS

3.4.1 NATIONAL LANDSCAPE CONSERVATION SYSTEM

In June 2000, the BLM responded to growing concern about the loss of open space by creating the National Landscape Conservation System (NLCS). Congress codified the NLCS in 2009 through Public Law 111-11. The NLCS brings into a single system some of the BLM's premier designations. By putting these lands into an organized system, the BLM hopes to increase public awareness of these areas' scientific, cultural, educational, ecological, and other values. Inclusion in the NLCS does not create any new legal protections for these lands, but it does provide field offices with overall guidance and direction for management of the system. Components of the NLCS include public lands that have been specially designated by presidential or congressional action. These designations include national monuments, national conservation areas, wilderness areas, wilderness study areas, wild and scenic rivers, and national historic and scenic trails.

Each type of special designation (presidential and congressional) has been used to establish special management areas on public lands within the Planning Area (see **Table 3-26**, Special Designations Within the Planning Area. Four special designations are located within the Lower Sonoran, including Sierra Estrella, Signal Mountain, and Woolsey Peak wildernesses and Juan Bautista de Anza NHT. Five special designations occur within the SDNM, including the Monument itself; the North Maricopa Mountains, South Maricopa Mountains, and Table Top wildernesses; and Juan Bautista de Anza NHT.

Table 3-26
Special Designations Within the Planning Area

Designation	Decision Area	Size (BLM acres or miles)	Designating Authority	Date Designated
Presidential Designations				
Sonoran Desert National Monument	SDNM	486,600 acres	Presidential Proclamation No. 7397 by President William J. Clinton	2001
Congressional Designations				
North Maricopa Mountains Wilderness	SDNM	63,200 acres	Arizona Desert Wilderness Act of 1990 (Public Law 101-628)	1990
Sierra Estrella Wilderness	LSFO	14,400 acres (excluding 640-acre state inholding)	Arizona Desert Wilderness Act of 1990 (Public Law 101-628)	1990
Signal Mountain Wilderness	LSFO	13,500 acres	Arizona Desert Wilderness Act of 1990 (Public Law 101-628)	1990
South Maricopa Mountains Wilderness	SDNM	60,100 acres	Arizona Desert Wilderness Act of 1990 (Public Law 101-628)	1990
Table Top Wilderness	SDNM	34,400 acres	Arizona Desert Wilderness Act of 1990 (Public Law 101-628)	1990
Woolsey Peak Wilderness	LSFO	64,000 acres	Arizona Desert Wilderness Act of 1990 (Public Law 101-628)	1990
Juan Bautista de Anza NHT	LSFO & SDNM	10 miles (LSFO) 17 miles (SDNM)	Juan Bautista de Anza NHT Act (Public Law 101-365)	1990
Administrative Designations				

Table 3-26
Special Designations Within the Planning Area

Designation	Decision Area	Size (BLM acres or miles)	Designating Authority	Date Designated
Coffee Pot Botanical ACEC	LSFO	8,900 acres	Record of Decision (ROD) for Lower Gila South RMP	1988
Vekol Valley Grasslands ACEC	SDNM	3,500 acres	ROD for Lower Gila South RMP	1988
Fred J. Weiler Green Belt Resource Conservation Area	LSFO	45,978 acres	Public Land Order 1015, Classification of Public Lands for Multiple Use Management, Designation of Fred J. Weiler "Green Belt" Resource Conservation Area	1954, 1967, 1970

3.4.2 CONGRESSIONAL DESIGNATIONS

3.4.2.1 Wilderness Areas

The Decision Areas include six wilderness areas designated by the Arizona Desert Wilderness Act of 1990. These areas total 249,450 acres: 91,750 acres are in the Lower Sonoran and 157,700 acres are in the SDNM.

Each wilderness area has its own management plan (BLM Manual 8560). Management guidance is provided under the Woolsey Peak Wilderness and Signal Mountain Wilderness Management Plan (BLM 2003) and the Maricopa Complex Wilderness Management Plan (BLM 1995) for the North Maricopa Mountains, Sierra Estrella, South Maricopa Mountains, and Table Top Wildernesses.

A five-year evaluation of the Maricopa Complex Wilderness Management Plan, completed in 2005, made the following observations:

- Motorized use of the Maricopa Complex was authorized 91 times, principally for the inspection, maintenance, and redevelopment of rainwater catchments for wildlife, and such authorizations have decreased substantially as the catchments were upgraded. Monitoring for naturalness, solitude, and visitor encounter standards was attempted by several visitor-tracking methods; however, monitoring of standards for vegetation, trail width, and depth, frequency of manure on trails, grazing of vegetation, and plant density was not accomplished as planned. Of the 70 planned 'special project' wilderness management activities, 2 of 18 vehicle routes identified for active reclamation were completed; 23 of 26 planned vehicle barriers were completed; all 6 trail and trailhead development projects were completed; and 9 of 20 'other special projects' were completed, including 4 wildlife water catchment redevelopments. In total, 57 percent of planned 'special projects' were implemented, and largely represented high-priority vehicle and people management projects intended to ensure compliance with the Wilderness Act. … Visitation data indicate that the visitor standards adopted by the Plan have adequately met public expectations. The Plan was amended twice to provide for the use of mechanized equipment for vehicle way

rehabilitation and the capture and removal of desert bighorn sheep for release in other areas of the state (BLM 2005).

- Although unauthorized activities that do not conform to wilderness values (e.g., unauthorized entry by motor vehicles) occur on an occasional basis, the above summary of the five-year plan evaluation indicates that the four wildernesses of the Maricopa Complex (North Maricopa Mountains, Sierra Estrella, South Maricopa Mountains, and Table Top wildernesses) have been successfully managed as envisioned by the Maricopa Complex Wilderness Management Plan (BLM 1995).

- At the time that the Woolsey Peak Wilderness and Signal Mountain Wilderness Management Plan was written (BLM 2003), these two wilderness areas also were meeting all standards envisioned by that plan. No significant threats to wilderness values have been detected by occasional staff field visits to these wilderness areas.

- Recent regional trends in general population growth, public demand for outdoor recreation, emerging conflicts between types of outdoor recreation activities, and impacts resulting from illegal immigration pose the potential for substantial impacts to the wilderness values of the six wilderness areas in the Decision Areas. This is anticipated to be particularly true for impacts resulting from the unauthorized use of motor vehicles in wilderness areas associated with recreation activities and illegal immigration and smuggling.

- Visitation data collected in the Maricopa Complex indicates yearly increases in trailhead visitation; however, visitation remains low in comparison to wilderness areas in closer proximity to urban areas.

3.4.2.2 Juan Bautista de Anza National Historic Trail

The Juan Bautista de Anza NHT is a 1,200-mile historic trail corridor commemorating the 1775–1776 land route that Spanish commander Juan Bautista de Anza took from Mexico through Arizona to California in an effort to establish a mission and presidio on San Francisco Bay. Although historians have researched the diaries and journals of the people that followed this trail in the 18th century, only a few segments can be tied to a specific topographic feature. Although this trail has no known surviving trail signature on the ground, several other historic trails lie within the NHT corridor that crosses through SDNM and in certain segments in the Lower Sonoran, which means portions are considered a multi-component historic trail with associated sites. These historic trails have a trail signature due to the use of wagons and stagecoaches of the mid-nineteenth century. Where this trail signature coincides with the NHT corridor results in a natural fit for identifying and interpreting all of these trails together. While the Anza NHT is a historic trail corridor, the later trails have artifacts, features, and associated historic sites that are more obvious, as well as contain more visible trail signature and corridor area to interpret and protect. Certain segments of the NHT that traverse the Planning Area are considered to be among the best-preserved corridor segments and most representative of the historic trail corridor conditions.

Since the NHT's designation in 1990, Anza friends groups, NPS, other agencies, and the BLM have worked collaboratively to develop and mark segments of the historic trail. The BLM marked a 12.5-mile segment of the trail through the Maricopa Mountains in SDNM during the late 1990s. The vision for the NHT is that the trail will gradually become a long-distance recreational trail that the public can access,

and that some private developers will incorporate the trail and surrounding landscape into their development plans.

The prevailing conditions of the Juan Bautista de Anza NHT through the Lower Sonoran and SDNM have been generally maintained since the NHT's designation in 1990. Current management guidance for the entire length of the NHT is provided by the Comprehensive Management and Use Plan for the Juan Bautista de Anza NHT (NPS 1996). This plan was prepared by the NPS and cooperating agencies, which included the BLM. A Long Range Interpretive Plan for the Juan Bautista de Anza NHT also has been prepared by the NPS (NPS 2003). These plans are still in place and actively form the basis for collaborative implementation of trail segment identification, protection strategies, and interpretive projects.

Designation of the SDNM placed an additional layer of protection upon the NHT segment through the Monument. The NHT and other underlying historic trails (e.g., the Butterfield Overland Stage Route and the Mormon Battalion Trail) are all named Monument Objects and all follow the same corridor.

Threats to the NHT include increasing recreational use, particularly near urban areas, and removal of historic artifacts. These threats were realized in 2008 when the NHT and the access routes leading to it became unacceptably degraded by damage due to improper OHV use. A temporary closure in the fall of 2008 was followed by intensive restoration and repair work to address the excessive damage to the historic trails, vegetation, soils, and historic trail corridor setting.

Over the long-term, there will continue to be the challenge of protecting the trail from visitor over use and unauthorized visitor activities. The dramatic population growth projected for the Phoenix metropolitan area and the urban development expected in the vicinities of various NHT segments in the Planning Area indicates that this challenge will become increasingly complex. The population growth will lead to increased pressure to access the trail for recreational visitation. Moderate to high levels of use are expected over the life of the plan.

In the Planning Area, an additional threat is the loss of opportunity to protect the trail corridor as private and state trust lands are developed. Collaborative projects with Anza NHT friends groups and local communities will be the avenue through which additional pieces of the trail might be certified as official NHT segments. This might involve acquisition of easements and lands by local groups or federal agencies.

3.4.3 ADMINISTRATIVE DESIGNATIONS

3.4.3.1 Fred J. Weiler Green Belt Resource Conservation Area

The Fred J. Weiler Green Belt along the Gila River was established as a resource conservation area in 1970 and allocated for management of wildlife, recreation, and cultural resources. The parts of the green belt that fall within the Planning Area include 45,978 acres of the Gila River channel and floodplain from Sierra Estrella Park on the east to the Planning Area boundary on the west. Approximately 20,000 additional acres fall within the BLM's Yuma Field Office for a total of approximately 63,000 acres in the green belt. Only the acres that fall within the Planning Area will be discussed further in this document. The following description is a brief history of land use within this area.

Within the area now known as the green belt, Public Land Order 1015 withdrew 6,896 acres of land from the Department of the Interior (DOI) to the USFWS in 1954. At this time, the USFWS entered into a cooperative management agreement with the AGFD to manage these withdrawn lands for wildlife, notably waterfowl and migratory birds. These lands were segregated from all forms of appropriation under the public land laws, including the mining laws but not the mineral leasing laws. Grazing and existing withdrawals for power purposes were specifically exempted from the segregation.

In 1967, approximately 63,000 acres in the Gila River floodplain were studied, including the 1015 lands, and it was determined that they would be retained under the Classification for Multiple Use Act of 1964. A classification for multiple use was placed on the subject lands, segregating the 63,000 acres from appropriation under the public land and mining laws. Mineral leasing, however, was not excluded. The multiple-use classification was established to allow for the management of nesting areas for white-winged dove, mourning dove, and songbirds; public recreation; historical significance; and flood and erosion control.

In 1970, the 63,000 acres were designated as the Fred J. Weiler Green Belt Resource Conservation Area. This designation was designed chiefly to draw public attention to the area and explicitly did not change existing land uses. The green belt qualified as a Class VI recreation area under the Bureau of Outdoor Recreation system of classification (the Bureau of Outdoor Recreation has since been incorporated into the National Park Service) due to its Native American habitation sites of "major historic or cultural significance" (43 CFR 2071.2 1971).

3.4.3.2 Areas of Critical Environmental Concern

Coffeepot Botanical

The Coffeepot Botanical ACEC consists of approximately 8,900 acres located in the Ajo Block of the Lower Sonoran. It protects primarily botanical resources. The Sonoran Desert scrub community in this area is diverse and includes more than 285 plant species, many with limited distributions in the US Among these is the Acuña cactus, a candidate for listing under the ESA. Livestock grazing in the Coffee Pot ACEC is limited due to a lack of livestock watering facilities, and no mining activity has occurred in the ACEC.

In general, the Coffeepot Botanical ACEC is meeting the intent of the ACEC, although illegal drug and people smuggling do adversely affect the area. The ACEC is bisected by an improved road used for access to a gas pipeline, making closure impractical; however, the area is less impacted by illegal uses than other border areas and generally remains in good condition.

Vekol Valley Grassland

The Vekol Valley Grassland ACEC consists of approximately 3,500 acres located in the southeastern corner of the SDNM. It consists of mostly valley bottom with creosote bush, mesquite, and 300 acres of remnant tobosa grassland.

A spreader-dike system and watershed fence were built in the late 1940s to reduce soil erosion. Many of the spreader dikes are currently in disrepair, thus leading to localized erosion and reduction in hydrologic function. The dike system also provides valuable resting areas for migrating waterfowl and

shorebirds, and essential breeding habitat for a community of seven species of desert anurans. Mesquite thickets provide nesting and roosting habitat for non-game and small game birds (e.g., dove and quail) and escape cover for mule deer and javelina.

The deep clay/loam soil and grass cover provide a relatively mesic environment for Sonoran green toads (*Bufo retiformis*), green toads (*Bufo debilis*), and Great Plains narrow-mouthed toads (*Gastrophryne olivacea*) (Jones et al. 1983). Toad species with more widespread distribution, such as the Sonoran Desert toads (*Bufo alvarius*) and Couch's spadefoot toads (*Scaphiopus couchii*), are also present. It is rare to find seven anuran species occurring together, and it is the only known occurrence of burrowing tree frogs (*Smilisca fodiens*) on public lands.

Authorized livestock grazing ceased in the Vekol Valley Grassland ACEC in 2008 after the grazing permits expired; however, boundary-fence cutting in the Vekol Valley related to illegal border activities has resulted in trespass-livestock use.

The Vekol Valley Grassland ACEC has been impacted by off-route motor vehicle use and heavy foot and bicycle traffic propagated principally by illegal drug and people smuggling. In general, it is heavily used by drug and people smugglers, which largely negates efforts to close the area to OHV or off-route use, which has remained stable or decreased over the years.

ACEC Evaluations

Appendix V, Areas of Critical Environmental Concern Evaluations, contains the relevance and importance evaluation analysis of areas nominated as ACECs for the Lower Sonoran and SDNM Decision Areas. The evaluations document whether nominations meet the relevance and importance criteria as provided in BLM Manual 1613 "Areas of Critical Environmental Concern." Future management of ACECs would be outlined in a subsequent ACEC management plan.

3.4.4 OTHER SPECIAL DESIGNATIONS

No national conservation areas, national recreation areas, cooperative management and protection areas, outstanding natural areas, forest reserves, wilderness study areas, wild and scenic rivers, byways, national recreation trails, watchable wildlife viewing sites, wild horse and burro ranges, or other special designations exist in the Decision Area.

The Gila River was evaluated for wild and scenic river eligibility and suitability. The portion of the river to the east of the Planning Area (commonly known as the Middle Gila) and other portions to the east were evaluated for suitability in the Final Arizona Statewide Wild and Scenic Rivers Environmental Impact Statement (EIS; 1997). The remaining lengths of the Gila River, approximately from Winkleman to the junction with the Colorado River, were not deemed eligible during the development of BLM resource management plans prepared before 1993 and were not evaluated as part of the EIS. The portion of the Gila River in the Lower Sonoran Planning Area, from the east boundary of the Planning Area to the west boundary of the Planning Area, was re-evaluated in 2005 (BLM, 2005) and determined not to meet the eligibility criteria outlined in **Appendix D**, Wild and Scenic River Eligibility Assessment.

3.5 TRIBAL INTERESTS, PUBLIC SAFETY, AND SOCIAL AND ECONOMIC CONDITIONS

3.5.1 TRIBAL INTERESTS

While tribal interests in the Decision Areas are as diverse and wide-ranging as those of non-Indians, tribes also have special concerns about cultural resources that are part of their tribal heritage.

The frequency of BLM cultural resources consultations with tribal groups has increased considerably over the last decade; however, no extensive inventories of traditional cultural resources have been completed. Assumptions have sometimes been made by federal agencies that all tribal members know significant, traditional cultural information, but, unfortunately, this is not factual. Considerable effort is often required to obtain information about traditions that are fading with the passing of each generation. Collecting such data can be difficult as some traditional cultural information is so confidential that discussing it with non-tribal members is considered inappropriate, and some traditional knowledge is not even widely shared within tribes.

Virtually all tribes are concerned about preserving archaeological sites regarded ancestral and the disturbance of human remains associated with some of them. Some tribal groups continue to collect natural resources, such as plant materials traditionally used for food, medicine, ceremonies, or crafts and are concerned about public lands access to collect such items. The BLM has involved tribes by conducting formal consultations on certain projects and during RMP development efforts.

Several tribes have traditional cultural affiliations with the Planning Area. Formal consultation letters and follow-up telephone calls were used to contact the Ak-Chin Indian Community, Fort McDowell Yavapai Nation, Fort Sill Apache Tribe of Oklahoma, Gila River Indian Community, The Hopi Tribe, Pascua Yaqui Tribe, Salt River Pima-Maricopa Indian Community, San Carlos Apache Tribe, Tohono O'odham Nation, Tonto Apache, White Mountain Apache Tribe, Yavapai-Apache Nation, and Yavapai-Prescott Indian Tribe. More recently, three tribal communities (Fort Mohave Indian Tribe, Fort Yuma-Quechan Tribe, and Colorado River Indian Tribes) were identified for consultations, as well.

Four O'odham (Piman) groups, closely related linguistically and culturally, continue to reside on reservations in the Planning Area. These are the Ak-Chin Indian Community, Gila River Indian Community, Salt River Pima-Maricopa Indian Community, and Tohono O'odham Nation. Spanish explorers encountered these peoples when they entered southern Arizona in the late seventeenth century. These indigenous groups consider themselves descendants of the prehistoric groups who occupied the region.

The Maricopa, an amalgam of groups that traditionally lived along the lower Gila and Colorado rivers, moved up the Gila River in the nineteenth century to live with the O'odham. Other groups living along the lower Colorado River (Cocopah, Quechan, and Mohave) occasionally traveled into the Planning Area.

Consultations with the Yavapai-Prescott Indian Tribe and the Yavapai-Apache Nation indicated that those groups have interests in the traditional territory of the Yavapai, which was primarily north of the Salt and Lower Gila rivers. The Fort McDowell Yavapai Nation's reservation is in the Planning Area's northeastern section. The Fort McDowell Yavapai Nation indicated that they have an interest in the management of public lands near their reservation and would like to acquire public lands available for disposal.

The territories of various Apache groups were primarily east of the Planning Area. The San Carlos Apache Tribe, White Mountain Apache Tribe, Tonto Apache Tribe, and Fort Sill Apache Tribe of Oklahoma were consulted. Proposed developments in areas traditional Apaches regard as sacred have been controversial (e.g., telescope construction on Mount Graham), but no such conflicts have been identified in the Decision Areas.

Traditional histories of some Hopi Tribe clans indicate they came from the south and have traditional cultural affiliations with the prehistoric occupants of southern Arizona. The Hopi have expressed interest in the cultural resources in the entire state of Arizona, including the Planning Area.

The Pascua Yaqui Tribe originated in northwestern Mexico and began to move into the United States about 125 years ago. Communities of Yaquis are found near Tucson where they have a small reservation, as well as a reservation in the Salt River Valley. Consultations with the Pascua Yaqui identified no special concerns.

The Mojave and Quechan peoples' traditional territories were centered primarily on the Colorado River. The Fort Mojave Indian Tribe, Fort Yuma-Quechan Tribe, and Colorado River Indian Tribe are currently located along the Colorado River and its confluence with the Gila River. Places important to these groups include areas along the Gila River, and may extend into the far western portion of the Planning Area.

3.5.2 HAZARDOUS MATERIALS AND PUBLIC SAFETY

Government records document known and recognized sites of reported hazardous materials and wastes. These sites include facilities that handle hazardous materials and, in some cases, produce hazardous wastes. Most of the facilities in the Planning Area successfully manage the use of these products and wastes, but activities at some can contaminate soil, water, and air.

Although many facilities using hazardous materials, housing underground storage tanks, and producing hazardous wastes are located within the Planning Area, no contaminated sites on public lands within the Lower Sonoran or SDNM are privately owned. There is one state-owned site on state property adjacent to the SDNM where millions of discarded tires are stored. The state currently is attempting to remediate the site.

The BLM is assessing hazardous-waste contamination resulting from past mining activities within the Planning Area. As risks to human health and the environment are determined, the BLM will take appropriate action to remove the contamination and remediate, as appropriate and feasible. In addition to hazardous materials and waste risks, other issues affecting public safety are natural and human-made hazards. These hazards include abandoned mines, motor vehicles operated on roads and primitive BLM roads, unsafe target shooting practices, and cross-border smuggling activities. In general, abandoned mine-related public safety trends are static. For other hazards, associated risks may increase over time because more people are visiting and using public lands.

3.5.2.1 Landfills and Wildcat Dumping

Seven active landfills are located within the Planning Area. They include the Butterfield Station Landfill in Mobile; the Southwest Regional Landfill, located east of SR 85 and north of the SDNM; the Salt River-

Pima-Maricopa Indian Community Regional Landfill, located north of SR 87; the Allied Waste Landfill, located in Queen Creek; the Waste Management Seventh Avenue Landfill, located in south Phoenix; the Weinberger Landfill, located in south Phoenix; and a new facility, the SR 85 Landfill, located along the western side of the SDNM within Buckeye's municipal boundaries. There are no landfills located directly within the Decision Areas.

"Wildcat dumping" occurs frequently on public lands and is a significant hazardous and non-hazardous waste issue. This refers to trash left by individuals in areas other than regulated landfills and most commonly occurs near urban-interface areas. Occurrences range in severity and volume, and discarded items include, but are not limited to, construction debris, household trash, appliances, tires, oil and waste fluids, paper goods, and other unwanted items. As the population grows and urban encroachment increases, it is likely this trend also will increase.

Wildcat dumping occurs near the Lower Sonoran's urban-interface (e.g., Ajo, Saddle Mountain, southern Rainbow Valley, Haley, and Buckeye Hills). Wildcat dumping also occurs near the northern part of the Monument near established recreational-use sites, especially along roadways. Many of these sites also are associated with littering by people engaged in recreational activities (Foti and Patterson 2003). Undocumented immigrants and drug smugglers also produce copious amounts of trash concentrated along roads, in staging and pick up/drop off areas, and dispersed throughout the SDNM. Similar smuggling-related problems occur in the Ajo Block and Sentinel Plains.

Another form of waste involves litter from visitors recreating on public lands. Such litter can include target-shooting debris, trash, and human waste, and is found in the highest concentrations at campsites, trailheads, and other high-use areas. Incidences of littering from recreational users have increased, with further increases likely.

3.5.2.2 Active and Abandoned Mines

Abandoned mines are found throughout the Lower Sonoran and SDNM. Data gathered by the Office of the Arizona State Mine Inspector in the early 1990s and the Bureau of Mines in 1995 show that more than 180 active and abandoned mines are located in the Decision Areas. Five abandoned mines have been found within the Ajo Block and at least eight in the Sand Tank Mountains (Arizona State Department of Mineral Resources 1979).

Mining activities may have historically included the use or presence of mercury, cyanide, arsenic, acids, and/or base metals as a component of the ore being mined. Another source of contamination sometimes occurs when hazardous materials are dumped into old mine shafts. In addition, mine tailings located at active and closed mine sites pose potential hazardous effects, including leaching of chemicals into the soil and/or groundwater and airborne hazardous wastes.

Visitors often find abandoned mines and prospects attractive to explore, but entering abandoned mining sites may expose them to hazards including open and unstable shafts, adits, drifts, pits, tailings piles, wells, or other excavations; dilapidated and unstable buildings or other structures; collapsed buildings or other structures; mining implements or construction debris; and the presence of hazardous or toxic materials. Injury can occur when entering or exploring features at abandoned mining sites. No specific data documents the extent to which this recreational activity is pursued within the Decision Areas.

While hazardous situations are corrected when found, there are numerous historical mines in the Decision Areas not thoroughly investigated or documented. The BLM is researching and ranking the human health and safety risks from known abandoned mine sites in order to develop long-term reclamation, remediation, and restoration projects.

The BLM has developed an inventory of high-risk, abandoned mine lands to prioritize funding requests for the restoration and reclamation of these sites. Over time, these actions are expected to decrease their numbers, thus decreasing both the hazardous waste and public safety risks.

3.5.2.3 Military Operations and Unexploded Ordnance

The Sand Tank Mountains and Sentinel Plain are adjacent to aviation weapon ranges in the BGR used to train military aircrews in the delivery of air-to-ground bombs, rockets, missiles, and gunnery. Unexploded ordnance refers to military munitions that have been prepared for action and remain unexploded by either malfunction, design, or any other cause. Entry into the range is prohibited because of ongoing military operations; however, signs and fences typically are inadequate or absent. Visitors to the Sand Tank Mountains area of the SDNM are required to obtain an annual BGR visitor permit, which includes an explanation of the risks of unexploded ordnance and guidance on avoiding them, as well as a warning not to enter the active training range.

Known and potential unexploded ordnance contamination exists in and around the Sand Tank Mountains (formerly known as Area A) and the Sentinel Plain due to the longtime inclusion of these areas in the BGR. Unexploded ordnance also possesses a potential chemical hazard due to explosive, pyrotechnic, propellant, and incendiary components (US Army Corps of Engineers 1995).

Most of the fired and detonated munitions are eliminated during clearances; however, some likely remain. Also undetermined is the extent to which chemical byproducts produced by the firing and/or detonation of munitions are present in the area. Studies suggest that, while possible, contamination from these byproducts is unlikely (US Army Corps of Engineers 1995; US Air Force 1996, 1997). Unexploded ordnance represents an immediate public safety hazard. Unspent munitions may be located on the ground's surface or buried beneath due to the momentum of impact. In addition, recent studies on the Sentinel Plain have identified large numbers of parachute flares, and such flares are continuing to drop into the area from military activities. The BLM and the Air Force will continue to work together to identify other procedures, such as required visitor entry permits, to protect the public from such hazards.

The BGR has removed and cleaned up unexploded ordnance in the Sand Tank Mountains and is inventorying lands formerly part of the BGR in the Sentinel Plain area. When addressing unexploded ordnance elsewhere in the Decision Areas, the BLM works closely with the US Army Corps of Engineers to monitor the remediation of unexploded ordnance sites. As a cooperating agency, the BLM participates in regular discussions with the Corps.

3.5.2.4 Recreational Target Shooting

Shooting activities including "target shooting," "shooting practice," "plinking," "sporting clays," "skeet," and "sighting-in" have been occurring in the Decisions Areas since firearms were introduced to the region. Target shooting commonly occurs on lands at the edge of private property, on the outskirts of

communities, or in remote areas offering unstructured settings. Such settings are attractive because they accommodate a typically desired experience, and the participant is free to shoot whatever firearm is available in whatever manner desired, usually without fear of harming or interfering with the interests of other people.

With the population growth and subsequent urbanization of the American West in the 21st Century, the edges of property have become closer, the outskirts of communities more crowded, remote areas fewer, shooting closures more common, and "downrange" target sites both larger and more numerous. Target shooters are being pushed farther out from metropolitan areas seeking lands (private, state, and federal) for target shooting. Urban growth and development have made it increasingly difficult for target shooters to find unstructured areas without affecting other users or natural resources. It is harder yet to find settings that can absorb continued deposition of destroyed and abandoned targets without becoming eyesores with an associated and perhaps an irretrievable loss of natural or heritage resources, Monument objects, and wildlife habitat.

Challenges for management of recreational shooting are clearly related to increased urbanization adjacent to public lands, the need for public safety, and the protection of Monument objects and natural resources. In and of itself, larger populations bring higher percentages of irresponsible people to these public landscapes. Commonly, other recreational visitors are displaced when target shooters occupy an area. Initially, this displacement is a result of the sights and sounds of shooting; later the lands are too littered and denuded to attract visitors seeking a non-shooting recreation experience.

Increasingly, Arizona's broad public demand for places to shoot is being shifted to public lands managed by the BLM. Continued demographic changes in Arizona are straining the limits of where and how recreational target shooting can be accommodated. For example, the Arizona State Lands Department has closed all their lands to all target shooting, the Tonto National Forest has closed 80,000 acres of USFS lands in the Phoenix proximity to shooting, and various Phoenix communities do not or no longer allow target shooting within incorporated limits.

Arizona's BLM recreation management staff was internally canvassed to identify issues arising from recreational shooting activities (BLM 2007). At that time, staff noted the following, which are in order of priority:

- A concern for the health and safety of visitors engaged in non-shooting activities and residents adjacent to public lands.
- Accumulation of abandoned household refuse used as targets, causing spending for regular cleanups in the Lower Sonoran and SDNM. Such cleanups drain fiscal, labor, and volunteer resources and supplant other program priorities.
- The gradual degradation or destruction of natural resources, such as intentional shooting of saguaro cactus, and Monument objects in protected landscapes, such as the SDNM.
- Vandalism to SDNM and Monument signage and structures, from the use of signage for targets and "drive-by" shotgunning to damage to remote infrastructure such as restroom doors and slump block walls being shot through.

- Damage to natural resources or Monument objects downrange of target sites, such as visible depletion of plant cover over time on slopes, delimbing of downrange trees, damage to trees or saguaros used to hang targets, and permanent pockmarking of rock outcrops due to gunfire.

The extent of recreation impacts to the SDNM were analyzed during a comprehensive inventory of all recreation sites visible from the vehicle route network (Foti and Chambers, 2005). Site impacts were assessed for a variety of impact variables and categorized as "non-shooting sites" or "shooting sites," based primarily on the presence of shooting-related litter such as spent ammunition casings and clay pigeons.

The inventory identified 243 recreation sites predominantly used for activities other than target shooting and 63 sites predominantly used for target shooting. Impacts at the two types of sites were analyzed to determine if significant differences existed between non-shooting and shooting sites with respect to management of Monument objects and natural resources. The major types of impacts relevant to this analysis were defined as follows: (1) damage to saguaro cactus, (2) damage to rock formations, (3) damage to trees, (4) damage to shrubs, (5) presence of litter, (6) presence of off-road vehicle impacts, and (7) number of 400 square foot barren cores. Every recreational target-shooting site had damage to one or more of these seven impact elements, while such impacts were significantly less prevalent at non-shooting sites.

Since designation of the SDNM in 2001, impacts from recreational target shooting have increasingly become a management concern. Such impacts commonly include damage to protected plants, particularly saguaro; areas denuded of vegetation, both at sites from which shooting occurs and at target areas; and accumulation of debris used as targets, such as discarded appliances, propane bottles, glassware, furniture, automobile tires, paint cans, computers, TV and video displays, plywood, sheet metal, insulation form cans, and numerous other types of trash.

Computer displays and electronics can be full of lead and other toxic materials. The safety of other visitors, particularly with regard to inadequate backstops, is a concern as well. Recreational target shooting is dispersed throughout the SDNM; however, the activity is concentrated at locations adjacent to its northern boundary along the El Paso Natural Gas Company pipeline road and smaller sites adjacent to SR 238 and Vekol Valley Road. During October-November 2008, the BLM removed 12,000 pounds of debris from recreational target shooting sites adjacent to the northern boundary of the Monument.

Field observations by resource managers and law enforcement officers indicate target-shooting activities have become increasingly popular, especially near the growing fronts of the greater Phoenix metropolitan area, even in summer (Hanson and Mahoney 2010). New and more powerful firearms used by target shooters may increase the public safety risk due to the distance that bullets can travel. In addition, more frequent and widely spread recreational use of automatic weapons has also been noted. Although there have been no reported incidents of specific harm to people, these activities remain largely unregulated and pose potential public safety risks.

Further discussion of target shooting on the SDNM can be found in **Section 3.3.4**, Recreation Management, and in **Appendix G**, Sonoran Desert National Monument Recreational Target Shooting Analysis. From a hazardous materials standpoint, popular recreational-shooting sites may have minor

potential for lead contamination in the soils derived from spent bullets. Recreational shooting tends to be less frequent and more widely dispersed than on an established shooting range where lead levels can exceed regulatory guidelines and cause potential impacts to humans and wildlife. In addition, based on the composition of the hard, rocky soil of the Sonoran Desert, it is unlikely that much of the lead has penetrated the surface (US Air Force et al. 2003).

3.5.2.5 Motor Vehicle Operations

Hazardous wastes associated with motor-vehicle operations are generally limited to vehicle abandonment and spills of oil and other fluids. While historically a small concern on public lands, rock-crawling activities dramatically increase the risks of oil/fluid spills, often in sensitive washes where waste movement via water flow is more likely. In addition, dumping and burning vehicles is a common occurrence on public lands, leaving various hazardous wastes.

Safety issues associated with the use of paved public highways, unpaved backcountry roads, and off-road areas may have implications for the management of or access to public lands. Available data indicate that the highest numbers of accidents on public highways and roads in the Decision Areas occur on I-8, SR 85, and SR 238/Maricopa Road. The lack of entrance or exit ramps or crossovers to support safe traffic interchanges on I-8 and SR 85 indicates that there is at least some elevated public safety risk associated with accessing public lands from these roads. Excessive speed is the most common contributor to accidents on major roadways traversing public lands.

Four-wheel drive, ATV, and dirt bike use is common in the Decision Areas, and BLM law-enforcement officers report that accidents among such users are a safety issue, although no data quantifying the extent of such accidents in the Decision Areas are available. While vehicles are required to stay on roads, illegal off-road travel does occur and increases user risk.

Regional population growth and increased awareness of public lands for recreational activities has and will continue to provide more opportunities for transportation-based recreation in the Decision Areas. As a result, dumping and burning of vehicles, abandonment associated with illegal border activities, and use, particularly associated with rock crawling activities, increases the likelihood of small hazardous spills and wastes. Use of ATVs and other recreational vehicles has increased, proportionately, increasing the risk to public safety. This trend is expected to continue as population growth increases.

3.5.2.6 Other Permitted Uses

Utility maintenance, livestock grazing operations, and other permitted uses appear to present minimal risk to visitors on public lands, but potentially could influence public safety. Mishaps could result from collisions between livestock and vehicles, increased travel by large maintenance vehicles, or encounters with agitated livestock. Visitor mishaps could also occur at utility sites (e.g., communication or utility line towers) or range improvements (e.g., stock ponds, fences, or wells). No known hazardous conditions associated with other permitted uses within the Decision Areas have been identified.

3.5.2.7 Illegal Drug Production

Due to the remote nature of the Decision Areas, illegal drug production occurs across public lands. While occurrences of these activities are rare, it is a major problem when they are discovered.

Byproducts from these illegal drug labs can include lye, acetone, red phosphorous, iodine crystals, ephedrine, and other chemicals. In addition, the perpetrators sometimes abandon or bury their supplies, including glassware and utensils. Materials left on site can present a public safety hazard to visitors and employees, as well as impact natural resources. When encountered, these areas typically are cleared by a BLM contractor hired for solid-waste cleanup (Kershaw 2003).

While the BLM does not have trend information regarding illegal drug production, the potential exists for illegal laboratories to be established on public lands, most often in washes and other low-lying areas and within abandoned mines. Specifically, production of illegal drugs has been noted in 2005 and 2006 in areas with abandoned mines. The vast expanse of remote desert lands with access through dry washes and off-road trails provides opportunities for such uses.

Within the SDNM, production of illegal drugs, including methamphetamine, has seen an increase near SR 238. Waste from the production of this drug especially presents health hazards through exposure and physical danger to visitors and BLM staff. There is a high risk of explosive combustion in methamphetamine labs when materials are exposed to normal atmospheric pressure. An increase in dumping of materials related to drug production was noted during late spring 2009 near SR 238 and Tijeras Road. Field observations suggest that it is now spreading to other BLM parcels within the vicinity of SR 238 and the Gas Pipeline road.

3.5.2.8 Drug Smuggling and Undocumented Immigrant Traffic

Illegal immigration and drug smuggling continue to be issues on public lands in the southwestern border of the United States with Mexico. Illegal activities affect public lands within 100 miles of the international boundary in the Lower Sonoran and SDNM.

The BLM collaborates with DOI agencies and state, tribal, and local governments to resolve issues caused by illegal borderland activities. Partnership efforts include:

- Coordinating with the Department of Homeland Security to provide needed support and coordination for deployment of border security infrastructure
- Providing a leadership role in the mitigation of environmental impacts caused by illegal immigration and smuggling
- Strengthening communication and intelligence sharing with other law enforcement agencies, particularly the US Border Patrol, and
- Sharing funding with partner agencies, tribes, and organizations who manage lands within 100 miles of the US-Mexico border

Between FY 2003 and 2010, the BLM allocated $7 million toward these borderlands mitigation efforts, including the removal of trash, waste, and abandoned vehicles; road and trail restoration; and repair of damaged landscapes. Volunteer organizations participate in these critical efforts to remediate and restore public lands.

Border security for BLM employees and visitors continues to be a challenge. Escalation of drug-smuggling activities has created concerns for both the Lower Sonoran and SDNM. The BLM has posted travel caution signs, increased interactions with visitors, and is providing additional information at public access points and on websites.

Various areas of the Lower Sonoran and SDNM are used as travel routes by drug and UDA smugglers and independent parties of UDAs. Regular use by human and drug smuggling traffickers has become apparent over the last decade, with summertime lulls; however, over the past two years, traffic has been intense year-round with no respite during the heat of summer.

The most heavily traveled routes for smuggler and UDA traffic are in the SDNM south of I-8, where traffic is widespread and heavy. The Ajo Block and Sentinel Plain areas also have received smuggler and UDA traffic. Law-enforcement activity in the Decision Areas typically include the recovery of stolen vehicles abandoned by or confiscated from smugglers, recovery of weapons, drug interdictions involving the seizure of illegal drugs, and the apprehension of UDAs (Hanson 2010).

Law enforcement officers report that smugglers are often armed (Brasington 2010). Additionally, UDAs are themselves very much at risk from exhaustion and exposure to the elements as they attempt to walk considerable distances to reach pick-up points along I-8, SR 238, or other locations. The increased risk to the UDAs lives and health, from climatic exposure and other environmental hazards of the Decision Areas, has been clearly demonstrated by the number of people dying trying to cross the Sonoran Desert in recent years.

Smuggler and UDA traffic through the Decision Areas has increased within the last decade, while traffic in other regional areas has declined. This trend is due to the Decision Area's proximity to the United States/Mexico border (Brasington 2010), remote unpopulated terrain, and strong interdiction efforts elsewhere, such as in California, New Mexico, and other parts of Arizona. Increases in illegal and armed cross-border trafficking, coupled with increases in public visitation to these areas, intensifies related public safety concerns.

3.5.2.9 Wildfires and Fire Management

Wildfires endanger people and property. Normally, the vegetative cover in the Decision Areas is too sparse to carry wildland fires effectively or to generate fires with sufficient heat to be self-propagating. Over the past decade, however, a long drought coupled with a few exceptionally wet winters made atypical moderate to large wildland fires more common. There have been two moderately sized fires in the SDNM since establishment in 2001, and one extremely large fire on the adjacent BGR. The potential for large fires may increase if fire adaptable invasive weeds make further intrusions into the two Decision Areas. Additionally, changes in the ecosystems, due to invasive species and long-term drought, may also increase the likelihood of fire, resulting in larger areas being burnt, and thus more risks to the public.

3.5.3 SOCIAL AND ECONOMIC CONDITIONS

This section provides information on the social and economic conditions of the Planning Area, particularly as it relates to resource issues addressed in the current planning effort. Management

decisions, specifically those relating to energy and minerals, grazing, recreation, and lands and realty, have the potential to affect social and economic conditions of communities and individuals, negatively or positively.

This socioeconomic assessment considers the national, regional, and local levels identified below:

- United States: provides a baseline for comparison of national trends,
- State of Arizona: provides an indication of statewide trends,
- Tri-county region (Maricopa, Pima, and Pinal counties): provides an overview of the counties that encompass the majority of Planning Area. In addition, a small portion of the northeastern-most section of the Planning Area is located in Gila County.
- Local communities (Arlington, Buckeye, Gila Bend, Goodyear, Mobile, Palo Verde, Tolleson, Tonopah, Casa Grande, Florence, Maricopa, Stanfield, Ajo, Why, Globe, and Miami): provides specific information on communities located near the Decision Areas.

Indicators of the social and economic environment include population and demographic data represented by population size, density, and growth; income levels; employment rates; ROWs and other realty use of public lands; and attractiveness.

Four dominant social and economic trends in the socioeconomic study area include:

- Rapid population growth (though the rate of growth has slowed or even stopped since 2008);
- A decline in natural resource-based, extractive industries between the 1970s and 1980s and an increase in high-tech, knowledge-intensive services since the 1990s;
- Retirement as an increasingly important source of non-labor income in the local economy; and
- A higher intensity of changes in employment and income trends in small, rural communities compared to larger urban areas.

3.5.3.1 Demographics

Population Growth

While the population of the United States increased by 23 percent from 1990 to 2009, the population in the tri-county region had an 84.5 percent increase (Sonoran Institute 2012). In this period, Maricopa County increased by 88.7 percent, Pinal County increased by 192 percent, and Pima County increased by 52.5 percent.

Based on the 2010 Census, the population of the tri-county region was nearly 5.2 million or 80 percent of the population of Arizona. The highest population, with nearly 4 million, is located in in Maricopa

County. Between 2000 and 2010, the tri-county region's population grew by approximately 1,046,000 people.

Local population estimates, available for incorporated cities and towns, indicate that the City of Maricopa had the fastest growth rate of any city or town in the state between 2000 and 2005, while Buckeye and Goodyear had growth rates ranked sixth and seventh, respectively. Some communities showed extremely slow population growth, such as the Gila County communities of Globe and Miami. Population estimates and trends for communities near public lands in the Planning Area or influenced by public land management are shown in **Table 3-27**, Population Growth 2000 to 2010 - Local Communities.

The most densely populated portion of the Planning Area is its northern edge, from Phoenix west to Goodyear and from South Phoenix east nearly to the Maricopa County border. Portions of Phoenix and other cities are close to "build-out" and have urban densities of about 2,500 people per square mile. Nearby suburban areas are less densely populated (ranging down to about 1,000 people per square mile), with larger residential lot sizes and more pockets of vacant land.

Table 3-27
Population Growth 2000 to 2010 - Local Communities

Geographic Area	Population		Percent Change 2000-2010
	2000	2010	
Maricopa County			
Arlington	NA	194	26.63%
Buckeye	8,497	50,876	499 %
Gila Bend	1,980	1,922	-2.9%
Goodyear	18,911	65,275	250%
Tolleson	4,974	6,545	31.6%
Tonopah	NA	60	NA
Pinal County			
Case Grande	25,224	48,571	92.6%
Florence	17,054	25,536	49.7%
Maricopa City	1,482	43,482	2834%
Stanfield	651	740	13.7%
Pima County			
Ajo	3,705	3,304	-10.8%
Why	116	167	44.0%
Gila County			
Globe	7,486	7,532	0.6%
Miami	1,936	1,837	-5.1%

Source: US Census Bureau 2010
NA: data not available

Based on 2010 census data, the population density in the three counties varies significantly, from 415 people per square mile in Maricopa County to 70 in Pinal County (see **Table 3-28**, Selected 2010 Demographic Information). Maricopa County's population density is more than seven times that of the State's, while Pima County's population is nearly twice as dense as the state's, while Pinal County's population is about the same as the state.

These numbers are indicative of the focus of the three counties, with Maricopa County being strongly metropolitan and Pinal County being rural in many areas (US Census Bureau 2010a; Arizona Department of Commerce 2003b). Overall, each of the three counties has a much lower density than the urban centers due to large, undeveloped areas that are largely comprised of BLM-administered and other federal lands as well as state trust lands within their borders.

The city of Maricopa in Pinal County and the Rainbow Valley area of Maricopa County border the Decision Areas. Both have privately owned land available for development. The collapse in the Arizona housing market and the nationwide recession have slowed growth in these areas since 2007. It should be noted that population projections are not included in this discussion as projections currently available are based on 2006 baseline data and are acknowledged to be outdated. Projections are currently undergoing revision (Arizona Department of Administration 2012).

Table 3-28
Selected 2010 Demographic Information

Demographic Category	Geographic Area			
	Maricopa County	Pima County	Pinal County	Arizona
Total Population	3,817,117	980,263	375,770	6,392,017
Area (square miles)	9,203	9,186	5,370	113,635
People per Square Mile	415	107	70	56
Median Age	34.6	37.7	35.3	35.9
Sex				
Male	1,888,465	481,437	197,165	3,175,823
Female	1,928,652	498,826	178,605	3,216,194
Race and Ethnicity*	Number/Percent	Number/Percent	Number/Percent	Number/Percent
White	2,786,781/ 73.0 %	728,751/ 74.3 %	272,013/ 72.4%	4,667,121 / 73%
Black or African American	190,519/ 5.0%	34,674/ 3.5%	17,215 / 4.6%	259,008 / 4.1%
American Indian/Alaskan Native	78,329/ 2.1 %	32,605/ 3.3%	20,949 / 5.6%	296,529 / 4.6%
Asian	132,225/ 3.5%	25,731 / 2.6%	6,492 / 1.7 %	176,695 / 2.8%
Native Hawaiian/Pacific Islander	7,790/ 0.2%	1,624 / 0.2%	1,565 / 0.4%	12,648 / 0.2%
Hispanic or Latino of any Race	1,128,741/ 29.6%	338,802 / 34.6 %	106,977 / 28.5 %	1,895,149 / 29.6%

Source: US Census Bureau 2010

*Hispanic or Latino heritage includes people of all races, so percentages will not tally to 100 percent.

Population Composition

There are slight differences in racial distribution among the counties, primarily in the form of differences in the proportion of American Indians due to the locations of American Indian reservations. Further discussion of the Planning Area racial and ethnic profile is discussed in **Section 3.5.3.4**, Environmental Justice. Individuals who are foreign born represented approximately 13.4 percent of the total population in Arizona in 2010, while 20 percent of the population in Phoenix was foreign-born (US Census Bureau 2010a).

3.5.3.2 Employment, Income, and Subsistence

The economy, in general, is shifting away from reliance on natural resources, as indicated in the decrease in the proportion of employment in the agriculture, forestry, fisheries, and mining industries. In the tri-county region, declines in the mining industry dominate this trend.

Employment

There have been shifts in the dominant employment sectors over the past decades. The services and professional sector has grown faster than other sectors. From 1998 to 2009, services related jobs in the tri-county region grew by 26.9 percent. Over the same period, non-services related jobs shrank by 19.3 percent. (Sonoran Institute 2012). Key employment figures for each county in the tri-county region are presented in **Table 3-29**, Key Employment Statistics: Changes from 2001 to 2009, Tri-County Region. Overall, key employment figures indicate a slowdown in employment gains in the tri-county region for the period between 2000 and 2009, reflecting the national economic downturn.

Table 3-29
Key Employment Statistics: Changes from 2001 to 2009, Tri-County Region

Geographic Area		Total Employment		
		Total Private Employment	Non Services	Services and Professional
Maricopa County	2001	1,915,692	3,824	978,147
	% of Total	**100.0%**	**0.2%**	**51.1%**
	2009	1,451,987	207,327	1,244,651
	% of Total	**100.0%**	**0.1%**	**85.7%**
Pima County	2001	444,468	499	218,400
	% of Total	**100.0%**	**0. 1%**	**49. 1%**
	2009	528,850	373	284,136
	% of Total	**100.0%**	**0.1%**	**53.7%**
Pinal County	2001	52,216	972	15,948
	% of Total	**100.0%**	**1.9%**	**30.5%**
	2009	70,663	710	26,760
	% of Total	**100%**	**1.0%**	**37.9%**

Table 3-29
Key Employment Statistics: Changes from 2001 to 2009, Tri-County Region

Geographic Area		Total Employment		
		Total Private Employment	Non Services	Services and Professional

Source: Sonoran Institute 2012

In the tri-county region, and in each individual county and the state, unemployment increased each decennial period between 1970 and 1990 and more dramatically between 2005 and 2011 (Sonoran Institute 2003a; Arizona Office of Employment and Population Statistics 2012). However, unemployment rates in Maricopa and Pima counties have generally been at or lower than the state national rates since 2000, while unemployment rates in Pinal County have remained consistently higher than that of the state and nation (see **Table 3-30**, Unemployment Rates, Annual Averages 2000-2011). Typically, Pinal County has had the highest unemployment rates. There are rural areas far from employment centers in all three counties with chronically high unemployment rates.

Table 3-30
Unemployment Rates, Annual Averages 2000-2011*

Geographic Area	2000	2005	2010	2011
USA	4.50%	5.07%	10.06%	9.80%
Arizona	4.20%	4.70%	10.60%	10.00%
Maricopa County	3.50%	4.20%	9.90%	9.10%
Pima County	4.20%	4.40%	9.80%	9.20%
Pinal County	5.50%	5.60%	13.10%	12.00%

*Not seasonally adjusted.
Source: Arizona Office of Employment and Population Statistics 2012

Income

In 2009, per-capita incomes for Maricopa and Pima Counties were similar to that for the statewide average while Pinal was lower than the state average (see **Table 3-31**, Per Capita Income: Changes from 2001 to 2009, Tri-County Region). The per capita income, adjusted for inflation, has risen in each county in the tri-county region since 1970. Between 1970 and 2009, the increase in personal income for all three counties (360 to 580 percent) was substantially higher than the US average (180 percent) (Sonoran Institute 2012).

Table 3-31
Per Capita Income: Changes from 2001 to 2009, Tri-County Region

Per Capita Total Personal Income	Maricopa	Pima	Pinal	Arizona
2000	29,571	24,845	17,598	26,262
2009	35,319	33,833	24,225	33,207
% change	19.4%	36.2%	37.7%	26.4%

SOURCE: Bureau of Economic Analysis 2012. Table CA13

In 2009, non-labor income constituted 36.4 percent of total personal income in the tri-county region as compared to an average of 35.5 percent in the US. Non-labor income accounted for 34.1 percent of total personal income in Maricopa County, 44.7 percent of income in Pima County and 40.4 percent of personal income in Pinal County. Non-labor income includes transfer payments (primarily related to retirement) and dividends, interest, and rent (money earned from past investments) (see **Table 3-32**, Non-Labor Share of Total Personal Income, 2009 (Thousands of 2010 $s)). High levels of non-labor income have important implications for the management of public lands because much of the income in this sector is brought in by individuals who are not tied to a specific job or industry and have flexibility in where they choose to live. Examples of people contributing this type of income include retirees and second- and vacation-home owners.

Table 3-32
Non-Labor Share of Total Personal Income, 2009 (Thousands of 2010 $s)

	Maricopa County	Pima County	Pinal County	Tri-County Region	US
Total Personal Income ($1000)	144,421,921	35,082,493	8,395,359	187,899,773	12,367,718,840
Non-Labor Income	49,279,373	15,696,637	3,394,484	68,370,495	4,395,767,376
Dividends, Interest, & Rent	25,275,228	7,912,188	1,143,563	34,330,979	2,228,924,544
Transfer Payments	24,004,145	7,784,449	2,250,921	34,039,516	2,166,842,832
Labor Earnings	95,142,547	19,385,856	5,000,875	119,529,278	7,971,951,464
Percent of Total					
Non-Labor Income	34.1%	44.7%	40.4%	36.4%	35.5%
Dividends, Interest, & Rent	17.5%	22.6%	13.6%	18.3%	18.0%
Transfer Payments	16.6%	22.2%	26.8%	18.1%	17.5%
Labor Earnings	65.9%	55.3%	59.6%	63.6%	64.5%

SOURCE: Sonoran Institute 2012
Non-labor income and Labor earnings may not add to total personal income because of adjustments made by the Bureau of Economic Analysis to account for contributions for social security, cross-county commuting, and other factors.

These groups tend to be attracted to areas with natural and scenic resources and the presence of public lands, which offer recreational opportunities and a desirable setting in which to live. In 1970, non-labor income represented 26 percent of total personal income in the tri-county region, and by 2009, non-labor income had increased to 36.4 percent of total personal income (Sonoran Institute 2012).

As noted in **Table 3-32**, above, the tri-county area relies heavily on service industry jobs. Farming, mining, and other jobs related to natural resource use were of historical importance but now account for a relatively low percentage of jobs and income in the area. For example, in 2009, farm employment accounted for 0.03 to 3.4 percent of total employment in Planning Area counties. This is particularly true for urban areas in all counties and in Maricopa County. A larger reliance on natural resource jobs is observed in Pinal county and be found at a local community level in all Counties, notably in areas such as Globe-Miami where large copper extraction operations are still present. Total full- and part-time workers employed and total income by industry are shown in **Table 3-33**, Study Area Employment Characteristics 2001 and 2009 Jobs by Industry and in **Table 3-34**, Study Area Employment Characteristics 2001 and 2009 Income by Industry.

Table 3-33
Study Area Employment Characteristics 2001 and 2009
Jobs by Industry (and Percent of Total Jobs)

	Statewide & County Employment Totals							
	Arizona		Maricopa		Pima		Pinal	
Industry	2001	2009	2001	2009	2001	2009	2001	2009
Total employment	2,823,452	3,217,666	1,896,642	2,148,540	439,795	495,669	51,477	68,596
	100.0%	**100.0%**	**100.0%**	**100.0%**	**100.0%**	**100.0%**	**100.0%**	**100.0%**
Farm employment	22,274	27,095	8,437	6,636	1,192	1,076	2,348	2,336
	0.8%	**0.8%**	**0.4%**	**0.3%**	**0.3%**	**0.2%**	**4.6%**	**3.4%**
Forestry, fishing, and related activities	18,058	15,011	2,864	2,774	410	424	682	504
	0.6%	**0.5%**	**0.2%**	**0.1%**	**0.1%**	**0.1%**	**1.3%**	**0.7%**
Mining	12,852	19,443	3,170	6,703	2,484	3,406	1,330	1,512
	0.5%	**0.6%**	**0.2%**	**0.3%**	**0.6%**	**0.7%**	**2.6%**	**2.2%**
Utilities	11,230	12,992	7,613	8,648	1,565	2,172	202	291
	0.4%	**0.4%**	**0.4%**	**0.4%**	**0.4%**	**0.4%**	**0.4%**	**0.4%**
Construction	213,716	181,104	150,456	125,806	28,870	24,245	2,393	2,645
	7.6%	**5.6%**	**7.9%**	**5.9%**	**6.6%**	**4.9%**	**4.6%**	**3.9%**
Manufacturing	210,741	162,936	155,737	116,296	34,793	27,030	3,038	3,645
	7.5%	**5.1%**	**8.2%**	**5.4%**	**7.9%**	**5.5%**	**5.9%**	**5.3%**
Wholesale trade	104,906	113,116	85,070	91,623	8,610	10,309	1,202	1,014
	3.7%	**3.5%**	**4.5%**	**4.3%**	**2.0%**	**2.1%**	**2.3%**	**1.5%**
Retail trade	323,264	361,687	214,819	240,829	48,079	51,663	5,572	7,638
	11.4%	**11.2%**	**11.3%**	**11.2%**	**10.9%**	**10.4%**	**10.8%**	**11.1%**
Transportation & Warehousing	81,053	89,780	60,812	67,094	8,838	9,213	755	1,294
	2.9%	**2.8%**	**3.2%**	**3.1%**	**2.0%**	**1.9%**	**1.5%**	**1.9%**
Information	62,224	48,917	47,244	35,980	9,249	6,635	370	495
	2.2%	**1.5%**	**2.5%**	**1.7%**	**2.1%**	**1.3%**	**0.7%**	**0.7%**
Finance and insurance	150,846	193,079	126,147	156,616	14,340	22,018	1,004	1,991
	5.3%	**6.0%**	**6.7%**	**7.3%**	**3.3%**	**4.4%**	**2.0%**	**2.9%**
Real estate and rental and leasing	121,833	192,516	85,504	127,503	19,110	33,338	1,459	2,841
	4.3%	**6.0%**	**4.5%**	**5.9%**	**4.3%**	**6.7%**	**2.8%**	**4.1%**
Professional,	164,395	207,273	122,592	149,902	26,089	34,604	(D)**	2,005

Table 3-33
Study Area Employment Characteristics 2001 and 2009
Jobs by Industry (and Percent of Total Jobs)

	Statewide & County Employment Totals							
	Arizona		Maricopa		Pima		Pinal	
Industry	2001	2009	2001	2009	2001	2009	2001	2009
scientific, and technical services	**5.8%**	**6.4%**	**6.5%**	**7.0%**	**5.9%**	**7.0%**	**(D)****	**2.9%**
Management of companies and enterprises	22,944	29,608	18,711	25,383	2,834	3,118	(D)**	96
	0.8%	**0.9%**	**1.0%**	**1.2%**	**0.6%**	**0.6%**	**(D)****	**0.1%**
Administrative and waste management services	233,782	248,936	183,296	187,263	31,711	34,629	3,187	4,923
	8.3%	**7.7%**	**9.7%**	**8.7%**	**7.2%**	**7.0%**	**6.2%**	**7.2%**
Educational services	31,963	61,288	21,971	45,574	4,737	7,655	265	767
	1.1%	**1.9%**	**1.2%**	**2.1%**	**1.1%**	**1.5%**	**0.5%**	**1.1%**
Health care and social assistance	227,925	329,289	142,172	211,737	45,216	62,720	3,558	4,540
	8.1%	**10.2%**	**7.5%**	**9.9%**	**10.3%**	**12.7%**	**6.9%**	**6.6%**
Arts, entertainment, and recreation	53,279	68,395	34,513	46,236	10,466	11,297	705	1,080
	1.9%	**2.1%**	**1.8%**	**2.2%**	**2.4%**	**2.3%**	**1.4%**	**1.6%**
Accommodation and food services	212,938	239,082	136,425	155,757	34,828	36,582	2,864	4,088
	7.5%	**7.4%**	**7.2%**	**7.2%**	**7.9%**	**7.4%**	**5.6%**	**6.0%**
Other services, except public administration	146,020	162,392	93,517	105,663	25,593	27,012	2,744	3,872
	5.2%	**5.0%**	**4.9%**	**4.9%**	**5.8%**	**5.4%**	**5.3%**	**5.6%**
Government and government enterprises	397,209	453,727	195,572	234,517	80,781	86,523	16,418	21,019
	14.1%	**14.1%**	**10.3%**	**10.9%**	**18.4%**	**17.5%**	**31.9%**	**30.6%**

Source: Bureau of Economic Analysis 2012. Table CA25N Total full-time and part-time employment by NAICS industry
**Not shown to avoid disclosure of confidential information, but the estimates for this item are included in the totals.

Table 3-34
Study Area Employment Characteristics 2001 and 2009
Income by Industry (and Percent of Total Income)

Industry	Statewide & County Employment Totals							
	Arizona		Maricopa		Pima		Pinal	
	2001	2009	2001	2009	2001	2009	2001	2009
Earnings by place of work	108,920,186	151,721,694	79,177,485	108,045,920	14,974,447	21,282,053	1,734,597	2,973,219
	100.0%	**100.0%**	**100.0%**	**100.0%**	**100.0%**	**100.0%**	**100.0%**	**100.0%**
Farm earnings	746,773	503,323	268,399	168,106	11,164	15,981	86,773	62,434
	0.7%	**0.3%**	**0.3%**	**0.2%**	**0.1%**	**0.1%**	**5.0%**	**2.1%**
Forestry, fishing, and related activities	354,692	419,169	88,492	88,570	7,557	7,167	19,492	13,977
	0.3%	**0.3%**	**0.1%**	**0.1%**	**0.1%**	**0.0%**	**1.1%**	**0.5%**
Mining	629,836	1,195,948	170,641	396,195	100,309	173,005	73,890	109,579
	0.6%	**0.8%**	**0.2%**	**0.4%**	**0.7%**	**0.8%**	**4.3%**	**3.7%**
Utilities	960,134	1,576,067	711,871	1,168,583	123,671	219,258	10,852	19,518
	0.9%	**1.0%**	**0.9%**	**1.1%**	**0.8%**	**1.0%**	**0.6%**	**0.7%**
Construction	9,762,082	9,278,830	7,646,968	7,217,060	1,066,426	1,018,904	74,669	92,037
	9.0%	**6.1%**	**9.7%**	**6.7%**	**7.1%**	**4.8%**	**4.3%**	**3.1%**
Manufacturing	12,169,075	12,714,320	9,373,697	9,207,198	2,030,077	2,449,708	129,035	196,224
	11.2%	**8.4%**	**11.8%**	**8.5%**	**13.6%**	**11.5%**	**7.4%**	**6.6%**
Wholesale trade	5,915,014	8,058,942	5,125,747	6,933,358	355,364	550,687	47,602	64,560
	5.4%	**5.3%**	**6.5%**	**6.4%**	**2.4%**	**2.6%**	**2.7%**	**2.2%**
Retail trade	9,050,471	11,593,595	6,501,335	8,324,590	1,186,522	1,423,329	125,465	229,580
	8.3%	**7.6%**	**8.2%**	**7.7%**	**7.9%**	**6.7%**	**7.2%**	**7.7%**
Transportation & Warehousing	3,488,777	4,695,517	2,693,080	3,598,738	328,883	431,377	64,921	92,974
	3.2%	**3.1%**	**3.4%**	**3.3%**	**2.2%**	**2.0%**	**3.7%**	**3.1%**
Information	2,980,889	3,042,774	2,353,937	2,391,286	433,236	377,189	10,879	18,807
	2.7%	**2.0%**	**3.0%**	**2.2%**	**2.9%**	**1.8%**	**0.6%**	**0.6%**
Finance and insurance	6,988,682	9,600,689	6,257,208	8,539,378	486,109	674,009	28,929	64,451
	6.4%	**6.3%**	**7.9%**	**7.9%**	**3.2%**	**3.2%**	**1.7%**	**2.2%**
Real estate and rental and leasing	3,756,910	3,989,455	2,970,065	3,241,729	333,962	370,638	61,122	34,525
	3.4%	**2.6%**	**3.8%**	**3.0%**	**2.2%**	**1.7%**	**3.5%**	**1.2%**
Professional, scientific, and technical services	8,068,423	12,730,045	6,547,080	9,830,895	1,051,944	1,952,184	(D)*	66,932
	7.4%	**8.4%**	**8.3%**	**9.1%**	**7.0%**	**9.2%**	(D)*	**2.3%**
Management of companies and enterprises	1,467,964	2,296,854	1,302,445	2,073,072	113,042	174,536	(D)*	2,135
	1.3%	**1.5%**	**1.6%**	**1.9%**	**0.8%**	**0.8%**	**(D)***	**0.1%**
Administrative and waste management services	6,204,100	8,453,981	5,076,652	6,763,591	755,678	925,056	97,811	178,303
	5.7%	**5.6%**	**6.4%**	**6.3%**	**5.0%**	**4.3%**	**5.6%**	**6.0%**

Table 3-34
Study Area Employment Characteristics 2001 and 2009
Income by Industry (and Percent of Total Income)

	Statewide & County Employment Totals							
	Arizona		Maricopa		Pima		Pinal	
Industry	**2001**	**2009**	**2001**	**2009**	**2001**	**2009**	**2001**	**2009**
Educational services	816,618	2,257,524	632,610	1,850,939	81,764	185,100	4,446	27,868
	0.7%	**1.5%**	**0.8%**	**1.7%**	**0.5%**	**0.9%**	**0.3%**	**0.9%**
Health care and social assistance	9,206,683	18,193,875	6,221,964	12,493,209	1,643,526	3,140,096	120,985	206,544
	8.5%	**12.0%**	**7.9%**	**11.6%**	**11.0%**	**14.8%**	**7.0%**	**6.9%**
Arts, entertainment, and recreation	1,266,419	1,716,329	1,022,313	1,396,824	145,799	161,199	7,823	24,707
	1.2%	**1.1%**	**1.3%**	**1.3%**	**1.0%**	**0.8%**	**0.5%**	**0.8%**
Accommodation and food services	4,050,905	5,547,295	2,789,479	3,862,919	635,476	768,671	43,189	79,331
	3.7%	**3.7%**	**3.5%**	**3.6%**	**4.2%**	**3.6%**	**2.5%**	**2.7%**
Other services, except public administration	3,764,684	5,295,336	2,504,364	3,609,561	623,818	832,811	88,673	150,099
	3.5%	**3.5%**	**3.2%**	**3.3%**	**4.2%**	**3.9%**	**5.1%**	**5.0%**
Government and government enterprises	17,271,055	28,561,826	8,919,138	14,890,119	3,460,120	5,431,148	595,740	1,238,635
	15.9%	**18.8%**	**11.3%**	**13.8%**	**23.1%**	**25.5%**	**34.3%**	**41.7%**
Total Income (Earnings by Place of work)	**108,921**	**151,722**	**79,177**	**108,046**	**14,974**	**21,282**	**1,735**	**2,973**

Source: Bureau of Economic Analysis 2012. Table CA05N Personal income by major source and earnings by NAICS industry
The estimates of earnings for 2001-2006 are based on the 2002 North American Industry Classification System (NAICS). The estimates for 2007 forward are based on the 2007 NAICS.
*Not shown to avoid disclosure of confidential information, but the estimates for this item are included in the totals.

Mining Income and Employment

Approximately 5,466 workers were employed in mining jobs in or near the Decision Areas, with the highest amount in Pima County, where an estimated 1,927 workers were employed in the mining industry (see **Table 3-35**, Mining Employment Estimates – 2009).

Mining can yield secondary employment and income impacts on the economy. For example, it is estimated that the jobs of over 43,000 Arizona residents resulted indirectly from the copper industry's presence in Arizona in 2009. About 10,100 of those jobs were in state and local government, including public education. Another 15,400 were in trade and service businesses. In 2009, the personal income indirectly received by Arizona residents because of copper industry spending in the state reached more than $2 billion (Arizona Mining Association 2009). Since 1910, Arizona has been the nation's top copper producer, producing more copper than all the other 49 states combined.

Table 3-35
Mining Employment Estimates - 2009

Geographic Area	Number of Employees	Percent of Private employment
Maricopa County	803	0.1%
Pinal County	1,264	28%
Pima County	1,927	0.6%
Gila County	1,472	12.6%
Arizona	11,957	0.6%

Source: Sonoran Institute 2012

In the region around the Planning Area, the Ajo and Globe/Miami areas have been most affected by the long-term trends in mining. The mining industry supported the development of Ajo, which arose from the Ajo Phelps Dodge copper mine and operated from the early 1930s until 1985. In 1980, manufacturing of durable goods and agriculture, forestry, fisheries, and mining were the largest SIC employment sectors in Ajo, but decreased greatly over the next 20 years while the service sector increased greatly. By 2000, just 3.3 percent of employment in Ajo was in the agriculture, forestry, fisheries, and mining (Sonoran Institute 2003a). Communities largely dependent on mining are impacted by the rise and fall of ore prices and changing demand for minerals. Many communities have been recently looking to diversify their economies to avoid the boom and bust cycle impacts. An increased focus on tourism and retirement industries in Ajo was, in part, responsible for the shifting of the workforce to the services sector. The Globe/Miami area has also realized reductions in mining employment, but community leaders are reviewing ways to enhance the tourism market and diversify their economy (Arizona Department of Commerce 2003a).

Locatable Minerals. Locatable minerals, particularly copper and silver, have historically been very important to both Arizona's and the Panning Area's economy (Niemuth 2006). Active mineral mines in Arizona employed approximately 11,431 workers in Arizona in 2010 (Arizona State Mine Inspector 2010). Arizona's total mineral production from operating all 160 mines in the state was valued at $2.8 billion in 2000 and rose to $7.58 billion in 2007, in large part due to increasing demand for copper (Arizona Department of Mines and Mineral Resources 2003, 2007). In 2007, Arizona accounted for over 60 percent of US domestic copper production. The copper industry had a $4.7 billion direct and indirect impact on the Arizona economy in 2006 (Arizona Department of Mines and Mineral Resources 2007), but employment levels are still below peaks in the late 1970's. As it has for many years, Arizona ranked first in nonfuel mineral production in the US.

Saleable Minerals. Saleable mineral development is active in the Decision Areas, where the predominant mineral materials are decorative rock and building stone (e.g., granite, weathered granite, basalt and other volcanics, and cinders). In Arizona, approximately 10 million tons of decorative rock was produced in 2006, of which approximately 1 million tons, or 10 percent, were produced in the Lower Sonoran. Decorative rock is also an important commodity in Arizona, with production value increasing from approximately $48 million in 2000, with a high of $76 million in 2004. Non-industrial sand and gravel has become increasingly important in Arizona, its production value has increased from approximately $300 million in 2000 to $560 million in 2006. In addition, from 1991 to 2001, the production value of non-industrial sand and gravel has quadrupled (Arizona Department of Mines and

Mineral Resources 2002) and continued to increase yearly through 2004 (Niemuth 2003, 2005). See **Table 3-36**, Comparison of National, State, and Decision Area Trend in Decorative Rock Values, for national and local comparisons in value. Sand and gravel operations in the Planning Area occur primarily on private, Native American, and Arizona State Land Department lands, with lands in the Decision Areas being only a minor component. Total mineral production value in the Lower Sonoran has increased in parallel with the regional trend, growing from approximately $6.9 million in 2003 to $7.6 million in 2006, ranging from 6 percent to 14 percent of the total decorative rock production value in the state.

Table 3-36
Comparison of National, State, and Decision Area Trend in Decorative Rock

Year	US value	AZ value	Lower Sonoran	% of AZ value in Lower Sonoran	Lower Sonoran Royalties produced
2000	$8,290,000,000	$48,200,000	N/A	N/A	N/A
2001	$8,870,000,000	$49,600,000	N/A	N/A	N/A
2002	$8,650,000,000	$51,500,000	N/A	N/A	N/A
2003	$9,060,000,000	$49,100,000	$6,900,000	14. 1%	$689,062
2004	$9,890,000,000	$75,900,000	$4,900,000	6. 5%	$490,193
2005	$12,100,000,000	$69,300,000	$4,800,000	6. 9%	$479,710
2006	$12,900,000,000	$60,000,000	$7,600,000	12. 7%	$760,507

Source: USGS Survey Minerals Yearbooks 2002-2005 for Crushed Rock and Sand and Gravel/Construction; USGS Mineral Industrial Survey 2007; LR2000, BLM records

Livestock Grazing and Agriculture Income

The acreage of land in ranches and farms continues to decline in the tri-county region. Increasing population growth and urbanization have correlated with a decline in traditional, rural-oriented industries such as ranching and farming. This may be due largely to the consumption of land for urban development and an overall shift towards a service-oriented economy. In the tri-county region, income in the agricultural services, forestry, fishing, and other sector has remained relatively flat over the past 30 years, although there has been a slight increase since the late 1980s. Between 2002 and 2007, there was an overall increase in the market value of agricultural products sold throughout Arizona. Data for the tri-county region show the greatest increase in Pinal County and a decrease in Pima County (see **Table 3-37**, Agricultural Market Value 2002-2007). The livestock market value increase was greatest for the statewide average, and the highest within the tri-county area was Pinal County at 30.4 percent (USDA 2009).

As previously noted, livestock grazing and agriculture contribute a small percent of the total jobs and earnings in the tri-county area. In 2009, farm and agricultural services accounted for 0.4 percent (10,048 jobs) of employment in the tri-county region: 3.4 percent (2,336 jobs) in Pinal County, 0.2 percent (1,076 jobs) in Pima County, and 0.3 percent (6,636 jobs) in Maricopa County (Sonoran Institute 2012). In addition, based on some data, grazing in the Decision Areas has only minor economic benefits in local communities. A 1991 Government Office report found that the 33 ranches in the Lower Gila North area of Arizona contributed an estimated 0.32 percent to the total value of livestock and livestock products sold in Yuma, Maricopa, and Yavapai counties (Government Accounting Office 1991).

Table 3-37
Agricultural Market Value 2002-2007

	Total Market Value of All Agricultural Products ($1,000)		
	2002	2007	% change
Arizona	2,395,447	3,234,552	25.9%
Maricopa County	740,183	813,491	9.0%
Pima County	68,879	67,500	-2.0%
Pinal County	424,759	799,811	46.9%
	Total Market Value of Livestock, Poultry and their products ($1,000)		
Arizona	3,220	8,301	61.2%
Maricopa County	702	849	17.3%
Pima County	261	345	24.3 %
Pinal County	247	355	30.4%

Source: USDA 2009

Livestock grazing, grazing authorizations, and livestock uses are measured in animal unit months (AUMs). An AUM is the amount of dry forage required to sustain one "animal unit" for one month. For authorization calculation purposes, an animal unit is one cow and her calf, one horse, or five sheep or goats. In Arizona, BLM grazing allotments are classified as perennial, ephemeral, or perennial-ephemeral. Perennial means the allotment consistently produces enough forage to support a livestock operation year-round and has an established forage limit based on the quality and quantity of perennial plants for a defined period. The amount and length of grazing use, on ephemeral allotments and allotments with ephemeral forage, is based on vegetation production and determined prior to authorizing use. Currently, no sheep or goats are authorized on any allotments in either Decision Area. Grazing permits issued by the BLM in the Planning Area constitute about one-third of the grazing permits issued in the tri-county region, including those issued by the Arizona State Land Department, USFS, American Indian communities, and others (USDA 1997). In 2007, the BLM-administered range in the LSFO Decision Area was permitted at a level of 13,900 AUMs of forage, while the SDNM Decision Area permitted 6,747 perennial AUMs (see **Table 3.16**, Animal Unit Months 1998–2007).

The BLM calculates federal grazing fees annually in March. The federal grazing fee for 2011 was set at $1.35 per AUM. The grazing fee has been at this level since 2007 (BLM 2011b). A grazing permit's value reflects, at least to some extent, the capitalized difference between the grazing fee and the competitive market value of federal forage. A permittee must hold private base property to which the federal permitted use is attached, giving the base property holder priority for renewal over other potential applicants. This value is recognized by lending institutions during a loan process and by the Internal Revenue Service when a property transfer occurs. Permit values fluctuate based on market forces but generally depend on the number of AUMs and other terms of the lease or permit. Permit values may vary widely, depending on the location and the estimated average value of replacement forage. In 2011, the average fee per AUM on private lands in Arizona was $9.00 (USDA 2011). Based on 2007 active perennial AUMs in the Planning Area, the total annual grazing value of all perennial AUMs would be approximately $125,100 for the LSFO and $60,747 for the SDNM Decision Area. Under the current federal rate of $1.35 per AUM, the comparative total annual grazing fee would be $18,765 for the LSFO and $9,108 for the SDNM. It should be noted that this estimate does not reflect all costs associated with grazing, including cost of pasture land, range improvements, or other factors.

Recreation Income

Much of the recreational activity on public lands qualifies as tourism, which is one of Arizona's leading industries and is the dominant industry in most communities (US Department of Commerce 2003a). Key reasons cited for tourism in Arizona are outdoor recreation opportunities and open space, which are prevalent assets in the Planning Area. Total visitation in 2010 included 32.2 million overnight visitors (Arizona Department of Tourism 2011). A large portion of tourism in the rural communities originates from the greater Phoenix and greater Tucson areas (Arizona Department of Commerce 2003a). Travel spending was estimated at 17.7 billion in 2010. Travel-generated employment (152,190 jobs in 2010) decreased by 2.5 percent in Arizona from 2009 to 2010, following a 6.4 percent decrease the preceding year. Employment typically lags visitor spending following deep recessions. Improvement in the employment picture will occur with continued expansion of the travel industry. Estimates for direct impacts of travel to local economies are included in **Table 3-38**, Travel Economic Impacts - 2010 (preliminary) below. It should also be noted that additional indirect spending would occur as a result of travel employment and spending; statewide, secondary impacts of the travel industry were estimated as supporting an additional 131,000 jobs.

Table 3-38
Travel Economic Impacts - 2010 (preliminary)

Geographic Area	Direct Spending ($ millions)	Employment (number of people)	Percent of total employment	Earnings ($ millions)	Percent of total earnings
Maricopa County	$11,193	82,910	3.9%	$3,091	2.8%
Pinal County	$482.6	4,230	6.5%	$120	3.9%
Pima County	$2,022	21,520	4.5%	$509	2.4%
Gila County	$206.2	2,530	11.4%	$55	6.7%
Arizona	$17,732	152,190	4.8%	$4,693	3.1%

Source: Dean Ruyan Associates 2011

While all forms of recreation affect the current economic climate of the Planning Area and Decision Areas, only a few have been closely examined for their economic influence. These include wildlife-related recreational activities (i.e., hunting, fishing, and wildlife viewing), OHV use, and visiting cultural and historic sites.

In 2001, there were 1.7 million Arizona residents and non-residents (16 years old and older) that fished, hunted, or viewed wildlife in Arizona and spent in excess of $1.6 billion in the state: $512 million on trip-related expenditures; $1.0 billion on equipment purchases; and $67 million on licenses, contributions, land ownership and leasing, and other items and services (USFWS and US Department of Commerce; US Census Bureau 2001a). According to BLM estimates, $203 million was spent on wildlife-related recreation on public lands in Arizona in 2002, with $41.7 million being spent by hunters, $16.2 million by anglers, and $145.1 million by wildlife viewers (BLM 2002c). See **Table 3-39**, 2001 Economic Impacts of Wildlife Viewing (in $ millions) for a quantification of the economic impacts of wildlife viewing.

Table 3-39
2001 Economic Impacts of Wildlife Viewing (in $ millions)

	Direct Expenditures	Indirect Expenditures	Full- and Part-Time Jobs	Salaries and Wages	State Tax Revenues
Maricopa County	$368.3	$690.4	6,603	$192.8	$25.8
Pima County	$173.5	$326.5	3,196	$90.7	$12.2
Pinal County	$50.9	$96.0	949	$26.6	$3.6
Tri-County	$592.7	$1,112.9	NA	NA	$41.6
Arizona	$820.7	$1,542.9	15,058	$429.4	$57.6

Source: Southwick Associates 2003

In comparison, consumptive wildlife-related recreation (i.e., hunting and fishing) created a total statewide impact of $1.34 billion, based on $958.5 million in direct expenditures and an estimated 17,190 jobs in Arizona.

Within the tri-county region, economic impacts were estimated at $642.9 million 6,865 jobs. **Table 3-40**, 2001 Economic Impacts of Hunting and Fishing (in $ millions), shows the breakdown of direct and indirect economic impacts of hunting and fishing for each county in the tri-county region.

Table 3-40
Economic Impacts of Hunting and Fishing (in $ millions)

	Direct Expenditures	Indirect Expenditures	Full- and Part-Time Jobs	Salaries and Wages	State Tax Revenues
Maricopa County	$409.1	$515.0	5,382	$103.0	$21.1
Pima County	$84.5	$105.0	1,187	$18.3	$5.4
Pinal County	$20.0	$22.9	296	$3.8	$0.9
Tri-County	$513.6	$642.9	6,865	$125.1	$27.4
Arizona	$958.5	$1,340.0	17,190	$314.0	$58.2

Source: AGFD Department 2003

The AGFD and Arizona State Parks (2003) estimated that recreation activities involving OHV use in Arizona created a statewide impact of $4.25 billion, including secondary impacts (see **Table 3-41**, 2002 Economic Impacts of OHV Recreation Activity (in $ millions)) and supported an estimated 36,951 jobs in 2001, or approximately 60 percent of the total economic benefit in the tri-county region.

One of the fastest growing segments of the tourism industry in Arizona is cultural heritage tourism. An estimated 59 percent of the visitors to Arizona tour historic sites, and 28 percent visit historical museums. A study by the National Trust for Historic Preservation found that nationally, heritage tourists stay on average a half-day longer and spend $62 a day more than typical tourists. In Arizona, cultural heritage tourists spent $1,534 during their stay (as compared to $389 for typical travelers) in 1997, and their propensity to shop was 20 percent greater (Arizona Humanities Council 2000). Cultural heritage tourism sites in the Decision Areas include the Juan Bautista de Anza/Butterfield Stage Trail, Painted Rocks petroglyph site, Sundad, historic mining sites, historic ranching sites, and various other cultural sites.

Table 3-41
2002 Economic Impacts of OHV Recreation Activity (in $ millions)

	Direct Expenditures	Indirect Expenditures	Full- and Part-Time Jobs	Salaries and Wages	State Tax Revenues
Maricopa County	$1,358.1	$1,787.1	13,113	$428.9	$3.3
Pima County	$323.6	$403.5	3,307	$84.3	$17.7
Pinal County	$135.3	$152.7	1,099	$24.2	$5.9
Tri-County	$1,817.0	$2,343.3	17,519	$537.4	$26.9
Arizona	$3,055.7	$4,252.0	36,951	$1,088.0	$187.0

Source: AGFD Department and Arizona State Parks 2003

Economic Impact of Lands and Realty

Indicators of social and economic conditions as they relate to the BLM lands and realty program are drawn from land tenure adjustments and ROWs, permits, leases, and easements that have economic activity. The trend in land tenure adjustments, either acquisitions or disposals, has been a decrease in activity over the last 20 years. Only a few land tenure adjustments had occurred since the mid 1980s compared to years prior.

Rights-of-Way, Permits, Leases and Easements: The ROWs currently accommodated in the Planning Area support several large utility companies providing power, telephone, and natural gas service to the southwestern United States. These include El Paso Natural Gas, Southwest Gas, SRP, Arizona Public Service (APS), U. S. West Communication, Tucson Electric Power, as well as Arizona Water Conservation District, which is the State of Arizona's entity responsible for operating, maintaining, and repaying the federal government for the Central Arizona Project). The ROWs for roads, railroads, and associated transportation facilities support the flow of commerce in southern Arizona and northwestern Mexico. These include I-8, I-10, SR 85, SR 238, and Southern Pacific Railroad. These links also connect people as they support multiple forms of communication and travel and support a wide range of commercial, industrial, and residential uses. Data are not readily available to quantify the economic value of these relative to the Decision Areas; however, the aggregate social and economic ties to these ROWs are recognized as significant.

Renewable Energy Resources: There is high potential for the development of solar energy throughout the Planning Area. Development of solar sites has accelerated considerably within Arizona since 2000 (APS 2006; Tucson Electric Power 2006);. Due to high energy demands that are on the increase and climatic conditions that are conducive to solar energy, the trend for solar energy development the Planning Area involves increases in employment and income generated from solar energy production. As of February 2012, there were six pending applications for utility-scale solar-energy developments in the Lower Sonoran FO. The Sonoran Solar Project (roughly 15 miles south of Buckeye) was approved for development in December 2011. The project is expected to produce 300 megawatts of electricity and employ over 300 people at peak construction. There is little or no potential for industrial development of wind energy or biomass in the Decision Areas, and there is no trend for their use.

Renewable energy facility development on public lands, including collection or processing, generation, and transmission requires an ROW grant. Currently there are no approved ROW grants for solar,

wind, or biomass energy development within the Decision Areas. The Planning Area has potential for solar development due to contiguous large land masses, high solar radiation, and relatively flat ground (**Map 3-17**, Mineral Estate). There are several solar sites that may be in operation by 2014 in the Planning Area on private land, but none in the Decision Areas (Arizona Public Service 2006; Tucson Electric Power 2006). Historically, solar energy production has not been a large source of employment or income in Arizona, but with the recent interest in solar development, some manufacturing plants have located to the Phoenix area.

Economic Impact of Public Finance and Government Services

Payment-in-Lieu-of-Taxes (PILT) payments are federal payments to local governments that help to offset losses in property taxes due to nontaxable federal lands within county and municipal boundaries. These payments are used for services including education, water, and transportation and are based on a formula whose principal criterion is the number of federal acres within the locality. The number of qualified acres is multiplied by a dollar amount per acre set by law. Payments are subject to certain population-size-based limits and annual congressional program funding limits. The entitlement acreages have varied slightly over recent years, but the relative share of agency PILT payments has remained constant. Overall, revenues and expenditures in the tri-county region have been increasing in proportion with population growth. PILT payments have been increasing steadily from 2000 to 2010. See **Table 3-42**, PILT Payment 2000-2010.

Table 3-42
PILT Payments 2000-2010

Year	Geographic Area	Total Payment	BLM Payment	Percent of total payment
2000	Maricopa County	$1,019,264	$713,485	70 %
	Pima County	$1,061,362	$214,395	20 %
	Pinal County	$396,290	$209,637	53 %
	Arizona	$11,005,635	$4,798,457	44%
2005	Maricopa County	$1,813,162	$1,299,675	72%
	Pima County	$1,930,009	$455,289	24%
	Pinal County	$861,637	$527,236	61%
	Arizona	$19,233,714	$8,401,286	44%
2010	Maricopa County	$2,652,085	$1,906,543	72%
	Pima County	$2,800,949	$660,618	24%
	Pinal County	$1,070,449	$654,709	61%
	Arizona	$27,823,593	NA	NA

Source: US Department of Interior 2012

Money may be transferred to state and local governments due to BLM activities. Activities including land sales and exchanges and fees collected from the Taylor grazing act totaled close to $300,000 for Fiscal Year 2009 in the tri-county area (**Table 3-43,** BLM Payments to Local Governments, Fiscal Year 2010).

Table 3-43
BLM Payments to Local Governments, Fiscal Year 2010

	Maricopa County	Pima County	Pinal County
Total BLM Payments ($)	$179,976	$16,158	$100,435
Proceeds of Sales	$131,418	$940	$73,238
Taylor Grazing Act	$48,558	$15,217	$27,198

Source: Sonoran Institute 2012

3.5.3.3 Attractiveness of the Decision Areas

Open Space

During this planning process, there were many public comments regarding the role of public lands for recreation and open space. The value of open space often is cited as a non-market value of public lands. A study conducted in 2000 reported the loss of open land, including agricultural and desert lands, in the metropolitan Phoenix portion of the study area. In the same study, the Sonoran Desert was identified as a major part of what makes metropolitan Phoenix unique and gives it a special character. Losing huge tracts of land threatens the region with the loss of its most famous lifestyle and environmental assets (Morrison Institute for Public Policy 2000).

There is a perception that the public lands will help insulate communities from growth and provide open space and related modest economic growth. There is also support for planning and policy decisions to control growth to be made in collaboration with the BLM and the broader context of neighboring communities and the county. Strong sentiment was expressed in the communities to maintain BLM ownership of the lands to limit growth and provide open space (Sonoran Institute 2003b).

Across the nation, parks and protected open space have been increasingly recognized as vital to the quality of life that fuels economic health. As the nation moves toward a mixed economy based on services, light industry, consumer goods, and new technologies, businesses and their employees are no longer tied to traditional industrial centers. Businesses looking to relocate or expand prefer communities with a high quality of life, which includes an abundance of open space and nearby recreation. The economic value of parks and green space has long been established and demonstrated by increased demand and pricing of park-side properties (Trust for Public Lands 1999).

The effect on property values of a location near open space has been the subject of several studies. Studies have attempted to isolate the effect of open space from other variables that can affect property values, such as age, square footage, and condition of homes. Isolating the effect of open space can be difficult and results have been varied. Nevertheless, many studies have revealed increases in property values in instances where the property is located near or adjacent to open spaces (NPS 1995). Relative property values were found to be higher near South Mountain Park, an area similar in character to much of the Decision Areas but located more closely to the Phoenix Metropolitan Area (Maricopa County 2002b).

While the trend in the Planning Area has been a loss of open space, the Decision Areas have been maintained as natural desert landscapes. To accommodate increased population growth, development in Arizona is occurring in the form of planned communities in former rural areas, creating needs for goods

and services and placing demands on public services. These new communities are also replacing agricultural lands and open spaces. Between 1960 and 1990, the urbanized area around Phoenix grew 199 percent while the population increased 263 percent. Calculations from aerial photographs show that between 1975 and 1995, some 40 percent of all agricultural land and 32 percent of all undeveloped desert land was lost to urbanization (Morrison Institute for Public Policy 2000).

Sense of Place

Galliano and Loeffler (1999) define sense of place as a "link between social experiences and geographic areas." Through association and interaction with geographic areas, whether physically, spiritually, or through various media, people form values that are attached to geographic places.

Place attachment is customarily passed down through generations (Galliano and Loeffler 1999). The assessment of place-based values helps to identify and understand the values that people attach to the lands and resources within the Decision Areas. Understanding issues regarding the sense of place assists land managers in understanding resource and land use conflicts and how to approach them most effectively. Things that contribute to sense of place may include personal memory, community history, physical landscape appearance, and emotional attachment (Galliano and Loeffler 1999). Sense of place is subjective, and individuals or groups of people may develop a sense of place based on perceptions about amenities (e.g., recreational opportunities), historic or symbolic activities and places, or landscape and scenic vistas.

The identification of sense of place issues associated with the study area is based on continuing public and agency comment. Five community socioeconomic workshops that occurred in November and December of 2003 were held in Ajo, Buckeye, Gila Bend, Mobile, and Tonopah to discuss values people associate with their community and how they, in partnership with the BLM, can protect these values based on current and predicted trends in population growth. The vision the communities described for themselves during the workshops was consistent: they all expressed the desire to maintain their current quality of life and general rural character while gaining additional amenities in their communities (e.g., better jobs, restaurants and movie theatres, and community services). They all included some values about the natural environment, their communities, and the role of public lands for recreation and open space. Some of the commonly expressed values among all the communities included wildlife, flora and fauna, rural character, solitude/peacefulness/quiet/ remoteness, "small town" character, and open space. Many expressed the values of accessing public lands for a wide range of uses (Sonoran Institute 2003b).

Protection of the ecological landscape (e.g., wildlife and habitat) was identified as a priority by many individuals throughout scoping. The potential for conflict with livestock grazing and recreational activities such as motorized vehicle use and recreational shooting, among other concerns, was raised when wildlife and habitat protection were perceived as a top priority for public lands. Some people also supported ranching activities in the area as a means to preserve open space and the area's western heritage, and to promote stewardship.

Many of the sites visited by tourists also contribute to Planning Area residents' sense of place. Local residents also value many prehistoric and historic sites that are not formally designated. Some scoping participants characterized both ranching and mining as an important basis of the area's sense of place. The complex cultural issues that contribute to a sense of place include issues of site protection, issues of tribal and family history, in addition to issues involving public access and education.

3.5.3.4 Environmental Justice

Executive Order 12898, Federal Actions to Address Environmental Justice in Minority Populations and Low-income Populations, requires that federal agencies identify and address any disproportionately high and adverse human health or environmental effects of their programs, policies, and activities on minority and low-income populations Guidance for evaluating environmental justice issues in land use planning is included in the BLM planning handbook, Appendix D (BLM 2005a).

The BLM environmental justice policy calls for the fair treatment and meaningful involvement of all people regardless of race, color, national origin, or income with respect to the development, implementation, and enforcement of environmental laws, regulations, and policies. Fair treatment means that no group of people, including racial, ethnic, or socioeconomic group should bear a disproportionate share of the negative environmental consequences resulting from industrial, municipal, and commercial operations or the execution of federal, state, local, and tribal programs and policies. Fair treatment also means that the BLM cannot cause a disproportionately high and adverse human health or environmental effect during implementation of its programs, policies, and activities on minority populations, low-income populations, or Native American tribes.

The BLM performed the following analyses to identify populations to be considered for environmental justice issues. After identification of the populations eligible for consideration under environmental justice guidelines, the BLM then considered what effects, if any, agency actions might have on specific populations.

For purposes of this analysis, minorities and low-income populations are defined as:

- "Minorities" describes people of Hispanic or Latino origin of any race, Blacks, American Indian/Alaska Natives, and Asians or Pacific Islanders (without double-counting people of Hispanic/Latino origin who also are contained in the racial groups).

- "Low-income" describes people living below the poverty level. The US Census Bureau uses a set of income thresholds that vary by family size and composition to determine who is below the poverty level. Low-income populations are defined as persons living below the poverty level based on total income of $11,136 for an individual and $22,113 for a family household of four for 2010, based on preliminary data (US Census Bureau 2010b).

A community is considered to have a concentration of minority and/or low-income residents if the proportion of such people in the community either exceeds 50 percent of the population, or the minority population percentage of the affected area is meaningfully greater than the minority population percentage in the general population or other appropriate unit of geographic analysis. The State of Arizona is used as the comparison population for this EIS.

Communities located near the Decision Areas and those most likely affected by management decisions made regarding these lands were analyzed to determine their minority and low-income status. Census data are tabulated for incorporated communities and Indian reservations. The informal boundaries of several unincorporated communities were approximated by one or more census tracts or Census county divisions for which 2010 data or estimates were available. Such areas include Mobile, Palo Verde, Sentinel, Stanfield, the area east of SDNM, the Rainbow Valley area, and the area surrounding Florence.

Table 3-44, Minority and Low-Income Populations, 2010, summarizes the minority and low-income status of communities within the Planning Area.

In 2010, approximately 42 percent of Arizona's population was minorities. Pima County had a proportion of minority population exceeding that of the state, and Maricopa and Gila Counties have a smaller share of minority population than does the state. All of the American Indian reservations are considered minority communities. Most of the individual incorporated and unincorporated areas analyzed are minority communities as well. About half of the communities considered reported minority populations greater than 50 percent, with most being small communities or are Native American lands.

The low-income and minority communities in the Planning Area were, for the most part, historically agricultural or mining communities. The forces currently affecting these communities are not closely related to any BLM action and are instead more related to worldwide market conditions and the urbanizing area around Phoenix. Fluctuating mineral prices worldwide is the primary reason for the downturn in the economy of mining communities. The conversion of agricultural lands to housing developments has been the primary reason for the loss of income in agricultural communities. Some of these communities, however, have been directly and indirectly affected by current BLM actions. For example, Ajo is currently aiming to convert its economy primarily from mining to retirement, recreation, and art. The Lower Sonoran, Organ Pipe Cactus National Monument, and Cabeza Prieta NWR are all important components of the quality of life and tourism economy Ajo is building. The community of Mobile has been affected by a disproportionate number of projects, including landfills, power lines, and pipelines through the community.

Historically, several of the high minority/low income communities have had relatively robust economies and diverse populations, particularly the mining communities during periods when the mines were open and producing; however, in recent decades, these communities have been identified as environmental justice communities. Over the last decade, many of these communities have experienced rapid changes due to urbanization and an influx of large numbers of new residents. These trends may eventually change the demographics of these communities such that they no longer consist of primarily minority or low income populations. While this trend is largely unrelated to BLM actions, in some cases, past BLM actions have affected these communities. Ajo and Miami-Globe in particular have had economies driven by local mineral resources, resulting in several boom-bust cycles. These communities are currently attempting to diversify their economies; however, public lands in the vicinity hold the potential for future mineral discoveries that could cause mines to open, providing high paying jobs and drawing additional people to the Ajo and Miami-Globe areas.

The community of Mobile has also been historically affected by BLM-related management actions, particularly involving development of utility lines through the community. Three utility corridors that cross the Lower Sonoran and SDNM converge at Mobile and currently include one power line, with two more planned, and several gas pipelines, with one additional planned. In addition, this community has been affected by the location of several landfills on private lands and a railroad. The community was successful recently in stopping an oil refinery from being built in the area. In 2007, Mobile was annexed into the City of Goodyear and much of the private land in the community was purchased by a developer for a master-planned community, displacing many local residents.

Table 3-44
Minority and Low-Income Populations, 2010

Geographic Area	Total Minority Population	Minority Population		Percent of Population below Poverty level	Population below poverty level	
		>50%	>42.2%		>50%	>17.4 %
Arizona	42.2 %			17.4 %		
Maricopa County	41.3 %	No	No	16.5%	No	No
Buckeye	50.1 %	Yes	Yes	10.0%	No	No
Gila Bend	70.1 %	Yes	Yes	31.2%	No	Yes
Goodyear	41.7%	No	No	9.2%	No	No
Tolleson	89.0 %	Yes	Yes	22.6%***	No	Yes
Ak-Chin Village, Ak-Chin Indian Reservation	98.2%	Yes	Yes	42.5%***	No	Yes
Gila River Indian Community	99 %	Yes	Yes	NA	NA	NA
Arlington	35.6%	No	No	66.8%***	Yes	Yes
Tonopah	26.7 %	No	No	71.4%***	Yes	Yes
Census track 7233.04 (Mobile, Rainbow Valley)	44.3%	No	Yes	7.6%***	No	No
Census tract 506.07 (Palo Verde)	52.3%	Yes	Yes	16.2%***	No	Yes
Census track 7233.05(Sentinel)	79.1%	Yes	Yes	36.6%***	No	Yes
Pima County	44.7%	No	Yes	17.8%*	No	Yes
Ajo	47.9%	No	Yes	13.8 %	No	No
Tohono O'odham Nation Census County Division	98.7%	Yes	Yes	45.2%	Yes	Yes
Why	19.2%	No	No	0.0%***	No	No
Pinal County	41.3 %	No	No	13.7%*	No	No
Apache Junction	18.7 %	No	No	13.9%**	No	No
Casa Grande	50.1 %	Yes	Yes	17.8%**	No	Yes
Florence	53.4%	No	Yes	13.4%**	No	No
Maricopa	42.3 %	No	Yes	5.4%**	No	No
Florence Census County Division (Florence and surrounding area)	47.4 %	Yes	Yes	10.7%***	No	No
Census track 9414(eastern border of SDNM)	61.0%	Yes	Yes	28.2%***	Yes	Yes
Gila County	34.1 %	N o	No	18.6 %	No	Yes
Globe	96.5 %	Yes	Yes	10.4%***	No	No
Miami	59.4 %	Yes	Yes	19.2%***	No	Yes

Source: US Census Bureau 2010a, *US Census Bureau 2010c (American Community Survey 1 year estimates), **US Census Bureau 2010d (American Community Survey 3 year estimates), ***US Census Bureau 2010c (American Community Survey 5 year estimates.

Poverty rate among individuals, based on poverty status in 2010.

The Gila River Indian Community includes lands in both Maricopa and Pinal counties but is listed only under Maricopa County in this table.

CHAPTER 4

ENVIRONMENTAL CONSEQUENCES

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Note: Maps referenced in this chapter may be found in Volume 4, Map Book.

CHAPTER 4
ENVIRONMENTAL CONSEQUENCES

4.1 INTRODUCTION

This chapter describes the environmental impacts that likely would result from implementing the No Action Alternative (Alternative A) and the four Action Alternatives (Alternatives B, C, D, and E). Of these, the Bureau of Land Management (BLM) has chosen Alternative E as the agency Proposed RMP. Throughout this chapter, the impacts have been separated between the Lower Sonoran and Sonoran Desert National Monument (SDNM) Decision Areas, unless the text specifies that the impact is the same for both.

Impact analyses and conclusions are based on interdisciplinary team (IDT) knowledge of the resources and the Planning Area; information provided by experts in the US Department of the Interior, BLM, or other agencies; and information contained in pertinent, existing literature. Because the proposed resource management plan (PRMP) and environmental impact statement (EIS) provide a broad management framework, the analysis in this chapter represents a best estimate of impacts because exact locations of development or management often are unknown.

4.1.1 IMPACT ASSESSMENT METHODS

To perform the analysis, the BLM developed an appropriate methodology for each program area (i.e., resource, resource use, special area designation, and social and economic condition)that included indicators and assumptions (see **Section 4.1.2**, Overall Assumptions). Indicators are simple measures based on laws, policies, and scientific studies that help the analyst report impacts on the resource or use and are unique to each resource/use. Since an environmental analysis can become very complex, indicators provide a more practical way to track the degree of change resulting from the actions in the alternatives than if the author attempted to record every possible variable and change. It keeps the analysis focused on the most relevant information. For example, destruction of an NRHP-eligible site is an indicator for a significant impact on cultural resources. Assumptions are provided to disclose and clarify any underlying presumptions in the analysis.

The baseline used for the impact analysis is the current condition or situation, as described in **Chapter 3**, Affected Environment. The analysis determined the degree of change that would likely occur to the resource or use, based on the actions put forth in each alternative (see **Chapter 2**, Alternatives); if an action would result in no change or minimal change to the resource, then "no impact" or "negligible impact" was noted.

When possible, the analysis quantified impacts to clearly demonstrate the amount of change from baseline. If quantifying impacts was not possible, a list of qualitative terms was created to describe the level of intensity an impact would have on that program; while most programs used the generic definitions, some programs developed their own definitions and these apply to the specific program analysis.

4.1.2 OVERALL ASSUMPTIONS

The following general assumptions and guidelines were used in the analysis of environmental consequences. Other assumptions specific to a particular program area, where applicable, are presented in that program area section.

- Funding and personnel would be sufficient to implement any of the alternatives described in **Chapter 2**, Alternatives, of the Lower Sonoran and SDNM PRMP/FEIS.
- All BLM management activities, which include all management decisions proposed by the alternatives in this PRMP/FEIS, are consistent with applicable law. Some of the major laws, regulations, and policies that guide BLM management are listed in **Appendix B**, Applicable Laws, Regulations, and Policies.
- RMP decisions are landscape in scale. Before implementation actions are taken, additional site-specific planning and National Environmental Policy Act (NEPA) analysis would occur.
- All alternatives would support meeting land health standards (Standards).
- In the event paleontological, geologic, or cave resources are discovered on lands in the Decision Areas, management actions to protect these resources would be implemented.
- The cleanup of hazardous materials and wastes would be managed to minimize impacts on resources while protecting public health and safety.
- Short-term impacts are those that would last no more than five years after implementation of the action that triggers the impact. Long-term impacts are those that would persist longer than five years.
- Attempts to manage or regulate environmental conditions could be affected by activities on adjacent lands that are beyond the BLM's authority (i.e., fugitive dust generation on adjacent lands that affects air quality on public lands).
- Existing decisions from wilderness management plans will be carried forward in the PRMP for the administration and management of the six congressionally designated wilderness areas that are within the Lower Sonoran and SDNM Decision Area.

4.1.3 LEVELS OF ANALYSIS (PROGRAMMATIC AND IMPLEMENTATION)

There are two separate levels of analysis presented in this chapter that are dictated by the type of decisions set forth in Chapter 2, Alternatives.

Programmatic or RMP level analysis addresses impacts from RMP level decisions, which are decisions set forth to achieve the goals and objectives of a specific program area within the RMP. Analyses for these decisions are broad in scale and focus on the scope of the individual alternatives and environmental effects. Programmatic analysis is typically regional in scope and accounts for differing land use scenarios,

with an emphasis on cumulative effects from multiple activities and future projects (of which the location and details are not yet known). Refer to Sections 4.2 through 4.23 for RMP-level impact analysis.

Implementation or activity-specific analysis addresses impacts from a specific project or activity. Emphasis on this type of analysis is based on the project site, the site's immediate surroundings, and a well-defined proposal, which includes different ways to meet a common objective. Unlike programmatic or RMP level analysis, implementation level analysis focuses on direct and indirect effects from one defined activity, rather than a slew of multiple activities and future projects. Refer to Section 4.25, Implementation-Level Analysis for implementation level impact analysis.

4.1.4 TYPES OF EFFECTS (DIRECT, INDIRECT, AND CUMULATIVE)

Direct, indirect, and cumulative impacts are considered in the effects analysis according to guidance provided in 40 Code of Federal Register (CFR) 1502.16.

- Direct effects are caused by an action or the implementation of an alternative and occur at the same time and place.
- Indirect effects result from implementing an action or alternative but usually occur later in time or are removed in distance. They are reasonably certain to occur.
- Cumulative effects are the direct and indirect effects of a proposed action's incremental impacts when they are added to other past, present, and reasonably foreseeable actions, regardless of who carries out the action (40 CFR Part 1508.7).

Effects are quantified where possible, primarily by using Geographic Information System (GIS) applications. In the absence of quantitative data, best professional judgment is used; impacts are sometimes described using ranges of potential impacts or in qualitative terms.

4.1.5 QUALITATIVE TERMS FOR THE INTENSITY OF IMPACTS

A range of qualitative terms have been used to gage the intensity of each impact from one program area on another. Only adverse impacts have been quantified. Positive impacts are discussed in detail within the text and at times have lessened the intensity of the adverse impacts.

Some program areas have further defined these terms specific to their program with particular thresholds. These definitions and thresholds can be found in the beginning of each program area's impacts analysis. The qualitative terms used for describing the intensity of impacts are presented in **Table 4-1**, Qualitative Terms for the Intensity of Impacts.

4.1.6 REASONABLY FORESEEABLE DEVELOPMENT SCENARIOS

Analytical assumptions may include any reasonably foreseeable development (RFD) scenarios for program areas. A RFD scenario is a baseline projection for activity for a defined area and period. Though commonly used in minerals development, these scenarios may be used for other program areas as well.

These scenarios are derived from the existing conditions and projected trends expressed in **Chapter 3**, Affected Environment for each program area.

4.1.6.1 General Reasonably Foreseeable Development Scenarios for the Planning Area

Population growth in Arizona is anticipated to be about 20 percent per decade over the next three decades. Population projections for the tri-county area (Maricopa, Pinal, and Pima counties) indicate that growth will continue and that Arizona's population ranking among the fifty states is projected to move from 20th to 10th by 2030. The most dramatic growth would occur in Pinal County, where the population already has nearly doubled from 2000 and 2010. By 2030, Pinal County's population could reach approximately 852,000, Maricopa County's population could be 6,208,000, and Pima County's population could be 1,442,000. The tri-county growth over the three decades likely will be higher than in the State of Arizona as a whole so that by 2030, the area would have an 82.2 percent share of the State's residents. The area's share of the State's total population in 2000 was 80.3 percent, with approximately 8,503,000 residents in the tri-county area and 10,348,000 in Arizona as a whole.

Table 4-1
Qualitative Terms for the Intensity of Impacts

Negligible	Minor	Moderate	Major
Lower Sonoran			
No known impacts on resources or resource uses. Any change is undetectable and immeasurable.	Direct effects are apparent, measurable, small, localized, and contained within the footprint of the action. Indirect effects are undetectable.	Direct effects would be readily apparent and measurable over a larger area, but are still mainly within the footprint of the action. Indirect effects are apparent and measurable, but do not exceed much beyond the footprint of the action.	Direct effects would be highly noticeable and extend well beyond the footprint of the action. Indirect affects would be readily apparent and measurable well beyond the footprint of the action.
SDNM			
No known impacts on resources or resource uses. Any change is undetectable and immeasurable. Objects are preserved throughout the Monument.	Direct effects are apparent, measurable, small, localized, and contained within the footprint of the action. Indirect effects are undetectable. Objects are preserved throughout the Monument	Direct effects are readily apparent and measurable over a larger area, but are still mainly within the footprint of the action. Indirect effects are apparent and measurable, but do not exceed much beyond the footprint of the action.	Direct effects would be highly noticeable and substantial. Indirect effects would be readily apparent and measurable well beyond the footprint of the action. Objects, or some elements of the objects, would be permanently

Table 4-1
Qualitative Terms for the Intensity of Impacts

Negligible	Minor	Moderate	Major
		Objects may be affected on site and in the vicinity of the activity, but are maintained within the Monument	altered on site, as well as affected over a larger portion of the Monument.

In addition:

- The cities and communities of Maricopa, Goodyear, Buckeye, and Gila Bend will continue to expand their boundaries through annexation. Other communities may also incorporate. The majority of the Decision Areas will border on or be included in incorporated cities and towns, with little county-administered land. The SDNM could be entirely surrounded by land annexed into cities or towns within ten years.

- For the majority of Maricopa County, western Pinal County, and western Pima County, the Lower Sonoran and SDNM Decision Areas will continue to serve as undeveloped open space as the private and State lands are developed.

- Undeveloped land, or open space, will decrease as population increases. Historical trends indicate the urban edge will advance 0.5 mile per year until build-out is reached. An increasing percentage of State and private lands around the Planning Area will be developed and no longer available for "backyard" community recreation. Recreation uses displaced by development will shift to public lands. Public lands administered by the BLM will become the only remaining open space as private and State trust lands used for recreation disappear due to development.

- Tourism will continue to be a major industry in Arizona, especially for some rural areas. This will create a demand for tourism-related recreational opportunities and increase the need for management.

- In-migration from other US states, mostly California, is expected to continue. New residents are not likely to be familiar with desert ecosystems. Place-based values and culture are less likely to be shared by the majority of residents in rapidly changing communities.

The following RFD scenarios are separated by program area and are list in alphabetical order.

4.1.6.2 Air Quality

Air quality management and compliance issues will grow more challenging as the counties within the Planning Area attempt to meet Federal air quality standards for $PM_{2.5}$, PM_{10}, and fugitive dust. The regulation and limitation of public OHV travel on dirt roads and washes will be among measures applied to meet air quality and fugitive dust standards over the life of the plan. Restrictions will increase over the life of the plan. Such restrictions will include limits and closures on use of dirt roads and changes in

operating procedures for all surface-disturbing activities in areas not meeting air quality standards. These areas are designated as nonattainment areas and are shown on **Map 3-1**, Air Pollutant Nonattainment Areas in **Chapter 3**, Affected Environment. Air quality regulation boundaries for $PM_{2.5}$ and PM_{10} will likely expand to encompass the majority of the Decision Area, in parallel with population growth. Additionally, the EPA is reviewing several of the NAAQS, and adoption of more stringent standards may affect the future attainment status of some areas within the Planning Area.

4.1.6.3 Lands and Realty Management

Land Tenure. Land disposals via exchanges, sales, and recreation and public purposes (R&PP) patents may increase for parks and other recreational facilities as communities grow. The expected total would be one to two per year, approximately 100 acres/year.

Land Use Authorizations (Including Utility-Scale Renewable Energy Development).

Population growth in both urban and rural areas will increase infrastructure demand for new highways, roads, power lines, and communication sites. Increased demand for infrastructure will result in an increase of approximately three to four major linear land use authorizations (LUAs), including ROWs for high voltage power lines, large pipelines, and solar power plants every year. Other minor linear and nonlinear LUA requests, such as for roads, or smaller voltage transmission lines, will increase to an additional seven to eight proposals per year.

According to the Solar Energy Development in Six Southwestern States Draft PEIS (DOE and BLM 2010), the estimated acres foreseen to be developed for solar energy facilities on BLM administered lands would be 21,816 acres in Arizona. The Gillespie Solar Energy Zone (the only SEZ proposed in the Planning Areas, totaling 2,618 acres) is projected to be fully developed, as presented in the Draft PEIS's preferred alternative within the next 20 years.

Renewable energy, primarily solar energy, will continue to be of high interest in the Planning Area. For the past three years, the numbers of solar energy applications for ROWs submitted to the LSFO have plateaued. Two of the seven pending ROW applications for solar energy development sites (as of March 2011) have progressed through the site-specific environmental analysis. Reasonable assumptions can be made that two additional proposals could progress to the environmental studies every year, for the next 20 years. The utility-scale solar power plant proposals are generally 4,000 acres to produce 250 to 500 megawatts of electricity. After considering the number of prohibited, high and moderate-sensitivity conflict areas for utility-scale renewable energy developments (as defined in **Appendix N**, Analysis for Renewable Energy Sensitivity), it is anticipated that the number of accepted applications for solar energy development on public lands will not increase from the current numbers and that most of the development would occur within the low known conflict sensitivity areas (ranging from a minimum of 5,100 acres under Alternative D to a maximum of 40,600 acres under Alternative B).

4.1.6.4 Livestock Grazing

Livestock numbers are expected to remain at or near current levels, which fluctuate based on local climatic conditions. In the areas around metro Phoenix, Tonopah, and Maricopa, the expected increase in population will result in an increase in recreation on public lands. This could cause increased conflicts with livestock operations. In addition, permittees' ability to manage allotments could be negatively

affected due to increased damage to improvements (e.g., cut fences and damaged waters) and harassment of livestock. This trend is expected to be more pronounced in allotments with substantial private inholdings due to development of the private lands.

In the Ajo, Gila Bend, and Globe areas, the general population increase will have some of the same impacts as mention above but to a lesser degree, with the exception of borderland impacts. No other significant changes would be expected from current conditions.

4.1.6.5 Minerals Management

Leasable Minerals

Leasable minerals are expected to continue as a minor component of the mineral development in the Planning Area. It is expected that if any leasable minerals are developed, oil and gas would be the most likely. It is anticipated that up to 10 exploratory oil and gas wells could be drilled in the Lower Sonoran Decision Area. Each well site would average 10 acres, all of which would be reclaimed.

Locatable Minerals

Locatable minerals have high potential in some parts of the Lower Sonoran, particularly in the Ajo and Globe-Miami areas, and moderate potential in several other areas. There could be up to 10 exploration-level operations every year, three to five new small mines every 10 years, and one to two larger operations. Exploration would disturb an average of one to three acres, small mines would disturb 20 to 50 acres, and large mines would disturb 100 to 500 acres. Most mining activities would be surface mines. Most of the surface area of a producing mine would be reclaimed to the prevailing standard at the conclusion of operations.

Saleable Minerals

Saleable mineral development would be expected to continue expanding in response to population growth, urban development, and infrastructure needs. On average, one to two new pits would be opened, or existing pits would be expanded, every year to meet the need. Production at existing and new pits would average between 100,000 and 1,000,000 tons per year. Pits would disturb anywhere from 20 to 500 acres per operation. Reclamation of disturbance to required levels would occur either at the completion of operations or as an integral, ongoing part during continuing operations.

4.1.6.6 Public Safety and Hazardous Materials

Illegal immigration and smuggling will continue to impact public lands at current or increasing levels. Impacts may shift as illegal immigrants and smugglers adapt to new border enforcement techniques.

Damage to natural and recreation resources, and related public safety concerns, will increase as resource crime and vandalism incidents swell in the growing public land-urban interface. The cost to patrol, repair, restore, and monitor crime and vandalism will grow and require more agency resources over the life of the plan.

Rapid growth of metropolitan areas will increase illegal dumping in the boundary lands. Hazardous materials and spills may also increase in these areas.

All abandoned mines within the Planning Area will be identified and inventoried in an effort to proceed with permanent closures.

All hazardous waste sites (including Superfund sites) within the Planning Area will be identified and inventoried in an effort to proceed with permanent closures.

4.1.6.7 Recreation Management in the Lower Sonoran

Ajo Extensive Recreation Management Area (ERMA)[1]

In the Ajo Desert Recreation Management Zone (RMZ), it is anticipated that minimal road maintenance and construction will occur. The route system would remain in maintenance intensity levels 1 to 3 (intensity levels are defined in the BLM Travel and Transportation Manual 1626). Routes rated intensity level 1 would be managed as primitive roads and routes rated intensity level 3 as roads. The maintenance levels of major access "stub routes" and parking points may also be upgraded to level 5 as demand warrants. At this time, there is no timeline envisioned for such construction and maintenance because camping and other outdoor recreation activities are expected to remain primitive and undeveloped. In the Gateway RMZ, the route system generally would be maintained for two-wheel-drive passenger car access to developed recreation and interpretive sites. Up to three parking/staging areas (up to ten acres total) providing access to the Ajo Desert RMZ may be constructed on previously disturbed areas. Additionally, motocross bike riding and other motorized recreation activities will be provided on designated routes within a 40-acre OHV/all-terrain vehicle (ATV) recreation area near Ajo. Facilities may include two visitor-contact and three access points, with the area of new disturbance anticipated to total up to 10 acres.

Gunsight Wash Special Recreation Management Area (SRMA)

In the Gunsight Wash SRMA, facilities are expected to remain primitive; however, if demand warrants, the camping area will be upgraded to include a gravel-surfaced route system maintained for two-wheel-drive passenger car access (up to 3 miles in extent), gravel-surfaced camping sites with picnic tables and steel fire rings (up to 60 sites at 0.15 acre each, or 6.5 acres), two gravel-surfaced group areas (up to 10 acres total), and three two-vault toilets.

Buckeye Hills East SRMA

In the Buckeye Hills East SRMA, RFD scenario varies substantially by alternative. Under Alternative B, development would be directed toward motorized recreation activities. Although maintenance of the travel system is anticipated to remain at levels 1 to 3, up to six staging/parking areas may be developed with standard amenity facilities such as gravel surface, picnic tables, and fire rings (up to 30 acres total) and two large staging areas not to exceed 10 acres each. Under Alternatives C and E, development would be directed toward a balance of motorized and nonmotorized recreation activities. The route

[1] The Ajo Recreation Management Area is identified as a SRMA under Alternative A (No Action) only; it is identified as an ERMA in the Action Alternatives B, C, and E.

system would be maintained at levels 1 to 3; up to six staging/parking areas may be developed with standard amenity facilities such as gravel surface, picnic tables, and fire rings (up to 30 acres total) and one large staging area not to exceed 10 acres. Under Alternative D, development would be directed toward nonmotorized recreation activities. The route system would be maintained at levels 1 to 3, and up to four parking areas may be developed with standard amenity facilities such as gravel surface, picnic tables, and fire rings (up to 20 acres total).

Extensive Recreation Management Area

No new road construction, maintenance upgrades, or new facilities will be constructed except in response to visitor health and safety or conflicts with other resource uses. The typical Public Use Site in the Planning Area is less than 5 acres.

Saddle Mountain SRMA

Under Alternative B, development would be directed toward a balanced mix of motorized and nonmotorized recreation activities. Up to six trails for nonmotorized uses (up to 20 miles total), 10 miles of new road construction to create motorized loop routes, three parking/staging areas (30 acres total), and eight primitive camping and interpretive sites (120 acres total) are envisioned. Under Alternatives C and E, development would be directed toward nonmotorized recreation activities. Up to six trails for nonmotorized uses (up to 30 miles total) would be constructed, minimal upgrades to existing roads would occur to provide access, and up to four interpretive sites (60 acres total) are envisioned. Under Alternative D, no facilities would be constructed except to resolve conflicts with other resource uses.

Lower Gila Historic Trails SRMA

In this SRMA, road construction and maintenance would be minimal, with up to 16 miles upgraded to allow for two-wheel-drive passenger car access. This access is anticipated to provide for public visitation and interpretation at the Butterfield West Site, nearby petroglyph sites, Oatman Mountain, and other attractions. Facilities would be modest in scope and scale and would be constructed on previously disturbed areas to the extent possible. Types of facilities generally would include unpaved parking, short visitor trails (less than two 2 miles), interpretive and regulatory signs, picnic tables, and vault toilets if demand warrants. The total extent of these developments is not anticipated to be more than 8 acres.

Painted Rock SRMA

In the Painted Rock SRMA, road construction and maintenance would focus on the existing campground road system, totaling approximately 3 miles of gravel roads for two-wheel-drive passenger car access. If demand warrants, these roads and parking areas may be improved, including paving. Other routes in the Painted Rock SRMA are anticipated to remain at maintenance level 1 to 3. Expansion of the Painted Rock Petroglyph Campground is not anticipated, although the two group areas may be surfaced with gravel.

San Tan Mountains SRMA

Under Alternative B, the BLM would maintain existing facilities. No new construction of roads and facilities is envisioned. Under Alternatives C, D, and E, the area would be disposed of as an R lease.

4.1.6.8 Recreation Management in the SDNM

The typical Public Use Site in the Planning Area is less than 5 acres. Under Alternatives B, C, and E, there would be one 24-site campground, up to three visitor contact sites of 0.25 acre each, three group campsites, one equestrian corral, one OHV/ATV parking area, one day use and interpretive area, and one 6-mile nonmotorized trail through Butterfield Pass. All of these would be situated in the Juan Bautista de Anza National Historic Trail (NHT) management zone. To the extent possible, these facilities would be located in areas previously disturbed; thus, the area of new disturbance would total approximately 6 to 10 acres. Under Alternative B, C and E, up to 12 additional 0.25-acre visitor contact sites or other small pullouts would be provided in the Desert Frontier Management Zone on the SDNM. These facilities would be located in areas previously disturbed to the extent possible; thus, the area of new disturbance would total up to 3 acres. Under Alternative D, up to 15 0.25-acre visitor contact stations and minimal pullouts would be provided. These facilities, to the extent possible, would be located in areas previously disturbed and may total up to 4 acres of new disturbance.

4.1.6.9 Soil Resources

In the areas around metro Phoenix, Tonopah, Maricopa, and Gila Bend, the expected increase in population will result in an increase in recreation on public lands. This could cause increased impacts on soil resources. These impacts would occur on the existing roads and trails, which will have accelerated erosion with increased use, and in adjacent areas due to cross-country travel.

Land Use Authorizations

Population growth likely will cause increased demand for LUAs for roads, power lines, highways, and other developments that would increase surface disturbance and runoff from public lands. Disturbance and storm runoff are likely to increase erosion and sedimentation.

Minerals

Mineral exploration and development is probable in the Ajo and Globe-Miami areas and in other parts of the Decision Area. New roads are usually sources of dust and sediment and increase the risk of erosion.

Recreation

Total miles of new roads and acres of new disturbance for campgrounds and interpretative areas vary depending on the alternative, but potential future recreation development will include 20 to 50 miles of new low-maintenance roads and 300 to 400 acres of new recreation sites. These disturbances will increase the probability of wind and water erosion. Quantities of soil loss will vary depending on the location and timing of new developments and the level of maintenance.

4.1.6.10 Special Designations

Areas of Critical Environmental Concern (ACECs)

No RFD scenarios have been identified for ACECs.

National Byways

No RFD scenarios have been identified for National Byways.

National Historic Trails

The vision for the Juan Bautista de Anza NHT is that it will become a long-distance historic trail corridor with a recreational track that provides public access in several locations. The Anza NHT historic route segments will be marked so the public would be able to identify the recreational trail tread. The Anza NHT will include sites for interpretation, kiosks, interpretive signs, trails, overlooks, improved roads, parking areas of up to 1 acre, vehicle barriers, picnic tables, garbage facilities, restrooms, and other facilities that may be installed in or near the area in order to enhance the visitor experience.

Wilderness Areas

No RFD scenarios have been identified for wilderness areas.

4.1.6.11 Travel Management

For the Lower Sonoran, an RFD scenario for potential route designations has been created for all alternatives to give a basis for assessing impacts. The scenario's mileage numbers are based on interagency route evaluations that were completed for the Lower Sonoran. These route mileage predictions are not displayed on a map in this plan to avoid confusion with the route designation process that will officially designate individual routes after the completion of this RMP.

Route by route analysis was done using the process identified in the Route Evaluation Methodology (**Appendix S**, Route Evaluation Methodology and Impact Analysis). The analysis conducted created a hypothetical route network based on what allocations for each alternative would likely guide the travel system, during actual route designation after completion of this RMP. The individual route reports from this analysis are available to the public on request and are on file for public review at the Phoenix District Office.

4.1.6.12 Water Resources

Land Use Authorizations

Population growth likely will cause increased demand for LUAs for roads, power lines, highways, and other developments that would increase surface disturbance and runoff from public lands. Disturbance and storm runoff are likely to increase erosion and sedimentation. Additional public land sources of water quality degradation are likely to come from spills of hazardous materials. As population and land use increase, the probability of hazard material incidents increases.

Minerals

Mineral exploration and development is probable in the Ajo and Globe-Miami areas and in other parts of the Decision Area. New roads are usually sources of dust and sediment and increase the risk of erosion.

Travel and Recreation

Total miles of new road and acres of new disturbance from recreation activity will vary depending on the alternative, but potential future recreation development will include 20 to 50 miles of new low maintenance roads and 300 to 400 acres of new recreation sites. These disturbances will increase the probability of erosion and the quantity of sediment reaching the Gila River. Impacts will vary depending on the location and timing of new developments, and the level of maintenance.

4.1.6.13 Wild Horse and Burro Management

Wild horse and burro numbers are expected to remain low in the Planning Area. The Painted Rocks Herd Area will need occasional removal of nuisance animals around private farmlands.

4.1.6.14 Wildlife and Special Status Species

Without management intervention, wildlife populations are expected to continue a downward trend over the next 25 years.

Wildlife Waters

Surface disturbance of approximately 1 acre for each catchment is expected. Approximately five buried catchments are expected to be constructed each year. Areas of disturbance will be reclaimed. In the Lower Sonoran, the total expected amount of disturbance is expected to be approximately 50 acres over the next 25 years.

Pronghorn Enclosures

Under all alternatives, up to three permanent holding pens of up to five acres each will be constructed for the housing and release of Sonoran pronghorn. Enclosures will be constructed to be predator resistant. Fencing will be buried to repel burrowing animals.

Burrowing Owl Enclosures

Up to five temporary 1-acre enclosures may be constructed, using PVC pipes and netting, to help acclimate burrowing owls to suitable habitat.

Sonoran Desert Tortoise Habitat

Potential artificial housing for displaced Sonoran desert tortoises will be constructed.

4.1.7 INCOMPLETE OR UNAVAILABLE INFORMATION

As mandated by 43 CFR 1502.22, agencies evaluating reasonably foreseeable significant adverse effects on the human environment in an EIS must identify incomplete or unavailable information if that information is essential to a reasoned choice among alternatives. This PRMP/FEIS is based on the best available data for each impact topic; however, there are few detailed resource surveys and inventories for the Planning Area. For example, little of the Planning Area has been surveyed for cultural or paleontological resources. Additionally, water quality and visitor use information is very limited. In absence of such data, the best professional judgment of BLM resource specialists at the LSFO was used in the impact analysis.

4.2 IMPACTS ON AIR QUALITY

In general, a qualitative comparison approach was selected for the analysis of impacts on air quality based on an understanding of the current air quality conditions within the Planning Area. Current air quality conditions are described in detail in **Section 3.2.1**, Air Quality, and are summarized as follows:

- The Planning Area includes some land within the Phoenix metropolitan nonattainment area for PM_{10}, O_3, and nonattainment with a maintenance plan for CO.
- The Planning Area includes Globe-Miami, which is categorized as a nonattainment area for PM_{10} and attainment with a maintenance plan for SO_2.
- The Planning Area includes Ajo, which is categorized as a nonattainment for PM_{10} and attainment with a maintenance plan for SO_2.

Active management to achieve air quality standards is occurring in the Phoenix metropolitan nonattainment area, all of Maricopa County, and parts of Pinal County. Various activities common to all management alternatives could impact the air quality status of the neighboring nonattainment areas. A landscape-scale analysis has thus been used to describe the impacts of the alternatives.

The method used in this air quality analysis involved identifying the pollutants associated with a proposed planning element, describing the relative magnitude of emissions changes, and indicating the extent of potential impacts. The primary air quality measures affected by activities on public lands are PM_{10} and $PM_{2.5}$. While significant across the landscape, CO, NO_2, VOCs, SO_2, and O_3 are unlikely to be substantially changed by actions on public lands. Impacts on air quality are assessed for the different alternatives to attain the overall air quality goal that managing use in the Decision Areas is consistent with air quality standards.

The BLM must comply with applicable State and Federal air quality control regulations, as well as air quality administrative actions. Under Section 176(c)(1) of the CAA, the BLM is responsible for demonstrating that its actions do not interfere with state and local plans to bring an area into attainment with the NAAQS. The BLM contracted for a CAA general conformity analysis to determine whether the actions proposed under Alternative E of the RMP (the preferred alternative) are subject to and meet the requirements of the General Conformity Rule and whether those actions conform to the applicable state implementation plans (SIPs). This was to meet the implementing regulations for the CAA General

Conformity rule (40 CFR 51 Subpart W and 40 CFR 93 Subpart B). The results of this analysis have been included in **Section 4.2.7**, Alternative E (Preferred Alternative), of the PRMP/FEIS.

4.2.1 METHODS OF ANALYSIS

4.2.1.1 Indicators

The magnitude and extent of air quality effects resulting from the actions proposed in the five alternatives are too complex to quantify in a comprehensive fashion due to the wide variability of potential activities and the time of occurrence. Indicators of change in concentration of criteria pollutants in a given area are very difficult to apply because they require instruments for monitoring that often are unavailable. Therefore, impacts are analyzed using qualitative terms. Some measurements of indicators that could be correlated with changes in the qualitative terms when sufficient data becomes available are:

- Measured concentration of criteria pollutants (when available)
- Volume of traffic on unpaved roads in the analysis area
- Miles of road constructed in fine textured soils
- Proportion of areas with fine textured soils that lack surface cover (vegetation, desert pavement, or cryptogamic crusts)
- Changes in visibility

4.2.1.2 Assumptions

No assumptions were used to analyze impacts from program areas on air quality.

4.2.1.3 Reasonably Foreseeable Development Scenarios

No indicators other than the RFDs identified in **Section 4.1.6**, Reasonably Foreseeable Development Scenarios, were used to analyze impacts from program areas on air quality.

4.2.1.4 Program Areas with No Impacts on Air Quality

No impacts on air resources management are anticipated for management actions relating to the following program areas:

- Cave and Cave Resources Management
- Cultural and Heritage Resource Management
- Paleontological Resource Management
- Social and Economic Concerns

- Vegetation Resource Management
- Water Resource Management
- Wild Horse and Burro Management

4.2.1.5 Qualitative Intensity Scale

The intensities of impacts are described using the following definitions:

- Negligible: Changes in the concentration of criteria pollutants, changes in the volume of traffic in the Decision Areas, or changes in other indicators would remain below the level of detection. Changes in concentration of criteria pollutants over a prescribed period would be below the level of detection.
- Minor: Changes in concentrations of criteria pollutants, changes in the volume of traffic in the Decision Areas, or changes in other indicators would be small, as would the area affected. If mitigation is needed to offset adverse effects, it would be relatively simple to implement and would likely be successful.
- Moderate: Changes in the concentration of criteria pollutants, changes in the volume of traffic in the Decision Areas, or changes in other indicators would be readily apparent and would affect a relatively wide area. Mitigating measures probably would be necessary to offset adverse effects and would likely be successful.
- Major: Changes in concentrations of criteria pollutants, changes in the volume of traffic in the Decision Areas, or changes in other indicators would be readily apparent and long-term and would substantially change the indicators over a large area. Extensive mitigation measures to offset adverse effects would be needed, but their success could not be guaranteed.

4.2.2 COMMON TO ALL ALTERNATIVES

4.2.2.1 Both Decision Areas

From Wildland Fire Management on Air Quality

Impacts from fire and fuels management would not differ by alternative but may cause temporary declines in air quality from particulate emissions and smoke. Prescribed burn plans are reviewed by the BLM and ADEQ. On high pollution days, the BLM would not conduct prescribed burns. Impacts would be minor.

4.2.2.2 Lower Sonoran

From Minerals Management on Air Quality

Mining and mineral extraction activities in the Lower Sonoran would impact air quality in the immediate vicinity of related surface-disturbing activities. Such impacts include particulates generated from blasting,

excavation, loading, and hauling activities. For mining operations other than casual/recreational mining, plans of operation must be submitted by the claimant and reviewed by the BLM. Integral to these plans are requirements that all applicable Federal, State, and local regulation for air pollution control are met, such as requirements for dust control. Impacts would be minor.

4.2.2.3 Sonoran Desert National Monument

From Minerals Management on Air Quality

The SDNM is withdrawn from new mineral entry under all alternatives. The withdrawal was established in the proclamation that established the Monument. This withdrawal has a protective effect on air resources, as ground disturbance from exploration, prospecting, and other activities associated with mineral development would be generally prohibited, thereby reducing air pollutant emissions.

In those few parcels (25,800 acres) within SDNM where the surface is owned by the United States and the subsurface is owned by a non-Federal entity, minerals development may still occur. Depending on the extent and intensity of ground disturbance, there may be minor air pollutant emissions resulting from dust particulates and vehicle exhausts. However, the BLM, as the owner/manager of the surface, would work with operators to mitigate impacts on air resources. Methods would likely include project design features or best management practices that reduce or eliminate dust particulates at the project site or lessen vehicle and equipment emissions.

4.2.3 ALTERNATIVE A (NO ACTION)

4.2.3.1 Both Decision Areas

No unique impacts are identified for either of the Decision Areas under Alternative A.

4.2.3.2 Lower Sonoran

From Lands and Realty Management on Air Quality

Surface disturbance resulting from utility-scale renewable energy development and increased use of utility corridors and associated LUAs could result in short-term increases in particulate matter emissions, particularly during construction and maintenance activities. Alternative A proposes 10 designated utility corridors in the Lower Sonoran, most of which are 1 mile wide. Because BMPs and dust control during construction would be used to control these emissions, impacts from utility corridor use on nonattainment areas would be negligible in the short term. However, long-term ground disturbance from subsurface pipelines may result in loss of vegetation, increased erosion, and subsequent increases in particulate emissions. Impacts would be minor.

From Livestock Grazing on Air Quality

Under the No Action Alternative, all existing allotments in the Lower Sonoran would be open for grazing, with the exception of the Cameron Allotment. Livestock movement would have a minor impact on air quality, as any dust emissions produced by these activities would result in localized, short-term impacts.

Surface disturbance from developing or maintaining livestock developments or other small-scale construction and ground-disturbing activities, such as rangeland developments would cause localized, short-term increases in particulate emissions. It would also cause an associated short-term decline in air quality, but this would be unlikely to cause regional air quality thresholds to be exceeded. Impacts would be minor.

As discussed in **Section 4.6**, Impacts on Soil Resources, about 8 percent of the Lower Sonoran Decision Area where ephemeral or perennial/ephemeral grazing occurs has moderate to high potential for wind erosion. Fugitive dust emissions would occur, to the extent that livestock grazing causes the permanent removal of vegetation through trampling and disturbance of sensitive surface cover provided by desert pavement and cryptobiotic crusts. This would be particularly true around water developments and areas where livestock congregate. Exposure of fine material beneath the cover makes soils vulnerable to wind and water erosion. Impacts would be long term to the extent that an area remained disturbed. The level of impact would depend on the type of soil disturbed, the amount of disturbance, and localized wind conditions, but they would be unlikely to cause regional air quality thresholds to be exceeded. Impacts would be minor.

From Recreation Management on Air Quality

Motorized recreation is expected to grow along with population growth, which would increase the likelihood that regional air quality thresholds would be exceeded. Areas close to the urban interface are most likely to be affected. Because Alternative A does not include decisions to address and manage this recreation use, namely allocating locations for intensive motorized recreation use or requiring specific mitigation for dust control, uncontrolled recreation under this alternative would result in increased dust emissions, potentially causing particulate matter thresholds to be exceeded. High speeds typical in OHV races would result in increased CO, ozone precursor (NO_x and VOCs), and particulate matter emissions; however, these events typically occur on weekends, when air pollution across the nonattainment areas is within regulatory limits (Maricopa Association of Governments [MAG] 2008). It is thus unlikely that OHV races would cause air quality thresholds to be exceeded. Impacts would range from minor to moderate.

From Special Designations Management on Air Quality

Alternative A would retain the 8,900-acre Coffeepot Botanical ACEC designation in the Lower Sonoran, which has restrictions on air pollutant emissions, including avoiding surface-disturbing activities and restricting motor vehicle use. Air pollutant emissions in the ACEC would thus be reduced. Impacts would be negligible.

From Travel Management on Air Quality

Motorized travel on 830,200 acres that are limited to existing roads and trails would contribute to CO, ozone precursor, and particulate matter emissions. As described in **Section 4.6**, Impacts on Soil Resources, over a third of the routes in this area are on soils with high wind erosion potential. Continuation of the current management would likely result in the expansion of nondesignated routes, increasing the amount of disturbed area and thus increasing fugitive dust emissions through wind erosion and OHV use of these routes. Impacts from OHV use would range from moderate to major.

Under Alternative A, some of the existing roads and trails that are available for motorized use would be within PM_{10} nonattainment areas. Continued use of these routes would result in an increase in PM_{10} emissions if the amount of OHV travel increased over current conditions with population increases or if the miles of routes increased through user creation of new routes. Impacts would range from moderate to major.

Dust emissions produced by use of nonmotorized routes (e.g., hiking and equestrian activity) would result in localized, short-term negligible impacts. In the long term, as population growth leads to increased recreation, nonmotorized trail development, both planned and user created, would contribute to the production of dust in localized areas. Impacts would range from minor to moderate.

Maintaining the existing OHV designations of Limited to Existing and Trails would not minimize impacts on air quality since route proliferations would likely continue. New disturbance, by both motor vehicle use and nonmotorized uses, in high erosion potential soils would likely occur near residences in the Buckeye Hills East area.

From Visual Resource Management on Air Quality

Ensuring that projects, uses, and activities are compatible for management of visual resources under Alternative A may require restoration of disturbed areas to protect visibility and scenic quality. This would decrease the likelihood of particulate emissions from erosion and dust, especially in VRM Class I and Class II areas. Alternative A would allocate 91,750 acres in VRM Class I and 115,050 acres in Class II in the Lower Sonoran. In the long term, vegetation restoration projects and protection of scenic quality in these areas would decrease particulate matter emissions due to reduced surface disturbance and erosion of the soil. Overall impacts would be negligible.

From Wildlife and Special Status Species on Air Quality

Surface disturbance from developing or maintaining wildlife waters would cause localized short-term increases in particulate emissions and an associated short-term decline in air quality. However, this would be unlikely to cause regional air quality thresholds to be exceeded. Air quality would be expected to decline over the short term as a result of increased dust associated with the construction of wildlife water developments or trucks supplying water to the developments in the Decision Area. Impacts would be negligible.

4.2.3.3 Sonoran Desert National Monument

From Lands and Realty on Air Quality

Surface disturbance resulting from the development and increased use of utility corridors and associated LUAs could result in short-term increases in particulate matter emissions, particularly during construction and maintenance. Three 1-mile-wide utility corridors traversing portions of the SDNM would be designated under Alternative A. Surface disturbance resulting from use of these corridors could result in increased particulate matter emissions. Because BMPs and dust control during construction would be used to control these emissions, impacts from utility corridor usage on nonattainment areas would be short term. On the other hand, long-term ground disturbance from subsurface pipelines may result in loss of vegetation, increased erosion, and subsequent particulate

emissions. The vulnerability of soils to disruption would be assessed on a case-by-case basis for projects in the Sand Tanks Mountains area, which would help to keep future emissions below required thresholds. Impacts would be minor.

From Livestock Grazing on Air Quality

Impacts would be the same as those described under Alternative A for the Lower Sonoran, except that they would be less extensive because Monument lands south of I-8 are closed to grazing. (See **Appendix E**, Compatibility Analysis: Livestock Grazing on the Sonoran Desert National Monument.) Impacts in areas where grazing would be allowed in the SDNM would be as described for the Lower Sonoran.

From Recreation Management on Air Quality

Impacts would be the same as those described under Alternative A for the Lower Sonoran.

From Special Designations Management on Air Quality

Alternative A would retain the 3,500-acre Vekol Valley ACEC in the SDNM, including requirements that would reduce air pollutant emissions, including avoiding surface-disturbing activities and restricting motor vehicle use. Air pollutant emissions in these areas would thus be reduced compared to areas outside special designations. Impacts would be negligible.

From Travel Management on Air Quality

Under Alternative A in the SDNM, 325,200 acres would be limited to existing roads and trails, and 161,200 acres would be closed. Motorized travel on approximately 590 miles of existing routes would continue to contribute to CO, ozone precursor, and particulate matter emissions. Impacts would be minor to moderate.

Five miles of roads would be open for motorized use within PM_{10} nonattainment areas. (See **Table 4-2**, Miles of Routes in PM_{10} Nonattainment Areas for the SDNM.) Continued use of these routes would result in an increase in PM_{10} emissions if the amount of OHV travel increased over current conditions with population increases or if the miles of routes increased through user creation of new routes. Impacts would be minor to moderate.

Maintaining the existing OHV designations would not minimize effects on air quality since route proliferation would likely continue. Routes along the Komatke Gas Pipeline road would not be designated, and vagueness in where routes end or go could cause new disturbance and thus more particulates to be emitted.

Table 4-2
Miles of Routes in PM_{10} Nonattainment Areas for the SDNM

Route Type	Alternative A	Alternative B	Alternative C	Alternative D	Alternative E
Open	5	4.7	2.1	1.1	1.7
Closed	0	0.3	2.9	3.4	3.3

Table 4-2
Miles of Routes in PM_{10} Nonattainment Areas for the SDNM

Route Type	Alternative A	Alternative B	Alternative C	Alternative D	Alternative E
Seasonally Limited	0	0	0	0	0
Administrative Use Only	0	0	0.6	0.6	0
Single-Track	0	0	0	0	0
All-Terrain Vehicle (ATV)	0	0	0	0	0
Nonmotorized	0	0	0	0	0

From Visual Resources on Air Quality

Assuring projects, uses, and activities are compatible for management of visual resources may require restoration of disturbed areas to protect visibility and scenic quality. This would decrease the likelihood of particulate emissions from erosion and dust, especially in VRM Class I and II areas. Alternative A would allocate 157,700 acres in Class I and 91,600 acres in Class II in the SDNM. In the long term, vegetation restoration projects and the protection of scenic quality in these areas would decrease particulate matter emissions as a result of reduced surface disturbance and erosion of the soil. Impacts would be negligible.

From Wildlife and Special Status Species on Air Quality

Impacts would be the same as those described under Alternative A for the Lower Sonoran.

4.2.4 ALTERNATIVE B

4.2.4.1 Both Decision Areas

No unique impacts are identified for both Decision Areas under Alternative B.

4.2.4.2 Lower Sonoran

From Lands and Realty on Air Quality

Under Alternative B, 744,600 acres would be avoided and 145,000 acres would be excluded from utility-scale renewable energy. Additional LUA avoidance areas would total 520,900 acres, while exclusion areas would total 126,500 acres. Alternative B would designate ten 1-mile-wide utility corridors. Impacts from these actions would be less than Alternative A because of the greater amount of avoidance and exclusion areas and because specific decisions would be in place to manage and control surface-disturbing activities. This would lessen air quality impacts, including particulate matter release. Impacts would be minor to moderate.

From Livestock Grazing on Air Quality

Impacts on air quality from grazing would be less than described under Alternative A. Reduction of perennial stocking rates by 41 percent would reduce the area disturbed, thereby reducing fugitive dust impacts resulting from vegetation removal and surface disturbance. Adaptive monitoring and management of grazing would provide the opportunity to increase surface cover, reduce bare ground, and reduce impacts on areas of sensitive cryptobiotic crusts and desert pavement, thereby decreasing fugitive dust impacts from wind erosion on disturbed areas. Impacts would be minor.

From Recreation Management on Air Quality

When compared to Alternative A, construction of more recreation facilities to manage recreational uses under Alternative B may result in more ground disturbance and a greater, though still small, chance of causing regional air quality thresholds to be exceeded. Impacts would range from minor to moderate.

From Special Designations on Air Quality

Impacts would be the same as those described under Alternative A for the Lower Sonoran.

From Travel Management on Air Quality

Motorized recreation would result in the same types of air pollutant emissions described under Alternative A. Under Alternative B, motor vehicles would be required to stay on designated routes on 839,060 acres of land within the Lower Sonoran, 91,100 acres would be closed to OHV use, and 40 acres would be open (compared with 830,200 acres being limited to existing roads and trails and 100,000 acres being closed to OHV use under Alternative A). While motorized travel on routes available for such use would result in CO, ozone precursor, and particulate matter emissions, impacts on air quality from travel management actions under Alternative B are likely to be reduced compared to Alternative A. By complying with the minimization criteria defined in 43 CFR 8342.1, the route designation process would consider potential impacts on air quality in deciding which routes to designate for motorized use. Route designation will be conducted after the Lower Sonoran RMP is signed and will involve designating routes as open, close, or limited for motorized use)

Under Alternative B, fewer routes within PM_{10} nonattainment areas would likely be open for public use, which would decrease PM_{10} emissions in the nonattainment areas compared to Alternative A. Dust mitigation measures, such as establishing speed limits, adding dust-reducing agents, or closing routes seasonally or year-round, would also minimize PM_{10} emissions, further reducing the potential for increased impacts.

Under Alternative B, a 40-acre site in the Ajo Block, which is on the northern edge of a PM_{10} nonattainment area in the Lower Sonoran, would be limited to ATV and motorcycle use. Such use in this area may cause regional air quality thresholds to be exceeded, particularly during high winds. In order to ensure that the area maintains compliance with the air quality standards, dust mitigation measures, such as restrictions on use during dry or windy periods, restrictions on allowable speeds, and use of dust suppressants, would be implemented in this area, thus reducing the intensity of impacts. Designating this area as an OHV open area would also create an attraction that would reduce use in

other areas, causing a potential net reduction in new disturbance and thus minimizing impacts on air quality.

Impacts from high speeds described under Alternative A, such as during OHV races, would be eliminated as speed event permits would not be authorized under Alternative B. Overall, impacts would range from minor to moderate.

From Visual Resources on Air Quality

Impacts would be similar to those described under Alternative A, except beneficial impacts from VRM Class II areas would be more widespread in the Lower Sonoran due to an increase of VRM Class II acres by 50,150. In addition, Alternative B would emphasize active vegetation restoration projects with specific restoration goals, which would likely result in larger areas being rehabilitated more quickly, thus having a greater ability to decrease particulate emissions compared to Alternative A. Overall, impacts would remain negligible.

From Wildlife and Special Status Species on Air Quality

Impacts would be similar to those described under Alternative A. Local air quality would experience a short-term minor decline due to increased dust (particulate matter) associated with the construction of additional wildlife water developments, while measures to protect sensitive species that call for avoidance of surface-disturbing activities could reduce air quality impacts. Overall impacts would remain negligible.

4.2.4.3 Sonoran Desert National Monument

From Lands and Realty on Air Quality

Impacts on air quality would be less than under Alternative A for SDNM. While Alternative B would have the same amount of LUA exclusion areas (164,900 acres) and corridor areas (32,900 acres), it would have a greater amount of avoidance areas (321,500 acres versus no avoidance areas for Alternative A). Measures to manage and control surface-disturbing activities would further reduce air quality impacts.

From Livestock Grazing Management on Air Quality

Impacts would be similar to those described under Alternative A. In addition to the area south of I-8, 8,500 acres north of I-8 would become unavailable to livestock grazing use, resulting in a minor decrease in potential fugitive dust emissions from livestock.

From Recreation Management on Air Quality

Impacts would be the same as those described under Alternative B for the Lower Sonoran.

From Special Designations on Air Quality

Impacts from removal of the special designation for the Vekol Valley ACEC in the SDNM would be negligible as the area would still be managed to meet the requirements of the Monument proclamation.

From Travel Management on Air Quality

Under Alternative B in the SDNM, 328,700 acres would be limited to designated routes and 157,700 acres would be closed. Route designation follows the minimization criteria set forth in 43 CFR 8342.1, helping to reduce impacts on air quality. Motorized travel on approximately 520 miles of routes would contribute to CO, ozone precursor, and particulate matter emissions (70 miles fewer than under Alternative A). As described for Lower Sonoran Alternative B, impacts on air quality from travel management actions are likely to be reduced compared to Alternative A, as the route designation process considers potential impacts on air quality in deciding which routes to designate for motorized use. Impacts would be minor to moderate.

Under Alternative B, a similar amount of routes within PM_{10} nonattainment areas would be open for public use (4.7 miles versus 5 miles under Alternative A; see **Table 4-2**, Miles of Routes in PM_{10} Nonattainment Areas for the SDNM.) However, dust mitigation measures, such as establishing speed limits, adding dust-reducing agents, and closing routes seasonally or year-round, would minimize PM_{10} emissions, reducing these emissions as compared to Alternative A. Impacts would be minor.

From Visual Resources on Air Quality

Impacts from assigning the SDNM to the various VRM classes would be similar to those described under Alternative A, although beneficial impacts would be more extensive under Alternative B due to an increase of VRM Class II areas by 126,400 acres. This would decrease the likelihood of particulate emissions from erosion and dust in Class I areas. In addition, placing an emphasis on active vegetation restoration projects with specific restoration goals under Alternative B would result in larger areas being rehabilitated more quickly, leading to decreased particulate emissions compared to Alternative A. In addition, requiring restoration until the soil is stabilized, ensuring that 60 percent of the expected vegetation on the site is present and established, and ensuring the area meets the requirements in the designated VRM class would further decrease the possibility of particulate emissions. There would be negligible to no adverse impacts under this alternative.

From Wildlife and Special Status Species on Air Quality

Impacts would be the same as those described under Alternative B for the Lower Sonoran.

4.2.5 ALTERNATIVE C

4.2.5.1 Both Decision Areas

No unique impacts are identified for both Decision Areas under Alternative C.

4.2.5.2 Lower Sonoran

From Lands and Realty on Air Quality

Under Alternative C, 639,900 acres would be avoided and 271,900 acres would be excluded from utility-scale renewable energy. Additional LUA avoidance areas would total 604,300 acres, while exclusion areas would total 126,500 acres. Alternative C would designate nine 1-mile-wide utility

corridors. Impacts from these actions would be less than under Alternative A because of the greater amount of avoidance and exclusion areas and reduction in corridor acreages. Overall impacts would also be reduced because specific decisions would be in place to manage and control surface-disturbing activities, thereby reducing air quality impacts, including particulate matter release. Impacts would be minor to moderate.

From Livestock Grazing on Air Quality

Impacts would be less than described under Alternative A. Adaptive monitoring and management of grazing would provide the same opportunities to reduce vegetation removal and surface disturbance, as described under Alternative B.

From Recreation Management on Air Quality

Managing recreation uses under Alternative C with a balance between motorized and nonmotorized recreation, while minimizing impacts on sensitive natural and cultural resources, could reduce motorized recreation opportunities in the Lower Sonoran. This, in turn, could result in fewer localized air quality impacts related to such use, compared to Alternative A. Impacts from nonmotorized use (hiking and equestrian) would be similar to Alternative A, though slightly reduced due to the use of designated access points that would reduce the proliferation of user-created trails, which destabilize the soil and make it vulnerable to wind erosion. Overall, impacts from all forms of recreation use under Alternative C would range from minor to moderate.

From Special Designations on Air Quality

Impacts from ACEC allocation would be similar to those described under Alternative A, except that beneficial impacts would be more widespread because over seven times more acres are proposed for ACEC designation under Alternative C. While benefits would be more intense within the ACEC, overall beneficial impacts would remain negligible.

From Travel Management on Air Quality

Motorized recreation would result in the same types of air pollutant emissions described under Alternative A. Under Alternative C, motor vehicle operators would be required to stay on designated routes on 839,100 acres of land within the Lower Sonoran, and 91,100 acres would be closed to OHV use (compared with 830,200 acres being limited to existing roads and trails and 100,000 acres being closed to OHV use under Alternative A). In addition, access points would be reduced in number. While motorized travel on routes available for such use would result in CO, ozone precursor, and particulate matter emissions, impacts on air quality from travel management actions under Alternative C are likely to be reduced compared to Alternative A because travel would occur only on the designated route system and via fewer access points. By complying with the minimization criteria defined in 43 CFR 8342.1, the route designation process will consider potential impacts on air quality in deciding which routes to designate for motorized use. This process will be conducted after the Lower Sonoran RMP is signed, and will involve designating routes as open, closed or limited for motorized use.. Impacts would be minor to moderate.

Under Alternative C, fewer routes within PM_{10} nonattainment areas would likely be open for public use than under Alternative A, which would decrease PM_{10} emissions in the nonattainment areas compared to Alternative A. Dust mitigation measures, such as establishing speed limits, adding dust-reducing agents, and closing routes seasonally or year-round, would also minimize PM_{10} emissions, further reducing the potential for increased impacts. Impacts would be minor to moderate.

Impacts from a 40-acre ATV and motorcycle area would be less under Alternative C, as travel would be limited to designated routes. Fewer areas would be available for OHV races under Alternative C, thus reducing the extent of impacts. Alternative C would also close washes with suitable cactus ferruginous pygmy-owl habitat to OHV use for seven months of the year, which would reduce air pollutant emissions in this localized area. Impacts would range from minor to moderate.

From Visual Resources on Air Quality

Compared to Alternative A, Alternative C would increase VRM Class I and Class II acreage, which would require restoration of disturbed areas to protect visibility and scenic quality. This would decrease the likelihood of particulate emissions from erosion and dust on an additional 272,800 acres over Alternative A in the Lower Sonoran. Overall, impacts would remain negligible.

From Wildlife and Special Status Species on Air Quality

Allocating four WHAs totaling 425,900 acres and wildlife movement corridors would reduce air pollutant emissions. These allocations would include restrictions on surface-disturbing activities or would require additional mitigation measures for surface-disturbing activities. As a result, adverse impacts on air quality would decrease in these areas compared to Alternative A. Adverse impacts from developing or maintaining wildlife waters described under Alternative A would be reduced, as no new wildlife waters would be developed under Alternative C. Impacts would be negligible.

4.2.5.3 Sonoran Desert National Monument

From Lands and Realty on Air Quality

Impacts on air quality would be less than under Alternative A for SDNM. While Alternative C would have the same amount of LUA exclusion areas (164,900 acres), it would have a greater amount of avoidance areas (321,500 acres versus no avoidance areas for Alternative A) and corridor areas (32,900 acres) and less corridor acreage (14,900 acres versus 32,900 acres for Alternative A). Measures to manage and control surface-disturbing activities would further reduce air quality impacts.

From Livestock Grazing on Air Quality

Impacts would be less than under Alternative A. In addition to the area south of I-8, 44,800 acres north of I-8 would become unavailable for livestock grazing use in areas that were found to be incompatible with the objects of the Monument due to current livestock use. Impacts would be minor.

From Recreation Management on Air Quality

Impacts would be similar to those described under Alternative C for Lower Sonoran and would range from minor to moderate.

From Special Designations on Air Quality

Impacts would be the same as described under Alternative B for the SDNM.

From Travel Management on Air Quality

Impacts would be similar under Alternative C as described for Alternative B in the SDNM because the same acreage would be limited to designated routes and closed. Motorized travel on approximately 380 miles of routes, with another 37 miles with seasonal limitations, would contribute to CO, ozone precursor, and particulate matter emissions (170 miles fewer than under Alternative A). Impacts on air quality from travel management actions are likely to be reduced compared to Alternative A, as the route designation process reduces the number of miles of routes and access points available for public use. Impacts would be minor to moderate.

Under Alternative C, 2.1 miles of routes within PM_{10} nonattainment areas would be open for public use (versus 5 miles under Alternative A), potentially reducing PM_{10} emissions. (See **Table 4-2**, Miles of Routes in PM_{10} Nonattainment Areas for the SDNM.) Dust mitigation measures such as establishing speed limits, adding dust-reducing agents, and closing routes seasonally or year-round, would minimize PM_{10} emissions, reducing these emissions as compared to Alternative A. Impacts would be minor.

From Visual Resources on Air Quality

Compared to Alternative A, Alternative C would increase VRM Class I and Class II acreage, which would require restoration of disturbed areas to protect visibility and scenic quality. This would decrease the likelihood of particulate emissions from erosion and dust on an additional 176,800 acres over Alternative A in the Lower Sonoran. Overall, impacts would remain negligible.

From Wildlife and Special Status Species on Air Quality

Impacts under Alternative C would be similar to those described under Alternative B. Adverse impacts from developing or maintaining wildlife waters would be reduced, as no new wildlife waters would be developed under Alternative C. Impacts would be negligible.

4.2.6 ALTERNATIVE D

4.2.6.1 Both Decision Areas

No unique impacts are identified for either Decision Areas under Alternative D.

4.2.6.2 Lower Sonoran

From Lands and Realty on Air Quality

Under Alternative D, 413,700 acres would be avoided and 511,500 acres would be excluded from utility-scale renewable energy. Additional LUA avoidance areas would total 328,600 acres, while exclusion areas would total 510,700 acres. Alternative D would designate seven 1-mile-wide utility corridors. Impacts from these actions would be the least compared to Alternative A because this

alternative has the greatest amount of avoidance and exclusion areas. Impacts would also be reduced because specific decisions would be in place to manage and control surface-disturbing activities to lessen air quality impacts, including particulate matter release. Impacts would be minor.

From Livestock Grazing on Air Quality

Under Alternative D, all allotments would be closed to grazing once current permits expire, and existing wildlife waters would be removed. As a result, Alternative D would result in the least amount of impact on air quality compared to the other alternatives. Impacts would be negligible.

From Recreation Management on Air Quality

Managing recreational uses under Alternative D for resource conservation and protection would result in the least motorized activity taking place in the Decision Area. Adverse impacts from recreation would be reduced to minor.

From Special Designations on Air Quality

Impacts from ACEC allocation would be similar to those described under Alternative A, although significantly more acres in the Lower Sonoran would be under ACEC designation (267,100 acres versus 12,400 acres under Alternative A). Impacts would remain negligible.

From Travel Management on Air Quality

Motorized recreation would result in the same types of air pollutant emissions described under Alternative A. Under Alternative D, motor vehicle operators would be required to stay on designated routes on 587,500 acres of land within the Lower Sonoran, and 342,700 acres would be closed to OHV use (compared with 830,200 acres being limited to existing roads and trails and 100,000 acres being closed to OHV use under Alternative A). While motorized travel on routes available for such use would result in CO, ozone precursor, and particulate matter emissions, impacts on air quality from travel management actions under Alternative D are likely to be the least compared to Alternative A because of the high level of OHV closed areas and restriction to designated routes. By complying with the minimization criteria defined in 43 CFR 8342.1, the route designation process will consider potential impacts on air quality in deciding which routes to designate for motorized use. This process will be conducted after the Lower Sonoran RMP is signed, and will involve designating routes as open, closed or limited for motorized use. Impacts would be minor.

Under Alternative D, fewer routes within PM_{10} nonattainment areas would likely be open for public use than under Alternative A, which would decrease PM_{10} emissions in the nonattainment areas, compared to Alternative A. Dust mitigation measures such as establishing speed limits, adding dust-reducing agents, and closing routes seasonally or year-round, would also minimize PM_{10} emissions, further reducing the potential for increased impacts. Impacts would be minor to moderate.

Under Alternative D, the 40-acre ATV and motorcycle area would be closed and rehabilitated, reducing impacts on the nearby PM_{10} nonattainment area. Alternative D would also close washes with suitable cactus ferruginous pygmy-owl habitat to OHV use for seven months of the year, which would reduce air pollutant emissions in this localized area. Impacts would be minor.

From Visual Resources on Air Quality

Alternative D would allocate the most acreage to VRM Class I and II in the Lower Sonoran among all the alternatives. In the long term, protection of scenic quality in VRM Class I and II areas by reducing surface disturbance would decrease particulate matter emissions over a broader area under Alternative D than under any of the other alternatives. Although beneficial impacts would be more extensive, they would remain negligible.

From Wildlife and Special Status Species on Air Quality

Allocating one WHA totaling 255,700 acres and wildlife movement corridors would reduce air pollutant emissions. Alternative D would include the most restrictions on surface-disturbing activities in these areas. As a result, impacts on air quality would be the least under this alternative, compared to Alternative A. Adverse impacts from developing or maintaining wildlife waters described under Alternative A would be reduced because no new wildlife waters would be developed under Alternative D. Impacts would be negligible.

4.2.6.3 Sonoran Desert National Monument

From Lands and Realty on Air Quality

Allocating the entire Monument as an LUA exclusion area with no multiuse utility corridors would minimize adverse impacts associated with increased emissions from surface-disturbing activities, such as construction and maintenance. Overall, adverse impacts would be reduced to negligible.

From Livestock Grazing on Air Quality

Impacts by livestock grazing on air quality would be substantially reduced, compared to Alternative A, due to the elimination of grazing once current grazing permits expire. Impacts would be negligible.

From Recreation Management on Air Quality

Impacts would be the same as those described under Alternative D for the Lower Sonoran.

From Special Designations on Air Quality

Impacts would be the same as those described under Alternative B for the SDNM.

From Travel Management on Air Quality

Under Alternative D in the SDNM, 172,800 acres would be limited to designated routes, and 313,600 acres would be closed. Motorized travel on approximately 225 miles of routes would contribute to CO, ozone precursor, and particulate matter emissions (365 miles fewer than under Alternative A). Impacts on air quality from travel management actions would be least, compared to Alternative A. Impacts would be minor.

Under Alternative D, 1.1 miles of routes within PM_{10} nonattainment areas would be open for public use (versus 5 miles under Alternative A), potentially reducing PM_{10} emissions. (See **Table 4-2**, Miles of

Routes in PM_{10} Nonattainment Areas for the SDNM.) However, as use level increases over time, an increase in particulate emissions may result from more vehicles using fewer routes. Dust mitigation measures, such as establishing speed limits, adding dust-reducing agents, and closing routes seasonally or year-round, would minimize PM_{10} emissions, reducing these emissions, as compared to Alternative A. Impacts would be minor.

From Visual Resources on Air Quality

Impacts would be similar to those described for Alternative D for the Lower Sonoran due to more lands in the Decision Area being assigned to VRM Class I and VRM Class II, compared to the other alternatives. Although beneficial impacts would be more extensive, they would remain negligible.

From Wildlife and Special Status Species on Air Quality

Impacts related to wildlife water development would be the same as those described under Alternative C for the Lower Sonoran.

4.2.7 ALTERNATIVE E (PROPOSED RMP)

4.2.7.1 Both Decision Areas

No unique impacts are identified for either Decision Areas under Alternative E.

4.2.7.2 Lower Sonoran

From Lands and Realty on Air Quality

Under Alternative E, 511,100 acres would be avoided and 380,800 acres would be excluded from utility-scale renewable energy. Additional LUA avoidance areas would total 310,200 acres, while exclusion areas would total 380,100 acres. Alternative E would designate eight 1-mile-wide utility corridors. Impacts from these actions would be less than under Alternative A, given the greater amount of avoidance and exclusion areas. Impacts would also be reduced because specific decisions would be in place to manage and control surface-disturbing activities to lessen air quality impacts, including particulate matter release. Impacts would be minor to moderate.

From Livestock Grazing Management on Air Quality

Impacts from grazing in the Lower Sonoran would be the same as described under Alternative A.

From Recreation Management on Air Quality

Alternative E would balance production of commodities with conservation and protection of natural resources, resulting in potentially fewer impacts, compared to Alternative A, from measures put in place to minimize air quality impacts from surface-disturbing activities.

From Special Designations on Air Quality

Beneficial impacts from ACEC designations in the Lower Sonoran would be similar to those described under Alternative D. Approximately 198,400 acres would have an ACEC designation. Impacts would remain negligible.

From Travel Management on Air Quality

Motorized recreation would result in the same types of air pollutant emissions described under Alternative A. Under Alternative E, motor vehicle operators would be required to stay on designated routes on 777,400 acres in the Lower Sonoran, and 91,100 acres would be closed to OHV use (compared with 830,200 acres being limited to existing roads and trails and 100,000 acres being closed to OHV use under Alternative A). While motorized travel on routes available for such use would result in CO, ozone precursor, and particulate matter emissions, impacts on air quality from travel management actions under Alternative E would be less than under Alternative A. Impacts would be minor to moderate. Under Alternative E, fewer routes within PM_{10} nonattainment areas would likely be open for public use than under Alternative A, which would decrease PM_{10} emissions in the nonattainment areas. The high level of areas closed to OHV use or where such use is restricted to designated routes would cause the least amount of disturbed soils, leading to the lowest PM_{10} and fugitive dust emissions of all alternatives. Dust mitigation measures, such as establishing speed limits, adding dust-reducing agents, and closing routes seasonally or year-round, would also minimize PM_{10} emissions, further reducing the potential for increased impacts. Impacts would be minor to moderate.

Impacts from a 40-acre ATV and motorcycle area would be less than under Alternative A, as travel would be limited to designated routes. Alternative E would close washes with suitable cactus ferruginous pygmy-owl habitat to OHV use for seven months of the year, which would reduce air pollutant emissions in this area. Impacts would range from minor to moderate.

From Visual Resources on Air Quality

Impacts from ensuring that projects, uses, and activities are compatible with management of visual resources would be similar to Alternative B, although beneficial impacts would be more widespread as Alternative E would allocate 44,300 more acres to VRM Class II. Overall impacts would remain negligible.

From Wildlife and Special Status Species on Air Quality

Impacts from designation of one WHA in the Lower Sonoran would be similar to those identified under Alternative D. Local air quality would experience a short-term minor decline due to increased dust (particulate matter) associated with the construction of additional wildlife water developments, while measures to protect sensitive species that call for avoidance of surface-disturbing activities could reduce air quality impacts. Overall impacts would remain negligible.

4.2.7.3 Sonoran Desert National Monument

From Lands and Realty on Air Quality

Allocating the entire Monument as an LUA exclusion area with no multiuse utility corridors would minimize adverse impacts associated with increased emissions from surface-disturbing activities, such as construction and maintenance. Overall, adverse impacts would be reduced to negligible.

From Livestock Grazing on Air Quality

Impacts would be similar to those described under Alternative A from eliminating grazing south of I-8. In addition to this area, 95,290 acres north of I-8 would become unavailable for livestock grazing use in areas that were found to be incompatible with the objects of the Monument due to current livestock use. In addition, reduction of livestock AUMs by 5,589 AUMs should reduce the number of livestock using the Monument and therefore reduce air emissions resulting from trailing and other actions that raise fugitive dust.

From Recreation Management on Air Quality

Impacts would be the same as those described under Alternative E for the Lower Sonoran.

From Special Designations on Air Quality

Impacts would be the same as those described under Alternative B for the SDNM.

From Travel Management on Air Quality

Impacts would be similar under Alternative E, as described for Alternatives B and C in the SDNM, because the same acreage would be limited to designated routes and would be closed. Motorized travel on approximately 348 miles of routes, with another 26 miles with seasonal limitations, would contribute to CO, ozone precursor, and particulate matter emissions (215 miles fewer than under Alternative A). While overall use on routes is not likely to decline in this alternative, impacts on air quality from travel management actions are likely to be reduced compared to Alternative A. This is because the route designation process considers potential impacts on air quality in deciding which routes to designate for motorized use. Impacts would be minor to moderate.

Under Alternative E, 1.7 miles of routes within PM_{10} nonattainment areas would be open for public use (versus 5 miles under Alternative A), potentially reducing PM_{10} emissions. (See **Table 4-2**, Miles of Routes in PM_{10} Nonattainment Areas for the SDNM.) Dust mitigation measures such as establishing speed limits, adding dust-reducing agents, and closing routes seasonally or year-round, would minimize PM_{10} emissions, reducing these emission as compared to Alternative A. Impacts would be minor.

From Visual Resources on Air Quality

In the SDNM, Alternative E would allocate 157,700 acres in Class I and 252,400 acres in Class II. Alternative E would thus decrease the likelihood of particulate emissions from erosion and dust in SDNM, compared to Alternative A, because it would allocate 160,800 more acres to VRM Class II. Impacts would be negligible.

From Wildlife and Special Status Species on Air Quality

Impacts would be the same as those described under Alternative E for the Lower Sonoran.

Clean Air Act Conformity Analysis

As discussed in the introduction to **Section 4.2**, Impacts on Air Quality, the BLM is responsible for demonstrating that its actions do not interfere with state and local plans to bring an area into attainment with the NAAQS. The BLM contracted for a CAA general conformity analysis to determine whether the actions proposed under Alternative E of the RMP (the preferred alternative) are subject to and meet the requirements of the General Conformity Rule and whether those actions conform to the applicable SIPs. **Table 4-3**, Summary of Net Emissions for Conformity Evaluation, summarizes the results of the conformity evaluation for activities in the Proposed RMP that are anticipated to result in increased emissions.

Table 4-3
Summary of Net Emissions for Conformity Evaluation

Planning Area	Activity Location	Description	CO	NO_x	SO_2	VOC	PM_{10}
Construction (tons)							
LSDA	Buckeye Hills East RMZ	Construct staging areas: five 6-acre and one 10-acre, total 40 acres	25.98	21.52	0.02	2.94	24.79
		Construct road: 4 miles, 30-foot width	6.07	5.13	0.0046	0.69	3.94
		Construct trails: 5 miles of single-track	0.04	0.01	0.0001	0.001	0.0003
SDNM	Anza NHT RMZ	Construct pulloffs: 3 acres total	6.20	5.07	0.004	0.71	0.79
		Improve existing staging areas: two 1.5-acre areas	0.09	0.09	0.0002	0.01	0.26
Total construction			38.38	31.82	0.02	4.36	29.78
Recurring Activities (tons/year)							
LSDA	Buckeye Hills East RMZ	Increased visitation	2.94	0.40	0.003	0.31	7.37
		OHV races	0.84	0.05	0.001	0.54	9.75
SDNM	Anza NHT RMZ	Increased visitation	0.42	0.08	0.00	0.01	2.77
		Increase road maintenance: 12 miles	0.84	0.05	0.00	0.54	9.75
Total recurring activities			5.45	1.55	.005	1.01	24.92
Total Emissions and Comparison to Conformity Thresholds							
Sum of construction and recurring emissions (tons, if all activities occur in one year)			43.83	33.37	0.03	5.36	54.70
Applicable general conformity thresholds (tons/year)			100	100	100	100	70

Source: BLM 2012

Notes: PM_{10} emissions include both fugitive and exhaust PM. $PM_{2.5}$ emissions were not quantified because no net emissions increases attributable to the Proposed RMP would occur in the West-Central Pinal $PM_{2.5}$ NAA.

As indicated in **Table 4-3** (above), the general conformity evaluation demonstrates that the net emissions increases attributable to the Proposed RMP (Alternative E), compared to Alternative A (No Action), would be less than the applicable general conformity thresholds. Accordingly, the proposed

action conforms to the applicable SIPs. As a result, no further conformity evaluation is necessary, and a conformity determination is not required.

4.3 IMPACTS ON CLIMATE CHANGE

Management activities that can affect climate change include those that emit greenhouse gases (GHGs; especially carbon dioxide [CO_2] and methane) and those that sequester GHGs. Proposed vegetation, wildland fire, livestock grazing, mineral resources, recreation, and travel management actions could emit GHGs in the Planning Area, while proposed vegetation and wildland fire management actions that create healthy vegetation and soils could sequester GHGs.

Because climate change is a global condition, it is impossible to link a specific BLM action to a specific climate change-related impact. Emission of GHGs from proposed BLM actions would be small in the context of broader spatial-scale emissions, and the duration of most BLM actions would be shorter than predicted changes in climatic conditions. Short-term direct and indirect impacts on climate from any of the alternatives would be negligible. However, over the long term, GHG emissions from actions on public lands do contribute to total global emission levels. These, in turn, could contribute to future long-term, anticipated climate changes to a very minor degree. Overall, the contribution would be a very small portion of the total from other sources of a regional and global nature.

4.3.1 COMMON TO ALL ALTERNATIVES

4.3.1.1 Both Decision Areas

From Vegetation Management on Climate Change

Vegetation management would require the use of vehicles, chainsaws, and other equipment powered by nonrenewable fuels, which results in GHG emissions. Vegetation treatment using fire generates smoke and releases carbon from plants. At the same time, treatments that improve vegetative communities in the long term could increase rates of GHG sequestration, thus mitigating climate change effects. Impacts on climate change from vegetation management would vary by alternative, based on the type and extent of vegetation treatment proposed to be applied. Alternatives that increase frequency of fire use could result in increased GHG emissions in the short term, and alternatives that create healthier vegetative communities in the long term could result in decreased GHG emissions.

From Visual Resource Management on Climate Change

Management actions to improve and protect visual resources could reduce GHG emissions through limitations on surface-disturbing activities. Such limitations would reduce GHG emissions from construction and would maintain vegetative communities that could act as GHG sinks. Impacts from visual resource management on climate change would vary by alternative, based on the number of acres allocated to each VRM class. Alternatives that increase acreage allocated as VRM Class I or II could result in decreased GHG emissions.

From Wilderness Characteristics on Climate Change

Lands managed to protect wilderness characteristics would have more restrictions on use, resulting in reduced motor vehicle use and reduced surface disturbance. Reduction in motor vehicle use would decrease GHG emissions, and reduction in surface disturbance could both decrease GHG emissions from construction and increase GHG sequestration by leaving vegetative communities intact. Impacts from wilderness characteristics on climate change would vary by alternative, based on the number of acres managed to protect such characteristics. Alternatives proposing increased amounts of lands managed to protect wilderness characteristics could result in decreased GHG emissions.

From Wildland Fire Management on Climate Change

Any use of wildland or prescribed fire to meet the goals and objectives of wildland fire management, such as to restore fire frequency and intensity regimes and to reduce hazardous fuel buildup, would emit GHGs into the atmosphere. Conversely, wildland fire management that results in healthier vegetative communities could increase rates of GHG sequestration, thus mitigating climate change effects. Impacts on climate change from wildland fire management would vary by alternative, based on the extent to which wildland or prescribed fire is proposed to be used. Alternatives that increase frequency or duration of fire use could result in increased GHG emissions, at least in the short term.

From Lands and Realty Management on Climate Change

Land disposal is expected to increase equipment emissions of GHGs by opening up land to potential development. This could also result in loss of vegetative sinks for carbon emissions. Impacts on climate change from lands and realty vary by alternative, based on the acreage of land proposed for disposal. Alternatives proposing to dispose of greater amounts of land could result in increased GHG emissions.

From Livestock Grazing on Climate Change

Cattle operations on BLM-administered lands generally require gas-powered equipment that emits GHGs. Also, studies have shown that livestock emit methane, which is a GHG; however, most of these studies relate to feedlot livestock. It is assumed that range livestock produce fewer emissions because they exert more energy and eat grasses that result in fewer methane emissions. Changes in AUMs in the Planning Area are not expected to decrease overall GHG emissions because livestock would likely be moved to other lands to meet demand.

From Minerals Management on Climate Change

Mineral development leads to emissions from equipment and, in the case of oil and gas development, emissions of GHGs from well development. Development would also reduce vegetative GHG sinks by removing ground cover in portions of developed areas. Impacts from mineral resource management on climate change vary by alternative, based on the acreage open or closed to mineral development and on surface disturbance limitations in areas open to mineral development. Alternatives proposing more acreage open to mineral development could result in increased GHG emissions.

From Special Designations on Climate Change

Special designations are expected to reduce GHG emissions because these areas would have increased use restrictions, in comparison with lands without special designations. For example, motor vehicle use restrictions in areas with special designations would decrease GHG emissions from motor vehicles; also, surface disturbance limitations in such areas would decrease GHG emissions from construction activity and would increase GHG sequestration by leaving vegetative communities intact. Impacts from special designations on climate change would vary by alternative, based on the acreage proposed for special designation. Alternatives with increased acreage as special designations could result in decreased GHG emissions.

From Recreation Management on Climate Change

Recreation results in GHG emissions from vehicles and wood-burning campfires. Recreation sites may also contribute to GHG emissions through removal of GHG sinks where vegetation is damaged or eliminated. Impacts from recreation management on climate change vary by alternative, based on the acreage open or closed to recreation and on development of recreation facilities. Alternatives increasing the acreage open to recreation or calling for development of more recreation facilities could result in increased GHG emissions.

From Travel Management on Climate Change

Increasing the acreage open to vehicle use would result in increased GHG emissions from motorized vehicles in the Decision Areas. Further restricting vehicle use, in comparison with current management, could result in decreased GHG emissions from motorized vehicles if such restrictions actually decrease motor vehicle use within the Decision Areas. Impacts from travel management on climate change vary by alternative, based on the miles of open or closed routes. Alternatives that decrease the acreage open to motorized travel could result in reduced GHG emissions, while alternatives that increase the acreage open to motorized travel could result in increased GHG emissions.

4.4 IMPACTS ON CAVE RESOURCES

Although no caves or cave resources have been identified in the Decision Areas, Paleozoic limestone outcrops in the Sand Tank Mountains could contain caves and cave resources. In addition, two lava tubes in the Sentinel Plain area of the Lower Sonoran are considered cave resources in this section. In the event caves or cave resources are discovered within the Decision Areas, management actions to protect these resources and any associated water resources would be implemented.

Impacts on caves and cave resources may take various forms. The discovery of new caves may generate recreation opportunities for spelunking or for development as tourist attractions. The discovery may also expose the habitat of threatened or endangered species (e.g., bats) to impacts by humans. Additionally, although less obvious to the casual observer, modification or damage to soils or watersheds may impact caves by introducing sediment or contaminated water to the cave.

Because limited caves and cave resources have been identified in the Planning Area, the impacts on them are not discussed in detail. During implementation or project-specific planning, the BLM would evaluate proposed actions for site-specific effects on natural resources, including caves and cave resources,

focusing on management actions that could disturb or damage soils, watersheds, outcrops or structure at or near cave openings.

4.5 IMPACTS ON CULTURAL AND HERITAGE RESOURCES

In assessing potential impacts within the alternatives, the degree of potential impacts is contingent on a number of conditions, including:

- Prehistoric and historic land use patterns
- The number of previously recorded cultural resources
- The eligibility status of previously recorded cultural resources
- The location of development

The primary concerns regarding impacts on cultural resources are the loss of scientifically significant sites and their contextual data and loss of historic integrity. Two types of impacts could affect cultural resources: physical impacts from ground disturbance and visual intrusions on the landscape.

A physical impact on cultural resources is considered potentially significant and therefore an indicator if it would result in a loss of or inaccessibility to scientifically significant archaeological resources. A primary concern for cultural resources is that direct damage to or destruction of buried cultural material or features would result in the loss of important scientific information. It is possible that important archaeological resources could be encountered during ground disturbance, such as grading. Likewise, visual intrusions are considered potentially significant and therefore an indicator if they would result in a loss of integrity to a property's historic cultural setting. Moreover, improved access and increased visibility could lead to unauthorized collection or vandalism.

All identified cultural resources would be assessed for their potential eligibility for listing on the NRHP. Potential site types include archaeological sites, structures, buildings, landscapes, spiritual and sacred places, districts, and objects that may be included in the NRHP if they meet the criteria specified in the NRHP's Criteria for Evaluation (36 CFR 60.4). Cultural resources are subject to a discovery process, so additional cultural resources may be found on public lands; however, quantity and quality cannot be properly evaluated until they are discovered. The impacts described below would occur only if cultural resources were present in the area affected by the impact.

The BLM reviews activities and other authorized uses of the public lands, including route designation, pursuant to Section 106 of the National Historic Preservation Act (NHPA).

Section 106 reviews assess impacts on cultural resources, which may include consultation with the State Historic Preservation Office (SHPO) and other interested agencies and parties. Proposed activities and uses are designed to avoid adverse effects on cultural resources eligible for listing on the NRHP and to implement measures to reduce or mitigate adverse effects that cannot be reasonably avoided.

Management decisions for resources found to impact cultural and heritage resources include Wildlife and Special Status Species, vegetation resources, cultural and heritage resources, watershed and soil resources, visual resources, livestock grazing, recreation, travel management, lands and realty, energy

and minerals, and special designation areas. Actions intended to maintain vegetation, to protect or stabilize soils, or to stop erosion also would generally protect cultural resources. Ground-disturbing actions associated with these resources, including installation of fencing, facilities, erosion control devices, or similar activities, or removal of invasive species could have localized impacts on cultural resources. Many uses, e.g., LUAs and livestock facilities, may have secondary effects because they create new vehicle access. This often leads to inadvertent damage from vehicle traffic and increases the threat of vandalism on fragile cultural resources. By altering the local environment, these developments also can affect the integrity of nearby cultural resources if their settings are important aspects of their historical values. Activities that are not subject to the permitting process, such as dispersed recreation use, also could disturb or permanently damage cultural resources.

In addition, cultural resources may be affected by certain actions associated with wildland fire management, public safety, and hazardous materials management. These impacts would not vary substantially by alternative and are described in under the section common to all alternatives.

4.5.1 METHODS OF ANALYSIS

4.5.1.1 Indicators

The assessment of impacts on cultural and heritage resources is based on specific indicators that allow specialists to qualify them. Provenance or context is the element that gives the features and artifacts meaning and a place in history. A cultural site has full integrity when its elements or attributes remain in place as originally deposited. Cultural resources are evaluated for their integrity of location, design, setting, materials, workmanship, feeling, and association. The following list describes many of the types of impacts on cultural and heritage resources that diminish or destroy integrity:

- Impacts on site integrity: These impacts on surrounding conditions result from circumstances or events that affect the site's context:
    - Arrangement or structure of features disturbed
    - Artifacts missing or rearranged
    - Site elements rearranged
    - Ground surface disturbed
    - Subsurface cultural deposits disturbed
- Impacts on site setting/visual integrity (these types of site damage affect relationships of artifacts or features within a site):
    - Damage to physical environment of site
    - Damage to historic sense of a particular period or feeling of site's context

4.5.1.2 Assumptions

This impact analysis focuses on the extent of changes in site integrity associated with the alternatives detailed in **Chapter 2**, Alternatives, and their potential to modify the risk of impacts on cultural resources. The assumptions that follow, regarding the resource base and cultural resources management practices, were considered in the analysis.

Before the BLM authorizes any project with potential to affect cultural resources, laws and regulations require that the agency identify whether sites are present, evaluate potentially impacted sites for NRHP eligibility, and stipulate measures to reduce effects. Impacts may be reduced by avoidance or mitigation measures, such as data collection or project redesign.

Ground- and surface-disturbing activities can vary. Ground-disturbing activities from mechanical and vehicular sources are assumed to have the potential to impact cultural resources by damaging features, crushing or compacting subterranean features, rearranging features, pushing soils to remove or excavate the original surface, or disturbing the contextual arrangement of features and artifacts. Ground-disturbing activities from wildlife and livestock can occur when an animal burrows or wallows in soft soils and damages features. Other animal activities can disturb original subsurface cultural soil horizons, crush or compact surface artifacts, and rearrange the context of artifacts and features. Human-caused ground disturbance can occur from fire contamination, trampling, digging, vandalism, and unauthorized collection.

Little of the Planning Area has been inventoried for cultural resources, and there is no predictive modeling or sensitivity mapping available to estimate or quantify resource density. There is potential for cultural resources on most of the Planning Area, but the presence and significance of resources and impacts cannot be quantified.

There is qualitative information that indicates where there is a higher probability that cultural resources would be present relative to the whole Planning Area. These include river corridors, spring locations, historic trails, and high quality arable land near rivers. Highly disturbed or recently developed areas would be less likely to include intact cultural resources.

Measures that withdraw land or restrict surface development to protect resources can provide direct and indirect protection of cultural resources from disturbance and from incompatible and unauthorized activities.

Natural processes, such as erosion or weathering, degrade the integrity of many types of cultural resources over time. Human visitation, recreation, OHV use, livestock grazing, fire and non-fire vegetation treatments, and other activities can increase the rate of deterioration through natural processes. While the effect of a few incidents may be negligible, the effect of repeated actions or visits over time is likely to intensify impacts.

Vandalism or unauthorized collecting can destroy cultural resources in a single incident. Increased access to areas where cultural resources are present can raise the risk of vandalism or unauthorized collection of cultural resources.

Site monitoring, non-project-related inventories, interpretive development, site stabilization, and other proactive management activities would continue and may have negligible to minor impacts on cultural resources.

4.5.1.3 Qualitative Intensity Scale

The qualitative terms for intensity of impacts are generally the same as that adopted (see **Table 4-1**, Qualitative Terms for the Intensity of Impacts) elsewhere in this chapter. In addition to the definitions/thresholds identified for the SDNM, impacts specific to cultural and heritage resources are measured as follows:

- Negligible: Impacts would be extremely short-lived, would not extend beyond the footprint of the action, and would not affect the character-defining features of any historic or cultural Monument object.
- Minor: Impacts would not affect the character-defining features of any of the historic or cultural Monument objects.
- Moderate: Impacts may result in alteration of a character-defining feature, but would not diminish the integrity of the cultural resource Monument object.
- Major: Impacts would result in alteration of character-defining feature of the cultural resource Monument Object, diminishing or damaging its integrity.

4.5.1.4 Program Areas with No Impacts on Cultural Resources

No impacts on cultural and heritage resources are anticipated for management actions relating to:

- Air quality resources
- Cave resources
- Paleontological resources
- Water resources
- Wild horse and burro management

4.5.2 COMMON TO ALL ALTERNATIVES

4.5.2.1 Both Decision Areas

From Hazardous Materials and Public Safety on Cultural and Heritage Resources

Fencing and filling abandoned mine shafts and drift features could directly affect sites' integrity because many historic mines contain closely related features, such as adits and associated aboveground processing areas. The setting of historic mining sites also may be affected when mining structures are sealed and remediated. Planning for these remediation projects would enable the development and

implementation of mitigation actions, where warranted. In some cases, these actions could result in moderate impacts on sites and Monument objects. These may be mitigated to minor impact through the development and implementation of treatment plans.

Emergency hazardous material cleanups may directly affect cultural resources at a minor to major level due to ground-disturbing activities from the use of heavy equipment for the short term in localized areas. For instance, emergency HAZMAT cleanups could destroy a site completely if all the soil had to be removed; however, because the effects would be short term and site remediation ultimately would benefit public safety, this would be an acceptable overall outcome, even within the SDNM.

Vehicle use, driving cross-country, grading, and other activities of the Department of Homeland Security and other border-related law enforcement agencies, including pursuing undocumented immigrants and illegal drug loads, may affect cultural resources at a minor to moderate level. Driving cross-country over sites may have direct moderate impact on site integrity. Law-enforcement agencies are seeking interdiction methods that would reduce the necessity of cross-country law enforcement travel. However, decisions regarding border law enforcement interdiction methods are beyond the scope of this document.

Areas such as SDNM Area A and Sentinel Plain, where access is restricted to entry by permit only, would have a protective effect on all forms of the cultural resources integrity and Monument objects within those areas. Impacts would be negligible over the long term.

From Soil Resources on Cultural and Heritage Resources

Where the BLM implements measures to improve soil stability and vegetation cover, cultural resource integrity and setting would be better protected from soil erosion. Site-specific structures would not be authorized unless the projects were in compliance with existing cultural resources laws and regulations and appropriate mitigation measures, if necessary, were in effect. Therefore, impacts on sites would be negligible.

From Visual Resources on Cultural and Heritage Resources

Decisions regarding management of visual resources may affect the integrity of settings of cultural resources and Monument objects for the long term. Under all alternatives, a mixture of management allocations is employed for different areas of the Planning Area. Site internal integrity would be protected via procedures, following law and regulation, protecting cultural resources from project impacts.

Impacts on cultural resources from implementing management actions in accordance with the VRM classes would depend on the presence of sites and the extent to which the surrounding landscape would be modified. VRM classes and actions could affect qualities that contribute to the eligibility of cultural resource sites for nomination to the NRHP by affecting site setting/visual integrity. These qualities include integrity of setting and integrity of the feeling (or historic sense). Impacts on setting could limit potential public educational opportunities.

The allocation of VRM Class IV would allow visual intrusions and associated ground-disturbing activities associated with a variety of uses to dominate the landscape. This could be at a level that could damage

or destroy historic landscape integrity at a moderate or greater level of intensity in the long term. Except for Alternative A, VRM Class IV does not occur within the SDNM.

The allocation of VRM Class III would impact the integrity of cultural resources and historic landscape settings in more localized areas. It would do this by allowing visual intrusions on the landscape and ground-disturbing activities associated with a variety of land uses, at a level that would not dominate the landscape. Nevertheless, at some locations, this could have moderate impact on sites for which setting is integral to their NRHP eligibility.

The areas managed for VRM Class II would see more benefits to the essential characteristics and attributes of historic landscape integrity. Management of activities and developments would be more restrictive in terms of visual intrusions and ground-disturbing activities on the historic landscape, leading to more protection of the cultural resources, at a minor to moderate level of intensity.

Cultural resources and Monument objects managed on lands for VRM Class I have the most restrictive criteria for project design and mitigation. Classification as VRM Class I excludes most forms of ground-disturbing activities and developments.

From Wildland Fire Management on Cultural and Heritage Resources

Cultural resources would be affected by fires and fire suppression. Fires alter the settings of some kinds of cultural resources visually and remove the vegetation that may allow soil erosion to damage or destroy the site components. Fire suppression may impact cultural resources, if present, if heavy earth-moving equipment and vehicles are used to cut fire lines. Wildfires and fuels treatments can affect cultural resources through direct exposure to fire and disturbances from the methods used to suppress and manage fires and natural fuels. Planned fuels treatment projects in the Decision Areas usually involve mechanical and perhaps chemical treatment. This would require that Section 106 obligations are been met and that projects are designed to avoid sites before implementation. Impacts on site integrity and setting would, therefore, be negligible.

Flammable structures and features, such as wooden buildings and mining head frames, are particularly vulnerable to damage and destruction by wildfire. In addition, fire suppression methods may entail surface disturbances resulting from staging activities, vehicle tracks, and use of earth-moving equipment or mechanical treatments to manage vegetation. A policy of aggressive initial attack on desert fires would ensure that direct effects of fire itself on settings are kept to minor impact intensity. Within wilderness areas and along the NHT corridor, Minimum Impact Suppression Tactics that limit use of heavy equipment would ensure that otherwise moderate impacts on site integrity from ground disturbance would be reduced to minor.

4.5.2.2 Lower Sonoran

From Lands and Realty on Cultural and Heritage Resources

Construction, operation, and maintenance of roads, utilities, and other types of uses (excluding renewable energy power plants) may directly impact cultural resources and Monument objects through associated ground disturbance. In most cases these impacts would be negligible to moderate and short

term. These impacts may be mitigated to minor through the development and implementation of treatment plans, if warranted.

Construction, installation, operation, and maintenance within major utilities corridors may impact cultural resources and Monument objects directly by affecting site integrity though ground disturbance and change in site settings. Project-specific mitigation measures would be developed and implemented so that impacts would be reduced from moderate to major or minor. If setting is integral to National Register of Historic Places eligibility of a site, then degradation of site setting may be expected at the moderate level. This expected moderate impact may be mitigated to minor through project design, placement, underground placement of utility lines, or design and color selection of towers.

Concentrated solar power plants requiring development of level terrain that is free of vegetation would have major impacts on sites.

Land tenure adjustments, including disposal or acquisitions, may directly affect cultural resources either by removing sites from the protections of Federal ownership or by bringing them under the protections of Federal ownership. The level of intensity of this impact would range from minor to moderate. Mitigation measures would be applied to reduce or minimize the impacts if significant sites were on lands leaving Federal ownership.

From Vegetation Resources on Cultural and Heritage Resources

Cultural resources located on the lands on which the Fred J. Weiler Green Belt has been designated enjoy additional protections due to the closure to mineral entry and other restrictions of this designation. Impacts on site integrity due to ground disturbance expected from vegetation treatments (such as mechanical removal of tamarisk) would be addressed through standard procedures required by law and regulation for managing projects with potential to affect cultural resources. Impacts are expected to be minor and short term.

4.5.2.3 Sonoran Desert National Monument

From Lands and Realty on Cultural and Heritage Resources

Impacts would be the same as those described for All Alternatives for the Lower Sonoran; however, the exclusion of utility-scale renewable energy facilities on the SDNM would have a protective effect on the cultural resources and Monument objects over the long term. Protective effects would stem from restrictions on construction activities that would disturb, alter, or destroy the ground surface and the cultural resources that are present.

From Minerals Management on Cultural and Heritage Resources

The SDNM is withdrawn from new mineral entry under all alternatives under the proclamation that established the Monument. This withdrawal will have a protective effect on cultural resources, as ground disturbance from exploration, prospecting, and other activities associated with mineral development would be generally prohibited.

In those few parcels (25,800 acres) within SDNM where the surface is owned by the United States and the subsurface is owned by a non-Federal entity, minerals may still be developed. Depending on the extent and intensity of ground disturbance, there may be direct effects on cultural resource site integrity at a moderate level. However, the BLM, as the owner/manager of the surface, would work with operators to mitigate impacts on affected sites and Monument objects and to reduce impacts to minor. Methods to reach a minor impact outcome would likely include project redesign or the development and implementation of a treatment plan to reduce or mitigate effects in compliance with existing law and regulation. However, mineral regulations do not apply to these types of actions, as they would be managed by the lands and realty program.

4.5.3 ALTERNATIVE A (NO ACTION)

4.5.3.1 Both Decision Areas

From Cultural and Heritage Resources on Cultural and Heritage Resources

Management of cultural resources is usually a nondisturbing activity that involves inventorying, site monitoring, and occasionally installing site protection measures. Some cultural resource management activities that are ground-disturbing (e.g., installation of protective fencing to exclude livestock or motorized vehicles and development of interpretive projects or facilities, such as signs, kiosks, and public events) could cause small-scale disturbances of cultural resources but are, generally, developed as overall protective measures. Preproject implementation mitigation measures would ensure that impacts would be negligible. Where protective design features may be added, the effects may be mitigated through sensitive design. The effects would usually be negligible to minor.

Excavation for data collection is a mitigation measure used when sites that may be impacted by projects cannot be protected by other means, such as project redesign or avoidance. In this case excavation in a controlled scientific manner is deemed a method of preservation, albeit not in situ.

By BLM policy, cultural sites are allocated to specific uses. Allocation of sites to public use increases opportunities for interpretation and education but may also increase the disturbance of these sites. Allocation to scientific use allows the site to be available for consideration of appropriate scientific studies. Study methods may result in alteration or destruction of site attributes in order to answer important questions posed in a research proposal. Allocation of sites to traditional use would promote the preservation of cultural traditions. Allocation for future use would protect and preserve significant sites by segregating them from all other land or resource uses that would threaten their present condition or setting. Sites allocated to the experimental use category would be used to increase knowledge about damage and extent of damage caused by specific elements on cultural resources. However, cultural sites would be more subject to damage through certain types of experimentation. Sites allocated as discharged no longer meet the criteria necessary for protection. Since they cease to be a management constraint, management can focus on priority sites.

Seasonal wildlife closure areas would have a protective effect by prohibiting vehicle and public access into particular areas for the long term, which would reduce considerably the effect of direct vehicle damage and trampling on cultural sites' integrity.

From Wilderness Characteristics on Cultural and Heritage Resources

There are no management decisions for wilderness characteristics. Under this alternative, all areas not otherwise protected by special designations would be open to multiple uses and development. Effects of any proposals for use would be evaluated in compliance with Section 106 of the NHPA. At most, impacts would be expected to be moderate, with the opportunity to reduce them to minor with mitigation measures (including avoidance, project redesign, or data collection).

From Wildlife and Special Status Species on Cultural and Heritage Resources

Improvements to wildlife water developments may affect cultural resources and Monument objects directly at a minor to moderate level in localized areas in the short term, as old developments are remodeled. These impacts would have direct impact on site integrity due to use of heavy equipment and ground-disturbing activities to excavate and replace old facilities. They would have indirect impact due to changes in adjacent drainage patterns, leading to erosion of cultural sites. These effects would be mitigated to minor or negligible by soil erosion and hydrology BMPs and standard procedures, in compliance with cultural resources laws and regulations.

4.5.3.2 Lower Sonoran

From Livestock Grazing on Cultural and Heritage Resources

Livestock tend to gather in certain areas where water, soft soil, or shade is available. Site integrity may be affected directly by intense trampling of the surface soils at a minor to moderate level of intensity in localized areas; site integrity may be affected indirectly by denuding the vegetation and allowing erosion to accelerate. Erosion may ultimately affect site integrity at a minor level outside the immediate impact area. Livestock development may be redesigned or mitigation measures developed to reduce impacts to a negligible level.

Areas unavailable to grazing or unleased would have a protective effect on the cultural resources over the long term, since livestock would be excluded from gathering on and trampling sites. Under Alternative A, this condition would remain unchanged and would have negligible impact on site integrity.

From Minerals Management on Cultural and Heritage Resources

Currently, 713,300 acres of the Lower Sonoran are available for mineral development, whether locatable, leasable, or salable. Depending on the extent and intensity of ground disturbance and production for mineral exploration and development, there may be direct effects on cultural resource site integrity at a moderate level. However, mitigation of impacts on affected sites is expected to reduce the impacts to minor. Methods to reach a minor impact outcome would likely include project redesign or the development and implementation of a treatment plan, in compliance with existing law and regulation.

New vehicle routes associated with mineral development may have moderate indirect impacts on site integrity if project access also opens new areas to site visitation. These impacts may be reduced to minor through project design.

From Recreation Management on Cultural and Heritage Resources

Construction, operation, and maintenance of new recreational developments may have a direct effect on cultural resources and Monuments in a localized area, due the installation of parking areas, interpretive media, and other amenities using heavy equipment. However, before approval, the project must be in compliance with all applicable cultural resource laws and regulations. Impacts, if identified, would be mitigated to the negligible or minor level using standard cultural resources impact mitigation, such as avoidance, project redesign, or the development and implementation of a treatment plan. Increased visitation, brought about by recreational developments with amenities, may affect cultural resources and Monument objects directly at a minor level in localized areas due to increased unauthorized collection and may affect them indirectly by increased erosion brought about by increased traffic.

Dispersed camping may have minor impact on the integrity of cultural resources and Monument objects due to vehicle incursions, trampling, and possible exposure to the threat of unauthorized collection of artifacts.

SRP vehicle events and large group events may impact cultural resources and Monument objects indirectly by creating new access route patterns, ruts, and berms that lead to erosion and by attracting large numbers of vehicles and visitors; this could lead to increased vandalism and unauthorized collection. All of the impacts from SRP's are minor in impact.

Increased vehicle-based recreation has led to an increase of off-road vehicle use, which may have a minor direct impact on cultural resources and Monument objects due to vehicle operators driving over site features and artifacts.

From Special Designations on Cultural and Heritage Resources

The Juan Bautista de Anza NHT designation with its Comprehensive Management Plan (NPS) in the implementation phase may affect directly the historic sites associated with it for the long term due to its status as a nationally important resource. As visitation increases, cultural resources' integrity may be impacted directly and indirectly by disturbance due to vehicle use, trampling by visitors, and unauthorized collection of artifacts. As interpretive media is developed for the trail, visitation would increase, which may impact the cultural resources directly by vehicle damage to site features and trampling. Development of the Anza Auto Route along major highways and paved local roadways would have no effect on the cultural resources. The Coffeepot Botanical ACEC closure to OHV use would ensure negligible impacts on site integrity from off-road driving.

Wilderness designation ensures a major protective effect on cultural resources over the long term. Prohibitions on the use of motorized and mechanized vehicles and equipment eliminates threats to the physical integrity and settings of cultural resources.

From Travel Management on Cultural and Heritage Resources

The use, operation, and maintenance of routes may have direct minor impacts on cultural resource and Monument object integrity due to ground-disturbing activities associated with the use and care of routes. The use, operation, and maintenance of routes may indirectly impact cultural resources and Monument objects by allowing access into sensitive sites or altering drainage patterns, leading to

inundation or erosion. Non-managed transportation routes and the potential for route proliferation are of particular concern for the management and protection or cultural resources. Vehicles cutting across cultural sites could directly impact site integrity in localized areas. This impact could be moderate to major, depending on soil type.

New route development would require analysis and evaluation under the laws and regulations governing cultural resource management on BLM-administered land. Mitigation measures, including route redesign and avoidance would ensure that impacts on site integrity would be negligible to minor. Indirect impacts from opening new areas with improved recreation access would include impacts on site integrity from those who might drive over sites or collect artifacts. It is anticipated that these impacts would be minor.

Designation of a few routes to a nonmotorized level of use may have a direct and indirect protective effect on cultural resources and Monument objects for the long term by prohibiting motor vehicle use, thereby slightly reducing the number of visitors in a localized area. Limitations placed on access to particular areas may have an indirect protective effect on the integrity of cultural resource sites at a minor to moderate level of intensity for the long term across the Decision Area.

From Vegetation Resources on Cultural and Heritage Resources

Authorizing the removal of native plant material and associated ground disturbance may impact cultural resources by affecting the integrity of the setting at a minor level, in a localized area for the short term. Removal of traditionally and culturally significant vegetation types may directly impact at a minor level the features and settings of traditional use and harvest areas in particular locales for the short term.

Woodcutting and associated ground disturbance caused by the use of large vehicles during vegetation removal may directly impact cultural resources at a minor level for the short term. Active vegetation management strategies may directly and indirectly affect cultural resources at a minor level in localized for the short term due to the use of heavy equipment that disturbs or damages surface and subsurface features on sites.

From Visual Resources on Cultural and Heritage Resources

Alternative A includes an allocation for the most acreage of VRM Class IV. This would have moderate or greater impact on site setting by allowing visual intrusions and ground-disturbing activities associated with a variety of uses to dominate the landscape.

4.5.3.3 Sonoran Desert National Monument

From Livestock Grazing on Cultural and Heritage Resources

Under this alternative, livestock grazing north of I-8 within the Monument would remain permitted. Livestock tend to gather in certain areas where water, soft soil, or shade is available. Site integrity may be affected directly by intense trampling of the surface soils in localized areas or indirectly by denuding the vegetation and allowing erosion to accelerate. Erosion may ultimately affect site integrity at a minor to moderate level.

Within areas south of I-8, livestock grazing has been discontinued. This would continue to have a protective effect on the cultural resources over the long term, since livestock would be excluded from gathering and trampling sites. Under Alternative A, this condition would remain unchanged and would have negligible impact on site integrity.

Refer to **Section 4.25.4**, Implementation-Level Analysis for Vegetation Monument Objects, for impacts related to AUM allocations in the SDNM.

From Recreation Management on Cultural and Heritage Resources

Impacts would be the same as those described under Alternative A for the Lower Sonoran.

Within the SDNM, there are 233 sites that could be impacted by target shooting. Direct impacts from firearm projectiles are negligible. BLM trailhead cultural facilities, including interpretive signs, register boxes, and restrooms, have been impacted and would continue to be directly impacted by firearm projectiles to a moderate level of intensity for the long term. Other impacts include vehicle damage, excessive human trampling of local vegetation and soils, erosion, trash and target debris accumulation, alteration of site features and artifacts, and unauthorized collection of artifacts at minor to moderate intensity levels. Petroglyph sites could be impacted directly by firearm projectiles striking panels. If unchecked, this type of damage would continue over the long term. This target shooting is associated with large accumulations of trash, excessive human trampling and climbing over the rocks with petroglyphs, and vegetation mashing. This activity can displace rock panels and boulders and result in erosion, which would continue in the long term at a minor to moderate intensity level.

From Special Designations on Cultural and Heritage Resources

The National Trail designation has a major protective effect on cultural resources and Monument objects over the long term. This protective effect occurs because of a restriction of certain types of ground-disturbing uses that would not be compatible with the values for which the NHT was designated. Further, the trail segment within the Monument is considered to be a high potential route segment for interpretation, which leads to further protection of associated cultural resources. The Vekol Valley ACEC closure to OHV use has ensured negligible impacts on site integrity from off-road driving. However, the continued need for the Vekol Valley ACEC has been supplanted by designation of SDNM.

Wilderness designation ensures a major protective effect on cultural resources and Monument objects over the long term. Prohibitions on the use of motorized and mechanized vehicles and equipment eliminates threats to the physical integrity and settings of cultural resources and Monument objects.

From Travel Management on Cultural and Heritage Resources

Refer to **Table 4-23**, Impacts from Implementation-Level Decisions on Cultural and Historical Sites Monument Objects, for impacts related to route designations with the SDNM.

From Visual Resources on Cultural and Heritage Resources

Under Alternative A, allocation of VRM Class IV could affect qualities that contribute to the eligibility of cultural resource sites for the NRHP. These effects could be long term and moderate or greater in

intensity. It is unlikely that these effects could be mitigated to an acceptable minor level of impact for these Monument objects.

4.5.4 ALTERNATIVE B

4.5.4.1 Both Decision Areas

From Cultural and Heritage Resources on Cultural and Heritage Resources

Impacts would be the same as those described under Alternative A for both Decision Areas, except that Alternative B would include a greater number of sites (including Painted Rock, portions of historic trails in Lower Sonoran and SDNM Decision Areas, Sundad, Big Horn Station) developed to promote public use and heritage tourism than under Alternative A. This, in turn, could increase public visitation for the long term. Structures added to handle increased visitation demand may present moderate levels of impacts on site integrity and setting. These impacts, however, may be mitigated to minor with sensitively designed visitor amenities.

Management of cultural landscapes as a whole entity may have a protective effect on cultural resources and Monument objects for the long term, due to an increased attention and better understanding of the interrelationships of the sites to one another and the relationship of these sites and features to natural topographic features than under Alternative A. These protective measures would present minor levels of impacts.

Increased monitoring of sites over the level performed under Alternative A would also have a protective effect on cultural resources and Monument objects directly and indirectly at a minor to moderate level for the long term.

From Wilderness Characteristics on Cultural and Heritage Resources

Impacts would be the same as Alternative A for both Decision Areas.

From Wildlife and Special Status Species on Cultural and Heritage Resources

Improvements to wildlife water developments and the addition of more developments would have impacts similar to Alternative A.

Seasonal wildlife closures and the prohibition of vehicle use in certain areas may have an indirect protective effect on cultural resources and Monument objects within the closure areas because there would be fewer incidents of vehicle-based surface damage than under Alternative A. Prohibition of motorized competitive speed events in certain areas may have an indirect protective effect within the closure areas leading to less vehicle damage on sites. These restrictions and prohibition would protect site integrity as well as site settings.

4.5.4.2 Lower Sonoran

From Livestock Grazing on Cultural and Heritage Resources

Impacts would be the same as Alternative A for the Lower Sonoran.

From Minerals Management on Cultural and Heritage Resources

Under Alternative B, 9,400 acres would be recommended for withdrawal from development of locatable minerals (703,900 acres open); 7,000 acres would be closed to leasable minerals development (713,100 open); and 20,100 acres would be closed to mineral development (700,000 acres open). Several of the areas to be closed were selected based on the sensitivity of the cultural and historic resources known to be present. This would provide a protective effect over that provided under Alternative A. Depending on the extent and intensity of ground disturbance and production in approved plans of operation for mineral exploration and development, there may be direct effects on cultural resource site integrity at a moderate level. However, mitigation of impacts on affected sites is expected to reduce the impacts to minor. Methods to reach a minor impact outcome would likely include project redesign or the development and implementation of a treatment plan in compliance with existing law and regulation.

New vehicle routes associated with mineral development may have moderate indirect impacts on site integrity if project access also opens new areas to site visitation. These impacts may be reduced to minor through project design.

From Recreation Management on Cultural and Heritage Resources

The Decision Area would be divided into two types of management areas: ERMAs and SRMAs. Under Alternative B, the ERMA area would be managed as under Alternative A (both Decision Areas) and, in those areas, the effects would be similar. The three SRMAs under Alternative B would be managed to promote a vehicle-based recreational experience.

In the west section of the Buckeye Hills West SRMA, the vehicle-based, front country, two-track, and route exploration would impact cultural resources site integrity indirectly through erosion, on a negligible to minor level for a short duration, in localized areas.

Dispersed camping may affect the integrity of cultural resources directly by vehicle incursions, trampling, and possible exposure to the threat of unauthorized collection of artifacts at a minor level of intensity for short durations in localized areas. In the Buckeye Hills East SRMA, the community interface level of management implies that areas where camping and day use areas are designated, impacts would be negligible on cultural resources.

In the Saddle Mountain SRMA, a combination of front country experiences, backcountry primitive experiences, and a community interface area is proposed. In the front country areas, vehicle-based exploration and camping would impact cultural resources directly through erosion, on a minor level for short duration in localized areas. Areas where dispersed camping is prescribed may affect the integrity of cultural resources directly by vehicle incursions, trampling, and possible exposure to the threat of unauthorized collection of artifacts at a minor level of intensity for short durations in localized areas. Community interface areas where camping and day use are designated and activity is structured could

have direct impacts on cultural resources from unauthorized collection, but this is expected to be negligible. In the backcountry, it is expected that dispersed camping may affect the integrity of cultural resources directly by vehicle incursions, trampling, and possible exposure to the threat of unauthorized collection of artifacts at a negligible to minor level of intensity for short durations in localized areas.

In the Arlington Trails SRMA, vehicle-based, front country, two-track, route exploration would impact cultural resources indirectly, through increased ground disturbance. Impacts are expected to be negligible to minor, for a short duration in localized areas. Dispersed camping may affect the integrity of cultural resources directly by vehicle incursions, trampling, and possible exposure to the threat of unauthorized collection of artifacts at a minor level of intensity for short durations, in localized areas.

In the Gila Bend Mountains ERMA, the area is largely proposed as backcountry, with a few areas of front country along the main access routes. It is expected that dispersed camping may affect the integrity of cultural resources directly by vehicle incursions, trampling, and possible exposure to the threat of unauthorized collection of artifacts at a minor level of intensity for short durations in localized areas.

In the Lower Gila Historic Trails ERMA, vehicle-based, front country route exploration is anticipated to be complementary to the historic trail features that cross the unit. Under this alternative, more routes would be open to vehicle-based exploration, which may lead to increased off-road travel and ground disturbance. It is anticipated that this activity would impact cultural resources on a minor level for a short duration in localized areas. Alternative B is expected to have a greater negative impact on cultural resources than Alternative A. Dispersed camping may affect the integrity of cultural resources directly by vehicle incursions, trampling, and indirectly by possible exposure to the threat of unauthorized collection of artifacts at a minor level of intensity over the long term in localized areas.

In the Painted Rock SRMA, vehicle-based, front country route exploration could lead to ground disturbance associated with route proliferation and vehicle incursions. This would impact cultural resources on a negligible to minor level for a short duration in localized areas.

In the Ajo ERMA, a combination of community interface and front country and backcountry management are anticipated. Community interface areas those where camping and day use are designated and activity would have more structure, oversight, and enforcement of travel. Because of this, it is expected that route proliferation and vehicle incursion would be reduced. Therefore, impacts are expected to be negligible or none on cultural resources. In the backcountry, it is expected that dispersed camping may affect the integrity of cultural resources directly by vehicle incursions, trampling, and possible exposure to the threat of unauthorized collection of artifacts. This would be at a negligible to minor level of intensity for short durations in localized areas. In the backcountry, it is expected that dispersed camping may affect the integrity of cultural resources directly by vehicle incursions, trampling, and possible exposure to the threat of unauthorized collection of artifacts at a negligible to minor level of intensity for short durations, in localized areas.

In the San Tan Mountains SRMA, vehicle-based, front country route exploration experiences could lead to ground disturbance associated with route proliferation and vehicle incursions. This would impact cultural resources on a minor level in localized areas for a short duration. dispersed camping may affect the integrity of cultural resources directly by vehicle incursions, trampling, and possible exposure to the threat of unauthorized collection of artifacts at a minor level of intensity for short durations in localized areas.

Overall, the effects of implementation of this Alternative on cultural resources in the SRMAs and ERMAs would be negligible to minor, compared to the management of these areas under Alternative A.

From Special Designations on Cultural and Heritage Resources

The existing Juan Bautista de Anza NHT designation with its Comprehensive Management Plan (NPS) in the implementation phase may affect directly, on a minor to moderate level, the historic sites associated with it for the long term due to its status as a nationally important resource. As visitation increases, cultural resources may be impacted directly and indirectly by disturbance due to vehicle use, trampling by visitors, and unauthorized collection of artifacts. As additional interpretive media is developed for the trail, increasing visitation may impact the cultural resources directly by vehicle damage to site features and trampling. As vehicle-based visitation is highly promoted under this alternative, impacts on cultural resources are expected to be greater than that expected under Alternative A. The impact would be at the moderate level.

Under Alternative B, ACEC allocation is similar to Alternative A. Impacts would be of the same intensity.

Under Alternative B, Agua Caliente Road would be evaluated for allocation as a scenic byway. This could impact cultural resource sites indirectly by encouraging increased public use of the area. More people may venture off Agua Caliente Road and visit sites not previously impacted by recreational visitation. Impact is expected to be minor for site integrity.

In Wilderness Areas, impacts would be the same as described under Alternative A.

From Travel Management on Cultural and Heritage Resources

In the Lower Sonoran, action Alternatives B through E) would be subject to route designation within five years of RMP completion. Until designation, travel would be limited to existing roads and trails. Existing routes in areas proposed as open or limited may be subject to some level of cultural inventory and identification to assess potential impacts on sites. Areas where a proposed designation would shift, concentrate, or expand motorized travel into areas where properties are likely to be affected; an inventory would be required before designation to stay in compliance with Section 106 of the National Historic Preservation Act. These and known sensitive areas would be considered in determining which roads would be designated as routes.

Alternative B allows for a more extensive network of transportation routes, which could increase the potential for cultural resource damage. Direct impacts could include disturbance to surface features, soils, and artifacts from vehicle traffic, resulting in damage, breakage, or displacement. A more extensive road network would facilitate public access to a greater number of archaeological sites, increasing their vulnerability to vandalism and artifact theft. Impacts on site integrity are anticipated to be minor. Conversely, greater access may allow for more opportunities for public interpretation, which could increase public understanding and stewardship of resources.

From Vegetation Resources on Cultural and Heritage Resources

Harvesting certain vegetative materials and woodcutting is generally not allowed but may be approved in specific cases. These cases and vegetation restoration treatments in the Fred J. Weiler Green Belt could directly affect the integrity of site settings, at a minor level, in a localized area, for the short term. However, these activities would not be approved without compliance with existing laws and regulations governing cultural resource use and protection. Appropriate mitigation would ensure that impacts would be minor to negligible. Expected impacts would be similar to those under Alternative A.

From Visual Resources on Cultural and Heritage Resources

VRM Class IV is reduced to 221,600 acres under Alternative B from an allocation of 442,500 under Alternative A. Class III is increased under Alternative B to 551,900 acres from 279,600 under Alternative A. This is likely to result in less impact than under Alternative A for those sites for which setting is integral to their eligibility for the NRHP.

4.5.4.3 Sonoran Desert National Monument

From Livestock Grazing on Cultural and Heritage Resources

Impacts would be similar to those described under Alternative A for the Monument, except fewer acres would be available for livestock grazing (244,000). According to the Grazing Compatibility Analysis (**Appendix E**, Compatibility Analysis: Livestock Grazing on the Sonoran Desert National Monument), approximately 8,500 acres of Monument objects (mostly vegetation) was found to be incompatible with livestock grazing and would be fenced off under Alternative B. This exclosure would help protect cultural resources. Additionally, approximately 10 acres around the North Tank on the Anza NHT would be fenced off to protect that area. The combination of closed areas and a reduction in AUMs would decrease impacts to minor intensities as more areas where cultural sites could be present would be closed.

Refer to **Table 4-23**, Impacts from Implementation-Level Decisions on Cultural and Historical Sites Monument Objects, in **Section 4.25**, Implementation-Level Analysis, for impacts related to AUM allocations in the SDNM.

From Recreation Management on Cultural and Heritage Resources

Under this alternative, all parts of the SDNM are allocated to one ERMA with two RMZs. It is anticipated that this strategy would offer the same level of protection to cultural resources as Alternative A (both Decision Areas) because the increased management would not be enough to counteract anticipated sharp increases in public visitation.

In the SDNM ERMA, the majority of the lands would be allocated to backcountry. In the backcountry, it is expected that dispersed camping and increased vehicular recreation may affect the integrity of cultural resources and Monument objects directly by vehicle incursions, trampling, and possible exposure to the threat of unauthorized collection of artifacts at a minor to moderate level of intensity over the long term in localized areas.

Under this alternative, more routes would be open to vehicle-based exploration. It is anticipated that this activity would impact cultural resources and Monument objects on a minor level over the long term, in localized areas due to vehicle incursions and associated ground disturbance. Dispersed camping and increasing vehicle-based recreation may have minor effect on the integrity of cultural resources and Monument objects directly due to vehicle incursions, trampling, and indirectly by possible exposure to the threat of unauthorized collection of artifacts at a minor level of intensity over the long term in localized areas.

Under this alternative, there are 47 sites that could be impacted from target shooting, one of which has characteristics that may make it eligible for the NRHP. Impacts would be the same as Alternative A, except to a lesser degree, as 80.3 percent of the Monument would be closed to target shooting. Limiting target shooting to designated areas, which primarily occur within the Creosote Bush-Bursage, Desert Grassland, and the Desert Wash communities, could limit potential direct loss of vegetation and allow for continued vegetative diversity and a functioning desert ecosystem. Areas excluded form shooting include the Sand Tank Mountains, the Palo Verde-Mixed Cacti community (including the Saguaro Cactus Forests), and the majority of the Desert Washes within the SDNM. Impacts from target shooting would be expected to range from negligible to minor.

From Special Designations on Cultural and Heritage Resources

The development of the Anza National Historic Trail and the promotional emphasis on it as a heritage tourism destination would lead to increased visitation, vehicular traffic, and amenities such as interpretive developments. Increased visitation is likely to lead to increased unauthorized collection of artifacts and trampling on features and artifacts located immediately adjacent to the trail. These impacts are expected to be minor to moderate compared to Alternative A, directly and indirectly affecting the cultural resources and Monument objects along the trail for the long term.

From Travel Management on Cultural and Heritage Resources

Refer to **Table 4-23**, Impacts from Implementation-Level Decisions on Cultural and Historical Sites Monument Objects, within **Section 4.25**, Implementation-Level Analysis.

From Visual Resources on Cultural and Heritage Resources

VRM allocations under Alternative B are increased from Alternative A by 127,400 Class II acres and decreased by 119,700 Class IV acres. This would have considerably more protective effect on the settings of cultural resources, due to some additional restrictions on the level of development as guided by visual intrusion. Overall, because of these added protections, impacts are expected to be minor.

4.5.5 ALTERNATIVE C

4.5.5.1 Both Decision Areas

From Wildlife and Special Status Species on Cultural and Heritage Resources

Proposed avoidance areas and restrictions on development and surface disturbance within the Gila Bend Mountains Wildlife Habitat Area, the Saddle Mountain Wildlife Habitat Area, the Cuerda de Lena

Wildlife Habitat Area, and the Batamote Mountain Habitat Areas (a total of 425,900 acres) would have a more protective effect on the cultural resources than under Alternative A.

4.5.5.2 Lower Sonoran

From Cultural and Heritage Resources on Cultural and Heritage Resources

Development of sites allocated to public use (Painted Rock, portions of historic trails, and Sundad) would emphasize protection of site features under Alternative C. Impacts on site integrity would be minor.

There would be some ground disturbance due to installation of facilities to manage visitation and protect resources, such as designated parking areas, protective fencing, and interpretive media displays. Impact on site integrity would be negligible to minor compared to Alternative A as facilities necessary to visitor safety and site protection would be placed to maximize protection of site integrity and setting. This alternative would include additional evaluation of the suitability of sites for public use. Evaluation of suitability is conducted to ensure that important characteristics and values of a site can be protected.

From Livestock Grazing on Cultural and Heritage Resources

Impacts would be the same as under Alternative A for the Lower Sonoran.

From Minerals Management on Cultural and Heritage Resources

Under Alternative C, 2,350 acres would be recommended for withdrawal from locatable minerals development (710,950 acres open); 250 acres would be closed to leasable minerals development (713,300 open); and 157,300 acres would be closed to minerals materials development (528,500 acres open). Several of the areas to be closed were selected based on the sensitivity of the cultural and historic resources known to be present. This alternative would have much more protective effect than under Alternative A on sites that could be affected due to mineral materials (salables) development.

Depending on the extent and intensity of ground disturbance and production in approved plans of operation for mineral exploration and development, there may be direct effects on cultural resource site integrity at a moderate level. However, mitigation of impacts on affected sites is expected to reduce the impacts to minor. Methods to reach a minor impact outcome would likely include project redesign or the development and implementation of a treatment plan in compliance with existing laws and regulations.

New vehicle routes associated with mineral development may have moderate indirect impacts on site integrity if project access also opens new areas to site visitation. These impacts may be reduced to minor through project design.

From Recreation Management on Cultural and Heritage Resources

In the ERMA, impacts would be the same as under Alternative A. Under Alternative C, there would be more emphasis on resource protection overall than under Alternative A.

In the Buckeye Hills West ERMA, vehicle-based, front country, route exploration experiences would lead to impacts from ground disturbance associated with vehicle incursions and route proliferation onto sites. These impacts on cultural resources are expected to be negligible to minor for a short duration in localized areas. Overnight camping would be prohibited under Alternative C, unless specifically authorized.

In the Saddle Mountain SRMA, a combination of front country experiences and limited upland areas for backcountry primitive experiences is proposed. In the front country areas, vehicle-based exploration and camping would lead to impacts from ground disturbance associated with vehicle incursions and route proliferation onto sites. Impacts are expected to occur at a minor level for short duration in localized areas. Areas where dispersed camping is prescribed may affect the integrity of cultural resources directly by vehicle incursions, trampling, and possible exposure to the threat of unauthorized collection of artifacts at a minor level of intensity for short durations in localized areas. In the backcountry, it is expected that dispersed camping may affect the integrity of cultural resources at a negligible to minor level of intensity for the short term.

In the Gila Bend Mountains ERMA, the area is largely proposed as backcountry, with a few areas of front country along the main access routes. It is expected that dispersed camping may affect the integrity of cultural resources directly by vehicle incursions, trampling, and possible exposure to the threat of unauthorized collection of artifacts at a minor level of intensity for short durations in localized areas.

In the Lower Gila Historic Trails ERMA, vehicle-based, front country route exploration is anticipated to be complementary to the historic trail features that cross the unit. It is anticipated that this activity would lead to impacts from ground disturbance associated with vehicle incursions and route proliferation onto sites. It is expected to impact cultural resources on a minor level for a short duration in localized areas. Dispersed camping may affect the integrity of cultural resources directly by vehicle incursions, trampling, and possible exposure to the threat of unauthorized collection of artifacts at a minor level of intensity over the long term in localized areas.

In the Ajo ERMA, a combination of community interface management close to town, backcountry management, and front country management are anticipated. Community interface areas where camping and day use areas are designated and activity structured, there would be negligible or no impact on cultural resources. In backcountry and front country settings, it is expected that dispersed camping may affect the integrity of cultural resources directly by vehicle incursions, trampling, and possible exposure to the threat of unauthorized collection of artifacts at a negligible to minor level of intensity for short durations, in localized areas. In the front country areas, vehicle-based exploration and camping would impact cultural resources on a minor level for short duration in localized areas.

From Special Designations on Cultural and Heritage Resources

The existing Juan Bautista de Anza NHT designation with its Comprehensive Management Plan (NPS) in the implementation phase may directly affect the historic sites associated with it for the long term due to its status as a nationally important resource. Management of the NHT and cultural resources would emphasize increased scientific research and would institute a focused approach on trail corridor protection. Both of these emphases would have a protective effect on both cultural resources associated with the trail and those that are not associated with it. Impacts are expected to occur over the long

term, at a minor intensity. Overall, negative impacts on cultural resources are expected to be slightly less than those under Alternative A.

Allocation of the Coffeepot Botanical ACEC would have no impact on cultural resource integrity and setting. The prescriptions would limit disturbance and access. Development in the area would be limited.

The designation of Agua Caliente Road as a Backcountry Byway would have the effect of increasing the public visitation levels because byways are advertised and promoted. This increase in visitation may indirectly affect cultural resources by increasing vehicle-based recreation in the area, leading to road proliferation which would increase the likelihood of surface disturbance on cultural sites. Some increased vandalism of sites is possible, with a minor effect on site integrity, compared to Alternative A.

From Travel Management on Cultural and Heritage Resources

In the Lower Sonoran, all the action alternatives would be subject to route designation within five years of RMP completion. Until designation, travel would be limited to existing roads and trails. Existing routes designated as open or limited may be subject to some level of cultural inventory and identification to assess potential impacts on sites. Where a proposed designation would shift, concentrate, or expand motorized travel into areas where historic properties are likely to be affected, an inventory is required before designation to stay in compliance with Section 106. These and known sensitive areas would be considered in determining which roads would be designated as routes.

Impacts on cultural and heritage resources under Alternative C would be similar to those under Alternative B for the Lower Sonoran.

From Vegetation Resources on Cultural and Heritage Resources

Impacts would be the same as Alternative B for Lower Sonoran.

From Visual Resources on Cultural and Heritage Resources

Under Alternative C, VRM Class IV (65,000 acres) would be allocated to small areas around communities and along LUAs, leading to fewer areas where higher amounts of development and the associated ground-disturbing activities would be expected. Limiting these areas would ensure that major modification of the landscape would be more limited than under Alternatives A and B (442,500 and 221,600 acres, respectively). Major impacts on setting would be highly localized. VRM Class II management would be expanded (by about 271,500 acres as compared to Alternative A) broadly across the Lower Sonoran, which would have a protective effect on cultural resources settings and physical integrity due to the restrictions on visual intrusion and the associated ground-disturbing activities and projects at a level of minor to moderate intensity.

From Wilderness Characteristics on Cultural and Heritage Resources

Approximately 128,100 acres would be allocated as lands managed to protect wilderness characteristics. Few development projects would be implemented. The impact on site integrity and setting would be negligible.

Areas would be designated and managed as limited OHV use areas. This would mean that motorized vehicles would be limited to designated routes established through subsequent travel management planning. Impact on site integrity and setting would be negligible. This would have a more protective effect compared to Alternative A.

4.5.5.3 Sonoran Desert National Monument

From Cultural and Heritage Resources on Cultural and Heritage Resources

The emphasis for the Sonoran Desert Historic Trails SCRMA would be on protection of Monument objects. This would have a protective effect on site integrity, compared to Alternative A.

Development of sites allocated to public use (such as Big Horn Station and portions of historic trails) would emphasis protection of site features under Alternative C. Impacts on site integrity would be minor, compared to Alternative A.

There would be some ground disturbance due to installation of facilities to manage visitation and protect resources, such as designated parking areas, protective fencing, and interpretive media displays. Impact on site integrity would be negligible to minor under Alternative C, as facilities necessary to ensure visitor safety and site protection would be installed to maximize protection of site integrity and setting. This alternative would include additional evaluation of the suitability of sites for public use. Evaluation of suitability would be conducted to ensure that important characteristics and values of a site could be protected. This would ensure a protective effect, compared to Alternative A.

From Livestock Grazing on Cultural and Heritage Resources

Impacts would be similar to those described under Alternative A for the Monument, except fewer acres would be available for livestock grazing (207,431). This is fewer acres open than under Alternative B. For those acres open to grazing, all allotments would be reclassified as perennial only. Allotments that are currently designated as perennial/ephemeral would be reclassified as perennial only, which would also help reduce impacts from livestock grazing to negligible to minor intensities. Additionally, 44,800 acres would become unavailable for livestock grazing in the Bighorn, Conley, and Lower Vekol allotments. This closure would help protect known and potential cultural sites and resources. Approximately 10 acres around the North Tank on the Anza NHT would also be fenced off to livestock.

Refer to **Table 4-23**, Impacts from Implementation-Level Decisions on Cultural and Historical Sites Monument Objects, in **Section 4.25**, Implementation-Level Analysis.

From Recreation Management on Cultural and Heritage Resources

In the SDNM ERMA, 429,000 acres of land allocated to backcountry ensure that anticipated impacts on cultural resources and Monument objects are the same as Alternative B. In the Lower Gila Historic Trails SRMA, the majority of this unit would be allocated to backcountry use. In the backcountry, it is expected that dispersed camping may affect the integrity of cultural resources and Monument objects directly by vehicle incursions and trampling. Sites would be affected indirectly by possible exposure to the threat of unauthorized collection of artifacts at a negligible to minor level of intensity for short durations in localized areas. This is similar to the effects detailed under Alternative A.

Generally, impacts from target shooting would be negligible because the areas identified as available for target shooting are small and are widely scattered. Only 1,134 acres out of the total SDNM acreage of 486,300 would be available. No sites have been recorded within any of the available areas. Because no cultural sites have been recorded in these open areas, impacts would be negligible. Should cultural resources be discovered in any area allocated for target shooting, the impacts would be the same as those described under Alternative A.

From Special Designations on Cultural and Heritage Resources

The development of high-potential Anza NHT segments and the limitations on some segments would minimize the direct and indirect impacts on cultural resources and Monument objects at a minor level of intensity over the long term. Under Alternative C, NHT segments would be evaluated for suitability more critically than under Alternative A, as subjects of interpretive developments and public use sites. These trail segments would be included within a defined historic trail corridor, where cultural sites would directly benefit from avoidance and exclusions of certain activities, leading to a reduction or elimination of some ground-disturbing actions.

From Travel Management on Cultural and Heritage Resources

Refer to **Table 4-23**, Impacts from Implementation-Level Decisions on Cultural and Historical Sites Monument Objects, for impacts related to route designations within the SDNM.

From Visual Resources on Cultural and Heritage Resources

Under this alternative, almost the entire SDNM would be allocated to VRM Class I and II (a total of 426,000 acres). The increased area managed as VRM Class II (175,700 acres more than Alternative A) would ensure a more beneficial effect than that of Alternative A on the essential characteristics and attributes of historic landscapes and individual cultural resources. Management of activities and developments would be more restrictive in terms of visual intrusions and ground-disturbing activities on the historic landscape, leading to more protection of the cultural resource settings.

Class III (60,400 acres) would be allocated to areas considered passage zones and areas where some intrusion by ground-disturbing activities may impact cultural resources due to the installation of amenities for visitors. The impact would be minor in localized areas and could be mitigated through selective placement and design. The overall effect of these features would be positive for site integrity, compared to Alternative A, since they would be proposed and designed for improved site protection and public safety.

From Wilderness Characteristics on Cultural and Heritage Resources

Approximately 112,200 acres would be allocated as lands managed to protect wilderness characteristics. Few development projects would be implemented. Impact on site integrity and setting would be negligible. This would have a more protective effect, compared to Alternative A.

Areas would be designated and managed as limited OHV use areas. This would mean that motorized and nonmotorized vehicles would be limited to designated routes. Impact on site integrity and setting would be negligible. This would have a more protective effect compared to Alternative A.

4.5.6 ALTERNATIVE D

4.5.6.1 Both Decision Areas

From Livestock Grazing on Cultural and Heritage Resources

Eliminating grazing would have the most protective effect on cultural resource integrity in both the Lower Sonoran and SDNM, than any other alternative, including Alternative A, by removing those areas of stock gathering and the potential for trampling and accelerated erosion due to loss of vegetation and topsoil. Some impacts may occur if equipment or vehicles were used to remove livestock management structures and facilities or to restore developed water sites. Overall impacts would be negligible.

From Wildlife and Special Status Species on Cultural and Heritage Resources

Impacts would be the same as those described under Alternative B for both Decision Areas.

4.5.6.2 Lower Sonoran

From Cultural and Heritage Resources on Cultural and Heritage Resources

Under Alternative D, only Painted Rock and portions of historic trails would be designated for public use. There would be some ground disturbance due to installation of facilities to manage visitation and protect resources, such as designated parking areas, protective fencing, and interpretive media displays. Impact on site integrity would be negligible to minor under Alternative D as facilities necessary for visitor safety and site protection would be installed to maximize protection of site integrity and setting. This alternative would have more protective effect than Alternative A.

More sites are allocated to the scientific use category, including Butterfield West and Sundad. Restrictions on surface-disturbing research on cultural resource sites may have a direct, more protective effect than Alternative A on the integrity of cultural resource sites. However, there may be classes of scientific information that may not be obtainable without excavation.

From Minerals Management on Cultural and Heritage Resources

Under Alternative D, 373,800 acres more than Alternative A would be recommended for withdrawal from locatable minerals development (339,500 acres open); 373,900 acres would be closed to leasable minerals development (339,400 open); and 569,900 acres would be closed to minerals materials development (143,400 acres open). Many areas to be closed were selected based on the sensitivity of the cultural and historic resources known to be present. This alternative would have the most protective effect of any alternative, substantially more than under Alternative A, on sites that could be affected due to all forms of potential minerals development. Effects on site integrity would generally be minor to negligible. Site settings would see negligible impact.

From Recreation Management on Cultural and Heritage Resources

The Decision Area would be divided into ERMA and two SRMAs. For the ERMA, impacts would be the same as Alternative A. Two SRMA units are proposed under Alternative D, with fewer areas promoted

as vehicle-based recreational zones. This alternative may lead to fewer vehicle-based impacts on cultural resources than that proposed for Alternative A.

From Special Designations on Cultural and Heritage Resources

The existing Juan Bautista de Anza NHT designation with its Comprehensive Management Plan (NPS) in the implementation phase may affect directly the historic sites associated with it for the long term due to its status as a nationally important resource. Management of the NHT and cultural resources would have a farther reaching protective direct and indirect effect on cultural resources at a minor to major level of intensity over the long term throughout the area than under Alternative A. This is because all trail related interpretive facilities and amenities would be constructed outside of the historic trail corridor and away from cultural and heritage sites, eliminating the likelihood of damage occurring on sites.

Impacts from scenic byways would be the same as those described under Alternative C for the Lower Sonoran.

The Coffeepot Batamote, Saddle Mountain, and Cuerda De Lena ACECs would have numerous restrictions on allowable activities. The result would be negligible or no impact on site integrity or setting. This would be more protective than Alternative A.

The Lower Gila Terraces and Historic Trails SCRMA have been proposed to protect cultural resources in the area. The emphasis is on conservation with minimal interpretation and only non-ground-disturbing scientific research. The designation should ameliorate threats to site integrity. Impact would be negligible. This would provide more protection than Alternative A.

From Travel Management on Cultural and Heritage Resources

In the Lower Sonoran, all the action alternatives would be subject to route designation within five years of RMP completion. Until designation, travel would be limited to existing roads and trails. While existing routes would not generally be inventoried for cultural or historic resources, known sites have been identified during the road inventory. These and known sensitive areas would be considered in determining which roads would be designated as routes.

Alternative D would close the greatest number (777 versus 15 under Alternative A) of transportation routes. Restricted access would protect many sites from inadvertent incursions from vehicles and may reduce the impacts on site integrity of unauthorized artifact collection. Restricted access would also limit regular monitoring of archaeological sites in remote areas by staff and volunteers, thereby reducing the effectiveness of some site protection activities. This may make some sites more vulnerable to vandalism. Restrictions on access for permitted scientific studies would limit scientific use of sites and gathering information useful for research and resource management. Overall, however, this alternative would provide the greatest protective effect on cultural and heritage resources. Impacts on site integrity and setting would be negligible.

From Vegetation Resources on Cultural and Heritage Resources

Impacts would be the same as Alternative B for Lower Sonoran.

From Visual Resource on Cultural and Heritage Resources

Under this alternative, VRM Class I and Class II allocations dominate the Lower Sonoran, which offer the most protective management strategy for cultural resources, far more protection than under Alternative A. This alternative should have a protective effect on the settings of cultural resources for the long term. Impacts allowed under this alternative would be negligible to minor in effect on site setting.

From Wilderness Characteristics on Cultural and Heritage Resources

Approximately 276,500 acres would be allocated as lands managed to protect wilderness characteristics. Impacts would be the same as those described under Alternative C for Lower Sonoran, except that a considerable increase in acreage (148,400 acres) managed under this allocation would benefit more sites. This would provide more protection than Alternative A.

4.5.6.3 Sonoran Desert National Monument

From Cultural and Heritage Resources on Cultural and Heritage Resources

Restrictions on surface-disturbing research on cultural resource sites (Monument objects) may have a direct, more protective (albeit negligible to minor) effect than Alternative A on the integrity of cultural resource sites. However, there may be classes of scientific information that may not be obtainable without excavation.

Since no new cultural sites (including Big Horn Station) would be developed as interpretive sites, no impacts due to an allocated public use would be anticipated.

From Recreation Management on Cultural and Heritage Resources

In the SDNM ERMA, the majority of this unit would be allocated to backcountry use. In the backcountry, it is expected that dispersed camping may affect the integrity of cultural resources and Monument objects directly by vehicle incursions and trampling and indirectly by possible exposure to the threat of unauthorized collection of artifacts at a negligible to minor level of intensity for short durations, in localized areas. It is anticipated that the proposed restrictions in travel routes and visitation would have a more protective effect on the cultural resources and Monument objects than that proposed under Alternative A due to a reduced likelihood of vehicle incursions onto cultural sites and Monument objects.

Because the entire SDNM would be closed to target shooting, there would be no impact on cultural resources from target shooting.

From Special Designations on Cultural and Heritage Resources

Under Alternative D, interpretive and visitor facilities would only be developed outside of the historic trail corridor. This would have the effect of addressing potential impacts on Monument objects by finding alternative locations for those uses. Impacts on the integrity of the resource and its setting would be negligible. This would be more protective than Alternative A.

Allocations of SR–238 (18 miles) and I -8 (30 miles) as Scenic Byways would have no effect on the cultural resources and Monument objects.

From Travel Management on Cultural and Heritage Resources

Refer to **Table 4-23**, Impacts from Implementation-Level Decisions on Cultural and Historical Sites Monument Objects, for impacts related to route designation in the SDNM.

From Vegetation Resources on Cultural and Heritage Resources

Passive vegetation restoration projects may have a direct or indirect protective effect on cultural resources and Monument objects for the long term by helping to arrest erosion processes that damage site features by stabilizing the soil. Impacts on site integrity and setting would be negligible. This Alternative would have a more protective effect than Alternative A.

From Visual Resources on Cultural and Heritage Resources

This alternative, under which Class I allocation extends over at least 95 percent of the SDNM, has far more restrictive decisions than Alternative A for visual resources management resources. This would have a more protective effect on the settings of cultural resources and Monument objects for the long term than provided under Alternative A. Impacts on Monument objects would be negligible as the objective of this class is preservation of settings.

From Wilderness Characteristics on Cultural and Heritage Resources

Approximately 153,000 acres would be allocated as lands managed to protect wilderness characteristics. Impacts would be the same as those described under Alternative C for the Lower Sonoran, except that an increase in acreage (40,800 acres) managed under this allocation would benefit more sites. Impacts on site integrity would be negligible, and this would provide more protective effect than Alternative A.

4.5.7 ALTERNATIVE E (PROPOSED RMP)

4.5.7.1 Both Decision Areas

From Wildlife and Special Status Species on Cultural and Heritage Resources

Impacts would be the same as those described under Alternative B for both Decision Areas.

4.5.7.2 Lower Sonoran

From Cultural and Heritage Resources on Cultural and Heritage Resources

Painted Rock, portions of historic trails, and Sundad would be allocated for public use. Sundad would also be available for scientific research. Impacts would be the same as those discussed under Alternative C for the Lower Sonoran.

From Livestock Grazing on Cultural and Heritage Resources

Impacts would be the same as under Alternative A for the Lower Sonoran.

From Minerals Management on Cultural and Heritage Resources

Under Alternative E, 2,350 acres would be recommended for withdrawal from locatable minerals development (710,800 acres open); 53,700 acres would be closed to leasable minerals development (659,600 acres open); and 192,300 would be closed to minerals materials development (521,000 acres open). Several of the areas to be closed were selected based on the sensitivity of the cultural and historic resources known to be present. This alternative would have much more protective effect than under Alternative A on sites that could be affected due to leasable and saleable (mineral materials) development. Depending on the extent and intensity of ground disturbance and production in approved plans of operation for mineral exploration and development, there may be direct effects on cultural resource site integrity at a moderate level. However, mitigation of impacts on affected sites is expected to reduce the impacts to minor. Methods to reach a minor impact outcome would likely include project redesign or data collection in compliance with existing laws and regulations.

New vehicle routes associated with mineral development may have moderate indirect impacts on site integrity if project access also opens new areas to site visitation. These impacts may be reduced to minor through project design.

From Recreation Management on Cultural and Heritage Resources

The Decision Area would be divided into six ERMAs and three SRMAs. Impacts from the ERMAs and SRMAs are detailed below.

In the Buckeye Hills West SRMA, vehicle-based, front country, two-track route exploration would impact cultural resources on a negligible to minor level. This would be for a short duration and in localized areas and would be due to vehicle incursions causing damage to sites. Dispersed camping may affect the integrity of cultural resources directly by vehicle incursions, trampling, and possible exposure to the threat of unauthorized collection of artifacts at a minor level of intensity for short durations, in localized areas. In the Buckeye Hills East SRMA, the community interface level of management implies that areas where camping and day use areas are designated, impacts would be negligible on cultural resources. More intensive management of this area would ensure that this alternative would have a more protective effect than Alternative A.

In the Saddle Mountain ERMA, there would be a combination of front country experiences, backcountry primitive experiences, and a community interface area. In the front country areas, vehicle-based exploration and camping would impact cultural resources on a minor level for short duration in localized areas. Community interface areas where camping and day use areas are designated and activity is structured, there would be negligible or no impact on cultural resources. In the front country or backcountry, it is expected that dispersed camping may affect the integrity of cultural resources directly by vehicle incursions, trampling, and possible exposure to the threat of unauthorized collection of artifacts at a negligible to minor level of intensity. This would be for short durations and in localized areas. More intensive management of this area would ensure that this alternative would have a more protective effect than Alternative A.

In the Arlington ERMA, vehicle-based, front country, two-track, route exploration would impact cultural resources on a negligible to minor level. This would be for a short duration and in localized areas and would be due to route proliferation and vehicle incursions onto sites causing damage. Dispersed camping may affect the integrity of cultural resources directly by vehicle incursions, trampling, and possible exposure to the threat of unauthorized collection of artifacts at a minor level of intensity for short durations, in localized areas. More intensive management of this area would ensure that this alternative would have a more protective effect than Alternative A.

In the Gila Bend Mountains ERMA, the area is largely proposed as backcountry, with a few areas of front country along the main access routes. It is expected that dispersed camping may affect the integrity of cultural resources directly by vehicle incursions, trampling, and possible exposure to the threat of unauthorized collection of artifacts. This would be at a minor level of intensity for short durations in localized areas. Impacts are expected to be similar to Alternative A.

In the Lower Gila Historic Trails ERMA, vehicle-based, front country, route exploration is anticipated to be complementary to the historic trail features that cross the unit, since this SRMA would base interpretive development partially on retracing the historic routes. It is anticipated that this activity would impact cultural resources through route proliferation and vehicle incursions on a minor level for a short duration, in localized areas. Dispersed camping may affect the integrity of cultural resources directly by vehicle incursions, trampling, and possible exposure to the threat of unauthorized collection of artifacts. This would be at a minor level of intensity for short durations in localized areas. More intensive management of this area would ensure that this alternative would have a more protective effect than Alternative A.

In the Ajo ERMA, a combination of community interface management close to town, backcountry management, and front country management are anticipated. Community interface areas where camping and day use areas are designated and activity structured, there would be negligible or no impact on cultural resources. In front country or backcountry, it is expected that dispersed camping may affect the integrity of cultural resources directly by vehicle incursions, trampling, and possible exposure to the threat of unauthorized collection of artifacts. This would be at a negligible level of intensity for short durations in localized areas. In the front country areas, vehicle-based exploration and camping would impact cultural resources on a minor level for short duration in localized areas. More intensive management of this area would ensure that this alternative would have a more protective effect than Alternative A.

From Special Designations on Cultural and Heritage Resources

Impacts would be the same as those described under Alternative D for the Lower Sonoran.

From Travel Management on Cultural and Heritage Resources

In the Lower Sonoran all the action alternatives would be subject to route designation within five years of RMP completion. Until designation, travel would be limited to existing roads and trails. While existing routes would not generally be inventoried for cultural or historic resources, known sites have been identified during the road inventory. These and known sensitive areas would be considered in determining which roads would be designated as routes.

Impacts would be the same as Alternative B, except for some decrease in the length of the road network due to elimination of excess routes and routes that are in conflict with sensitive resources. This may have a long-term protective effect, indirectly on the cultural resource sites integrity by limiting access into remote areas and directly by removing vehicle routes from encroachment into site boundaries.

From Vegetation Resources on Cultural and Heritage Resources

Impacts would be the same as Alternative B for Lower Sonoran.

From Visual Resource on Cultural and Heritage Resources

Impacts would be the same as those described under Alternative B for the Lower Sonoran.

From Wilderness Characteristics on Cultural and Heritage Resources

Impacts would be the same as those described under Alternative C for the Lower Sonoran, except that the acreage allocated under this alternative reduced more than 50 percent (55,400 acres verses 128,100 under Alternative C). This would have the effect of reducing the number of sites that would benefit from the protective measures offered by this allocation. It still, however, provides more protection than under Alternative A.

4.5.7.3 Sonoran Desert National Monument

From Cultural and Heritage Resources on Cultural and Heritage Resources

Alternative E would designate the Lower Gila Trails SCRMA. Impacts would be the same as under Alternative C for SDNM.

Big Horn Station would be allocated for public use. There would be some ground disturbance due to installation of facilities to manage visitation and protect resources, such as designated parking areas, protective fencing, and interpretive media displays. Road access would have to be designed and constructed to enable safe public access off of I-8. Impact on site integrity would be negligible to minor under Alternative E as facilities necessary to visitor safety and site protection would be installed to maximize protection of site integrity and setting. Due to more intensive management, overall protection for Big Horn Station should be greater than under Alternative A.

Scientific and historical studies at selected cultural sites (Monument objects) allocated to scientific research may include excavation. Scientific excavation is an acceptable method of data retrieval and preservation and is, therefore, considered a negligible impact. Alternatives A and E would be similar in protective effect.

From Recreation Management on Cultural and Heritage Resources

Impacts would be the same as those described under Alternative C for the SDNM. Because the entire SDNM would be open to target shooting, impacts from recreational target shooting are expected to be the same as described for Alternative A. However, if Management and Administrative Actions designed to change the conduct of recreational target shooters has the desired effect, impacts from recreational

target shooting should be greatly decreased. If that werer to happen, impacts would be negligible to minor.

From Livestock Grazing on Cultural and Heritage Resources

Alternative E reflects the allotment classifications and corresponding impacts as described under Alternative A. Outside of Alternative D, (which eliminates grazing from the Monument) Alternative E would be the most protective alternative for cultural and heritage resources, as only 157,210 acres would be available for grazing.

The closures of 44,800 acres and corresponding impacts would be similar to Alternative C. Additionally, the Conley Allotment within the SDNM would become unavailable to cattle in order to protect important Monument objects that have been found to be incompatible with livestock grazing. This closure would specifically enhance the protection of the Anza NHT. Combined actions under this alternative would significantly reduce impacts on cultural resources from livestock grazing to negligible, or minor at the most.

From Special Designations on Cultural and Heritage Resources

Impacts would be the same as those described under Alternative D for the SDNM.

From Travel Management on Cultural and Heritage Resources

Refer to **Table 4-23**, Impacts from Implementation-Level Decisions on Cultural and Historical Sites Monument Objects, for impacts related to route designations in the SDNM.

From Visual Resource on Cultural and Heritage Resources

Impacts would be the same as those described under Alternative C for the SDNM.

From Wilderness Characteristics on Cultural and Heritage Resources

Impacts would be the same as those described under Alternative C for the SDNM.

4.6 IMPACTS ON GEOLOGIC AND PALEONTOLOGICAL RESOURCES

In the Lower Sonoran and SDNM, the Sentinel Plain lava flow is considered geologically significant. No other geologically significant areas have been identified in the Decision Areas, but locally significant areas may be present. These include geologic formations or outcrops having unique or unusual features of scenic value, that may contain important geologic characteristics, or that contain scientific or educational significance. In the event significant geologic resources are discovered within the Decision Areas, management actions to protect these resources would be implemented.

Paleontological resources include any fossilized remains, traces, or imprints of organisms preserved in or on the earth's crust that are of scientific interest and that provide information about the history of life on earth. BLM policy is to manage paleontological resources for scientific, educational, and recreational values and to protect or mitigate these resources from adverse impacts. To accomplish this goal,

paleontological resources must be professionally identified and evaluated, and paleontological data should be considered as early as possible in the decision making process.

An impact on paleontological resources is considered potentially significant if it would result in a loss of or inaccessibility to scientifically significant paleontological resources. The primary concern regarding impacts on paleontological resources is that direct damage to or destruction of fossils would result in the loss of important scientific information. It is possible that ground disturbance, such as grading, could encounter important paleontological resources. In addition, other potential impacts associated with construction are a concern. For example, fossils could be subject to damage or destruction by erosion accelerated by construction disturbance. Improved access and increased visibility as a result of construction could cause fossils to be damaged, destroyed, or subjected to unauthorized collection or vandalism. However, not all impacts of construction are adverse to paleontology. Excavation can and often does reveal significant fossils that would otherwise remain buried and unavailable for scientific study. In this manner, excavation can result in beneficial impacts. Such fossils can be collected properly and catalogued into the collection of a museum repository so that they can be available for scientific study.

The areal extent of ground-disturbing actions would vary under each alternative and depend on the acreage excluded from ground disturbance to protect or preserve other resources. Since the areal extent of each alternative differs, certain rock units or outcrops having recreational, scientific, or educational significance or containing fossil-bearing rock formations could be impacted.

The extent of impacts on paleontological resources varies due to the types and intensities of uses of public land, especially the extent of ground-disturbing activities, as well as the location of uses. Conversely, decisions that restrict or prohibit ground-disturbing activities would promote the preservation of unique geologic and paleontological resources. It is anticipated that impacts on paleontological resources would result from ground disturbance such as cross-country OHV travel, wildfires, unauthorized collection, vandalism, and trampling due to human or livestock activities. Other impacts, including permanent destruction of fossil locales, result from intensive, repetitive, and concentrated ground-disturbing activities. Under all alternatives, paleontological resources would continue to be affected by natural weathering and erosion processes.

Because limited paleontological and geological resources have been identified on the lands in the Planning Area, the impacts on these resources are not discussed in detail. During implementation or project specific planning, the BLM would evaluate proposed actions for site-specific effects on natural resources, including paleontological and geological resources, focusing on management actions that could disturb or damage fossil-bearing formations or outcrops. In the event significant geologic or paleontological resources are discovered within the Decision Areas, management actions to protect these resources would be implemented.

4.7 IMPACTS ON SOIL RESOURCES

The analysis of how Alternatives A, B, C, D, and E would likely affect soil resources emphasizes management actions that could alter soil productivity and erosion rates and the effects on sensitive soils.

4.7.1 METHODS OF ANALYSIS

General soil types, erosion potential, structure, and function were discussed and impacts were analyzed. The analysis was based on reference information, site investigations, lab analyses, soil mechanics and engineering criteria, anticipated effects of management actions by alternative, and professional interpretation and judgment. Impacts are sometimes described using ranges of potential impacts or in qualitative terms if appropriate. As noted in **Chapter 3**, detailed site-specific soil information is lacking for much of the planning area. General impacts on sensitive soils are discussed by resource. Site-specific analysis would be conducted before on-the-ground project implementation.

4.7.1.1 Indicators

Indicators used to assess impacts on soil resources in this analysis are sufficiently quantitative to compare the future impacts of this plan with the existing conditions of the Planning Area. Indicators include the following:

- Bare ground (acres or proportion of a given area)
- Vegetative cover (acres or proportion of a given area)
- Unsurfaced road density (miles of road per section)
- Developments or other activities causing surface disturbance on soils with high wind or water erosion hazard (number of developments or other surface disturbances)
- Disturbances from management activities that damage the surface cover provided by desert pavement or cryptogamic biological crusts (acres)
- Soil aggregate stability (time required for a soil aggregate to dissolve in water)

4.7.1.2 Assumptions

- The application of vegetation treatments and establishment of desired plant community would improve infiltration and aeration, fertility, and microbial populations.
- Soil and vegetation resources would be managed to meet the Arizona Land Health Standards and Guidelines.
- Substantial surface disturbance to soil, including exposure of bare ground, loss of vegetative cover, or rutting on unsurfaced roads, would increase water runoff and downstream sediment loads and lower soil productivity, thereby degrading water quality, altering channel structure, and affecting overall watershed health.
- The degree of impact attributed to any one disturbance or series of disturbances would be influenced by several factors, including the disturbance's location within the watershed, the time and degree of disturbance, the existing vegetation, and levels of precipitation at the time of the disturbance.

- New access roads would be properly designed.
- When special management designations, such as ACECs or SRMAs, are proposed and management actions for resource protection are properly implemented, their impacts on soil resources would be positive. These positive impacts would exceed any negative impacts that could accrue from increased visitation caused by the designation itself.
- When a proposed management action includes a use restriction that requires monitoring and enforcement to be effective, such as routes designated as closed for travel management, resources would be available to ensure that the necessary monitoring and enforcement occurs.

4.7.1.3 Program Areas with No Impacts on Soil Resources

There would be no impacts on soils from actions proposed under the following resource management programs:

- Air resources
- Cave resources
- Cultural and heritage resources
- Paleontological and geological resources
- Wild horse and burro management
- Wilderness characteristics
- Visual resources

4.7.1.4 Qualitative Intensity Scale

The intensities of impacts are described, where possible, using the following terms:

- Negligible. The amount of soil loss or erosion, or changes in soil characteristics, would be at or below the level of detection. Changes in the area of bare soil, to the desired plant community, or in extent of surface disturbance are below the level of detection.
- Minor. The amount of soil loss or erosion and its indicators or the degree of changes in soil characteristics would be small, as would be the area affected. If mitigation is needed to offset adverse effects, it would be relatively simple to implement and likely would be successful.
- Moderate. The amount of soil loss or erosion and its indicators or the degree of changes in soil characteristics would be readily apparent and would result in those changes over a relatively wide area. Mitigating measures probably would be necessary to offset adverse effects and likely would be successful.

- Major. The amount of soil loss or erosion and its indicators or the degree of changes in soil characteristics would be readily apparent and long-term and would substantially change the indicators over a large area. Extensive mitigation measures to offset adverse effects would be needed, and their success could not be guaranteed.

4.7.2 COMMON TO ALL ALTERNATIVES

Natural disturbance from fluvial processes are essential to the long-term maintenance of desert washes and hydrology. Management actions that involve surface-disturbing activities may impact soil and water resources by changing the rates of erosion or deposition, spatial patterns of erosion and deposition, and runoff conditions, potentially affecting air quality, water quality, and watershed health. Physical soil properties such as density, strength, infiltration and water-holding capacity, soil aggregate stability, and productivity may be affected from site-specific to landscape-sized scales.

Accelerated erosion, compaction, displacement, puddling, and rutting of soils can affect soil productivity. Erosion affects soil productivity by carrying away soil particles and nutrients normally held in the soil, such as phosphorous, magnesium, and potassium. The ability of the soil to recover productivity is affected by loss or degradation of the upper layers or horizons. These horizons have the highest water holding and nutrient storage capacity. Given the low precipitation and limited vegetation levels in the Planning Area, soil productivity would be slow to recover once it had been reduced by erosion.

4.7.2.1 Both Decision Areas

From Hazardous Materials and Public Safety on Soil Resources

Soils affected by hazardous materials spills are usually removed. If an affected area is not remediated quickly, the area of soil loss could spread, raising the intensity of the impact from minor to moderate or major. Delays in cleanup could result in infiltration of hazardous materials into groundwater, possibly causing major impacts and requiring costly groundwater treatment. Impacts could range from negligible to major.

From Water Management on Soil Resources

Although many management activities have impacts on soil, few of the impacts are realized until the disturbed soil surface is exposed to water. Therefore, soil, which contributes to impacts on water quality, and water, which contributes to erosion impacts on soils, are discussed together throughout this document. In this sense, the impact of water on soil is common to all alternatives and is not discussed under each alternative. Additional discussion of impacts of water on soil is included by alternative in **Section 4.9**, Impacts on Water Resources.

From Wildland Fire Management on Soil Resources

Suppression of wildfires in the Sonoran Desert ecosystem would reduce overall impacts on soil resources by retaining the vegetative communities and stabilizing the soil. This would maintain normal infiltration and sedimentation rates for soils. Wildfires that are not rapidly contained may destroy cryptogamic soil crusts and vegetation over broad areas, increasing erosion and sedimentation rates.

Fires that burn with intense heat may create water-repellent layers in the soil below the surface that impede infiltration and plant growth and increase erosion. Impacts could range from negligible to major.

4.7.3 ALTERNATIVE A (NO ACTION)

4.7.3.1 Lower Sonoran

From Lands and Realty on Soil Resources

Ten utility corridors for major linear LUAs would be designated under Alternative A through the Lower Sonoran. The designation of these corridors would lead to some localized impacts on soil resources where surface-disturbing activities occur during construction or maintenance. Containing these uses in the corridors would limit their areal extent and represent a minor impact if corridors are revegetated to reduce bare soil, which in turn would reduce runoff and erosion. Depending on the soil type, impacts of the roads associated with the LUA could also be mitigated with surfacing.

LUAs for utility-scale renewable energy development also would have measurable, widespread effects on soil. Blading large acreages for solar energy facilities, estimated to cover more than 150,000 acres over the life of the plan, is likely to disrupt drainage patterns, and cause surface disturbance and soil compaction over a large area, resulting in a moderate impact. Large quantities of groundwater may also be needed for renewable energy production and may affect soil resources by causing subsidence in localized areas. This impact could be mitigated in future solar developments by use of dry cooling technology in the steam turbine systems or by using systems with entirely different means of generating electricity. Assuming that most solar energy developments built under this plan are solar energy concentration facilities, the overall impact of LUAs for this use would be moderate, although it would be major in the localized construction area.

Land disposal actions on up to 18,900 acres in the Lower Sonoran could damage soil resources, particularly if the proposed future land use involved surface disturbance or removal of vegetation, such as for housing development or for a solar energy facility. An additional 8,000 acres would be available for exchange, which would only occur under Alternative A.

Overall impacts on soils in the Decision Area would be minor due to the limited acreage of these lands. Local impacts on the disposed lands are difficult to quantify when the specific actions are unknown, but impacts in the moderate to major range are probable.

From Livestock Grazing on Soil Resources

Grazing would continue under the current management system, which would allow surface-disturbing activities associated with livestock operations to continue and potentially increase erosion when sensitive surface cover provided by desert pavement and cryptobiotic crusts is disturbed. Exposure of fine material beneath the cover would make soils vulnerable to wind and water erosion. The limited area of these sensitive surfaces combined with stocking rates low enough to allow progress toward the desired plant community should keep disturbances small and site specific. The impact would, therefore, be classified as minor. No decisions related to cryptobiotic soils and desert pavement have been made under Alternative A, which would decrease the likelihood that these areas would be monitored and managed.

In years when there is a substantial spring bloom and ephemeral grazing is permitted, the surface disturbance around grazing developments would increase, as compared to years when no livestock or a small perennial herd is present. This disturbance area may be slow to recover. Increased livestock activity around new water developments would result in moderate localized impacts of soil compaction, surface disturbance, and damage to vegetation concentrated near the developments. Soils with a potential for wind erosion are identified in **Table 4-4**, Acres of Soils with Potential for Wind Erosion by Grazing Type, under Alternative A. The total area of moderate to high potential for wind erosion is about 8 percent of Decision Areas, where ephemeral or perennial/ephemeral grazing occurs. Wind erosion following surface disturbance from grazing in the sensitive areas could be moderate, but the total area affected in the Decision Area is small and the overall impact is minor under current management. Loss of vegetative and cryptobiotic cover around water developments and some other range developments are likely to be readily apparent and measurable. However, these impacts and the erosion that could result occur in small areas and are rated as minor overall.

Table 4-4
Acres of Soils with Potential for Wind Erosion by Grazing Type under Alternative A

Grazing Management	Potential for Wind Erosion			
	High	Moderately High	Moderate	Slight
Lower Sonoran Decision Area				
Short-term	38,900	2,000	8,600	273,800
Perennial	200	0	0	151,800
Perennial/Short-term	11,200	800	2,200	219,400
Closed	32,300	0	100	49,100
Total	*82,600*	*2,800*	*10,900*	*694,100*

From Minerals Management on Soil Resources

In the Lower Sonoran, mineral development would be allowed to continue on all lands not currently withdrawn from mineral entry or closed to mineral leasing under Alternative A. Impacts of mineral development on soil resources include potential disturbances such as soil displacement and loss or burial of upper soil horizons. Soil disturbance would result in reduced water-holding capacity (possibly permanently), leading to potential loss of vegetation and increased erosion. If a large mine with leach pads, open pits, and tailings piles were developed, major impacts on soils would occur. Much of the mine footprint would experience a long-term loss of soil productivity. Mitigation measures, including project design features, stipulations, and best management practices, would reduce the intensity and duration of impacts on soil resources, such as requiring soils to be salvaged when a project has ground disturbance. Salvaging and replacing or otherwise establishing a growth medium as part of the reclamation process would have a financial impact on the minerals' developers.

From Recreation Management on Soil Resources

Under Alternative A, recreation uses would continue to be distributed throughout the Decision Area, with four SRMAs covering 379,400 acres in the Lower Sonoran, in which active management of recreation would occur. The remaining 893,300 acres would be allocated as an ERMA. Damage to soil resources is expected to increase as recreation use increases throughout the Decision Areas in both

SRMAs and ERMAs. The concentrated activity in the SRMAs increases the probability of impacts on soils, such as erosion from increased stormwater runoff, due to impervious or compacted surfaces in parking areas, structures, and trails. These impacts would be limited in extent and would be minor. Mitigation and maintenance is planned for facilities and near historic sites. Impacts are likely to be offset by those planned management actions as well as the education about natural resource management provided by the SRMAs themselves. In the dispersed recreation occurring in the ERMAs, disturbed sites may be more numerous, but impacts on many of the individual disturbed sites would be minor. Dispersed recreation occurs in the ERMAs and in undeveloped portions of the SRMAs. Soil impacts are likely to increase as previously unaffected areas are used for camping, hiking, mountain biking, and equestrian activities. Most of the affected areas would be used for short periods and would be relatively small.

Campers are encouraged to use existing sites. The impacts are expected to be minor. Only one established campground and two additional unimproved areas that are currently used for camping exist in the Decision Areas. Alternative A includes the possibility of establishing an LTVA. If any LTVAs are created in Ajo or elsewhere, they would be in existing short-term use campgrounds, which would limit the impact on soils to the approximate area of the campground.

Compaction, rutting, a high proportion of bare ground, and a high risk of erosion from stormwater runoff exists in the designated camping areas. Increasing the stay limit to establish an LTVA could increase impacts if the area of the campground were also increased. Most impacts have already occurred, so designating an existing camping area as an LTVA would be a minor impact. Parking and camping are permitted along existing roads for a distance of 100 feet from the road centerline. This provision invites substantial expansion of the road surface impacts: increase in total area compacted, increase in area of bare surface, decrease in soil aggregate stability. These impacts increase probability of erosion on and near the road, which often leads to further expansion of the affected area as vehicle operators drive around damaged road surfaces. There is no data available on the current extent of this type of damage or of the number of turnouts that have developed in the 100-foot zone on each side of the designated routes. The impacts are classified as minor, since they are individually small areas and are not numerous. However, there is a high probability that activity would occur, leading to an increased area of disturbance along the 1,688 miles of road in the Lower Sonoran.

Alternative A does not address the risk of lead contamination in soils from bullets and the buildup of shooting debris and lacks specific management prescriptions for recreational target shooting, which could increase the risk of injury. The lack of directives regarding cleanup of trash or spent shells under Alternative A combined with the highly-disbursed nature of recreational target shooting could result in the buildup of solid waste in a number of locations in the Lower Sonoran. Under Alternative A, concern would continue regarding recreational target shooting activities conducted at popular sites where shooting is officially unsupervised, random, and, at times, concentrated. Impacts would be moderate.

From Special Designations on Soil Resources

The Coffeepot Botanical ACEC is the only ACEC under Alternative A. An existing management decision closes the existing roads to all recreation, which would greatly reduce the risk of unauthorized travel, widening of existing roads, and most other additional surface disturbance.

From Travel Management on Soil Resources

Motor vehicle use is currently limited to existing or designated routes, with less than three percent of the Decision Area limited to designated routes and most of the closed routes in the wilderness areas. Alternative A decisions on motorized vehicle use leaves the current OHV class designations and route system in place (see Map 2-15a). Current management would have a minor to moderate effect on soils as the current route system is not clearly marked or delineated for the public, resulting in an expansion of nondesignated routes. This continued expansion would result in loss of vegetative cover, thus destabilizing soils and making them susceptible to erosion and lower productivity.

Under Alternative A, only 15 miles of routes out of 1,688 total miles would be closed in the Lower Sonoran. The average road density over the Lower Sonoran Decision Area is 1.15 miles per section, which is relatively low. However, the density varies in different parts of the Decision Area. If the very low density wilderness areas are not included in the calculation, the road density increases by almost 50 percent to 1.57 miles per section. Increased road density increases the risk of rill and gully erosion, as described below. In addition, higher road density increases bare soil-reducing infiltration and increases wind erosion. The impact due to road density would still be moderate to low in the rest of the Decision Area.

Public travel in wash bottoms and dry streambeds that are part of the existing route system would continue, potentially impacting surface drainages, eroding banks, damaging xeroriparian vegetation, and leading to greater sedimentation during stormwater runoff. Use of wash bottoms as existing but undesignated travel routes is likely to increase use of new or unauthorized routes as vehicle operators exit or reenter drainages. However, streambeds in the Decision Area are usually sand, and the affected areas are locally small, resulting in a minor impact overall. The intersections of roads and washes are numerous enough to cause moderate impacts locally where the intersections occur.

Routes on soils with a high or moderately high potential for wind erosion are vulnerable to greater soil loss and larger contributions to air quality degradation, in particular, through the emission of small particles of dust that could lead to an increase in PM_{10} levels. Over a third of the miles of Limited to Existing Routes OHV areas are on soils with high wind erosion potential, creating a moderate impact on soils (Map 3-5). In addition, routes on soil types with high silt content are often more susceptible to wind erosion. Although other factors can impact erosion potential, soils with silt content over 50 percent have high susceptibility to particle emission, and over 80 percent can have a very high susceptibility (MacDougall et al. 2001). Site-specific analysis of soil type and silt content would occur before project implementation.

Potential for water erosion is substantially greater on roads where stormwater runoff is concentrated and road drainage is not well developed. Alternative A would keep 99 percent of the total number of existing routes open, creating a moderate to high impact on soils in the areas of higher road density. Those areas include Buckeye Hills, the area north of the Signal Mountains, and in the areas north and southwest of Ajo. Gully erosion, soil loss, increased runoff, and sedimentation in drainages may not be apparent everywhere, but the impacts would be widespread in the areas of relatively high density of open roads under Alternative A. The impacts are also rated moderate to high because mitigation of impacts that have occurred would be impractical and the outcome would be in doubt, particularly since use of most of the roads would continue.

From Vegetation Resources on Soil Resources

Decisions intended to protect special status species, particularly those that avoid surface disturbance or maintain vegetative cover, would also protect soil and water resources. Continued wood harvesting in the Lower Sonoran would remove roots, limit the amount of debris, and reduce vegetation cover and increase bare ground. Reduced cover reduces infiltration, and increases runoff, which could increase erosion. Such impacts, however, would mainly be limited to the Ajo Block, where the majority of wood harvesting has been occurring. Impacts would be minor, since they would be site specific in a limited area and would not require mitigation, unless vehicle traffic created ruts or disturbances on sensitive soils.

From Wildlife and Special Status Species on Soil Resources

Increased wildlife activity around existing wildlife water developments would result in a slight increase in soil compaction and surface disturbance. However, such impacts would be minor compared to the compaction and surface disturbance that occurs around livestock waters, which are minor themselves due to their limited spatial extent. The additional impact of wildlife sharing livestock water would be negligible.

Overall, the general objectives under Alternative A are to take actions, some specified and some not, to protect, maintain, or improve habitat for Sonoran pronghorn, desert tortoise, bighorn sheep, ferruginous pygmy-owl, and other priority and nonpriority species. Such actions would reduce the impacts of livestock management and would otherwise maintain more vegetative cover, reducing the potential for soil erosion.

4.7.3.2 Sonoran Desert National Monument

From Lands and Realty on Soil Resources

Three corridors major linear LUAs would be designated under Alternative A in the SDNM. The designation of these corridors would lead to some localized moderate impacts on soil resources where surface-disturbing activities occur during construction or maintenance. Containing these uses in the corridors would maintain a moderate level of surface damage. Other land uses authorized by LUAs that cause surface disturbance would have similar localized impacts on soil resources due to soil compaction, erosion, and sedimentation. Mitigation to revegetate areas, close and restore temporary roads and other construction disturbances, and keep stormwater runoff in natural drainages would reduce impacts over time.

Alternative A includes no solar energy development in the SDNM, but some indirect impacts on soil and water resources on the SDNM could occur in the southeast section of the SDNM (southern Vekol Valley) from developments. Impacts include increased stormwater runoff and flow and erosion and sedimentation in drainages in the SDNM. These impacts would be minor and limited in extent.

From Livestock Grazing on Soil Resources

Under Alternative A, grazing would be discontinued south of I-8, since those permits have expired. No additional impacts on soils would occur in this area due to livestock grazing. The closures would end

surface disturbance due to grazing with particular benefit to soils vulnerable to wind erosion in the Vekol Valley.

North of I-8, grazing would continue at current preference levels. The Land Health Evaluation for the SDNM allotments has shown negligible to minor impacts from grazing on soil resources. (See **Appendix F**, Arizona Land Health Evaluation for the Sonoran Desert National Monument.) Therefore, grazing impacts are expected to be minor and similar to those analyzed under Alternative A for the Lower Sonoran. Minor impacts are potentially due to the effects of grazing on the soils most sensitive to erosion.

From Minerals Management on Soil Resources

The SDNM is withdrawn from new mineral entry and closed to leasing under all alternatives. The withdrawal and closure was established in the proclamation that established the Monument and would have a protective effect on soil resources as ground disturbance from exploration, prospecting, and other activities associated with mineral development would be generally prohibited.

There are a few parcels (totaling 25,800 acres) within SDNM where the surface is owned by the United States, the subsurface is owned by a non-Federal entity, and minerals development may still occur. Depending on the extent and intensity of ground disturbance, there may be direct effects on soil resources to a moderate level. However, the BLM, as the manager of the surface, would work with operators to mitigate impacts on affected areas and reduce impacts to minor. Methods to reach a minor impact outcome would likely include project design features or mitigation measures that reduce soil erosion, compaction, or runoff potential.

From Recreation Management on Soil Resources

Alternative A has a SRMA that is intended to cover the portion of the Gila Trails SRMA that occurred within the SDMN. It has 143,900 acres which includes the Gila Trail, the Butterfield Stage Route, the Anza Trail, and other historical points. Impacts on soil resources would increase as additional miles of hiking, biking, and equestrian trails are constructed, exposing disturbed soils to wind and stormwater erosion and as use of the area increases with increased visitation. However, management actions are planned that would protect resources values and limit OHV use to designated routes. The sum of these offsetting actions is likely to have a minor negative impact. The remaining 342,500 acres of the SDNM would experience minor impacts similar to those described above for the Lower Sonoran.

Alternative A does not address the risk of lead contamination in soils from bullets and the buildup of shooting debris and lacks specific management prescriptions for recreational target shooting, which could increase the risk of injury. The lack of directives regarding cleanup of trash or spent shells under Alternative A combined with the highly-disbursed nature of recreational target shooting could result in the buildup of solid waste in a number of locations in the SDNM. Under Alternative A, concern would continue regarding recreational target shooting activities conducted at popular sites where shooting is officially unsupervised, random, and, at times, concentrated. Impacts would be moderate.

From Special Designations on Soil Resources

Retaining the Vekol Valley ACEC in the SDNM would decrease the likelihood of soil disturbances in these areas, because they would remain closed to vehicle use, thus decreasing ground disturbance.

From Travel Management on Soil Resources

Decisions in this alternative to allocate OHV area designations as Open/Closed/Limited would have the effect of the highest levels of soil disturbance of any alternative. Continuing to allocate the Vekol Valley Grasslands ACEC and Wilderness Areas as OHV Closed areas, 110,700 acres, would minimize the loss of soil through the prohibition of vehicles and bicycles, which put high downward forces into soils. Continuation of OHV area allocation limited to existing roads and trails on 798,100 acres would have the effect of maintaining high levels of soil disturbance throughout the SDNM. Disturbance would likely continue to increase as new routes come into use as a result of a steady net increase in the number of routes.

Under Alternative A, 65 miles out of 632 miles of routes would be closed in SDNM. Public travel in wash bottoms and dry streambeds that are part of the existing route system would continue, potentially damaging dry riverbed vegetation and destabilizing channel banks. This would lead to a moderate level of impact on soil resources, including an increase in sedimentation in drainages during periodic stormwater runoff.

In addition:

- Restricting travel to existing routes would limit the impacts to some locally high, but generally moderate, levels over the Decision Area, assuming the restrictions are enforced.

- The soils along the De Anza-Butterfield trail corridor between the North and South Maricopa Mountain Wilderness Areas and east and west of Butterfield Pass are deep and loamy and often have calcareous layers (containing calcium carbonate). Typically they are not readily erodible, although some have a moderately high wind erosion hazard. For example, the Why soil has a moderate-high wind erosion hazard ranking. Why soils make up about 15 percent of the Denure-Rillito-Why Complex, the most common soil grouping in the SDNM between the North and South Maricopa Mountain Wilderness Areas (at the third order soil mapping intensity commonly used for rangeland management). Despite the relatively low erosion rating for most SDNM soils west of the Vekol Valley, surface and vegetation disturbance or damage increases susceptibility to erosion on any soil. These disturbances have occurred due to OHV activity in this area. To reduce trail damage and control further erosion, the area has been temporarily closed to OHV traffic. If the temporary closure is lifted as planned under Alternative A, vegetation damage, surface disturbance, increase in total unsurfaced roaded area, and reduced soil aggregate stability are very likely to increase due to the lack of site hardening and natural barriers preventing cross-country travel and camp area expansion. These changes in the selected soil condition indicators would all contribute to moderate erosion at least and increased sedimentation in this area.

- The analysis of route designations that distinguished the open from the closed routes considered the soils associated with each route. The sensitivity of soils to impacts from motorized travel is part of the basis for the designation. Impacts would be greater on roads designated as open than on those designated as closed. Depending on a variety of factors, impacts on soils from open roads would usually be moderate, based mostly on the activities expected to occur in the Gap Well and North Tank areas. Soil characteristics, intensity of use, road grade, number of drainage crossings, the speed limit, and other factors would affect the level of impact on a specific section of road.

- Roads that are designated as open would have a tendency to widen as the 200-foot parking corridor is disturbed.

- Roads in use would have more impact on air quality by increasing the concentration of PM_{10} in the air.

- Roads in use will always have loose, fine particles on the road surface making them more susceptible to entrainment by wind and water.

- Surfaces of roads that are designated closed would slowly stabilize as vegetation recovers and no new disturbances occur.

- Roads that are closed could be rehabilitated and treated with water bars or other methods to improve drainage and reduce erosion.

From Vegetation Resources on Soil Resources

Decisions intended to protect special status species, particularly those that avoid surface disturbance or maintain vegetative cover, would also protect soil and water resources. Few specific management objectives for vegetation resources exist under Alternative A. Unauthorized removal of native plant materials is prohibited, which may provide a small measure of protection against soil disturbance. Generally vegetation management in the entire Planning Area is guided by Arizona Standards for Rangeland Health and Guidelines for Grazing Administration (1997). Progress toward standards includes establishment of desired plant communities, which increases protection for soil surfaces from wind and water erosion and has overall positive impacts.

From Wildlife and Special Status Species on Soil Resources

Impacts from wildlife species and habitat management would be very similar to those described in the Lower Sonoran discussion above. The impacts from water developments would be negligible to minor. The actions planned in earlier LUPs to protect, maintain, and improve priority and nonpriority species habitat would reduce the impacts of livestock management, and otherwise maintain more vegetative cover, as in the Lower Sonoran Decision Area.

4.7.4 ALTERNATIVE B

4.7.4.1 Lower Sonoran

Alternative B allows an increase in new facilitates and increased public access to the Decision Area, which would allow a greater number of surface-disturbing activities and generally increase the potential for soil erosion, sedimentation, and reduced soil stability. Although mitigation would be planned when there is an acceptable probability of success, residual impacts, as measured by the six soil indicators, are likely to persist from grazing, recreation, travel, lands and realty, and mineral management.

From Lands and Realty on Soil Resources

In the Lower Sonoran under Alternative B, the multiuse corridors would be the same as those described under Alternative A. As under Alternative A, the impacts would be minor, assuming BMPs for mitigating corridor impacts are implemented. Other authorized land uses, including utility-scale renewable energy development, would have the same moderate impact on soil resources as described under Alternative A.

Approximately 39,700 acres are available for disposal under Alternative B. If disposal of all available land occurred, the impact could be twice the impact described under Alternative A, although the total impact would still be moderate.

From Livestock Grazing on Soil Resources

Under Alternative B, impacts from grazing would be less than Alternative A. Perennial and perennial-ephemeral allotments would receive a reduction in permitted AUMs to offset the effects of continued ephemeral grazing. Grazing would continue on the same number of acres as under Alternative A, but permitted use would be approximately 40 percent of the Alternative A perennial stocking rate. The reduced grazing would have a positive impact on soils of the Lower Sonoran grazing allotments, compared to the greater perennial use under Alternative A. Surface disturbance would be reduced, which would result in lower impact on sensitive surfaces, such as cryptobiotic crusts and finer-textured floodplain soils susceptible to wind erosion. Less utilization of perennial plants would occur, assuming that ephemeral herds were removed in a timely manner, which would provide a small increase in surface vegetative cover. Overall impacts on soil resources would be minor.

From Minerals Management on Soil Resources

Impacts from mineral development would be similar to those described under Alternative A. The exception includes RMZs (Painted Rock RMZ, Gunsight Wash Campground), which are proposed for mineral withdrawal. Impacts on soil resources in these areas would be reduced due to lack of surface disturbance.

From Recreation Management on Soil Resources

Recreation allocations in the Lower Sonoran would include five ERMAs and SRMAs. The effects of ERMAs and SRMAs on soil resources are dependent on the proposed recreation uses and are described under Alternative A. Impacts on soils from ERMAs and SRMAs under Alternative B are increased due to

the additional management areas. All Lower Sonoran RMAs under Alternative B allow motorized travel. Motorized travel within dry washes can destabilize banks, particularly where vehicles enter and exit the washes, and damage dry-riverbed vegetation. Disturbing sensitive soils, such as cryptogamic crusts, may result in increased erosion due to exposure of bare soil. Management decisions intended to control motorized vehicle use, manage vehicle-based camping and recreational target shooting, and other intensive recreation uses, would help to mitigate impacts on soil resources. The Buckeye Hills East SRMA, Arlington ERMA, and Ajo ERMA emphasize motorized recreation. In these RMAs, erosion from stormwater runoff concentrated on roads would be moderate. This impact is likely to occur to a lesser extent in all RMAs due to the emphasis on motorized recreation under Alternative B. Based on the provisions for visitor education and control, plans for mitigation in anticipated areas of more intense use, and the limited spatial extent of expected impacts, the overall impact of the additional SRMAs under Alternative B would be minor.

From Special Designations on Soil Resources

Under Alternative B, designation of the Coffeepot ACEC in the Lower Sonoran would be retained; therefore, the impacts would be the same as those described under Alternative A.

From Travel Management on Soil Resources

Effects on air quality from travel on sensitive soils would be the same as described under Alternative A. Effects of the making OHV Area designations of Limited to Designated Routes on 828,360 acres would have a minor effect on soils in the planning area. Allocating an Open OHV area of 40 acres would have a negligible effect regionally since the area is only 0.004 percent of the total area. Locally, the effects passes through the middle of this area and bank instability could lead to sedimentation during rainfall. In Limited to Designated Routes, management, including the addition of earthen water control structures, would have a minor effect on soils, whereby soil loss would be reduced or stopped and monitored periodically. Soil conditions in most areas would be expected to meet land health standards.

Only 1,241 miles are modeled as Open under Alternative B. Alternative B has 198 more miles of Closed routes and 180 more miles of Seasonally Closed roads than Alternative A. Many miles of those closures are to protect wildlife habitat management areas in the Gila Bend Mountains and in the Ajo area. These closures would reduce the impacts on soils, particularly on the sensitive areas of desert pavement and cryptobiotic crusts that are common in undisturbed areas of the Ajo Block. Important reductions in rutting, surface, and vegetation disturbance and wind and water erosion would occur wherever routes are closed. In those specific areas where the road closures are concentrated, the impact on soil would decline from moderate to minor. However, even with the 25 percent reduction in road miles under Alternative B, the overall impact of travel on the indicators of soil condition in the Lower Sonoran would remain moderate. Alternative B includes plans for only five acres with new roads, which would be a negligible impact. Designation of routes in most areas should decrease OHV impacts over time by decreasing uncontrolled road proliferation, assuming resources are available for enforcement of designations.

From Vegetation Resources on Soil Resources

Alternative B would restore and reclaim disturbed areas and control invasive species. Treatment to eradicate invasive plant species may increase potential for erosion and increased turbidity in

watercourses during storms in the short term but would effectively increase cover, reduce runoff and erosion, and stabilize soils in the long term. A vegetation resources management objective is to maintain and restore desired vegetative communities to protect soils from wind and water erosion. Achieving the desired future vegetation condition appropriate for the ecological site would also provide a proper proportion of bare ground and increase the probability that erosion would not be accelerated. Sufficient vegetative cover would increase infiltration of stormwater, reducing runoff and subsequent rill and channel erosion. Specific objectives under Alternative B and all action alternatives would reduce wind and water erosion. These include objectives to increase cover, plans to minimize surface-disturbing activity in priority plant species habitat, as well as individual plant community composition objectives and plans to rehabilitate surface disturbances on sites most likely to be responsive. All of these objectives would increase cover and reduce surface disturbance, which leads to erosion. Impacts include a moderate improvement of soil conditions over the long term and potential for major improvement in currently disturbed areas.

Wood harvesting would be prohibited under all action alternatives, including Alternative B, maintaining cover and avoiding soil compaction that vehicle use for wood hauling is likely to cause.

From Wildlife and Special Status Species on Soil Resources

Alternative B would increase the number of new wildlife waters by about 50 percent (approximately 32 additional water developments) more than Alternative A and would relocate or remove some existing waters in the Lower Sonoran to meet wildlife habitat and distribution objectives. These actions could cause a slight drawdown of groundwater and impounding of stormwater. These impacts would be negligible. Existing roads required to provide access to these waters would be used when possible. Any new roads required would be closed to public use and would have a negligible impact on soil resource indicators. Any increase in compaction or soil surface disturbance compared to Alternative A would be very slight or negligible.

4.7.4.2 Sonoran Desert National Monument

From Lands and Realty on Soil Resources

In the SDNM, the multiuse utility corridors would remain the same as Alternative A, and the impacts would be the same.

From Livestock Grazing on Soil Resources

Alternative B proposes to reduce permitted use by approximately 40 percent. Positive impacts of the change would be similar to those described for Alternative B for Lower Sonoran, and the overall impact on soils would remain minor. Elimination of grazing south of I-8 would result in slow improvement in surface cover, and a slow recovery of surface disturbance caused by livestock movements. Reductions in grazing would continue and would result in minor impacts on soils overall. Discontinued grazing on 8,500 acres of the Monument north of I-8 would result in improvement of soil resources over the long term within those areas of the SDNM.

From Minerals Management on Soil Resources

Impacts from mineral development would be the same as described under Alternative A.

From Recreation Management on Soil Resources

In the SDNM, the entire Monument would be established as an ERMA. Within the Decision Area, two RMZs would be established: The Desert Back County RMZ with 433,600 acres and the Juan Batista de Anza National Historic Trail RMZ with 52,800 acres. An objective of the Monument is to keep recreation impacts on Monument objectives from exceeding 2001 levels. This would restrict new recreational facility development, so few impacts on soils from compaction or surface disturbance are likely to occur. Most roads would be primitive, with low maintenance levels. This could result in erosion during stormwater runoff that could be compounded by delays in repair. Periodic inspection could mitigate this impact.

Increases in visitation, particularly on the historic trails, could result in increased impacts from vehicle traffic. Monitoring of impacts on historic sites is planned, so soil damage from rutting, or unauthorized expansion of the travel surface is expected to be promptly repaired. Impacts are expected to be minor.

From Special Designations on Soil Resources

Under Alternative B, the Vekol Valley Grassland ACEC in the SDNM would not be designated and vehicle use would be allowed on routes in these areas, which would increase the potential for damage to soils, as compared to Alternative A. The impact on soils in the area of the Vekol Valley Grassland ACEC would increase to moderate under Alternative B. Since Vekol Valley Grassland is the only special designations in the SDNM, the overall impact throughout the SDNM of its removal under Alternative B would be minor.

From Travel Management on Soil Resources

Decisions under Alternative B to allocate OHV area designations as Open/Closed/Limited would have the second highest levels of soils disturbance of any alternative as a result of designating the most open routes of any action alternative. Cross-country travel would not be permitted, so impacts would be limited to the linear routes and use areas adjacent to routes. OHV closed areas would total 3,600 acres less than Alternative A. Vekol Valley Grasslands ACEC would not be designated, and this area would be designated as Limited to Designated Routes, allowing for limited vehicular and bicycle use on managed routes. Wilderness Areas would be included as OHV Closed areas (110,700 acres) and effects would be the same as Alternative A. Continuation of OHV area allocation Limited to Existing Roads and trails on 828,360 acres would have the effect of maintaining high levels of soil disturbance throughout the SDNM. Disturbance would likely continue to increase as new routes come into use as a result of steady net increase in the number of routes.

All existing travel routes in the SDNM would be designated Open, Limited, or Closed under Alternative B (and all other action alternatives). About 70 miles would be Closed, which is comparable to the miles of closures under Alternative A (65 miles closed). The differences in impacts due to total route length and road density between the two alternatives would be negligible. The reduced impacts of motorized

travel due to wilderness area restrictions would also be the same. The wilderness area size (157,700 acres) and management would be identical under Alternatives A and B.

In addition, impacts of route designations are similar to Alternative A. Road density under Alternative B would average 1.03 miles per section across the SDNM, excluding the wilderness areas. That relatively low road density would represent a minor impact. However, in some areas other factors combine to increase the probability of wind and water erosion, such as:

- Local areas of higher road density in Buckeye Hills, the land around Ajo, and the area north of Signal Mountain
- Where soils are identified as susceptible to wind erosion by NRCS in the Gila Bend-Ajo Soil Survey, floodplain soils of Vekol Wash, soils north and west of Mobile, and soils near the washes east and south of Ajo
- Where roads intersect washes and the amount of disturbed fine-textured soil is present

From Vegetation Resources on Soil Resources

Impacts on soil would be the same as those described for Alternative B for the Lower Sonoran.

From Wildlife and Special Status Species on Soil Resources

Impacts on soils from wildlife management plans under Alternative B for the SDNM are similar to impacts described for the Lower Sonoran with similar positive impacts. Wildlife management in the SDNM would provide a slightly higher level of habitat protection, and therefore, soil protection, in tortoise habitat and pronghorn habitat. Some additional trails could be constructed or motorized routes could be constructed, introducing minor impacts, but these would be offset by route closures, resulting in a net negligible impact.

4.7.5 ALTERNATIVE C

4.7.5.1 Lower Sonoran

From Lands and Realty on Soil Resources

In the Lower Sonoran under Alternative C, multiuse utility corridors would be reduced to nine multiuse corridors. As under Alternative A, the impacts would be minor, assuming BMPs for mitigating corridor impacts are implemented. Other authorized land uses, including utility-scale renewable energy development, would have the same moderate impact on soil resources as described under Alternative A. Approximately 39,700 acres are available for disposal under Alternative C. If disposal of all available land occurred, the impact could be similar to Alternative B, although the total impact would still be moderate.

From Livestock Grazing on Soil Resources

Impacts on soils from Alternative C grazing proposals would be less than Alternative A but greater than Alternative B. Perennial AUMs under Alternatives A and C are the same, but supplemental ephemeral grazing allowed under Alternative A would not occur under C. The reduced perennial grazing under Alternative B would result in less impact compared to C, even in years when ephemeral grazing was allowed under Alternative B, due to the limited duration of ephemeral spring grazing. The additional impacts under Alternative C would be largely the result of the higher year-long stocking rate causing concentration of use near water and forage. The risk of surface disturbance and possibly compaction would be increased, although overall impacts would remain minor. Higher intensity ephemeral grazing under Alternative B and still higher intensity under Alternative A, when combined with a larger perennial herd, would reduce the positive impacts on soils of more organic matter and residual litter associated with the lower use of ephemeral forage under Alternative C.

Evaluating relinquished grazing permits for reallocation to other uses would provide the opportunity for impacted areas to increase surface cover, reduce bare ground, and reduce impacts on areas of sensitive cryptobiotic crusts and desert pavement. Impacts from programs for adaptive monitoring and management of grazing would be similar to Alternative B. These management actions could result in positive impacts on some allotments.

From Minerals Management on Soil Resources

Impacts from mineral development would be the same as described under Alternative A, except that the Painted Rock RMZ and Gunsight Wash Campground are proposed for mineral entry withdrawal. Also, mineral materials disposals would be prohibited in areas that contain cactus ferruginous pygmy-owl habitat, eliminating potential impacts in these areas. These differences would have a negligible effect on the overall major impact of mineral development on soils.

From Recreation Management on Soil Resources

Four SRMAs would be allocated in the Lower Sonoran under Alternative C, with total acreage of 107,900 acres. Managing recreation use areas for a more even balance between motorized and nonmotorized uses would decrease the likelihood of impacts on soils by trampling, rutting, and erosion. Alternative C would have SRMAs with a larger proportion of acres in the backcountry RMZ (423,100 acres), which focus on providing for nonmotorized dispersed activities, compared to community interface (19,900 acres) and front country (186,300 acres). Reduced motorized travel within dry washes and on sensitive soils would decrease the likelihood of altering surface flow, exacerbating bank erosion, and damaging dry-riverbed vegetation. Proposed management actions in the Gila Bend Mountains ERMA to restore natural conditions of disturbed areas greater than two acres would reduce the impacts on soils in those areas by increasing cover and reducing the risk of accelerated erosion from roads and campgrounds. Overall impact of Alternative C recreation management on the Lower Sonoran Decision Area would be minor, assuming planned road and campground maintenance actions are effectively implemented.

From Special Designations on Soil Resources

Under Alternative C, designation of the Coffeepot ACEC in the Lower Sonoran would be expanded to the Coffeepot Batamote ACEC, covering 63,300 acres. Impacts would be negligible.

From Travel Management on Soil Resources

Effects on air quality from travel on sensitive soils would be the same as described under Alternative A. A decision to allocate OHV area designations with the same acreage as Alternative B would have similar effects, except that increasing the mileage of closed roads, thus allowing vegetative cover to return and stabilize soils, would have minor effect on soils. There would be no Open area near Ajo under this alternative, thus the impacts on soils would be greatly reduced due to having designated routes instead of allowing cross-country travel.

As under all action alternatives, Alternative C would include a framework for vehicle and travel management that should over time decrease the effects of vehicle use on soil resources, compared to Alternative A. Road density in areas of the Lower Sonoran in areas where, as modeled, 1,141 miles of roads could remain open (wilderness areas and allocated areas managed to protect Wilderness Characteristics are excluded) would be 1.28 miles of open road per section, one of the higher densities among the alternatives, but still a relatively low value.

Alternative C has additional route closures, seasonally closed roads, and roads closed to public use. Many miles of those closures are to enhance lands managed to protect wilderness characteristics wildlife habitat management areas in the Gila Bend Mountains and in the Ajo area. Other closures are in designated wilderness areas and in the area around the Painted Rocks Campground. These closures would reduce the impacts on soils, particularly on the sensitive areas of desert pavement and cryptobiotic crusts that are common in undisturbed areas of the Ajo Block. As a result of road closures, less rill and gully erosion, surface and vegetation disturbance, and wind and water erosion would occur. In addition, road ruts would not deepen and disturbance alongside roads due to parking and detours to avoid obstacles would not occur. However, the probability of stormwater flow being concentrated on unsurfaced roads and resulting in erosion on and off the road would persist, even on closed roads. Despite the 32 percent reduction in road miles under Alternative C compared to Alternative A, the overall impact of travel on the indicators of soil condition in the Lower Sonoran would remain moderate. Alternative C includes plans for only 25 miles with new roads, which would be a negligible impact on soil indicators.

About 25 percent of the open roads designated under Alternative C are on soils with moderately high or high vulnerability to wind erosion. Impacts on soils include loss or displacement of fine material from the road, an increased risk of rill and gully erosion during stormwater runoff, and increases in PM_{10} air pollution.

From Vegetation Resources on Soil Resources

Objectives, management actions, and impact under Alternative C would be the same as Alternative B.

From Wildlife and Special Status Species on Soil Resources

As under Alternatives A and B, decisions or actions intended to protect wildlife, particularly if they involve avoiding or remediating ground-disturbing activities, would also protect soils from erosion, sedimentation, and runoff. Differing from Alternatives A and B, Alternative C would allocate 425,900 acres of WHAs in the Lower Sonoran, which would help to reduce surface disturbances that can cause soil erosion or loss of biological soil crusts and desert pavement.

Impacts from many planned wildlife management actions are the same as those under Alternative B, including wildlife corridors and protection of pygmy-owl habitat. Restrictions on surface-disturbing activities and goals to improve cover for habitat, would increase infiltration of stormwater, would reduce runoff, and, therefore, would reduce water and wind erosion and maintain sensitive surfaces with cryptobiotic crusts and desert pavement. Limits on some recreation in pronghorn habitat would contribute to similar protections for soil resources.

Four WHAs totaling 425,900 acres would limit surface disturbance in the following areas: existing LUAs, areas greater than 40 acres, new route construction that did not support wildlife management objectives, leasable and mineral material sales, road density in WMCs, and travel in washes with pygmy-owl habitat. All of these limitations would reduce erosion and risks of damage to sensitive cryptobiotic crusts and desert pavement. Improving distribution of wildlife by moving wildlife waters as needed and limiting construction of new wildlife waters would have a minor impact on soils due to reduced compaction, vegetation consumption, and exposure of bare soil. Limiting these soil impacts would improve infiltration of stormwater and would reduce runoff and erosion.

4.7.5.2 Sonoran Desert National Monument

From Lands and Realty on Soil Resources

In the SDNM, two underground utility corridors would be designated under Alternative C, increasing the potential for soil disturbance and associated erosion. In addition, communication sites would be prohibited within SDNM, eliminating surface-disturbing activities associated with construction of such sites that can cause impacts on water resources and soils.

From Livestock Grazing on Soil Resources

Impacts of Alternative C on soils in the SDNM are very similar to impacts of Alternative C described above for the Lower Sonoran. The potentially larger perennial herd under Alternative C would result in increased impacts on soil resources, but they would likely be minor. Excluding livestock from 44,800 acres as proposed would improve soil conditions in the exclosed areas. Impacts would include less compaction of soils around water sources and in washes, increased vegetation and litter cover, improved permeability, and less pedestaling and rilling. Impacts would be minor in most areas but moderate near water developments where pressure on soils and vegetation would be removed.

From Minerals Management on Soil Resources

In SDNM, impacts from mining would be the same as for Alternative A.

From Recreation Management on Soil Resources

The entire SDNM would be an ERMA, consisting of the Desert Back Country RMZ and the Juan Batista de Anza National Historic Trail RMZ. Although the Anza RMZ is likely to attract increased visitation, two-thirds of that RMZ and nearly 90 percent of the Desert backcountry RMZ would be managed for undeveloped recreation. The undeveloped recreation includes four-wheel drive touring, which would have characteristic impacts on soils. But overall impacts of Monument recreation are expected to be minor. Management of SDNM recreation under Alternative C would be more active than Alternative A. Recreation is likely to increase, but most of the Monument would be managed for undeveloped backcountry recreation. Therefore, the impacts on soils would be similar to Alternative A and minor.

Groups would be limited in size, competitive motor sports would not be allowed, and more than a third of the miles of road in the Monument would not allow year-long, motorized, public use. These management actions would reduce damage to the unsurfaced road prism, would reduce risk of further impact from stormwater on the road, and would reduce the impact on soil erosion near the road. All of these positive impacts would offset the minor impacts that could be caused by increased recreation.

From Special Designations on Soil Resources

No special designations are planned for the SDNM under Alternative C. Impacts would be the same as those described under Alternative B.

From Travel Management on Soil Resources

Effects of acres allocated as Closed OHV Areas under this alternative would be the same as described under Alternative B. There would be no Open area near Ajo in this alternative, thus the impacts on soils would be greatly reduced due to having designated routes instead allowing of cross-country travel.

Overall, impacts on soils would be slightly less than under Alternative A but would still remain at a moderate level.

Approximately 150 miles would be closed under Alternative C. Route designation under Alternative C should decrease OHV impacts by decreasing illegal off-road use through the provision of a good map and marked routes. The potential for on- and off-road erosion and sedimentation usually associated with use of closed roads and closed areas would also decline. This is because Alternative C would include a framework for vehicle and travel management that should over time decrease the effects of vehicle use on soil resources, compared to Alternative A. Compared to Alternative A, fewer miles of routes in soils with a high potential for erosion would be left open. Compared to Alternative B, in both Decision Areas there would be fewer miles of routes open in soils with a high potential for erosion. This would decrease the potential for soil erosion, particularly wind erosion of fine-textured soils disturbed and displaced by increasing volume of motorized vehicle traffic. Density of open roads in the Monument would be 1.24 miles per section. This is a relatively low density but is among the higher densities in the Planning Area due to the large areas allocated as lands managed to protect wilderness characteristics. The roadless areas and areas of closed roads are not included in the density calculations. Management actions are included in all alternatives that would have the effect of mitigating the impacts on soils from travel, assuming they are implemented. However, numerous illegal roads have been used by motorized vehicle operators under current management since the SDNM was established. Substantial disturbance

of soils and vegetation has occurred near the Anza Trail corridor, increasing the risk of erosion, adding to the concentration of dust in the air and sediment in nearby and downstream channels. Monitoring of impacts and enforcement of laws and closures is a key to controlling impacts and success of the plan. Due to the risk of continuing damage to soil, air, and water resources, the overall impacts on soils from travel is expected to be moderate.

From Vegetation Resources on Soil Resources

Impacts of vegetation resources on soils in the SDNM under Alternative C are similar to impacts described for Alternative B. However, with 44,800 acres removed from livestock grazing, vegetation cover is expected to increase, providing positive impacts on soils, such as increased vegetation canopy and litter cover, and less wind and water erosion.

From Wildlife and Special Status Species on Soil Resources

As under Alternative B, wildlife corridor protection benefits soil resources, due to reduced road speed limits, limits on disturbance near washes, and limits on road density. Under Alternative C, an additional 117,300-acre wildlife corridor that connects the Sierra Estrella Mountains to the South Maricopa and Sand Tank Mountains in the Monument is added. None of the WHAs are located in the Monument, but the three wilderness areas limit motorized disturbance within their borders, thereby indirectly reducing the driving related impacts on the soil surfaces and the vegetation cover. Protective measures for pygmy-owls and desert tortoises also protect soil surfaces through seasonal closures for the owl and the no net loss provision for the tortoise. These impacts apply to all the action alternatives.

4.7.6 ALTERNATIVE D

Alternative D would result in elimination or reduction of many land use activities that result in soil erosion. Therefore, overall impacts of this alternative would protect soil resources and improve soil conditions over time.

4.7.6.1 Lower Sonoran

From Lands and Realty on Soil Resources

Land available for disposal under Alternative D is about 26,200 acres, only about 3 percent of the Decision Area. The impact on soils due to disposal is likely to be minor, depending on how the land is eventually used. Land available for disposal is less under Alternative A (18,900 acres), but the impact would still be minor.

LUA exclusion and avoidance areas include most of the Decision Area under Alternative D. The worst case LUA impacts on soils are likely to be minor. For utility-scale renewable energy development, Alternative D would exclude or classify as sensitive 85 percent of the Decision Area. If utility-scale renewable energy development occurred in the Decision Area, the soil impacts would be major in the area where development occurred, but moderate on the overall Decision Area. Specific impacts would be similar to Alternative A and the action alternatives.

From Livestock Grazing on Soil Resources

Under Alternative D, all public lands in the Planning Area would eventually be closed to grazing once all active grazing permits expire (see Map 2-8d). Eliminating grazing would reduce impacts on soil resources by decreasing ground disturbance and allowing additional vegetation cover to develop over time. These would be positive impacts for soils. During years of increased winter rainfall the fuel load created from the growth of annual species would not be subject to reduction from livestock grazing, which could result in increased frequency or intensity of fire in these nonfire adapted ecosystems, resulting in the potential increase in soil erosion. Potential impacts on soils could vary from minor to major in intensity, based on the size of the burn area.

From Minerals Management on Soil Resources

Alternative D would recommend substantial acreage for withdrawal from locatable mineral development and closure to leasable and saleable minerals development. The restrictions on mineral development would decrease the potential for erosion, soil compaction, and displacement associated with mineral development activities.

From Recreation Management on Soil Resources

The overall difference between Alternative D and other alternatives is the reduced number of RMAs under Alternative D. In SRMAs, management actions that are in conflict with recreation are generally resolved in favor of recreation management. Recreation allocations under Alternative D would establish two SRMAs: Buckeye Hills East and Painted Rock. The effects of SRMAs on soils are dependent on the proposed recreation uses and are described under Alternative A. The extent of the impacts from SRMAs under Alternative D are reduced from those under Alternative A due to fewer acres of SRMAs and a different recreational opportunity emphasis. Recreation in the Buckeye Hills East SRMA would emphasize nonmotorized and dispersed recreation in the Buckeye Hills West ERMA. Lesser emphasis on facility development and motorized recreation would result in reduced surface disturbance, which is generally correlated with reduced soil impacts.

Recreational use of the Lower Gila Historic Trails ERMA would emphasize a greater level of development and more extensive motorized travel than the Buckeye Hills East ERMA. Increased development of facilities in this area would result in negligible increases in runoff, erosion, and sedimentation. Management of other recreation in the Lower Sonoran would be similar to other alternatives. Management decisions intended to control motorized vehicle use and to manage vehicle-based camping, recreational target shooting, and other intensive recreation uses would help to mitigate impacts on water resources. Fewer RMAs and less motorized recreation in Buckeye Hills would result in the lowest soil impact under Alternative D, compared with the other alternatives. The overall impact on soils from Alternative D would be minor.

From Special Designations on Soil Resources

Ground-disturbing activities would be restricted or excluded in ACECs under Alternative D, including utility-scale renewable energy exploration and development. Also, ACECs would be closed to all locatable and leasable minerals exploration and development (including geothermal and sodium) and mineral material disposals. Although utilities would be placed underground, causing surface disturbance

and increasing probability of wind and water erosion, similar disturbances would accrue from aboveground utility transmission line construction. Overall, impacts from special designations under Alternative A, particularly ACECs, on soils would limit soil-disturbing activities, which would reduce erosion, compaction, and damage to sensitive surfaces.

From Travel Management on Soil Resources

A decision to increase OHV area designations of Closed to 378,300 acres would have a moderate effect on soils. The balance of 551,900 acres of routes would be allocated as Limited to Designated Routes. As under Alternative C, there would be a 40-acre open area near Ajo; thus, impacts on soils would be greatly reduced through the management of designated routes. Alternative D would keep only 47 percent (about 800 miles) of the total number of existing routes (1,687 miles) open, compared to 99 percent of the roads open under Alternative A, 74 percent of the routes open under Alternative B, and 68 percent open under Alternative C. Road density under Alternative D is 0.75 mile of open road per section, a relatively low value. Potential for water erosion is substantially greater on roads where stormwater runoff is concentrated and road drainage is not well developed. Depending on the effectiveness of restoration plans for roaded areas, a road is likely to remain a water erosion hazard long after it is closed. Therefore, the risk of erosion on the travel system in the Lower Sonoran is lower under Alternative D, but it is expected to remain moderate.

From Vegetation Resources on Soil Resources

Under Alternative D, the impacts from planned vegetation management actions would be similar to the impacts under Alternative C. However, the combination of eliminating cattle grazing across the planning area and the designation of 263,700 acres of ACECs would allow an increase in vegetative cover over time. Increased cover would increase stormwater infiltration and reduce runoff and erosion (both wind and water). In addition, decrease surface disturbance would further reduce the risk of erosion.

From Wildlife and Special Status Species on Soil Resources

Surface-disturbing activities would be excluded from the Gila Bend Mountains Wildlife Habitat Area, pronghorn habitat, Category I, II, and III desert tortoise habitat, and wildlife movement corridors. Mineral development would also be excluded from these areas. These exclusions and their reduced surface disturbance would be a positive impact on water and hydrologic conditions in the watersheds of the Lower Sonoran.

Motorized travel within pygmy-owl habitat would be prohibited from February through July. This would reduce the impact on most routes, especially in washes where channel banks and dry-riverbed vegetation are susceptible to damage that causes sedimentation in downstream drainages.

New wildlife waters would be installed only in higher elevations under Alternative D. Water development for livestock and wildlife would be limited under Alternative D, thereby reducing overall impacts with less ground disturbance associated with construction of these developments.

4.7.6.2 Sonoran Desert National Monument

From Lands and Realty on Soil Resources

In the SDNM, Alternative D would not designate any utility corridors, and communication sites would be prohibited in the Monument. As an LUA exclusion area under Alternative D, new impacts on soils would be negligible. Additional limitations for desert tortoise habitat would be implemented specifically to reduce surface disturbance, providing additional protection for soil resources. Continued use of existing multiuse corridors could result in surface disturbance and associated erosion risks. Those would be moderate but limited in areal extent.

From Livestock Grazing on Soil Resources

Under Alternative D, all public lands in the SDNM would eventually be closed to grazing once all active grazing permits expire (see Map 2-8d). Eliminating grazing would reduce impacts on soil resources by decreasing ground disturbance and allowing additional vegetation cover to develop over time.

From Minerals Management on Soil Resources

Impacts from mining in the SDNM would be the same as under Alternative A.

From Recreation Management on Soil Resources

Under Alternative D, the entire SDNM would be managed as primarily suited for undeveloped recreation. Ninety percent of the Monument would be managed as backcountry. The resulting impact on soils is likely to be a lower level of disturbance throughout the Decision Area, but there would be a wider area of disturbance. All routes would be primitive and designated from among existing roads. The impacts characteristic of roads include channeling of stormwater on erodible surfaces leading to rills, gullies, and sedimentation in natural drainages. The impacts would be locally moderate, if designations are followed, but would be minor overall throughout the SDNM, compared to Alternative A. The lower level of impacts would result from the large proportion of the Monument that would be closed to motorized use in wilderness areas and areas allocated as lands managed to protect wilderness characteristics.

Restrictions on length of camping stays, target shooting, group size, management infrastructure, and competitive activities would all contribute to reduced surface disturbance, compared to Alternative A, although many of those restrictions also apply to the other action alternatives. The restrictions would contribute to the overall minor level of impact on soils. Disturbance of vegetative cover is one of the major sources of surface disturbance and erosion. This impact would be most limited under Alternative D.

From Special Designations on Soil Resources

Impacts from special designations and the removal of the Vekol Valley Grassland ACEC in the SDNM would be the same as under all the action alternatives. The ACEC would not be designated because the Monument status provides adequate protection against invasive weed species and impacts of OHV use. The impact on soils would be negligible, since the vegetation cover would be retained. With sufficient

vegetation cover, soil surface protection would be good, bare ground would be consistent with ecological site, and runoff and subsequent erosion would not be accelerated. Under these conditions, soil impacts would be negligible.

From Travel Management on Soil Resources

Under Alternative D, 41 percent of the area would be closed to public vehicle use and the building of any public use roads. As under Alternative B, Areas Limited to Designated Routes would limit cross-country travel and would confine soil impacts on linear routes. Overall, impacts on soils would remain at a moderate level.

Only 200 miles of routes would remain open under Alternative D. In calculating the road density, however, more acres are excluded for wilderness and areas with wilderness characteristics than any other Monument alternative. The road density for the Alternative D is 2.08 miles per section, highest in the Planning Area. Compared to Alternative A, fewer miles of routes would be open in soils with a high potential for wind erosion and more miles of routes would be closed in these areas. Impacts on soils from route designations in the Monument are similar to impacts in the Lower Sonoran under Alternative D. Although more roads have been closed under this alternative, moderate impacts would still occur due to continuing, although declining, erosion after closure. All other action alternatives have more miles of primitive routes open than Alternative D. Since there is a strong correlation between miles of road in use and wind erosion from road surfaces and from stormwater runoff from roads, Alternative D would have the lowest level of impacts on soils. The impact would be minor throughout the SDNM, except for local eroded road segments that would be moderate. Additional assessments of road impacts are discussed in the recreation section for Alternative D above.

From Vegetation Resources on Soil Resources

The impacts from vegetation resources would be the same as the impacts described for Alternative D for Lower Sonoran.

From Wildlife and Special Status Species on Soil Resources

Of all the alternatives, Alternative D is the most restrictive on management activities that disturb soil surfaces and reduce vegetative cover. Restrictions and exclusions for pronghorn, pygmy-owl, and desert tortoise are all broader under Alternative D. Area in wildlife corridors is greatest under Alternative D, which will result in the least surface disturbance and the best maintenance of vegetative cover, protecting soil surface, increasing infiltration and reducing runoff and erosion.

4.7.7 ALTERNATIVE E (PROPOSED RMP)

4.7.7.1 Lower Sonoran

From Lands and Realty on Soil Resources

Impacts on soils from land tenure changes would be similar to Alternative A and minor, except on the specific disposed lands. Under Alternative E, 36,800 acres or less than 4 percent of the Decision Area would be available for disposal. Land available for exchange under Alternative A is not available under

Alternative E. The impact on soils in the Decision Area is minor, and essentially the same as the impacts described under Alternative B.

Impacts due to land use authorizations would be similar to that describe under Alternative C. are essentially the same as Alternative C. Soil surface and vegetation disturbance and exposure of bare soil associated with LUAs, would be reduced due to LUA exclusion areas. The use of existing utility corridors would remain essentially the same, resulting in similar impacts.

Impacts on surface acres from solar energy development is similar to those described under Alternative C. Impacts are positive compared to Alternative A, since Alternative E would have an additional 196,400 acres in areas of high sensitivity, reducing the probable future soil surface disturbance under Alternative E.

From Livestock Grazing on Soil Resources

Impacts from grazing on soils within the Lower Sonoran would be similar to that described under Alternative A.

From Minerals Management on Soil Resources

Impacts from mineral development would be the same as described under Alternative A, except in:

- Some RMZs (Painted Rock RMZ, Gunsight Wash Campground), which are proposed for mineral withdrawal; and
- The Cuerda de Lena pronghorn recovery area, which would be closed to some mineral exploration and development.

In these areas, risks of impacts from surface disturbance would be slightly reduced but would be the same as Alternative A if mineral development did occur.

From Recreation Management on Soil Resources

Under Alternative E, approximately 646,000 acres would be designated as SRMAs. Impacts on soil resources in these areas would be similar to that described under Alternative B. Two SRMAs under Alternative B would not be designated under Alternative E. Less recreational activity would probably occur in the 48,100 acres in those two SRMAs. Not designating these areas would result in decreased visitation therefore reduced surface disturbance and less damage to vegetation. This would limit the increase in bare soil and water and wind erosion. However, even as an ERMA, some use would occur, so the differences in impacts would be minor.

Alternative E camping stay lengths and infrastructure would be limited, possibly resulting in less soil compaction, vegetation and soil surface damage, and damage to banks and xeroriparian vegetation in adjacent Gunsight Wash, less runoff, erosion and sedimentation into the wash. Impacts from management in the SRMAs would be negligible.

From Special Designations on Soil Resources

Alternative E proposes 247,400 acres for ACEC designation. Alternative E would result in major protection of on soils by increasing restrictions on motorized travel, resource use, and development restrictions.

From Travel Management on Soil Resources

Under Alternative E, Closed OHV area designations would occur on 152,800 acres and 777,360 acres would be classified as Limited to Designated Routes. Open OHV area would cover 40 acres.

Travel management areas identified for future travel management planning are the same size under Alternative E as in all action alternatives. Acreage of areas with roads classified as closed versus limited to designated use is similar to Alternative B, so the impacts on soils are also similar. However, Alternative E proposes approximately 55,400 more acres of closed roads than under Alternative B. This would reduce the impact of roads under Alternative E as the additional closed roads begin to recover, re-establish vegetation, and erosion caused by stormwater runoff declines.

Compacted road prisms may also recover some of their original soil structure, but that would be a very long process. Use of the 100 foot parking area on each side of roads in the Decision Area would not occur, further limiting disturbance of the soil surface and vegetation. Despite the reduced impacts under Alternative E, the overall impacts would remain moderate in the decision, though local impacts where roads are closed would slowly decline to a minor level.

Overall impacts on soils from travel on over 1,100 miles of mostly unsurfaced roads, a density of over 4 miles per section, would be moderate with some areas of sensitive soils or higher road densities having major impacts. However, road density under Alternative B is only about 2/3 that of Alternative A. As road density increases, soil surface and vegetation disturbance, including disturbance to the 100 foot parking area on each side of the road prism, and total compacted surface area exposed to erosion during stormwater runoff all increase. Impact on soils from wind erosion would be moderate due to the limited roaded area on areas highly susceptible to wind erosion (about 25 percent of the Decision Area), although mitigation would be impractical.

From Vegetation Resources on Soil Resources

Alternative E includes the same proposed management actions for controlling invasive weeds, meeting desired future vegetation community conditions, management of plant material collection, rehabilitating disturbed areas and plant communities, and managing the Fred J. Weiler Green Belt as in all the action alternatives. Therefore, the impacts of vegetation resources management under Alternative E would be comparable to Alternatives B, C, and D with varying degrees of grazing pressure.

From Wildlife and Special Status Species on Soil Resources

Impacts on soils from protecting wildlife habitat through retention and acquisition of public land, limitations on LUAs, and travel restrictions would minimize soil disturbance, retain vegetative cover, and ensure consistent, long-term protective management of important habitat.

Under Alternative E, Gila Bend Mountain WHA is an avoidance area for surface disturbance and management recommendations require a high level of mitigation for mineral leasing activities, therefore the soil impacts from WHA implementation and management would be negligible.

Wildlife corridors include 195,900 acres under Alternative E that extend across both Lower Sonoran and SDNM. Additional protective measures would be taken in the corridors that would also provide some additional protection to soils. These measures include mitigation of disturbances within 100 meters of large washes, limits on road densities to 3 miles per section (which may occur in some areas of the Decision Areas), and mitigation for other surface-disturbing activities greater than 40 acres. The positive impacts of WHAs and wildlife corridors would not occur under Alternative A, which has no habitat areas or corridors proposed.

Surface-disturbing activities, and, therefore, disturbance of sensitive cryptobiotic and desert pavement soil surfaces would be avoided under Alternative E in desert tortoise Category I habitat, but allowed in Categories II and III. In addition, under Alternative E, case-by-case review of mineral lease applications would provide some additional protection against soil disturbance.

4.7.7.2 Sonoran Desert National Monument

From Lands and Realty on Soil Resources

Impacts on soils from use authorizations under Alternative E would improve soil conditions in the long term since the SDNM would be a LUA exclusion area except in established corridors. Otherwise, the impacts would be essentially the same as those described under Alternative C.

From Livestock Grazing on Soil Resources

Grazing impacts on soils would be the same as Alternative A for south of I-8, since those grazing permits have been cancelled. Grazing impacts on soil resources north of I-8 would be the same as Alternative C, with similar closures proposed. Additionally, the Conley allotment would become unavailable to livestock, which would have positive impact on the soils in that allotment.

From Minerals Management on Soil Resources

Impacts from mining in the SDNM would be the same as under Alternative A.

From Recreation Management on Soil Resources

The entire SDNM would be managed as an ERMA under all action alternatives. Under Alternative E, most of the Decision Area would be managed as backcountry, which means undeveloped recreational activity.

Management plans would provide protective measures for soil resources. Such measures include restoration of areas damaged by recreation, limits on group sizes, special actions to control invasive weeds, . These actions would result in lower impacts on soils than are likely to occur in SRMAs in the Lower Sonoran. Impacts on soils would be minor, and similar to the other action alternatives. Since dispersed recreational target shooting throughout the Monument would continue, the impacts of target shooting under Alternative E would be the same as those described for Alternative A. However, if

Management and Administrative Actions designed to change the conduct of recreational target shooters has the desired effect, impacts from recreational target shooting should be greatly decreased. If that were to happen, impacts would be negligible to minor.

From Special Designations on Soil Resources

Impacts from special designations and the removal of the Vekol Valley Grassland ACEC in the SDNM would be the same as the other action alternatives.

From Travel Management on Soil Resources

Impacts on soils from travel within the SDNM are essentially the same as impacts from Alternative B. Acres of OHV allocation areas are the same as Alternative B, therefore effects would be expected to be the same as B. Approximately 632 miles would be closed to motorized use under Alternative E. The result would be fewer impacts on soils from reduced use of unsurfaced, primitive, unmaintained roads. These impacts generally would be moderate in the SDNM under Alternative E.

From Vegetation Resources on Soil Resources

The impacts on soil of management actions in the SDNM would be the same as those described under Alternative C, with the 44,800 acres becoming unavailable for livestock grazing. New surface disturbance would be restored and stabilized by available rehabilitation practices. Control measures for invasive species would be implemented. In contrast, Alternative A includes objectives to achieve desired plant communities throughout both Decision Areas, but lacks reference to specific ecological sites and the objects of the Monument. Alternative E establishes specific goals for restoration for disturbed sites, and protecting and improving soil conditions. Impacts from Alternative E are likely to be minor in most areas, and moderate in areas around water sources within the exclosed areas.

From Wildlife and Special Status Species on Soil Resources

Impacts on soils from wildlife management would be similar to Alternative D and to Alternative E for the Lower Sonoran. For the SDNM total acreage of WHAs and WMCs under Alternative E would be only about one third the area designated under Alternative D. Therefore, except the long term benefits to soil conditions due to the avoidance and mitigation of surface and vegetation disturbance would be reduced under Alternative E.

4.8 IMPACTS ON VEGETATION RESOURCES

The goals established for the proposed Lower Sonoran and SDNM RMP provide that the overall ecosystem health, diversity, and distribution of native vegetation communities be maintained or enhanced and that species and their habitats be appropriately managed and conserved. The vegetative management objectives stress the importance of natural ecological processes and functions and focus on land uses and discretionary actions to support multiple uses that are consistent with sustaining these natural ecological processes and functions. The goals and objectives were identified for the major vegetation communities that occur within the Planning Area.

4.8.1 METHODS OF ANALYSIS

4.8.1.1 Indicators

Indicators of the primary impacts on vegetative resources as they relate to resource conflicts with other management programs within the Lower Sonoran and SDNM Planning Area are:

- Surface disturbance within a vegetation community
- Direct loss of vegetation
- Changes in ecological conditions necessary to support functioning and healthy vegetation communities (i.e., impacts on soils or water supply and water quality)
- Introduction and spread of invasive weed species

4.8.1.2 Assumptions

- All surface-disturbing activities would include mitigation and adaptive management to reduce impacts on priority wildlife species and their habitat.
- In general, vegetative communities are considered to be in good condition, but small localized impacted areas may be present.
- Weed prevention actions and measures would be incorporated into all project plans and as terms and conditions in contracts and special use permits and authorizations.

4.8.1.3 Program Areas with No Impacts on Vegetation Resources

No impacts on vegetation resources are anticipated for management actions relating to:

- Air quality
- Cave resources
- Paleontological resources
- Public safety and hazardous materials
- Water resources
- Wild horse and burro management

4.8.1.4 Qualitative Intensity Scale

The intensities of impacts are described using the following definitions:

- Negligible. The impact would not be detectable or measurable. There would be no appreciable change to vegetative resources.

- Minor. The impact would be detectable and measurable. There would be a small but slightly noticeable change to a plant community and some individual plant loss. The use of standard operating procedures to offset adverse impacts, including special measures, would be effective.

- Moderate. The impact would be very apparent and measureable. There would be a significant change to a plant community over a large area and substantial individual plant loss. Mitigation would likely be needed in order to achieve vegetation community DFCs. The use of standard operating procedures to offset adverse impacts, including special measures to avoid affecting special status plants, animals, and important cultural resources, could be extensive but should be successful.

- Major. The impact would be severe. There would be a substantial change across a large area within a plant community, and DFCs could not be achieved without substantial input. The extensive use of standard operating procedures to offset the adverse effects would be necessary, and their success would not be guaranteed.

4.8.2 COMMON TO ALL ALTERNATIVES

4.8.2.1 Both Decision Areas

From Cultural and Heritage Resources on Vegetation Resources

Protection of cultural resources would tend to protect vegetation resources. Activities associated with management of cultural resources would affect relatively small localized areas and would not likely have measurable impacts on the overall communities. Even under the most intense management (such as, site excavation), the amount of acreage disturbed would likely be very small.

Fencing cultural sites would result in protection of the vegetation from other impacts. Increased heritage tourism or use of vegetation for traditional Native American purposes could result in some disturbance to vegetation but only in localized areas. Impacts would be negligible to minor.

From Special Designations on Vegetation Resources

Managing the Juan Bautista de Anza NHT, consistent with NPS standards, to protect the historic landscape and visual values could minimize minor impacts on vegetative resources, due to loss of vegetation from ground disturbance by increased restrictions on projects, such as livestock or recreation developments.

Managing 249,500 acres as wilderness areas in both Planning Areas to maintain naturalness would limit activities and reduce surface disturbance and therefore would limit minor impacts on vegetation from direct loss of vegetation or soil erosion.

From Soil Resources on Vegetation Resources

Restricting developments and ground-disturbing activities away from areas of significant desert pavement, cryptogamic crust, and soils that are vulnerable to disruption or that have high wind or water erosion potential could reduce impacts on vegetation and invasive weed introduction or spread by limiting projects. The intensity of the impact is based on the level of surface disturbance from a project. Most projects, with the exception of large energy projects, are expected to have a negligible to moderate impact on vegetation since most projects are likely to occur in the vegetation communities with the most acreage in the Planning Area.

In addition:

- Restricting facilities not related to water management outside riparian areas and the 100-year floodplain of washes or waterways and in a manner that avoids changing natural water flow or watershed dynamics could restrict the impact on vegetation communities, either directly from limiting the loss of vegetation or from reducing the impact on the watershed or floodplain function. The intensity of the impact would generally be minor but could vary based on the scale of the project.

- Limiting proposed new water developments to only those that do not adversely affect springs, streams, tinajas, or seeps or decrease water availability at existing wells would limit water loss required for the vegetation in those areas. Impacts would be minor.

- New erosion control projects could result in negligible or minor impacts on some localized areas of vegetation; impacts would vary depending on which vegetation community was impacted. However, the projects could result in improved watershed conditions, leading to improved conditions for vegetation, thereby mitigating the impacts.

- Implementing BMPs for activities that have been specifically established to protect streams from nonpoint source pollution would reduce impacts from pollution on downstream vegetation to negligible or minor.

- Existing water control structures that are resulting in moderate impacts due to excessive erosion and vegetation loss could be removed. This could reduce the impacts to minor or negligible.

From Wildland Fire Management on Vegetation Resources

The Lower Sonoran is largely composed of nonfire-adapted vegetation. The level of impact would vary depending on the size of the area burned. Fire in Sonoran Desert plant communities that are not fire adapted could have moderate to major impacts on those communities in the long term by removing vegetation over large areas or introducing invasive plant species, such as red brome, buffelgrass, and Sahara mustard. Suppression of wildfires in the Sonoran Desert Ecological Zone would emphasize MIST tactics, which would primarily result in localized short-term impacts. Suppression actions could also have long-term impacts on native plant communities and increase soil disturbance but would reduce the overall number of acres burned within the Planning Area.

A few areas may meet the criteria for using prescribed fire and mechanical, chemical, and biological fuels treatments to meet resource objectives. These objectives are:

- Improving vegetation, wildlife habitat, or watershed conditions
- Maintaining nonhazardous levels of fuels
- Reducing the hazardous effects of unplanned wildland fires
- Meeting other resource objectives

Areas that might meet these criteria could include stretches of the Gila River, where tamarisk has suppressed native riparian vegetation, as well as portions of the Vekol Valley Grassland where fire may improve natural conditions of the grassland while protecting nonfire-adapted vegetation communities in the vicinity. When applying fuels treatment methods, BLM policies, procedures, and plans would be followed in all cases.

4.8.2.2 Lower Sonoran

From Vegetation Resources on Vegetation Resources

Requiring surface-disturbing activities to minimize, mitigate, or avoid impacts to achieve land health standards, achieve vegetation community DFCs and protect endangered, threatened, or special status plants would reduce the intensity of impacts associated with activities or would require projects to relocate. These requirements would also help to reduce the likelihood for invasive weed introduction and spread. The intensity of the impact would vary by the size of the project and the restrictions imposed.

Vegetation treatments, including thinning, burning, seeding, transplanting, watering, and imposing closures and use restrictions, could impact vegetation and disturb soils in the short term but would have long-term objectives to achieve land health standards. These include reducing invasive weed species, thus mitigating the impacts. The intensity of the impact would vary by the size of the project.

Using rehabilitation practices, including prioritizing native vegetation, to stabilize and rehabilitate sites impacted from surface-disturbing activities could limit long-term impacts on the vegetation on those sites and would reduce invasive weed species, ranging from minor to moderate, based on size. Allowing the use of mechanical, chemical, and biological treatment methods to remove invasive plants, such as tamarisk, in the Fred J. Weiler Green Belt to restore ecological conditions and function and reduce fuel hazards could have moderate impacts on riparian vegetation from surface disturbance and removal of vegetation. However, the control of invasive species would limit the long-term impacts by eliminating tamarisk and allowing native species to return. Limiting the collection of vegetation products, both living and dead, to personal uses and in small amounts could limit the impact on vegetation communities to negligible levels

4.8.2.3 Sonoran Desert National Monument

From Minerals Management on Vegetation Resources

The SDNM is withdrawn from new mineral entry and closed to leasing and saleable mineral development under all alternatives. The withdrawal was established in the proclamation that established the Monument. This withdrawal will have a protective effect on vegetation resources, as ground disturbance from exploration, prospecting, and other activities associated with mineral development would be prohibited.

In those few parcels (25,800 acres) within SDNM where the surface is owned by the United States and the subsurface is owned by a non-Federal entity, minerals development may still occur. Depending on the extent and intensity of ground disturbance, there may be moderate direct effects on vegetation resources. However, the BLM, as the manager of the surface, would work with operators to mitigate impacts on affected areas and Monument objects and reduce impacts to minor. Methods to reach a minor impact outcome would likely include project design features or application of best management practices.

From Vegetation Resources on Vegetation Resources

Within the SDNM, emphasis is placed on protection of the vegetative communities and the vegetative objects of the Monument. The BLM is mandated to achieve or make significant progress toward achieving land health standards and to work toward achieving DFCs in vegetation communities. To reduce impacts on the native vegetation, the BLM would require surface-disturbing activities, such as OHV use, livestock grazing, right-of way permits, and fire suppression, to minimize, mitigate, and ensure protection of the vegetative objects of the Monument. These requirements would also help to reduce the likelihood for invasive weed introduction and spread, which typically occur when the surface is disturbed. Limiting the collection of living vegetation products to authorized uses only could limit the impact on vegetation communities to negligible levels.

4.8.3 ALTERNATIVE A (NO ACTION)

4.8.3.1 Both Decision Areas

From Wilderness Characteristics on Vegetation Resources

No lands managed to protect wilderness characteristics would be allocated under Alternative A for both Decision Areas.

From Wildlife and Special Status Species on Vegetation Resources

Wildlife management actions that serve to support wildlife populations by closing or restricting areas to activities, such as recreation, mining, or livestock grazing, would generally limit impacts to minor levels by limiting direct loss of vegetation and impacts on soils. The intensity of the impact would vary by the area restricted by the action.

4.8.3.2 Lower Sonoran

From Lands and Realty on Vegetation Resources

Currently, the management does not have any guiding actions related to renewable energy development, which would be approved on a case-by-case basis. Development of renewable energy projects, mainly solar, would have impacts on vegetation communities, ranging from minor to major, by direct removal of vegetation and soil disturbance on a large scale. Current solar technology requires the land to be at less than a 3 percent grade, which would have an impact primarily on the creosote bush-bursage and desert wash communities.

Under existing management, most LUAs are approved on a case-by-case basis. Development of future utility LUAs leading to an increase of transmission lines, pipelines, associated ancillary facilities, and roadways within the Decision Area would result in the direct removal of vegetation and surface disturbance. This, in turn, would lead to the increased risk for the introduction or spread of invasive weed species during construction of these facilities. The impacts could range from negligible or minor, for small projects, to moderate, for large LUAs, such as utility-scale renewable energy developments.

The designation of 10 one-mile-wide utility corridors could result in minor impacts on vegetative resources from new access roads and associated increased vehicle traffic due to direct loss of vegetation and soil compaction and erosion. Impacts are expected to range from minor to moderate. Up to 29,600 acres of public land in the Lower Sonoran are identified for disposal. This could impact vegetation within and bordering the small isolated parcels, although it is not likely that the impacts would be more than minor on the vegetation communities in general.

From Livestock Grazing on Vegetation Resources

Research has not definitively identified impacts on Sonoran Desert vegetation or soils from year-long light to moderate use by livestock or periodic use, as occurs during ephemeral grazing. However, potential impacts identified from sustained heavy livestock grazing on vegetation include reduced plant vigor, alteration of vegetation community composition or structure, reduction in plant cover, reduction of individual plants, including desirable forage species, introduction or spread of invasive weed species, and increased soil instability, leading to erosion and soil compaction. Proper grazing management attempts to distribute livestock across an allotment or pasture to avoid heavy sustained impacts on vegetation. However, areas of livestock concentration, such as around permanent water sources, would inevitably experience prolonged use by livestock and wildlife. Impacts from livestock on vegetation in the immediate vicinity of these sources (within a quarter-mile) would continue to be major under Alternative A but would decrease with distance from the water source.

Through the land health evaluation process, any impacts that are identified from livestock grazing on vegetation and soils that result in land health standards not being achieved would require adjustments to grazing practices. In order to make progress toward meeting land health standards, adjustments to grazing could include adjustments in grazing timing, season, and duration or adjustments to livestock numbers and implementation of grazing management systems (rest rotation, deferred rotation, seasonal and short duration). Construction of new rangeland development projects and water sources could result in minor impacts by the direct loss of vegetation and soil disturbance in the area immediately surrounding the project, leading to reduced biological productivity. The size of the impact area around

livestock water developments is estimated at approximately six acres on average. Larger water developments may have minor impacts at up to a quarter-mile from the project, or approximately 125 acres. Construction of these projects should result in improved distribution and management of livestock, resulting in reduced impacts on vegetative resources on a larger scale (allotment wide).

The potential introduction or spread of invasive weed species through livestock grazing could result in changes in vegetation communities or could increase the incidence of wildland fire in nonfire-adapted communities. The impact would vary in intensity, based on the type of invasive species and how the vegetation community is altered.

Under Alternative A for the Lower Sonoran, 23 of the 40 allotments would continue to be managed as ephemeral-only allotments. High density stocking rates during ephemeral grazing years of high annual production could result in increased impacts around concentrated livestock areas through disturbance to soils and vegetation. These impacts would generally be minor over the foreseeable future as years without ephemeral use would allow for rest and recovery of any impacts in these areas.

The remaining allotments would continue to be managed as perennial or perennial/ephemeral grazing allotments, resulting in more continuous year-round impacts on vegetation that would vary from negligible to minor. On the perennial/ephemeral allotments, similar impacts could occur, as described above for ephemeral-only allotments, when ephemeral applications are permitted. Moderate impacts could occur during drier periods if the BLM were not to implement the drought policy in a timely manner or if livestock operators do not voluntarily make appropriate management changes. In general, livestock operators in the Planning Area cooperate with the BLM to adjust livestock numbers based on climatic conditions, allowing for rest and recovery periods to vegetation, which would reduce the intensity of impact to minor. Additional similar impacts could occur in these allotments associated with the impacts described above for ephemeral authorizations.

From Minerals Management on Vegetation Resources

Mineral development within the 614,900 acres currently available for development could impact vegetation by disturbing surfaces, introducing or spreading invasive weeds, and increasing the direct loss of vegetation. Creation and expansion of material pits, roads, and ancillary facilities would result in impacts. Mining operations would be expected to disturb an average of between 40 to 200 acres each. The intensity of the impact would vary depending on the size of the disturbance and the vegetation community impacted. Development within the creosote bush-bursage and palo verde-mixed cacti communities would likely have negligible to moderate impacts. Development within communities with smaller acreage could have negligible to major impacts. Noxious invasive weeds could establish in some disturbed areas, potentially impacting surrounding vegetation by modifying the communities and increasing risk of wildfire.

The impacts from mineral exploration or development activities, resulting from direct loss of vegetation, are most likely to occur in the Ajo block and the Globe-Miami area where the potential for development is higher.

From Recreation Management on Vegetation Resources

The allocation of four SRMAs could provide protection for localized areas of vegetation by limiting disturbance and loss of vegetation through the concentration of recreation activities. Within the SRMAs and in roaded natural areas under the Recreation Opportunity Spectrum (ROS), the increase of recreation, such as OHV travel and vehicle camping, could result in minor impacts due to the loss of vegetation, introduction or spread of invasive weeds, and impacts on soils. The areas outside SRMAs would be allocated as ERMAs (550,800 acres), which would be managed to custodial standards and do not generally provide structured recreation. ERMAs and semiprimitive motorized ROS areas would not typically include the proactive development of facilities or specific management actions that could increase recreation, such as OHV use, resulting in minor impacts due to the loss of vegetation and impacts on soils. Semiprimitive Nonmotorized and Primitive ROS areas emphasize nonmotorized uses and would have negligible impacts on vegetation communities.

Requiring SRPs and establishing camping facilities could control the areas where surface disturbance from recreation occurs, limiting impacts by limiting the loss of vegetation. The possibility of introduction, establishment, and spread of noxious invasive plants could be increased due to the lack of existing LUP-level decisions regarding required use of weed-free feed for equestrian recreation. The spread of noxious/invasive plants can have impacts on vegetation communities that range from negligible to moderate in intensity, based on the type of invasive species and how severely the vegetation community is altered. The potential increase risk of wildfire from some species could lead to major impacts on the vegetation communities.

Soil compaction through recreation, such as OHV use and camping, could modify hydrologic flow and water infiltration rates and impact vegetation by altering the conditions necessary to support functioning and healthy vegetation communities. This would generally result in minor impacts but could vary depending on the size of the disturbed area. Wood harvesting of up to one cord per individual annually could result in minor to moderate impacts from vegetation removal, particularly within the Cuerda de Lena area of the Ajo Block, where the majority of wood harvesting activities occur.

From Special Designations on Vegetation Resources

Impacts would be the same as those described under the Common to All Alternatives for both Decision Areas for the designation of the Juan Bautista de Anza NHT and for wilderness.

Management prescriptions in the 8,900-acre Coffeepot Botanical ACEC include the mitigation of mining practices and a restriction on grazing developments that would reduce potential minor impacts on vegetation resources by reducing surface disturbance and the loss of vegetation.

From Travel Management on Vegetation Resources

In general, impacts associated with travel management on vegetation are direct loss of individual plants, increased soil instability, erosion, and soil compaction, leading to conditions that do not support functioning and healthy vegetation communities and increased potential for the spread of noxious/invasive weeds from vehicle traffic.

Under Alternative A, decisions on motorized-vehicle use would leave the current OHV class designations and route system in place, and route designations would be deferred to a later implementation-planning and decision making process. Within the Lower Sonoran, 1,871 miles of routes would remain open (183 within desert washes) and 16 miles (one within desert washes) would remain closed. Motorized vehicles would be limited to existing or designated routes in the Decision Area. In general, the closure of routes (currently 15 miles) to motorized use could minimize the level of impact on vegetation communities by preventing direct loss of vegetation and preventing further soil compaction and erosion, thus improving the conditions for the site to reclaim and revegetate. Heavier used trails within the desert washes could have minor impacts by bank and channel alteration of soils, introduction or spread of invasive weeds, and direct loss of vegetation. Current guidance generally lacks specific prescriptions for managing motorized and nonmotorized uses. The lack of such prescriptions and the large number of routes open for public use under Alternative A may result in continued impacts, as described above, to vegetative resources.

Although motor vehicle use is currently limited to existing or designated routes, few routes have been designated as open, limited, or closed to use. Such designations provide a clearly delineated travel network, reduce route proliferation, and could minimize or prevent impacts on vegetation. Restricting vehicle use to designated roads in the Painted Rock Mountains, restricting entry to Sentinel Plains, and closing the Sonoran pronghorn management area from March 15 to July 15 would minimize impacts on soils and vegetation resources in these areas to minor. Prohibiting off-road and cross-country travel in the Sentinel Plain and Ajo Airport parcels and prohibiting new route proliferation could limit impacts on these parcels to minor intensity by reducing surface disturbance and vegetation loss.

From Visual Resources on Vegetation Resources

Under Alternative A, managing 116,300 acres of the Decision Area under VRM Class II standards would place some restriction on developments to comply with the visual protection requirements of the class. This could limit the impacts on vegetation by reducing the disturbed area of projects. Impacts would be negligible. The intensity of the impact would vary depending on the size of the surface disturbance from the project. Managing 722,100 acres of the Lower Sonoran to meet VRM Class III or IV objectives would place fewer restrictions on developments and could increase the size of disturbance of projects and the vegetation affected. The expectation is that these restrictions would generally lead to only minor changes to projects and would have a minor impact on vegetation resources. Only wilderness areas would be managed as VRM Class I under all alternatives. Restrictions on developments would occur mostly from the wilderness designation and would reduce impacts to negligible.

4.8.3.3 Sonoran Desert National Monument

From Lands and Realty on Vegetation Resources

The designation of three one-mile-wide utility corridors north of I-8 could result in minor impacts on vegetative resources from new access roads and associated increased vehicle traffic due to direct loss of vegetation, increased risk of invasive plant or noxious weed establishment, and soil compaction and erosion. There are no lands available for disposal within the Monument; therefore, impacts would be negligible.

In accordance with the Monument Proclamation, utility-scale renewable energy developments would not be allowed within the Monument. This would eliminate any impacts associated with these energy projects.

From Livestock Grazing on Vegetation Resources

Livestock grazing authorizations in the SDNM, south of I-8, were terminated when existing grazing permits expired, as directed by Presidential Proclamation 7397. Grazing in the SDNM north of I-8 would continue as perennial or ephemeral use, in accordance with grazing permits. Potential impacts identified from heavy livestock grazing on vegetation are reduced plant vigor, alteration of vegetation community composition or structure, reduction in plant cover, reduction of individual plants including desirable forage species, introduction or spread of invasive weed species, increased soil instability leading to erosion, and soil compaction. However, light to moderate use of most forage species can promote growth and vigor and can aerate soils for increased infiltration of moisture.

Construction of new rangeland development projects and water sources could result in minor impacts by the direct loss of vegetation and soil disturbance in the area immediately surrounding the project, leading to reduced biological productivity. The size of the impact area around livestock water developments is estimated at approximately six acres on average. Larger water developments may have minor impacts at up to a quarter-mile from the project, or approximately 125 acres. Construction of these projects should result in improved distribution and management of livestock, resulting in reduced impacts on vegetative resources on a larger scale (allotment wide).

The potential introduction or spread of invasive weed species through livestock grazing could result in changes in vegetation communities or increase the incidence of wildland fire in nonfire-adapted communities. The impact would vary in intensity, based on the type of invasive species and how the vegetation community is altered. Overall impacts would be negligible to moderate.

Refer to **Section 4.26.4**, Impacts from Implementation-Level Decisions on Vegetation Monument Objects, for impacts related to AUM allocations in the SDNM.

From Recreation Management on Vegetation Resources

The allocation of the Gila Trails SRMA could provide long-term protection for localized areas of vegetation by limiting disturbance through the concentration of recreation. However, within the SRMA, the increase in recreation, such as OHV travel and camping, could result in minor impacts by altering the conditions necessary to support functioning and healthy vegetation communities. This would be the result of soil disturbance leading to erosion, modification of the hydrologic flow in the area, introduction or spread of invasive weeds, and the direct loss of vegetation. Most of the impacts associated with these uses occur within the creosote bush-bursage community, with some additional use in the palo verde-mixed cacti and desert wash communities. The areas outside SRMAs would be allocated as ERMAs (342,500 acres), which are managed to custodial standards and do not provide structured recreation or development of facilities. ERMAs would not typically include the proactive or specific management actions that could lead to increased recreation, such as OHV use, generally resulting in less concentrated use and therefore negligible impacts due to the direct loss of vegetation, introduction or spread of invasive weeds, and impacts on soils.

Requiring SRPs and establishing camping facilities could control the areas where surface disturbance from recreation occurs, limiting potential minor impacts by limiting the loss of vegetation.

The potential for introduction, establishment, and spread of noxious invasive plants could be increased due to the lack of existing LUP-level decisions regarding required use of weed-free feed for equestrian recreation. The spread of noxious/invasive plants could have impacts on vegetation communities that range from negligible to moderate, based on the type of invasive species, how severely the vegetation community is altered, and the increased potential for wildfire. This could lead to moderate impacts on vegetation.

Target shooting primarily occurs within the Creosote Bush–Bursage community and to a lesser extent the Palo Verde-Mixed Cacti community (including the Saguaro Cactus Forests) and the Desert Washes within those communities. The majority of the acres within the Palo Verde-Mixed Cacti community, which includes the largest portion of the saguaro cactus forest, are generally protected within existing wilderness areas and larger tracts of roadless areas due to steeper rocky terrain. Impacts from target shooting would be expected to be minor.

From Special Designations on Vegetation Resources

Impacts would be the same as those described under the Common to All Alternatives for both Decision Areas for the designation of the Juan Bautista de Anza NHT and for wilderness.

Continued designation of the 3,500 acre Vekol Valley Grassland ACEC in the SDNM would provide intensive management and protection of the plant community. Erosion control measures within the ACEC could result in minor or even moderate but short-term impacts from erosion control projects by direct removal of vegetation. However, in the long term, the impacts would be mitigated by improving ecological conditions within the native grassland community and stabilizing soils.

From Travel Management on Vegetation Resources

Refer to **Section 4.26.4**, Implementation-Level Analysis for Vegetation Monument Objects, for impacts related to travel management.

From Visual Resources on Vegetation Resources

Managing 91,600 acres of the SDNM to meet VRM Class II objectives would place some restriction on developments to comply with the visual protection requirements of the class. This could limit the impacts on the vegetation by reducing the disturbed area of a project. Impacts would be negligible to minor. Managing 236,100 acres of the SDNM to meet VRM Class III or IV objectives would place fewer restrictions on developments and potentially increase the size of disturbance of a project, potentially leading to minor impacts on vegetation. Only wilderness areas would be managed as VRM Class I under Alternative A and would restrict developments, resulting in no impacts on vegetation.

4.8.4 ALTERNATIVE B

4.8.4.1 Both Decision Areas

From Wilderness Characteristics on Vegetation Resources

No lands managed to protect wilderness characteristics would be allocated under Alternative B for either Decision Area.

From Wildlife and Special Status Species on Vegetation Resources

Wildlife management actions that close or restrict areas to surface-disturbing activities would generally limit impacts to negligible or minor levels. Examples of these actions are limiting new surface disturbance within 300 feet of the edge of desert washes and restricting the maintenance of utility corridors to the existing authorized LUA corridor only. They would be effective by limiting direct loss of vegetation, limiting the introduction or spread of invasive weeds, and limiting impacts on soils. This includes actions for wildlife movement corridors and T & E species management.

Developing additional wildlife waters and relocating existing wildlife waters would have a negligible impact on vegetation due to surface disturbance and direct loss of vegetation.

4.8.4.2 Lower Sonoran

From Lands and Realty on Vegetation Resources

Development of new energy projects and the likelihood of additional road development and access could lead to moderate to major impacts on 478,200 acres, primarily within the creosote bush-bursage and desert wash communities, due to the direct removal of vegetation and surface-disturbing activities.

Impacts from LUAs would be somewhat reduced from Alternative A within the Decision Area, with 329,300 acres as avoidance areas and 118,400 acres as exclusion areas. The impacts from surface-disturbing projects could range from negligible for small projects to moderate for large LUAs (such as utility-scale renewable energy development), depending on which vegetation community is impacted. Impacts related to the designation of 10 multiuse utility corridors would be the same as those described under Alternative A for the Lower Sonoran. Impacts would remain minor.

From Livestock Grazing on Vegetation Resources

Under Alternative B there would be an approximate 40 percent reduction in permitted use on perennial and perennial/ephemeral allotments. In addition, season of use adjustments would be considered: 65 percent of permitted use would be winter/spring (October 1 to April 30); 35 percent would be summer/fall season (May 1to September 30).

Impacts would be the same as those described under Alternative A for the Lower Sonoran, although impacts would not be as widespread or in some cases as intense due to the 40 percent reduction of AUMs. This reduction would have minor to moderate impacts on vegetation resources. On allotments where livestock utilization has historically been and is currently moderate to heavy, a 40 percent

reduction in AUMs would have a moderate impact on plant vigor and production. However, on allotments where livestock utilization has been slight to moderate, impacts of a 40 percent reduction of livestock on vegetation may not be apparent. Reduction of livestock AUMs would reduce the likelihood of invasive weed introduction or spread in these areas.

Similar impacts would occur with season of use adjustments. As considered under Alternative B, 65 percent of the permitted AUMs would occur from October 1to April 30, and 35 percent would occur from May 1to September 30. Impacts from these season of use changes would likely be minor to moderate and would include increased use of annual forbs and grasses during the winter and decreased grazing pressure on perennial forage species throughout the year. Ephemeral authorizations during productive ephemeral years would likely have negligible effects on perennial forage. Standard operating procedures are in effect to ensure minimal utilization of perennial forage during ephemeral authorizations (see **Appendix H**).

From Minerals Management on Vegetation Resources

Impacts would be the same and would have the same general intensity, as those described under Alternative A, except impacts would be slightly more widespread, as 38,300 more acres would be open to mineral entry.

From Recreation Management on Vegetation Resources

The overall focus of Alternative B is on identifying the greatest extent of public land area suitable for the widest potential array of appropriate uses, and on providing opportunities for those uses, including an emphasis on motorized recreation opportunities.

The impacts on vegetation and the ecological conditions necessary to support vegetation communities would be associated with development of intensive motorized trails, staging areas, facilities, developed campgrounds, and new road development in certain RMZs. These are within portions of the Ajo (two RMZs), Buckeye Hills West, Lower Gila Historic Trails and the Arlington ERMAs, and the Buckeye Hills East SRMA. The increased motorized activity and new facilities in the 192,300 acres of these RMAs could result in minor to moderate impacts from direct loss of vegetation, introduction or spread of invasive weeds, soil disturbance, and the potential introduction and establishment of noxious and invasive weeds from trails and camping areas and during construction. Providing a mix of motorized and nonmotorized recreation opportunities on 73,300 acres in certain RMAs within portions of the Saddle Mountain and Buckeye Hills East SRMAs could have impacts on vegetation similar to but at a lesser extent than those described under the SRMAs above with intensive use areas. Impacts would be minor. These SRMAs are situated closer to metropolitan areas so they are expected to receive increased visitation from adjacent communities, potentially offsetting some of the reduced impacts on the vegetative communities.

The remaining 381,000 acres in RMAs within the Ajo, Gila Bend Mountains, Lower Gila Historic Trails ERMAs, and the San Tan Mountains and San Tan Mountains SRMAs would all emphasize nonmotorized and primitive recreation and less intensive development. This would likely result in negligible to minor impacts, mostly resulting from soil disturbance and the potential introduction and establishment of noxious and invasive weeds from trails and vehicles.

Recreational shooting would have a negligible impact on vegetation communities with the designation of previously disturbed sites, such as abandoned gravel pits, as target shooting areas. Front country and community interface allocations would be similar in effect to the roaded natural settings under Alternative A. These areas could have minor impacts due to the continuation of soil disturbance, vegetation loss, and increased potential for noxious invasive plant species introduction in and around recreation areas and access roads. Recreation management of the remaining areas as backcountry and passage settings would provide vehicle access, with an emphasis on nonmotorized dispersed use and long distance touring, limiting impacts on vegetation to mostly negligible. Development of additional motorized routes and nonmotorized trails in the front country setting could increase localized vegetation and soil disturbance. Establishment of additional extended-stay and large-group camping areas could cause minor impacts from additional vegetation loss and soil disturbance within and adjacent to these areas. Vegetation impacts on adjacent areas could be reduced if users were restricted to established camping areas.

The decision to encourage equestrian and pack stock users, operating under a special recreation use permit, to provide their animals with weed-free feed would discourage the establishment or spread of invasive species. Livestock and other pack users could continue to be a source of invasive species, as under Alternative A. Impacts from authorizing individuals to remove one cord of wood annually would be the same as under Alternative A.

From Special Designations on Vegetation Resources

Impacts would be the same as those described under the Common to All Alternatives for both Decision Areas for the designation of the Juan Bautista de Anza NHT and for wilderness.

Management of the 8,900 acre Coffeepot Botanical ACEC would the same as Alternative A.

Managing the Agua Caliente road as a Backcountry Byway could increase traffic in the area, resulting in minor impacts on vegetation from increase localized vegetation and soil disturbance.

From Transportation and Public Access Management on Vegetation Resources

The proposed route network under Alternative B could impact vegetation similar to that described under Alternative A on open routes. However, it would be slightly less widespread because approximately 429 fewer miles of routes would be open to the public, thereby minimizing impacts under Alternative B. In addition, impacts on vegetation could be reduced on 180 miles of routes with seasonal closures and eight miles open to administrative use only.

Alternative B would designate 40 acres in the Ajo area as open use. Within this area, vehicles would not be restricted to designated routes. This would result in a minor impact on vegetation in the area from direct loss of plants and significant soil disturbance. Impacts could be minimized by soil stabilization. Some of these impacts could be mitigated at a larger vegetation community scale by providing a recreation area and potentially drawing these users off the surrounding areas.

From Visual Resources on Vegetation Resources

Impacts from VRM Class I would be the same as Alternative A for the Lower Sonoran. A decrease in Class II acreage could lead to an increase in surface-disturbing activities and increased impacts on vegetative communities. The expectation is that these restrictions would generally lead to only minor changes to projects and would have a negligible or minor impact on vegetation resources.

4.8.4.3 Sonoran Desert National Monument

From Lands and Realty on Vegetation Resources

Impacts would be the same as those described under Alternative A for the Monument, except management toward surface-disturbing activities would be slightly more restrictive. The entire Monument would be designated as a LUA Avoidance area, and the I-8 multiuse corridor would narrow to 0.5 mile wide as it passes south of the South Maricopa Mountains Wilderness, generally limiting the impact to negligible or minor.

From Livestock Grazing on Vegetation Resources

Impacts would be the same as described for Alternative B, Lower Sonoran. However, in addition to the impacts described for Lower Sonoran, approximately 8,500 acres in the SDNM would become unavailable to livestock through direct fencing. This would result in increased vegetation cover, reduced likelihood for invasive weed introduction or spread, and improved land health conditions in the areas that are not currently meeting Standard 3 (upland health).

For further impact analysis from livestock grazing on specific vegetative communities on the SDNM, please refer to **Section 4.26.3**, Implementation-Level Analysis for Wildlife and Special Status Species Monument Objects.

Refer to **Section 4.26.4**, Implementation-Level Analysis for Vegetation Monument Objects, for impacts related to AUM allocations and fencing in the SDNM.

From Recreation Management on Vegetation Resources

The overall focus of Alternative B is on identifying an increase of public land area suitable for the widest potential array of appropriate uses and on providing opportunities for those recreation opportunities. The overall impacts on vegetation communities would be slightly less than Alternative A. Under Alternative B, impacts from the front country allocation and from the Juan Batista de Anza National Historic Trail RMZ would likely be similar to those from the roaded natural ROS settings under Alternative A. Impacts from backcountry and passage zones would be most similar to semiprimitive motorized and semiprimitive nonmotorized ROS settings under Alternative A. Managing the entire SDNM as an ERMA would restrict development of recreation facilities and would emphasize nonmotorized access and natural landscapes, resulting in negligible impacts on vegetation by reducing surface disturbance.

Impacts related to target shooting would be the same as described under Alternative A, except at a lesser extent, as 80.3% of the Monument would be closed to target shooting. Limiting target shooting to

designated sites, which primarily occur within the Creosote Bush–Bursage, Desert Grassland and the Desert Washes within those areas, could limit potential direct loss of vegetation and allow for continued vegetative diversity and a functioning desert ecosystem. Areas excluded from shooting include the Sand Tank Mountains, the Palo Verde-Mixed Cacti community (including the Saguaro Cactus Forests) and the majority of the Desert Washes within the Monument. Impacts on vegetation would be expected to decrease as compared to Alternative A. Impacts from target shooting would be expected to range from negligible to minor.

From Special Designations on Vegetation Resources

Impacts would be the same as those described under the Common to All Alternatives for both Decision Areas for the designation of the Juan Bautista de Anza NHT and for wilderness.

There are no additional special designations under Alternative B for the Monument.

From Travel Management on Vegetation Resources

Refer to **Table 4-26**, Impacts from Implementation-Level Decisions on Vegetation Monument Objects, for impacts related to travel management.

From Visual Resources on Vegetation Resources

Impacts from VRM Class I would be the same as Alternative A for the Monument. A substantial increase in Class II acreage and a reduction in Class IV acreage would impose additional restrictions on surface-disturbing developments, which could reduce the impact intensity to negligible on vegetation communities by requiring mitigation or reducing the scope or location of projects.

4.8.5 ALTERNATIVE C

4.8.5.1 Both Decision Areas

No unique impacts are identified for both Decision Areas under Alternative C.

4.8.5.2 Lower Sonoran

From Lands and Realty on Vegetation Resources

Development of new energy projects under Alternative C would have the same impacts as Alternative B, although less acreage would be available for projects (274,000 acres). The intensity of the impact would still likely be moderate to major.

Impacts from LUAs, would be somewhat reduced from Alternative A within the Decision Area, with 405,900 acres as avoidance areas and 246,100 acres as exclusion areas. The impacts from surface-disturbing projects could range from negligible for small projects to moderate for large LUAs (such as utility-scale renewable energy development), depending on which vegetation community would be impacted. Impacts related to the designation of multiuse utility corridors would be the same as those described under Alternative A for the Lower Sonoran.

From Livestock Grazing on Vegetation Resources

The types of impacts from livestock use would be the same as Alternative A for perennial and ephemeral allotments, although within this alternative, all perennial/ephemeral allotments would change to perennial only. This would reduce the impacts associated with ephemeral grazing identified under Alternative A on those allotments. On perennial-only allotments, utilization on perennial forage may increase because permittees who had rarely run full numbers because of AUMs authorized during ephemeral years would likely need to make up the lost income by increasing their perennial AUMs to the full preference. Season of use adjustments would be considered to help mitigate the impacts on perennial forage during the summer. There would be no proposed changes in AUMs. Impacts from this alternative on ephemeral-only allotments would be negligible and would be similar as described under Alternative A.

From Minerals Management on Vegetation Resources

Impacts would be the same as those described under Alternative A; however, the intensity would likely decrease due to substantial areas (324,100 acres) that would require mitigation and would not allow surface occupancy. This would reduce the likelihood for invasive weed introduction or spread. Development within the creosote bush-bursage community would likely have negligible to moderate impacts, and palo verde-mixed cacti communities would likely have negligible to minor impacts. Development within the less common communities could have negligible to major impacts.

From Wildlife and Special Status Species on Vegetation Resources

Impacts would be the same as Alternative B; however, 425,900 acres would be allocated for WHAs, with additional restrictions on surface-disturbing activities. This would limit impacts on vegetation to negligible levels.

From Recreation Management on Vegetation Resources

Under Alternative C the proposal is to provide a balance of recreational opportunities, while moderating the impacts on vegetation resources through mitigation. The impacts on the vegetative communities from motorized recreation would be reduced to negligible from Alternatives A and B due to a reduction in route density and rehabilitation of closed routes. This would also serve to reduce the area of potential noxious/invasive species introduction.

Localized impacts on vegetative communities from the allocation of additional extended stay campgrounds would be the same as described under Alternative B.

Under Alternative C, the majority of the RMAs would be retained and the impacts would be similar to Alternative B. The San Tan Mountains would be not managed as an ERMA, along with the Sentinel Plain. The impacts would be the same as described under Alternative B for these areas.

The areas allocated as community interface and front country settings would be reduced, and the areas allocated as backcountry and passage settings would be increased, generally reducing the impacts, as compared to Alternative B.

Alternative C would not allow wood harvesting permits throughout the Decision Area, eliminating minor impacts on vegetation communities by direct loss of vegetation.

Collection of dead and down wood for use in campfires would be the same as under Alternative B.

From Special Designations on Vegetation Resources

Impacts would be the same as those described under the Common to All Alternatives for both Decision Areas for the designation of the Juan Bautista de Anza NHT and for wilderness.

Management of 63,300 acres as the Coffeepot Batamote Botanical ACEC would require the mitigation of mining practices and a restriction on grazing developments, which would reduce potential minor impacts on vegetation resources by reducing surface disturbance and the loss of vegetation. Managing the Agua Caliente road as a Backcountry Byway could increase traffic in the area, resulting in minor impacts on vegetation from increase localized vegetation and soil disturbance.

From Transportation and Public Access on Vegetation Resources

The proposed route network under Alternative C could impact vegetation essentially the same as that described under Alternative B, with approximately 100 fewer miles of routes open to the public. In addition, 154 miles of routes have seasonal closures or are open to administrative uses only that minimize impacts on vegetation.

Alternative C would designate the 40 acres in the Ajo area to ATV and motorcycle use only. This would have the same general impacts as Alternative B.

From Visual Resources on Vegetation Resources

Impacts from VRM Class I would be the same as Alternative A. An increase in Class II acreage would impose some additional restrictions on surface-disturbing developments, which could reduce impacts on vegetation communities by requiring mitigation or reducing the scope or location of projects. The expectation is that these restrictions would generally lead to only minor changes to projects and would have a negligible or minor impact on vegetation resources.

From Wilderness Characteristics on Vegetation Resources

Alternative C has 128,100 acres allocated as lands managed to protect wilderness characteristics. This allocation would be expected to limit impacts to negligible intensities by providing protection to vegetation communities by restricting, reducing, or mitigating surface- and vegetation-disturbing activities that could result in the loss of vegetation.

4.8.5.3 Sonoran Desert National Monument

From Lands and Realty on Vegetation Resources

Impacts would be the same as those described under Alternative A and B for the Monument, except management toward surface-disturbing activities would be slightly more restrictive. The entire Monument would be designated as a LUA Avoidance area, generally limiting the impacts to negligible.

The I-8 and SR-238 multiuse corridors would both narrow to 0.5 mile wide, and the BLM would allow only underground facilities. Restricting the corridor to underground facilities could result in increased impacts, as compared to Alternative B, from surface disturbance and the direct removal of vegetation. The intensity of the impact would be moderate, as approximately 13,000 acres could be disturbed from future projects.

From Livestock Grazing on Vegetation Resources

Impacts would be the same as described for Alternative C, Lower Sonoran. However, there would be a minor reduction in AUMs, based on allotment boundaries (no AUMs would be allocated for those portions of allotments in the SDNM south of I-8, in accordance with the Monument Proclamation). In addition, approximately 44,800 acres would be unavailable to livestock. This would have positive impacts, such as increased vegetation cover, reduced likelihood for invasive weed introduction and spread, and eventual achievement of land health standards, on vegetation within exclosure areas proposed under this alternative. For those acres open to grazing, all allotments would be reclassified as perennial only. Within the SDNM, domestic sheep and goat grazing would be eliminated under Alternative C. This would eliminate the impacts associated with ephemeral grazing identified under Alternative A on those allotments. Allotments currently classified as ephemeral would remain the same and would have the same impacts as Alternative A. Impacts overall to vegetation would be minor.

Moreover, for further impact analysis from livestock grazing on specific vegetative communities on the SDNM, please refer to **Section 4.26.3**, Implementation-Level Analysis for Wildlife and Special Status Species Monument Objects.

Refer to **Section 4.26.4**, Implementation-Level Analysis for Vegetation Monument Objects, for impacts related to AUM allocations in the SDNM.

From Recreation Management on Vegetation Resources

Impacts from recreation would be similar to Alternative B; however, fewer areas would be impacted within the RMZs as the allocation of front country would decrease to 51,700 acres and backcountry would increase to 429,000 acres. As under Alternative B, extended-stay camping areas would not be allocated in the SDNM. Firewood collection would be allowed in the Desert Backcountry RMZ, except in wilderness areas, thereby reducing impacts, compared to Alternatives A and B.

Impacts from target shooting would be the same as described under Alternative A, except at a much lesser extent, as 99.8% of the Monument would be closed to target shooting. Limiting target shooting to designated sites, which only occurs within the Creosote Bush–Bursage and the Desert Washes within those areas, could limit potential direct loss of vegetation and allow for continued vegetative diversity and a functioning desert ecosystem. Areas excluded from shooting include the Sand Tank Mountains, the Desert Grassland, the Palo Verde-Mixed Cacti community (including the Saguaro Cactus Forests) and the majority of the Desert Washes within the Monument. Impacts on vegetation would be expected to decrease as compared to Alternative A and B. Impacts on vegetation would be expected to be negligible.

From Special Designations on Vegetation Resources

Impacts would be the same as those described under the Common to All Alternatives for both Decision Areas for the designation of the Juan Bautista de Anza NHT and for wilderness.

Designating Highway 238 as a scenic byway could have a minor impact on vegetation by increasing traffic in the area, resulting in negligible impacts on vegetation from an increase in localized disturbance to vegetation and soil.

From Transportation and Public Access Management on Vegetation Resources

Refer to **Section 4.26.4**, Implementation-Level Analysis for Vegetation Monument Objects, for impacts related to travel management.

From Visual Resources on Vegetation Resources

Impacts from VRM would be the same as Alternative A; however, there would be an increase in 49,700 acres in Class II from Class III, reducing impacts on vegetation to negligible.

From Wilderness Characteristics on Vegetation Resources

Alternative C allocates 112,200 acres in the SDNM as lands managed to protect wilderness characteristics. This allocation would be expected to limit impacts to negligible intensities by providing protection to vegetation communities by restricting, reducing, or mitigating surface- and vegetation-disturbing activities that could result in the loss of vegetation.

From Wildlife and Special Status Species on Vegetation Resources

Impacts would be the same as those described under Alternative B for both Decision Areas.

4.8.6 ALTERNATIVE D

4.8.6.1 Both Decision Areas

No unique impacts are identified for either Decision Area under Alternative D.

4.8.6.2 Lower Sonoran

From Lands and Realty on Vegetation Resources

Development of new energy projects under Alternative D would have the same impacts as Alternative C, although less acreage would be available for projects (141,900 acres). The intensity of the impact would likely be minor to moderate.

Impacts from LUAs would be reduced from the other alternatives within the Decision Area, with 239,800 acres as avoidance areas and 567,400 acres as exclusion areas. The impacts from surface-disturbing projects could range from negligible for small projects to minor for large LUAs (such as

utility-scale renewable energy development), depending on which vegetation community the project is located in.

This alternative would have the least impact (negligible) on vegetation since only seven multiuse utility corridors would be allocated.

From Livestock Grazing on Vegetation Resources

Implementation of Alternative D would result in eliminating livestock grazing in all currently open grazing allotments, which would remove grazing impacts on vegetation and soil resources. Types of impacts are described under Alternative A (No Action); how extensive these impacts become is determined by the amount of vegetation in any given area of the Lower Sonoran Decision Area. In areas with scarce vegetation, these impacts would be negligible. In areas with more vegetative cover, impacts from livestock grazing would be more noticeable. Removing grazing in these areas would result in more noticeable regrowth of heavily used vegetation, reduced likelihood for invasive weed introduction or spread, and reestablishment of vegetation around watering facilities and heavily used livestock trails. During years of increased winter rainfall, vegetation would increase and, in turn, would not be subject to reduction from livestock grazing; this could result in increased frequency or intensity of fire in these nonfire-adapted ecosystems. Therefore, potential impacts on the vegetative communities could vary from minor to moderate.

From Minerals Management on Vegetation Resources

Impacts would be the same as those described under Alternative A; however, under Alternative D, the majority of the Planning Area would be recommended for withdrawal from locatable mineral development and closed to leaseable and saleable mineral development. This would restrict surface disturbance and limit impacts to negligible.

From Recreation Management on Vegetation Resources

Under Alternative D, diverse recreation opportunities would still be provided; however, this alternative would stress more enhanced nonmotorized activities. The emphasis would also be to minimize or mitigate impacts on vegetation communities, which would be less than those identified under Alternative A.

Fewer RMAs would be allocated under this alternative. Impacts would be the same as those described under Alternative B for SRMAs but with only 100,200 acres allocated. Impacts would be the same as those described under Alternative B. The type of impacts would be the same as Alternative A; however, the areas allocated as SRMAs would be reduced from Alternative A. This would lead to fewer impacts, generally negligible to minor, on vegetation from Alternative D as the remaining acres would be managed as ERMAs.

No additional extended stay campgrounds would be established under Alternative D, reducing vegetation impacts to negligible. Dispersed camping impacts could be greater than those identified under Alternative B.

From Special Designations on Vegetation Resources

Managing 77,600 acres as the Coffeepot Batamote Botanical ACEC would have the same impacts as Alternative A but over a larger area. Managing 58,500 acres as the Cuerda de Lena ACEC, 48,500 acres as the Saddle Mountain ACEC, and 8282,500 acres as the Gila River Terraces/Sonoran Desert Historic Trails ACEC would place limits on surface-disturbing activities. It also would reduce impacts on vegetation to negligible or minor levels by limiting the loss of vegetation and disturbance of soils.

From Transportation and Public Access Management on Vegetation Resources

The proposed route network under Alternative D could substantially reduce impacts on vegetation communities by closing approximately 777 miles of the 1,687 miles of routes; 799 miles would be open to the public. In addition, 103 miles of routes would have seasonal closures or would be open to administrative use only. Most of the routes in desert washes would be closed (163 of the 183 miles), which could reduce impacts from vegetation loss, invasive weeds, and soil disturbance.

Impacts on vegetation, as it pertains to ATV and motorcycle use within the 40-acre parcel in the Ajo Block, would not occur as the parcel would not be allocated under Alternative D. Overall, impacts would be minor.

From Visual Resources on Vegetation Resources

Impacts from VRM Class I would be the same as Alternative A. A substantial increase in Class II acreage would impose additional restrictions on surface-disturbing developments, which would reduce impacts on vegetation communities by requiring mitigation or reducing the scope of projects. Impacts would be negligible.

From Wilderness Characteristics on Vegetation Resources

As under Alternative C, allocating lands managed to protect wilderness characteristics would limit impacts on vegetation to negligible. Impacts, however, would be limited as more acres (276,500 acres) would be allocated.

From Wildlife and Special Status Species on Vegetation Resources

Impacts would be the same as Alternative C for WHAs, even though fewer acres (255,700 acres) would be allocated for WHAs. This is because the acres not allocated to WHAs would be allocated as ACECs, would have the same restrictions on activities, and would limit impacts on vegetation.

4.8.6.3 Sonoran Desert National Monument

From Lands and Realty Management on Vegetation Resources

Impacts on vegetation from Lands and Realty under Alternative D would be negligible, as the entire Monument would be designated as a LUA Exclusion Area, and thus prohibited from any utility-scale renewable energy developments.

From Livestock Grazing on Vegetation Resources

Impacts from Alternative D on the SDNM would be the same as described for Alternative D for Lower Sonoran. Refer to **Section 4.26.4**, Implementation-Level Analysis for Vegetation Monument Objects, for impacts related to AUM allocations in the SDNM.

From Recreation Management on Vegetation Resources

The SDNM would not be managed as a ERMA as under the other Alternatives, with Alternative D limiting impacts on vegetation by allocating all 486,400 acres as the SDNM RMZ. In addition, ATVs, RVs, trail bikes, motorcycles, and inappropriate new technological vehicles would be prohibited in the SDNM. This would reduce impacts to negligible by reducing the potential for soil disturbance, invasive weed introduction and spread, and vegetation loss.

Impacts from target shooting would be negligible, as the SDNM would be closed to target shooting.

From Special Designations on Vegetation Resources

Impacts would be the same as those described under the Common to All Alternatives for both Decision Areas for the designation of the Juan Bautista de Anza NHT and for Wilderness.

Designating Highway 238 and I-8 as scenic byways could have a minor impact on vegetation by increasing traffic in the area, resulting in negligible impacts on vegetation from increase localized vegetation and soil disturbance.

From Transportation and Public Access Management on Vegetation Resources

Refer to **Section 4.26.4**, Implementation-Level Analysis for Vegetation Monument Objects, for impacts related to transportation and access.

From Visual Resources on Vegetation Resources

Management of 457,900 acres within the Monument as VRM Class I and 28,500 acres as VRM Class II would severely limit any projects and would result in, at most, negligible impacts on vegetation resources from projects.

From Wilderness Characteristics on Vegetation Resources

As under Alternative C, allocating lands managed to protect wilderness characteristics would limit impacts from direct loss of vegetation resulting from surface disturbance. Impacts, however, would occur over fewer acres as 153,000 acres would be allocated. Impacts would be negligible.

From Wildlife and Special Status Species on Vegetation Resources

Impacts would be the same as those described under Alternative B for both Decision Areas.

4.8.7 ALTERNATIVE E (PROPOSED RMP)

4.8.7.1 Both Decision Areas

No unique impacts are identified for either Decision Area under Alternative E.

4.8.7.2 Lower Sonoran

From Lands and Realty on Vegetation Resources

Impacts from eight multiuse utility corridors, utility-scale renewable energy projects (296,400 acres available), and LUAs (360,800 acres of avoidance and 253,700 acres of exclusion areas) on vegetation in the Decision Area would be similar to Alternative D. This would be due to similarities in the number, width, and location of energy projects, corridors, and LUAs.

Impacts from land tenure decisions on vegetation communities in the Decision Area would be similar to Alternative C due to similar numbers of acres (30,900 acres) that would be available for disposal, the majority of which lie within the creosote-bursage community.

From Livestock Grazing on Vegetation Resources

Impacts from livestock grazing under Alternative E would be similar to those described for Alternatives A and C. Any impacts on vegetation due to changes in perennial or ephemeral designations, reductions in AUMs, or season of use adjustments would be considered and analyzed during the permit renewal/rangeland health evaluation process under site-specific NEPA review.

From Minerals Management on Vegetation Resources

Impacts would be the same as those described under Alternative C but would be more widespread, as 35,800 more acres would be available for mineral development.

From Recreation Management on Vegetation Resources

Impacts on vegetation from management of RMAs would be the same as Alternative C, with the exception of the Saddle Mountain area managed as an ERMA and the Arlington Trials ERMA managed under the Gila Bend Mountains ERMA. Impacts on vegetation from the termination of the wood harvesting program in the Lower Sonoran would be the same as described under Alternative C. Impacts associated with the collection of wood for on-site campfires in the Lower Sonoran would be the same as under Alternative B.

From Special Designations on Vegetation Resources

Impacts would be the same as those described under the Common to All Alternatives for both Decision Areas for the designation of the Juan Bautista de Anza NHT and for wilderness.

Impacts from management actions for the Cuerda de Lena ACEC, Saddle Mountain ACEC, and the Gila River Terraces/Sonoran Desert Historic Trails ACEC would be the same as Alternative D. Impacts from management actions for the Coffeepot Batamote Botanical ACEC would be the same as Alternative C.

The Agua Caliente Road would be managed as a Backcountry Byway, and the impacts would be the same Alternative C.

From Transportation and Public Access Management on Vegetation Resources

Impacts from travel management on vegetation would be the same as Alternative C due to similar miles of open (1,134 miles) and closed vehicle routes.

Alternative E would designate the same 40 acres in the Ajo area as Alternative B with the same impact level.

From Visual Resources on Vegetation Resources

Impacts from VRM Class I would be the same as Alternative A. A decrease in Class II acreage could lead to an increase in surface-disturbing activities and increased impacts on vegetative communities. The expectation is that these restrictions would generally lead to only minor changes to projects and would have a negligible or minor impact on vegetation resources.

From Wilderness Characteristics on Vegetation Resources

As under Alternative C, allocating lands managed to protect wilderness characteristics would limit impacts on vegetation; however, impacts could occur on more acres in the Planning Area under Alternative E (55,400 acres allocated), as compared to Alternative C (128,100 acres). The impact would likely be minor in intensity.

From Wildlife and Special Status Species on Vegetation Resources

Impacts would be the same as those discussed under Alternative D for the Lower Sonoran.

4.8.7.3 Sonoran Desert National Monument

From Lands and Realty on Vegetation Resources

Impacts from multiuse utility and LUAs would be the same as under Alternative D.

From Livestock Grazing on Vegetation Resources

Impacts would be similar to those described for Alternatives B and C. Adjustments in AUMs and season of use would reflect those proposed under Alternative B, and closures of approximately 44,800 acres would reflect those proposed under Alternative C. Additionally, the Conley Allotment within the SDNM boundaries would become unavailable to livestock grazing. Impacts of these proposals would improve vegetation resources, would reduce the likelihood of invasive weed introduction and spread, would increase vegetative cover, vigor, and diversity, and would, in the long term, and would achieve Desired Future Conditions and land health standards. Overall impacts would be negligible to minor on all allotments except Conley. On the Conley allotment, elimination of grazing would reduce pressure on vegetation resources, resulting in significant progress toward achieving land health standards (see **Appendix E**, Compatibility Analysis: Livestock Grazing on the Sonoran Desert National Monument and **Appendix F**, Arizona Land Health Evaluation for the Sonoran Desert National Monument for more

details). For further impact analysis from livestock grazing on specific vegetative communities on the SDNM, please refer to **Section 4.26.3**, Implementation-Level Analysis for Wildlife and Special Status Species Monument Objects, and **Section 4.26.4,** Implementation-Level Analysis for Vegetation Monument Objects, for impacts related to AUM allocations in the SDNM.

From Recreation Management on Vegetation Resources

Impacts on vegetation from management of the ERMA would be the same as Alternative C. Impacts on vegetation from management of recreation settings would be similar to Alternative C, but with an increase of 23,300 acres in front country and 20,500 fewer acres in the backcountry, increasing the potential for minor impacts on vegetation and soils from increased recreation.

As under Alternative B, vegetation in the SDNM would not be impacted by extended stay camping areas as they would not be allocated. Wood collection impacts on vegetation would be the same as under Alternative D.

Because the entire SDNM would be open to target shooting, impacts from recreational target shooting are expected to be the same as described for Alternative A. However, if Management and Administrative Actions designed to change the conduct of recreational target shooters has the desired effect, impacts from recreational target shooting should be greatly decreased. If that were to happen, impacts would be negligible to minor.

From Special Designations on Vegetation Resources

Impacts would be the same as those described under Alternative D for the Monument.

From Travel Management on Vegetation Resources

Refer to **Section 4.26.4**, Implementation-Level Analysis for Vegetation Monument Objects, for impacts related to travel management.

From Visual Resources on Vegetation Resources

Impacts from VRM Class I would be the same as Alternative A. Class II and III would have the same intensity of impacts as Alternative C, but with an increase of 27,900 acres in Class III from Class II.

From Wilderness Characteristics on Vegetation Resources

Managing wilderness characteristics in the SDNM would have the same impact as Alternative C, but with a decrease of 1,300 acres allocated as lands managed to protect wilderness characteristics.

From Wildlife and Special Status Species on Vegetation Resources

Impacts would be the same as those discussed under Alternative B for both Decision Areas.

4.9 IMPACTS ON VISUAL RESOURCES

This section discusses potential impacts of the alternatives on visual resources, specifically the potential for management decisions to create visual changes or contrasts in the landscape. Visual resources are generally affected by activities that introduce new elements into the landscape, changing the features—the form, line, color, or texture of the landforms, water, vegetation, or structures—that characterize the existing landscape. Generally, greater surface disturbance results in greater change to the landscape.

4.9.1 METHODS OF ANALYSIS

Indicators

This impact analysis and conclusions were based on the visual resources inventory (VRI), knowledge of resources and the Planning Area, reviews of literature, spatial and temporal analyses, and information provided by other agencies. Effects are quantified where possible. In the absence of quantitative data, professional judgment was used. Impacts are sometimes described using ranges of potential impacts or in qualitative terms if appropriate.

Assumptions

The analysis is based on the following assumptions:

- The objectives of the VRM classes would be adhered to through project design, mitigation, or avoidance.
- Projects proposed in areas with VRM Class I and VRM Class II objectives may be more difficult to design and locate to meet visual objectives.
- The majority of changes to landscapes would be long-term impacts.
- The BLM would require mitigation measures to projects proposed in areas with VRM Class III and VRM Class IV objectives (areas with visual objectives that allow for more landscape modification) to reduce impacts on visual resources.
- VRM classes are designated and managed only on public lands, but visual impact analysis may extend to private lands in connected actions or split-estate situations. All surface-disturbing activities, regardless of the chosen alternative or management action, would be subject to the VRM objectives of the area where those activities take place. The visual resource-contrast rating system would be used to analyze the potential site-specific impacts of surface disturbance as well as a facility's design and placement. Surface-disturbing activities and facilities would be designed to mitigate their visual impacts and to conform to the area's assigned VRM objective. Mitigation activities could include painting, facility design, and placement.

Program Areas with No Impacts on Visual Resources

No impacts on visual resources are anticipated for management actions relating to:

- Air quality
- Cave resources
- Cultural and heritage resources
- Paleontological resources
- Wildlife and special status species
- Special designations
- Vegetation resources
- Water resources
- Soil resources
- Wild horse and burro management
- Wilderness characteristics
- Hazardous materials and public safety

Qualitative Intensity Scale

Impacts on visual resources are assessed by analyzing the impact of proposed actions on the existing visual resource conditions, expressed through the VRI classification of an area. In addition, the allowable level of change to the visual landscape is assessed by comparing the existing visual resource conditions, expressed through the VRI classification, of an area to the proposed VRM classification of the same area. The VRM class objectives provide criteria for determining the level of disturbance that an area can support, while meeting visual resource objectives. **Section 3.2.8**, Visual Resources details the BLM's VRI classification process and VRI Classification acreages for the planning area are shown in **Table 3-5**, Extent of VRI Class Assignments.

Applying VRM Class I objectives to any VRI classification would preserve the existing character of the landscape. In other words, the VRI classification would be expected to remain the same, so impacts would be negligible. Therefore, applying anything but VRM Class I objectives could result in some level of change if activities that would contrast with the landscape are permitted in the area. However, lands classified as VRI Class IV are able to absorb more landscape modifications than lands assigned higher VRI classifications due to the low level of scenic quality and lower sensitivity of the area. On the other hand, lands classified as VRI Class I or II are less able to absorb new landscape modifications due to the high level of scenic quality and sensitivity. As such, lands classified as VRI Class I or II would see a greater impact from VRM Class III or IV management than lands classified as VRI Class III or IV. Because lands classified as VRI Class I are considered special areas by the BLM, applying anything less than VRM Class I objectives would result in at least moderate impacts.

The following discussion of impacts on visual resources therefore is discussed in qualitative terms that describe the potential for changes to the landscape based on the proposed VRM classification and how that could impact the existing character of the landscape.

The intensities of impacts are described using the following definitions:

- Negligible. No known impacts on resources. Any change is undetectable. Activities create very low visual contrast. Where VRM Class I objectives would be applied to any VRI classification, impacts would be considered negligible. In addition, impacts from applying VRM Class I, II, or III objectives to lands classified as VRI Class IV would be considered negligible, as well as impacts from applying VRM Class I or II objectives to lands classified as VRI Class III.

- Minor. Direct effects are apparent and measurable but small and localized or contained within the footprint of the action. Visual contrast from activities may be visible, but it creates only a small change in the landscape. Impacts would be considered moderate where VRM Class II objectives would be applied to lands classified as VRI Class II; VRM Class III objectives would be applied to lands classified as VRI Class III; or VRM Class IV objectives would be applied to lands classified as VRI Class IV.

- Moderate. Direct effects would be readily apparent and measurable over a larger area but still mainly within the footprint of the action. Visual contrast from activities may be moderate. Changes in the landscape may attract the attention of a viewer from a distance. Impacts would be considered moderate where VRM Class II objectives would be applied to lands classified as VRI Class I; VRM Class III objectives would be applied to lands classified as VRI Class II; or VRM Class IV objectives would be applied to lands classified as VRI Class III.

- Major. Direct effects would be highly noticeable and extend well beyond the footprint of the action. Visual contrast from activities may be high. Changes in the landscape may dominate views, even from a distance. Impacts would be considered major if the allowable level of change to the landscape could result in the reclassification of lands to a lower VRI class. Where VRM Class III or IV objectives would be applied to lands classified as VRI Class I or where VRM Class IV objectives would be applied to lands classified as VRI Class II, impacts would be considered major.

The intensities of impacts anticipated as a result of applying certain VRM classifications to certain VRI classifications, discussed in text above, is displayed in the table below.

	VRM Class			
VRI Class	**Class I**	**Class II**	**Class III**	**Class IV**
Class I	Negligible	Moderate	Major	Major
Class II	Negligible	Minor	Moderate	Major
Class III	Negligible	Negligible	Minor	Moderate
Class IV	Negligible	Negligible	Negligible	Minor

Because the scenic values in the Monument are not considered a Monument object, qualitative terms used for assessing impacts on visual resources from other resource activities are the same for the Monument as for areas outside the Monument.

4.9.2 COMMON TO ALL ALTERNATIVES

4.9.2.1 Both Decision Areas

From Visual Resources on Visual Resources

Allocating VRM classes establishes standards for managing the effects of surface-disturbing activities on the visual resource. Comparing the management classes allocated by alternative to the VRI shows the potential for management decisions to change the current conditions and, hence, impact negatively or positively the visual resource. Furthermore, surface-disturbing activities permitted in scenic quality A- and B-rated areas could change the scenic quality of the rating unit due to changes in the factors of scenic quality (i.e., landform, vegetation, water, color, adjacent scenery, scarcity, and cultural modifications). About 36 percent of BLM-administered lands that were assessed for scenic quality rated as A or B, so impacts would be localized in those areas, about one-third of which are located in the SDNM. In addition, actions that would increase development in background and seldom seen distance zones could cause these zones to shift to foreground/middleground distance zones, potentially making them visible to a greater number of people for longer periods and with more frequency. This type of change could lead to a change in VRI class over the long term. About one-third of lands in the background and seldom seen distance zones are within designated wilderness areas, where the type of development that would push the areas into the foreground/middleground distance zone is unlikely. As noted in **Section 3.2.9**, Visual Resources, the inventory was conducted by Otak, Inc., from October to December 2009.

Generally, the objectives of VRM Class III and IV allow for constructed facilities to attract the attention of an observer or even to dominate the landscape. Even in these VRM classes, project designs should be developed to try and mimic the line, color, form, and texture of the landscape as much as practical to minimize visual contrast. It is possible that visual character could degrade over time in these classes, and impacts would be anticipated to range from negligible to major, depending on the condition of the landscape.

Table 4-5, VRM Classes by Alternative, shows the acreages of the four VRM classes in each alternative, with Alternative A representing the current situation. In this Decision Area, visual impacts could stem from valid and existing rights and activities associated with mining, land use authorization, and recreation facilities. When considering impacts, part of the determination was made by comparing the VRI class of an area to the proposed VRM class of the same area for each alternative. This was done to determine the degree of potential change from the current condition of an area to the level of landscape modification allowed by the area's assigned VRM class.

Table 4-5
VRM Classes by Alternative

VRM Classes	Alternative A	Alternative B	Alternative C	Alternative D	Alternative E
Lower Sonoran (Acres)					
VRM I	91,800	91,800	91,800	91,800	91,800
VRM II	116,300	64,800	387,800	622,400	65,500
VRM III	279,600	551,000	385,600	192,000	554,800
VRM IV	442,500	222,600	65,000	24,000	218,100
Total	*930,200*	*930,200*	*930,200*	*930,200*	*930,200*
SDNM (Acres)					
VRM I	158,700	158,700	158,700	457,900	158,700
VRM II	91,600	218,000	268,400	28,500	252,400
VRM III	116,400	110,700	60,300	0	76,300
VRM IV	119,700	0	0	0	0
Total	*486,400*	*486,400*	*486,400*	*486,400*	*486,400*
Lower Sonoran and SDNM (Combined Acres)					
Total	*1,416,600*	*1,416,600*	*1,416,600*	*1,416,600*	*1,416,600*

From Wildland Fire Management on Visual Resources

In general, the Sonoran Desert is not fire adapted; therefore, the strategy for wildland fire in both Decision Areas is full suppression. Fires occur at a low frequency in both Decision Areas, but, when fires do occur, they are fueled by abundant annual grass and are usually fast burning but relatively low intensity. Most fire suppression activities use engines on flat terrain and hand lines on steeper slopes. Use of heavy equipment is uncommon in most of the Planning Area and usually occurs near the Gila River, where heavy riparian fuels require it for successful suppression. The fast running nature of wildfires usually means that burning out from existing fuel breaks (such as roads or wide sandy washes) is the most successful suppression technique. Fire suppression techniques could impact visual resources if fire lines are placed directly up slopes where they are visible for long distances. This action may be necessary occasionally, but post-fire rehabilitation of fire lines would be used to minimize the visual impact. Since suppression techniques rarely require surface manipulation, and they are rehabilitated after the fire is over where they do, impacts from wildland fire management are expected to be minor.

4.9.2.2 Lower Sonoran

From Lands and Realty on Visual Resources

Utilities, communication facilities, and energy facilities, as well as their ancillary facilities and structures, could impact visual and scenic resources by necessitating construction and vegetation clearing. Overhead utilities, high-voltage electricity transmission lines, wind generation facilities, and cellular phone towers can be visible from long distances, while such facilities as those for producing solar energy, which are typically closer to the ground, may more directly affect middle-distance viewing. By requiring LUAs to conform to assigned VRM classes, most developments are expected to have minor to moderate effects on the visual resource.

Land tenure adjustments, such as acquisitions or disposals, can affect scenic quality or viewer sensitivity. Acquisitions can help protect visual and scenic values by bringing scenic areas into BLM management and protecting or restoring their visual and scenic values. Some disposals could affect visual resources by eliminating the BLM's management control over the parcels, resulting in potential development or loss of the natural landscape. Some disposals are to communities for recreational facilities, including parks. Most parcels for disposal in the Lower Sonoran are isolated and surrounded by developed lands. In these cases, disposal is likely to diminish these parcels' visual and scenic values, while increasing their value as recreational open space. Although changes to their baseline visual condition may be major, most change is expected to be consistent with the local setting.

From Livestock Grazing on Visual Resources

Areas of livestock concentration where vegetation is removed and soil compaction has occurred would continue to create a contrast with the landscape and potentially reduce scenic quality. Livestock management would require installation of range developments, such as fences, windmills, wells, earthen dams, corrals, access roads, and stock tanks that could contrast with the natural setting. However, because these facilities tend to be localized and difficult to see from a long distance, impacts on the visual landscape are expected to be minor.

From Minerals Management on Visual Resources

Locatable and saleable mineral development could represent a major impact on visual resources by presenting high visual contrast to the surrounding landscapes. Depending on the location and nature of mining facilities and activities, they could be visible from a number of sensitive viewpoints and from long distances. Locatable mining operations in VRM Class I and II would develop mitigation measures to limit, to the extent feasible, the impacts on scenic quality. Reclamation could recover much of the visual character of an area, but change could still be minor to moderate for many years after mining has ceased.

Within VRM Class III areas, which allow for moderate changes that may attract attention, impacts from mining on visual and scenic quality could be fewer, as these areas tend to correspond with lower elevations and are not as visible from long distances. VRM Class IV allows significant changes to the visual resources, so activities in these areas would most likely degrade the visual and scenic quality from the current situation, if they are located in scenic quality A- or B-ranked areas or areas with high or moderate sensitivity levels.

The oil and gas and sodium potential beneath the majority of BLM-administered land is low, but moderate potential exists beneath BLM-administered land in the Batamote Mountains area, north of Woolsey Peak Wilderness in the southern portion of the field office and north of the SDNM. These areas range from moderate to high visual sensitivities and have scenic quality rankings of either B or C. Overall, these areas are at a lower risk for impacts, so changes from oil and gas and sodium development are anticipated to be no more than moderate.

The majority of BLM-administered lands have a moderate potential for geothermal resource development, with some high potential for low-temperature geothermal resources north of Signal Mountain Wilderness, north of the SDNM, and in the Little Ajo Foothills area. Because the low-temperature resource is considered suitable only for residential or commercial space heating,

greenhouse use, aquaculture, or heated swimming pools and spas, any geothermal development would be on a small scale and would not likely impact the scenic quality to the extent that it would change in these areas.

From Recreation Management on Visual Resources

Impacts of recreation are often visible only in the foreground, but they also may be seen in the middle and background on landscapes such as mountains, which are visible from long distances. In addition, uses that disturb a larger area, such as cross-country motorized travel as compared to motorized travel on designated routes, are more likely to be visible at the middle and longer distances. Recreation uses that would increase OHV travel and vehicle-based camping or other activities that would change the natural character of the landscape, could impact scenic and visual resources by creating contrasts to the color, form, texture, and line elements of scenic views. Improperly or carelessly sited or designed trailhead facilities can affect scenic quality; examples are restrooms, fences, information kiosks, and ramadas, as well as potential long-term visitor areas and extended stay or short-term camping areas. Although recreation is inherently temporary, the impacts of these activities can be long lasting and could have moderate to major impacts on the scenic quality of an area, particularly if they involve uses such as recreational target shooting and paintball. If Management and Administrative Actions designed to change the conduct of recreational target shooters has the desired effect, impacts from recreational target shooting should be greatly decreased. If that were to happen, impacts would be negligible to minor. Target shooting, allowed outside of developed areas, often leaves behind targets, shells, and trash. It also can cause vegetation and surface impacts. Paintball activities often leave long-lasting paint spatters on vegetation and rocks that can be visible in the foreground and middle distances.

Through the active management of recreation uses, the allocation of SRMAs could provide for long-term protection of these areas from surface-disturbing activities that could limit loss of scenic and visual quality. The remaining areas, allocated as ERMAs, would be managed to meet custodial standards and would not provide structured recreational opportunities, except where needed to attain custodial activity-based outcomes, to address visitor health and safety or user conflicts, or to resolve conflicts with other resources. Most of these public lands, including unallocated areas, would be managed for recreational uses with few restrictions and minimal management oversight. In these cases, changes in visual landscapes would be addressed through monitoring, restoration, and application of adaptive management.

It is recognized that the experience of recreational users on public lands is frequently dependent on the visual character of the areas being used. Most public land recreationists are seeking an experience in a natural landscape. To this end, facilities intended to support recreation management are designed to repeat the color, form, line, and texture of the landscape as much as possible. Therefore, the effects of well-managed, properly placed and designed recreational facilities are expected to be minor.

From Transportation Management on Visual Resources

The existing transportation network evolved primarily from routes leading to sites of authorized activities, such as grazing management facilities and mining facilities, or from the proliferation of unauthorized recreational routes over time. In either case, the route design that best fit with the natural landscape was usually not considered. In all alternatives except the No Action Alternative, the majority of the OHV allocations are in the limited to designated routes category. Areas closed to motorized

access are generally designated wilderness areas, but Alternative D also includes allocated lands managed to protect wilderness characteristics. Route evaluation and designation considers conflicts to resources in the network design and is structured to minimize those impacts, including to visual resources. It is anticipated that, although the acreages of areas allocated as Closed and Limited to Designated Routes change very little by alternative, the actual number of miles of route eventually designated would vary.

Generally, any attempt to manage a transportation network would improve its impact on the visual resource by considering the visual characteristics of line, form, color, and texture in route design. Reducing the number of miles in the route network would also reduce its visual intrusiveness if the routes chosen for closure were selected because of their visual characteristics and if they were carefully reclaimed. Impacts would range from negligible to minor.

4.9.2.3 Sonoran Desert National Monument

From Lands and Realty on Visual Resources

In the SDNM, all alternatives have allocated VRM classes with the intent to minimize visual change. Few lands actions are anticipated. Impacts on the visual landscape are expected to be negligible to minor throughout the Monument. In the SDNM, no parcels would be identified for disposal under any of the alternatives, so no impacts from disposal are expected.

From Livestock Grazing on Visual Resources

In the SDNM, grazing south of I-8 would be terminated once current permits expire, thereby reducing impacts from grazing on visual resources in that area. Over time, many existing range management facilities would be removed, allowing recovery of natural appearing landscapes. North of Interstate 8, Developments associated with livestock grazing management (e.g., fences, windmills, wells, earthen dams, corrals, access roads, and stock tanks) would be required to meet VRM objectives. Impacts from livestock grazing are expected to be minor.

From Minerals Management on Visual Resources

The SDNM is withdrawn from new mineral entry and closed to leasable and saleable mineral development under all alternatives. The withdrawal and closures were established in the proclamation that established the Monument. The withdrawal and closures will have a protective effect on visual resources, as ground disturbance from exploration, prospecting, and other activities associated with mineral development would be prohibited.

In those few parcels (25,800 acres) within SDNM where the surface is owned by the United States and the subsurface is owned by a non-Federal entity, minerals may still be developed. Depending on the extent and intensity of ground disturbance, there may be direct moderate to major effects on visual resources. However, the BLM, as the owner/manager of the surface, would work with operators to mitigate impacts on Monument objects and reduce impacts to moderate or minor. Methods to reach a minor impact outcome would likely include project design features and best management practices to reduce or mitigate effects on meet the visual resource management objective.

From Recreation Management on Visual Resources

In the SDNM, all alternatives have allocated VRM classes with the intent to minimize visual change. Different alternatives explore varying degrees of developed recreation facilities and experiences. However, because recreation is not a Monument object, all recreation activities are constrained by the requirement to protect Monument objects. For this reason, recreation facilities within the Monument are anticipated to be small in size and unobtrusive in visual design and to have minor impacts on the visual landscape.

From Transportation Management on Visual Resources

In the SDNM, management of travel and transportation may have the greatest impact on visual resources of all management activities on the Monument. The continued existence of routes in the Vekol Valley area is expected to have a negligible impact on the visual resource. Primitive roads are distributed throughout the Monument and are primarily located in the lower terrain. This position on the landscape reduces their visibility and limits their contrast with the surrounding landscape. Any reduction in road mileage would improve the visual landscape; however, it is anticipated that the change would be minor in most cases.

4.9.3 ALTERNATIVE A (NO ACTION)

4.9.3.1 Lower Sonoran

From Lands and Realty on Visual Resources

Proposals for development of renewable energy facilities have primarily been in lower elevation areas with low slope and allocations in VRM Class III or IV, with approximately 53 percent and 58 percent of the acres, respectively. In these areas, the technology proposed and its location may result in minor to moderate effects.

From Recreation Management on Visual Resources

Recreation would continue to be generally unmanaged, except in a few small SRMAs. Impacts described above from unmanaged and improper uses would continue to occur and expand. It is expected that impacts on visual resources could occur from casual uses that are not subject to conformance with VRM standards. Such impacts are expected to be minor but may rise to the level of moderate.

From Travel Management on Visual Resources

Travel management would continue to be primarily limited to existing roads and trails. The historic result of that management has been a proliferation of routes, leading to degradation of the visual resource. As in recreation, these impacts would come from sources not subject to authorization or analysis for conformance with VRM standards, which could lead to minor to moderate impacts.

From Visual Resources on Visual Resources

Alternative A would pose a moderate level of impact on visual resources within the Lower Sonoran. The comparison of the VRI and the current management prescriptions for VRM in the Lower Sonoran under Alternative A are presented in **Table 4-6**, Comparison Between VRM and VRI under Alternative A in the Lower Sonoran.

Table 4-6
Comparison Between VRM and VRI under Alternative A in the Lower Sonoran

VRI Class	Total VRI Class Acres	Acres of VRI Class by VRM Class			
		Class I	Class II	Class III	Class IV
Class I	91,750	91,800	0	0	0
Class II	166,850	0	54,900	46,300	64,400
Class III	290,700	0	29,000	105,500	153,300
Class IV	380,900	0	31,000	124,800	220,000

Under Alternative A, all lands inventoried as Class I would be managed as Class I. This would likely have a negligible impact on Class I inventoried lands. An additional 184,800 acres of lands inventoried as Class III or IV would likely experience negligible impacts as a result of proposed VRM objectives, for a total of 30 percent of lands in the Lower Sonoran.

Approximately 380,400 acres (41 percent) of lands in the Lower Sonoran could experience minor impacts from landscape modifications allowable under the proposed VRM objectives.

Approximately 199,600 acres (22 percent) of lands in the Lower Sonoran could experience moderate impacts from landscape modifications allowable under the proposed VRM objectives.

Finally, approximately 64,400 acres (7 percent) of lands in the Lower Sonoran could experience major impacts from landscape modifications allowable under the proposed VRM objectives.

4.9.3.2 Sonoran Desert National Monument

From Travel Management on Visual Resources

This alternative would have the greatest potential effect on visual resources. Past experience has shown that a lack of management of OHV use, along with an allocation of limited to existing roads, trails, and washes, has led to resource damage, necessitating a closure for resource restoration. This use has had minor to moderate effects on the visual resource due to proliferation of routes and off-road use, which removes vegetation and disturbs soils, leading to erosion damage. Continuing this management scheme could expand the size and magnitude of the damaged area, leading to moderate or major effects.

From Visual Resources on Visual Resources

Overall impacts are moderate.

The comparison of the VRI and the current management prescriptions for VRM in the SDNM under Alternative A are presented in **Table 4-7**, Comparison Between VRM and VRI under Alternative A in the SDNM.

Table 4-7
Comparison Between VRM and VRI under Alternative A in the SDNM

VRI Class	Total VRI Class Acres	Acres of VRI Class by VRM Class			
		Class I	Class II	Class III	Class IV
Class I	157,700	157,700	0	0	0
Class II	158,600	0	69,200	76,000	12,500
Class III	169,900	0	21,800	39,900	107,000
Class IV	200	0	100	0	100

In the SDNM, all lands inventoried as Class I would be managed as Class I. This would have a negligible impact on Class I inventoried lands. An additional 21,900 acres of lands inventoried as a Class III or IV would likely experience negligible impacts as a result of proposed VRM objectives, for a total of 37 percent of lands in the SDNM.

Approximately 109,200 acres (23 percent) of lands in the SDNM could experience minor impacts from landscape modifications allowable under the proposed VRM objectives.

Approximately 183,000 acres (38 percent) of lands in the SDNM could experience moderate impacts from landscape modifications allowable under the proposed VRM objectives.

Finally, approximately 12,500 acres (3 percent) of lands in the SDNM could experience major impacts from landscape modifications allowable under the proposed VRM objectives.

From Livestock Grazing on Visual Resources

Areas of livestock concentration where vegetation is removed and soil has been compacted would continue to create a contrast with the landscape and potentially reduce scenic quality. Livestock management would require installation of range developments, such as fences, windmills, wells, earthen dams, corrals, access roads, and stock tanks, which could contrast with the natural setting. However, because these facilities tend to be localized and difficult to see from a long distance, impacts on the visual landscape are expected to be minor.

4.9.4 ALTERNATIVE B

4.9.4.1 Lower Sonoran

From Lands and Realty on Visual Resources

Under Alternative B, the majority of the Decision Area would be either exclusion or avoidance areas for LUAs. Aside from Alternative A, this alternative has the most potential for LUAs to impact visual resources if utilities were authorized in areas with higher visual quality or sensitivity. Utility-scale renewable energy development would be almost entirely excluded or avoided, so potential impacts from

that type of development are small. VRM classes generally shift from classes IV and II into Class III. For areas formerly Class IV, this would result in greater constraints to development, which should result in designs better blended into the landscape. This could result in moderate levels of visual change to the landscape. In areas that shift from Class II to III, there is the potential for moderate levels of visual change to the landscape.

From Recreation Management on Visual Resources

Facilities to support recreation would be more prevalent under this alternative, which would include the most areas of developed and intensively managed recreation. While the opportunity for degrading visual resources could exist in areas of greater recreation development, conformance with allocated VRM classes would manage the visual impacts in a manner consistent with the RMP land management decisions. Overall impacts would be moderate.

From Travel Management on Visual Resources

Travel networks are expected to be reduced slightly from the current inventory. The reduction in roads would result in a minor improvement to the visual resource. Some areas of more intensive recreation development may see route mileage stay the same or increase. However, current routes that create high visual contrast, such as hill climbs, could be reclaimed and rerouted to reduce visual impairment of the area. A well-managed route network would generally result in improved visual character, and impacts of travel management are expected to be minor.

From Visual Resources on Visual Resources

The comparison of the VRI and the current management prescriptions for VRM in the Lower Sonoran under Alternative B are presented in **Table 4-8**, Comparison Between VRM and VRI under Alternative B in the Lower Sonoran.

Table 4-8
Comparison Between VRM and VRI under Alternative B in the Lower Sonoran

VRI Class	Total VRI Class Acres	Acres of VRI Class by VRM Class			
		Class I	Class II	Class III	Class IV
Class I	91,750	91,800	0	0	0
Class II	166,850	0	25,300	118,600	22,500
Class III	290,700	0	11,800	213,600	63,800
Class IV	380,900	0	27,700	216,700	135,000

Under Alternative B, all lands inventoried as Class I would be managed as Class I. This would likely have a negligible impact on Class I inventoried lands. An additional 256,200 acres of lands inventoried as Class III or IV would likely experience negligible impacts as a result of proposed VRM objectives, for a total of 38 percent of lands in the Lower Sonoran.

Approximately 373,900 acres (40 percent) of lands in the Lower Sonoran could experience minor impacts from landscape modifications allowable under the proposed VRM objectives.

Approximately 182,400 acres (20 percent) of lands in the Lower Sonoran could experience moderate impacts from landscape modifications allowable under the proposed VRM objectives.

Finally, approximately 22,500 acres (2 percent) of lands in the Lower Sonoran could experience major impacts from landscape modifications allowable under the proposed VRM objectives.

4.9.4.2 Sonoran Desert National Monument

From Travel Management on Visual Resources

The designated route network under Alternative B would reduce visual impacts in many areas. Impacts would range from negligible to moderate.

From Visual Resources on Visual Resources

The comparison of the VRI and the current management prescriptions for VRM in the SDNM under Alternative B are presented in **Table 4-9**, Comparison Between VRM and VRI under Alternative B in the SDNM.

Table 4-9
Comparison Between VRM and VRI under Alternative B in the SDNM

VRI Class	Total VRI Class Acres	Acres of VRI Class by VRM Class			
		Class I	Class II	Class III	Class IV
Class I	157,700	157,700	0	0	0
Class II	158,600	0	129,600	28,300	0
Class III	169,900	0	89,000	79,900	0
Class IV	200	0	200	0	0

In the SDNM, all lands inventoried as Class I would be managed as Class I. This would have a negligible impact on Class I inventoried lands. An additional 89,200 acres of lands inventoried as Class III or IV would likely experience negligible impacts as a result of proposed VRM objectives, for a total of 51 percent of lands in the SDNM.

Approximately 209,500 acres (43 percent) of lands in the SDNM could experience minor impacts from landscape modifications allowable under the proposed VRM objectives.

Approximately 28,300 acres (6 percent) of lands in the SDNM could experience moderate impacts from landscape modifications allowable under the proposed VRM objectives.

Finally, no lands in the SDNM would be managed as VRM Class III or IV, therefore major impacts on visual resources would not be expected.

From Livestock Grazing on Visual Resources

The nature and type of impacts would the same as those described under Alternative A. The additional closures may require more fencing to keep livestock out of the closed areas than under Alternative A. If

visible to Monument visitors, it could be perceived as a visual impact. However, fencing and other structures would be required to meet VRM Class objectives, possibly mitigating some impacts.

4.9.5 ALTERNATIVE C

4.9.5.1 Lower Sonoran

From Lands and Realty on Visual Resources

Under Alternative C, almost 80 percent of the Decision Area would be avoidance or exclusion areas for LUAs. More lands would be managed as VRM Class II, resulting in greater constraints to development than Alternative B, projects designs that blend into the landscape better, and some developments being denied. Better designs and fewer developments would reduce the contrast in line, color, form, and texture, which visually degrade the landscape. However, most lands without LUA restrictions would be managed as VRM Class III or IV. Lands with higher visual quality or sensitivity could be impacted if LUAs change the elements of landform, vegetation, water, color, scarcity, or cultural modifications from the existing condition. Visual impacts due to development in this alternative would be minor.

From Recreation Management on Visual Resources

In contrast to Alternative B, less acreage and fewer facilities would be managed for recreation as the primary land use under Alternative C but more than under Alternative A. Several areas would include developed and intensively managed recreation. While the opportunity for degrading visual resource could exist in areas of greater recreation development, conformance with allocated VRM classes would manage the visual impacts in a manner consistent with the RMP land management decisions. Impacts would be negligible to moderate.

From Travel Management on Visual Resources

Travel networks are expected to be reduced further from the current inventory. Otherwise, impacts on visual resources may see a slightly reduced likelihood of visual degradation from recreational use, but impacts are still expected to be minor.

From Visual Resources on Visual Resources

The comparison of the VRI and the current management prescriptions for VRM in the Lower Sonoran under Alternative C are presented in **Table 4-10**, Comparison Between VRM and VRI under Alternative C in the Lower Sonoran.

Under Alternative C, all lands inventoried as Class I would be managed as Class I. This would likely have a negligible impact on Class I inventoried lands. An additional 468,600 acres of lands inventoried as Class III or IV would likely experience negligible impacts as a result of proposed VRM objectives, for a total of 61 percent of lands in the Lower Sonoran.

Approximately 283,800 acres (61 percent) of lands in the Lower Sonoran could experience minor impacts from landscape modifications allowable under the proposed VRM objectives.

Table 4-10
Comparison Between VRM and VRI under Alternative C in the Lower Sonoran

VRI Class	Total VRI Class Acres	Acres of VRI Class by VRM Class			
		Class I	Class II	Class III	Class IV
Class I	91,750	91,800	0	0	0
Class II	166,850	0	99,400	54,900	0
Class III	290,700	0	129,400	145,200	13,800
Class IV	380,900	0	156,500	182,700	39,200

Approximately 68,700 acres (8 percent) of lands in the Lower Sonoran could experience moderate impacts from landscape modifications allowable under the proposed VRM objectives.

Finally, no lands in the Lower Sonoran would be managed as VRM Class III or IV, therefore major impacts on visual resources would not be expected.

4.9.5.2 Sonoran Desert National Monument

From Travel Management on Visual Resources

Further reduction in routes would further improve visual resources by reducing visible surface disturbance, especially in the core of the Monument near Gap Well and Butterfield Pass. Effects would be minor.

From Visual Resources on Visual Resources

The comparison of the VRI and the current management prescriptions for VRM in the SDNM under Alternative C are presented in **Table 4-11**, Comparison Between VRM and VRI under Alternative C in the SDNM.

Table 4-11
Comparison Between VRM and VRI under Alternative C in the SDNM

VRI Class	Total VRI Class Acres	Acres of VRI Class by VRM Class			
		Class I	Class II	Class III	Class IV
Class I	157,700	157,700	0	0	0
Class II	158,600	0	148,400	9,600	0
Class III	169,900	0	119,900	49,000	0
Class IV	200	0	200	0	0

In the SDNM, all lands inventoried as Class I would be managed as Class I. This would have a negligible impact on Class I inventoried lands. An additional 120,100 acres of lands inventoried as Class III or IV would likely experience negligible impacts as a result of proposed VRM objectives, for a total of 57 percent of lands in the SDNM.

Approximately 197,400 acres (41 percent) of lands in the SDNM could experience minor impacts from landscape modifications allowable under the proposed VRM objectives.

Approximately 9,600 acres (2 percent) of lands in the SDNM could experience moderate impacts from landscape modifications allowable under the proposed VRM objectives.

Finally, no lands in the SDNM would be managed as VRM Class III or IV, therefore major impacts on visual resources would not be expected.

From Livestock Grazing on Visual Resources

The nature and type of impacts would be the same as those described under Alternative A. The additional closures may require more fencing to keep livestock out of the closed areas than under Alternative A. If visible to Monument visitors, it could be perceived as a visual impact. New fencing is proposed to tie into existing fencing and take advantage of natural topography so as to reduce the effects on visual resources. Fencing and other structures would be required to meet VRM Class objectives, possibly mitigating some impacts.

4.9.6 ALTERNATIVE D

4.9.6.1 Lower Sonoran

From Lands and Realty on Visual Resources

Under Alternative D, about 90 percent of the Lower Sonoran Decision Area would be avoidance or exclusion for LUAs, with the majority of the allocations being exclusion. Most lands managed as avoidance areas for LUAs would be allocated as VRM Class II; thus, if land uses were authorized in those areas, they would be required to meet higher visual resource objectives and to develop projects that generally follow the line, color, form, and texture of the existing landscape.

On the other hand, the small amount of land without LUA restrictions would largely be managed as VRM Class III or IV. In these areas, lands with higher visual quality or sensitivity could be impacted if LUAs were to change the elements of landform, vegetation, water, color, scarcity, or cultural modifications from the existing condition. Impacts would range from negligible to minor.

From Recreation Management on Visual Resources

In contrast to the other alternatives, Alternative D would have the fewest acres of areas managed and developed for recreation. A couple of areas would still include developed and intensively managed recreation, but most of the Decision Area would be managed for more primitive recreational experiences geared toward resolving conflicts. While visual resources may degrade in areas of greater recreation development or where development is required to resolve resource or user conflicts, conformance with allocated classes would manage visual impacts caused by surface disturbance consistent with the RMP land management decisions. Impacts would range from negligible to minor.

From Travel Management on Visual Resources

Alternative D has the smallest motorized travel network. Impacts on visual resources may see a slightly reduced likelihood of visual degradation from recreation. Overall, impacts are expected to be minor and in conformance to the VRM class objectives.

From Visual Resources on Visual Resources

The comparison of the VRI and the current management prescriptions for VRM in the Lower Sonoran under Alternative D are presented in **Table 4-12**, Comparison Between VRM and VRI under Alternative D in the Lower Sonoran.

Table 4-12
Comparison Between VRM and VRI under Alternative D in the Lower Sonoran

VRI Class	Total VRI Class Acres	Acres of VRI Class by VRM Class			
		Class I	Class II	Class III	Class IV
Class I	91,750	91,800	0	0	0
Class II	166,850	0	14,600	19,700	800
Class III	290,700	0	230,800	52,900	5,300
Class IV	380,900	0	242,900	118,300	17,800

Under Alternative D, all lands inventoried as Class I would be managed as Class I. This would likely have a negligible impact on Class I inventoried lands. An additional 592,000 acres of lands inventoried as Class III or IV would likely experience negligible impacts as a result of proposed VRM objectives, for a total of 86 percent of lands in the Lower Sonoran.

Approximately 85,300 acres (11 percent) of lands in the Lower Sonoran could experience minor impacts from landscape modifications allowable under the proposed VRM objectives.

Approximately 25,000 acres (3 percent) of lands in the Lower Sonoran could experience moderate impacts from landscape modifications allowable under the proposed VRM objectives.

Finally, no lands in the Lower Sonoran would be managed as VRM Class III or IV, so major impacts on visual resources would not be expected.

4.9.6.2 Sonoran Desert National Monument

From Transportation and Access Management on Visual Resources

This alternative would reduce motorized routes the most, which would have the greatest potential to improve the visual landscape. The largest improvement would be in the core area in the vicinity of Gap Well and Butterfield Pass. Impacts would range from negligible to minor.

From Visual Resources Management

The comparison of the VRI and the current management prescriptions for VRM in the SDNM under Alternative D are presented in **Table 4-13**, Comparison Between VRM and VRI under Alternative D in the SDNM.

Table 4-13
Comparison Between VRM and VRI under Alternative D in the SDNM

VRI Class	Total VRI Class Acres	Acres of VRI Class by VRM Class			
		Class I	Class II	Class III	Class IV
Class I	157,700	157,700	0	0	0
Class II	158,600	155,700	2,300	0	0
Class III	169,900	143,100	26,200	0	0
Class IV	200	200	0	0	0

In the SDNM, all lands inventoried as Class I would be managed as Class I. This would have a negligible impact on Class I inventoried lands. An additional 325,200 acres of lands inventoried as Class III or IV would likely experience negligible impacts as a result of proposed VRM objectives, for a total of nearly all lands in the SDNM.

Approximately 2,300 acres (less than 1 percent) of lands in the SDNM could experience minor impacts from landscape modifications allowable under the proposed VRM objectives.

No lands would be managed as VRM Class III or IV, so all impacts are expected to be negligible or minor.

From Livestock Grazing on Visual Resources

The nature and type of impacts would the same as those described under Alternative A. However, because the entire SDNM Decision Area would be closed to livestock grazing, a considerable amount of fencing could be required to keep livestock out of the Monument where topographic features do not act as natural barriers. Fencing and other structures would be required to meet VRM Class objectives, which are mostly Class I and II under this alternative, possibly mitigating the impacts.

4.9.7 ALTERNATIVE E (PROPOSED RMP)

4.9.7.1 Lower Sonoran

From Lands and Realty on Visual Resources

Impacts of Alternative E are expected to be similar to those described for Alternative C for the Lower Sonoran.

From Recreation Management on Visual Resources

Impacts of Alternative E are expected to be similar to those described for Alternative C for the Lower Sonoran.

From Travel Management on Visual Resources

Impacts of Alternative E are expected to be similar to those described for Alternative C for the Lower Sonoran.

From Visual Resources on Visual Resources

The comparison of the VRI and the current management prescriptions for VRM in the Lower Sonoran under Alternative E are presented in **Table 4-14**, Comparison Between VRM and VRI under Alternative E in the Lower Sonoran.

Table 4-14
Comparison Between VRM and VRI under Alternative E in the Lower Sonoran

VRI Class	Total VRI Class Acres	Acres of VRI Class by VRM Class			
		Class I	Class II	Class III	Class IV
Class I	91,750	91,800	0	0	0
Class II	166,850	0	38,200	105,700	22,500
Class III	290,700	0	23,900	202,800	62,500
Class IV	380,900	0	46,700	207,700	125,100

Under Alternative E, all lands inventoried as Class I would be managed as Class I. This would likely have a negligible impact on Class I inventoried lands. An additional 278,300 acres of lands inventoried as Class III or IV would likely experience negligible impacts as a result of proposed VRM objectives, for a total of 40 percent of lands in the Lower Sonoran.

Approximately 366,100 acres (39 percent) of lands in the Lower Sonoran could experience minor impacts from landscape modifications allowable under the proposed VRM objectives.

Approximately 168,200 acres (18 percent) of lands in the Lower Sonoran could experience moderate impacts from landscape modifications allowable under the proposed VRM objectives.

Finally, approximately 22,500 acres (2 percent) of lands in the Lower Sonoran could experience major impacts from landscape modifications allowable under the proposed VRM objectives.

4.9.7.2 Sonoran Desert National Monument

From Travel Management on Visual Resources

Impacts of Alternative E are expected to be similar to those described for Alternative C for the Lower Sonoran.

From Visual Resources on Visual Resources

The comparison of the VRI and the current management prescriptions for VRM in the SDNM under Alternative E are presented in **Table 4-15**, Comparison of VRM and VRI under Alternative E in the SDNM.

In the SDNM, all lands inventoried as Class I would be managed as Class I. This would have a negligible impact on Class I inventoried lands. An additional 11,200 acres of lands inventoried as Class III or IV would likely experience negligible impacts as a result of proposed VRM objectives, for a total of 44 percent of lands in the SDNM.

Table 4-15
Comparison Between VRM and VRI under Alternative E in the SDNM

VRI Class	Total VRI Class Acres	Acres of VRI Class by VRM Class			
		Class I	Class II	Class III	Class IV
Class I	157,700	157,700	0	0	0
Class II	158,600	0	143,300	14,700	0
Class III	169,900	0	11,000	59,100	0
Class IV	200	0	200	0	0

Approximately 202,400 acres (52 percent) of lands in the SDNM could experience minor impacts from landscape modifications allowable under the proposed VRM objectives.

Approximately 14,700 acres (4 percent) of lands in the SDNM could experience moderate impacts from landscape modifications allowable under the proposed VRM objectives.

Finally, no lands in the SDNM would be managed as VRM Class III or IV, therefore major impacts on visual resources would not be expected.

From Livestock Grazing on Visual Resources

The nature and type of impacts would the same as those described under Alternative A. The additional closures may require more fencing to keep livestock out of the closed areas than under Alternative A, similar to that described for Alternative C. If visible to Monument visitors, it could be perceived as a visual impact. However, fencing and other structures would be required to meet VRM Class objectives, possibly mitigating some impacts.

4.10 IMPACTS ON WATER RESOURCES

This section discusses the potential impacts on water resources from the proposed allocation decisions and management actions as noted in Chapter 2. The primary water resource characteristics that could be impacted by the alternatives are water flow in ephemeral channels (timing and quantity), surface and ground water quality, and ground water recharge. Sedimentation, nutrients in the form of fertilizer in irrigation return flows, temperature, flow alternation, and bacteria are the most common stream impairments in the Planning Area. However, the only impaired water bodies with hydrologic connections to drainages in the Decision Areas are those in the Gila River between its confluence with Salt River and Painted Rock Reservoir. The fragmented pattern of land ownership in the Planning Area makes linkage of existing impairments to specific sources or activities occurring on BLM-administered public lands difficult. Management actions that result in surface disturbance; mining; energy development; recreation, and the application of herbicides and pesticides near water bodies all have potential to affect water quality and quantity, including stormwater runoff.

4.10.1 METHODS OF ANALYSIS

The methods to determine potential impacts on water resources included a review of relevant GIS data for the Planning Area. The GIS data were overlain with the actions found under each alternative, and

conclusions were drawn based on an understanding that these types of actions may affect known surface and groundwater resources. Impacts on water resources are evaluated only from the perspective of water availability and quality. Effects are quantified where possible; in the absence of quantitative data, best professional judgment was used.

4.10.1.1 Indicators

The following indicators were used to comparatively assess impacts on water resources:

- Acres of surface disturbance
- Number of road stream crossings
- Miles of roads close to (200 feet) streams
- Miles of roads within stream channels

4.10.1.2 Assumptions

Assumptions used to assess the impacts of the alternatives on water resources include:

- Substantial surface disturbance to soil, including exposure of bare ground, loss of vegetative cover, or rutting on un-surfaced roads could increase water runoff and downstream sediment loads; thereby degrading water quality, altering channel structure, and affecting overall watershed health. Water resource impacts other than ground water impacts are closely associated with soils impacts.
- Special management designations, such as ACECs or SRMAs, that restrict use for the protection of one or more resources (and management actions for resource protection are properly implemented) have positive impacts on water resources. The positive impacts exceed any negative impacts that could accrue due to increased visitation caused by the designation itself.
- When a proposed management action requires monitoring and enforcement of use restrictions to be effective, such as routes designated as closed for travel management, resources will be available to ensure that the necessary monitoring and enforcement occurs.
- Groundwater resources would be managed to protect environmentally sensitive areas and to be a good neighbor to adjoining well owners. All development would require a demonstrated need and would not conflict with other resource management goals

4.10.1.3 Program Areas with No Impacts on Water Resources

No impacts on water resources are anticipated for management actions relating to:

- Cave Resources
- Cultural and Heritage Resources

- Paleontological Resources
- Public Safety and Hazardous Materials
- Visual Resources
- Wild Horse and Burro Management
- Wilderness Characteristics

4.10.1.4 Qualitative Intensity Scale

Impacts are described using ranges of potential impacts or in qualitative terms, if appropriate. When impacts are positive, it is so stated. The intensities of impacts are also described, where possible, using the following intensities:

- Negligible. The amount of surface disturbance, number of stream crossings, miles of travel routes near, and in channels resulting in changes to drainage patterns, stormwater runoff volumes, or sediment delivery to channels would be very small. Changes in area of bare soil and removal of vegetative ground cover are below the level of detection.
- Minor. The amount of surface disturbance, number of stream crossings, miles of travel routes in or near drainages, changes in volume of traffic in the Decision Areas, or changes in other indicators resulting in changes to drainage patterns, stormwater runoff volumes, or sediment delivery to channels would be small, as would the area affected. If mitigation were needed to offset adverse effects, it would be relatively simple to implement and would likely be successful.
- Moderate. The amount of surface disturbance, number of stream crossings, miles of travel routes in or near drainages, changes in volume of traffic in the Decision Areas, or changes in other indicators resulting in changes to drainage patterns, stormwater runoff volumes, or sediment delivery to channels would be readily apparent and would occur over a relatively wide area. Mitigating measures probably would be necessary to offset adverse effects and would likely be successful.
- Major. The amount of surface disturbance, number of stream crossings, miles of travel routes in or near drainages, changes in volume of traffic in the Decision Areas, or changes in other indicators resulting in changes to drainage patterns, stormwater runoff volumes, or sediment delivery to channels would be readily apparent and long-term and would substantially change the indicators over a large area. Extensive mitigation measures to offset adverse effects would be needed, and their success could not be guaranteed.

4.10.2 COMMON TO ALL ALTERNATIVES

4.10.2.1 Sonoran Desert National Monument

From Minerals Management on Water Resources

The SDNM is withdrawn from new mineral entry and closed to leaseable and saleable mineral development under all alternatives. The withdrawal and closures were established in the proclamation that established the Monument. This withdrawal and closures would have a protective effect on water resources, as disturbance from exploration, prospecting, and other activities associated with mineral development would be generally prohibited.

In those few parcels (25,800 acres) within SDNM where the surface is owned by the United States and the subsurface is owned by a non-Federal entity, minerals development may still occur. Depending on the extent and intensity of ground disturbance, there may be moderate direct effects on water resources. Locatable mineral development could result in a variety of water resource impacts ranging from disruption of natural drainage conditions due to the development of pits, waste rock areas, leach pads, and roads, to substantial groundwater impacts from pumping as part of mining operations. Water quality impacts could also occur from chemical spills or erosion of waste or tailings piles making fine sediment and chemical waste product available for entrainment and transportation to major water courses. Impacts would need to be assessed on a site-specific basis. Development of saleable minerals could have a variety of impacts on water resources depending on location and scale of development. Sand and gravel operations in ephemeral wash bottoms could impact channel conditions by lowering bed elevations or disturbing channel banks which could result in head cutting. Each proposal would require site-specific assessment.

However, the BLM, as the owner/manager of the surface, would work with operators to mitigate impacts reduce them to minor. Methods to reach a minor impact outcome would likely include project design features and/or best management practices. Additionally, restoration activities could reduce impacts of past mining (sedimentation, heavy metal occurrence) over time.

4.10.3 ALTERNATIVE A (NO ACTION)

4.10.3.1 Lower Sonoran

From Air Quality Management on Water Resources

Creation of PM_{10} due to travel on un-surfaced roads or construction activities in the Decision Area is often mitigated with dust suppressants. Occasionally chemical palliatives such as magnesium chloride are used. If chemical dust palliatives are used anywhere in the Decision Area there is a moderate probability that a portion of those chemicals would be washed into drainages during periods of stormwater runoff and eventually reach the Gila River. Due to the limited use of these chemicals (water is much more commonly used), infrequent flood events, and dilution factors, this impact is minor to negligible.

From Lands and Realty on Water Resources

Ten corridors for major linear LUAs would be designated under Alternative A through the Lower Sonoran. The designation of corridors would lead to localized impacts on water resources from surface disturbance associated with construction or maintenance activities. Containing these uses in the corridors would limit the areal extent and represent a minor impact if corridors are revegetated to stabilize disturbed soils, which would reduce runoff, erosion, and sedimentation.

LUAs for utility-scale renewable energy development would have measurable, widespread effects on water resources. Blading of large areas for solar energy facilities is estimated to exceed 150,000 acres over the life of the plan. LUAs would disrupt drainage patterns, cause surface disturbance and soil compaction resulting in increased erosion, runoff, and sedimentation over a large enough area to be a moderate impact. Use of large quantities of groundwater may be needed for renewable energy development and production, and would result in additional impacts on drainage patterns by causing subsidence in localized areas. Groundwater pumping would likely lower water table elevations and potentially impact neighboring wells. Pumping impacts would be mitigated in future solar developments by use of dry cooling technologies or by using systems with entirely different means of generating electricity. It is assumed that the solar energy development proposals built under this plan would consist of concentrated solar facilities. The overall impact of LUAs for this use would be moderate.

Land disposal actions on up to 18,900 acres in the Lower Sonoran would affect water resources, particularly if the proposed future land use involved surface disturbance or removal of vegetation, such as for a housing development or solar energy facility. Water resources could also be affected if development on these parcels increases groundwater pumping that could lower water table elevations. New surface water developments on these lands would require water rights and/or new groundwater developments that pump more than 35 gallons per minute within Active Management Areas would require approval from the Arizona Department of Water Resources (ADWR). 8,000 acres of the 18,900 acres available for disposal would be available for exchange, and would only occur under Alternative A. Impacts on water resources due to the disposal of these lands are likely to occur on most of the acres involved. Although land disposal itself has a negligible impact on water resources, the maximum potential impact from future development would be minor in terms of surface disturbance due to the small number of acres affected but potentially moderate in terms of groundwater impacts if water intensive facilities are constructed. Potential impacts would be assessed on a proposal specific basis.

From Livestock Grazing on Water Resources

Grazing would continue under the current management system, which would allow surface-disturbing activities associated with livestock operations to continue and potentially impact runoff and sedimentation. Disturbance to sensitive ground surface covers such as desert pavement and cryptobiotic crusts would expose fine-grained sediments to erosion. Increased erosion of fine-grained sediments would increase transport and delivery to ephemeral washes and, ultimately, the intermittent and perennial reaches of the Gila River. Impacts on sensitive surfaces would be minimized by livestock stocking rates low enough to allow progress toward the desired plant community. This would keep disturbances small and site specific. Areas of greatest surface disturbance would be concentrated around watering sources and gathering areas. The small numbers of these sites would limit these effects. The impact would, therefore, be classified as minor.

In years when there is substantial recruitment of ephemeral spring forage species, ephemeral grazing is permitted. The surface disturbance around watering sources and gathering areas would increase during years when ephemeral grazing is authorized. The disturbance could cause compaction of soils resulting in localized runoff, erosion and delivery of sediments to ephemeral stream channels. Increased stocking rates during periods of ephemeral use, and the widespread occurrence of ephemeral vegetation when ephemeral use is permitted increases the risk of erosion of fine sediments beneath sensitive soil covers to moderate for the periods of increased use.

Livestock trailing and disturbance (compaction and vegetation removal) around watering sources would be greatest in this alternative, though impacts would be minor due to the small number of sites affected.

From Minerals Management on Water Resources

In the Lower Sonoran, mineral development would be allowed to continue on all lands not currently withdrawn. Impacts on water resources vary by type of development. Locatable mineral development could result in a variety of water resource impacts ranging from disruption of natural drainage conditions due to the development of pits, waste rock areas, leach pads, and roads, to substantial groundwater impacts from pumping as part of mining operations. Water quality impacts could also occur from chemical spills or erosion of waste or tailings piles making fine sediment and chemical waste product available for entrainment and transportation to major water courses. Impacts would need to be assessed on a site-specific basis. Development of saleable minerals could have a variety of impacts on water resources depending on location and scale of development. Sand and gravel operations in ephemeral wash bottoms could impact channel conditions by lowering bed elevations or disturbing channel banks which could result in head cutting. Each proposal would require site-specific assessment. Impacts would range from negligible to moderate.

From Recreation Management on Water Resources

Under Alternative A, recreation uses would continue to be distributed throughout the Decision Area. Active management of recreation would occur in four SRMAs covering 379,400 acres in the Lower Sonoran. The remaining 893,300 acres would not be allocated as an RMA. Impacts on water resources would increase from the damage to soil resources that are expected to increase as recreation use increases throughout the Decision Areas in SRMAs. The increased concentration of activity in the SRMAs increases the probability of impacts on water resources due to erosion from increased stormwater runoff from impervious or compacted surfaces of parking areas, structures and trails. These impacts are limited in extent and would be considered to be minor. Mitigation and maintenance is planned for facilities and near historic sites. Dispersed recreation occurring in the Decision Area may be more numerous and impacts on individual disturbed sites would be minor. Dispersed recreation that occurs in the unaffected areas and in undeveloped portions of the SRMAs is likely to result in increased water resource impacts due to use of previously unaffected areas for camping, hiking, mountain biking, and equestrian activities.

Most of the affected areas would be used for short periods and be relatively small in size. Campers are encouraged to use existing sites. Only one established campground and two unimproved areas are currently used for camping in the Decision Areas. Alternative A includes the potential establishment of a LTVA. If any LTVAs are created in Ajo or elsewhere, they would be located in existing short-term use campgrounds which would limit the impact on water resources to the approximate area of the

campground. The risk of increased stormwater runoff and sedimentation exists from increased compaction, rutting, and bare ground within the designated camping areas. Increasing the stay limit to establish an LTVA could increase impacts if the footprint of the campground was also increased. Most impacts have occurred, so designating an existing camping area as an LTVA would be considered to be a minor impact.

Parking and camping are permitted along existing roads for a distance of 100 feet from the road center line. This provision invites substantial expansion of the road surface and would increase the probability of erosion on and near the road, which could lead to further expansion of the affected area as vehicle operators drive around damaged road surfaces. These impacts result in increased runoff and delivery of sediments to ephemeral stream channels and, ultimately, the perennial and intermittent reaches of the Gila River. There is no data available on the current extent of this type of damage, or of the number of turnouts that have developed in the 100 foot zone on each side of the designated routes. The impacts are classified as minor, since they are individually small areas, and not numerous. However, there is a high probability that increased activity would occur leading to an increased area of disturbance along the 950 miles of roads in the Lower Sonoran, which would have potential to impact water resources.

From Special Designations on Water Resources

The Coffeepot Botanical ACEC is the only ACEC under Alternative A. An existing management decision closes existing roads to all recreational use. This would greatly reduce unauthorized travel, widening of existing roads, and most other additional surface disturbance. The special designations would have minor to negligible water resource impacts.

From Travel Management on Water Resources

A decision to maintain the current allocations for OHV Area designations would allow all inventoried routes to be used. This would lead to a net increase over time of routes due to vagueness of existing routes, especially in xeroriparian or riparian corridors, where brush and water flow may obscure routes year to year. No Open OHV areas are currently allocated, therefore there would be no effects from this allocation. OHV Closed allocations of 110,700 acres including Coffeepot ACEC would have a negligible effect on water resources since these areas have been closed for at least 10 years and resource conditions are stabilizing.

Travel routes that are located close to stream channels are a source of hydrologic connectivity between roads and channels. Hydrologic connectivity occurs where there is a continuous flow path from roads to streams. Examples include:

- Ditches that convey road derived or intercepted runoff to stream channels;
- Cross drain features such as water bars or dips that discharge sufficient water to create a gully, sediment plume, or a combination of both that extends to a stream channel, and
- Fill slopes that encroach on stream channels.

Routes that are hydrologically connected to the washes in the Decision Area increase the likelihood of introducing road derived sediments and contaminants to the stream channels.

Under the existing conditions there are approximately 2,649 miles of roads within 200 feet of stream channels. The existing travel management system has an overall minor impact. Motor vehicle use is currently limited to existing or designated routes with less than three percent of the Decision Area limited to designated routes, and most of the closed routes in the wilderness areas. Alternative A decisions on motorized vehicle use would generally leave the current OHV class designations and route system in place (see Map 2-15a). Under Alternative A, 15 miles of routes out of 1,670 would be closed in the Lower Sonoran. Roads concentrate and channel stormwater runoff and unless properly drained and maintained contribute a high proportion of sediment eventually reaching perennial streams. The density of roads excluding the largely roadless wilderness areas is 1.57 miles per section. That is a moderately low density by most standards, although it is enough to be a source of sediment. Overall, roads cause a moderate level of damage to water quality, and can elevate the impacts during high flows. The impact of 15 miles of road closures would be negligible.

Public travel in wash bottoms and dry streambeds that are part of the existing route system would continue. The continued use of these routes disturbs the bed and banks of these channels, damages, xeroriparian vegetation, and leads to greater sedimentation during stormwater runoff. Wash bottoms are a major source of groundwater recharge in the Decision Area. Use of wash bottoms as travel routes exposes surface and groundwater to the risk of contamination from spills and leaks of the fuels and oils used by Off Highway Vehicles. Use of wash bottoms as designated travel routes is likely to increase use of unauthorized routes as vehicle operators exit or reenter drainages.

Streambeds in the Decision Area are typically composed of sand, and the affected areas are locally small, resulting in minor impacts on wash bottoms overall. There are enough intersections between roads and drainages to cause a moderate impact locally where the intersections occur, including moderate impacts on stream banks which can cause accelerated erosion head cutting.

From Vegetation Resources on Water Resources

Decisions intended to protect special status species, particularly those that avoid surface disturbance or maintain vegetative cover, would also provide protection for water resources. Continued wood harvesting would reduce vegetation cover and increase bare ground resulting in increased runoff, erosion, and sedimentation. Impacts would mainly be limited to the Ajo Block where a majority of wood harvesting occurs. Impacts would be minor since they would be site specific in a limited area, and would not require mitigation unless vehicle traffic created ruts or disturbances on sensitive soils.

From Wildlife and Special Status Species on Water Resources

Maintenance and redevelopment of existing wildlife waters, development of new wildlife waters and livestock waters would continue under Alternative A. Soil compaction and ground surface disturbance from increased wildlife activity around existing wildlife water developments would increase runoff and sedimentation. Impacts from wildlife water developments would be negligible compared to the increased runoff and erosion that occurs from soil compaction and vegetation removal near livestock waters, which are minor themselves due to their limited spatial extent. Any potential water resource impacts from wildlife sharing livestock water would be negligible.

4.10.3.2 Sonoran Desert National Monument

From Air Quality Management on Water Resources

Impacts on water quality from air quality management are essentially the same as those in the Lower Sonoran Decision, although the probability of use of chemical palliatives in the SDNM may be lower. Construction projects and organized recreational vehicle activities, where chemical palliatives are more often used, are less likely to occur in the Monument.

From Lands and Realty on Water Resources

Three corridors for major linear LUAs would be designated under Alternative A in the SDNM. The designation of the corridors would result in moderate impacts on water resources from surface disturbances during construction and maintenance activities. Containing these uses in the corridors would maintain a moderate level of impact. Other land uses authorized by LUAs that cause surface disturbance would have similar localized impacts on water resources due to increased runoff from soil compaction and increased sedimentation from accelerated erosion. Revegetation, closures, restoration of temporary roads and other construction disturbances, and maintenance of natural drainage pathways would reduce impacts on water resources over time.

Alternative A does not provide for utility-scale renewable energy development in the SDNM. Indirect impacts on water resources in the SDNM could occur in the southeast section of the SDNM (southern Vekol Valley) from developments that increase stormwater runoff, cause increased flow, erosion, and sedimentation in drainages in the SDNM. These impacts would be minor and limited in extent.

From Livestock Grazing on Water Resources

Under Alternative A in accordance with the Monument Proclamation, the allotments or portions of south of I-8, within SDNM, were made unavailable to livestock grazing when the permits expired. Minor long term benefits to water resources would be expected from increases in vegetative ground cover and litter. Small decreases in soil compaction would be expected to increase water holding capacity and infiltration and reduce runoff, erosion, and sedimentation. The closures would have their greatest benefits in the Vekol Valley area where vulnerable soils are prevalent.

North of I-8, grazing would continue at current preference levels. A grazing compatibility analysis has shown negligible impacts from grazing in those SDNM allotments when compared with the same ecological sites on land formerly in the BMG military range, where no grazing has occurred in over 50 years. Therefore, grazing impacts are expected to be minor and similar to those analyzed for the Lower Sonoran Decision Area. Minor negative impacts are due to effects of grazing where soils are most sensitive to erosion such as those with cryptogamic crusts, desert pavement, or around stock watering sites.

From Recreation Management on Water Resources

Alternative A has a SRMA that is intended to cover the portion of the Gila Trails SRMA that occurs within the SDNM. It has 143,900 acres which includes the Gila Trail, Butterfield Stage Route, Anza Trail, and other historical points. Impacts on water resources would increase as additional miles of hiking,

biking, and equestrian trails are constructed. Increased recreational use and additional trails would expose disturbed soils to erosion from surface disturbance.

Planned management actions would protect resource values and limit OHV use to designated routes. The sum of these offsetting actions is likely to be a minor impact. The remaining 342,500 acres of the SDNM would experience minor impacts similar to those described above for the Lower Sonoran Decision Area.

A number of recreational target shooting areas are located in the SDNM. Most target shooting areas are located near established travel routes. Travel management under Alternative A provides for the greatest number of open travel route miles, allowing for the greatest opportunity for off-road target shooting, although target shooting would be allowed only outside of developed areas. Alternative A does not address the risk of lead contamination in soils from bullets or the potential migration of that lead into surface and subsurface water systems. It also does not address the buildup of shooting debris and lacks specific management prescriptions for recreational target shooting, which could increase the risk of injury and detrimental effects to water The lack of directives regarding cleanup of trash or spent shells under Alternative A combined with the highly disbursed nature of recreational target shooting could result in the buildup of solid waste in a number of locations in the Decision Area. Under Alternative A, concern would continue regarding recreational target shooting activities conducted at popular sites where shooting is officially unsupervised, random, and, at times, concentrated. Impacts are expected to be moderate.

From Special Designations on Water Resources

Alternative A does not include decisions that specifically address management of water withdrawals. Management of water under Alternative A would limit groundwater development within the Vekol Valley Grassland ACEC and other sensitive areas. Those limits would be a positive impact on water availability in the Vekol Valley ACEC, but otherwise impacts would not occur. The likelihood of groundwater resource development beneath the SDNM is low.

Should development occur, the disturbance associated with the infrastructure necessary to develop ground water resources (roads, pipelines, power) would cause minor increases in runoff, erosion, and sedimentation in local washes. Groundwater development could lower water table elevations in nearby adjoining wells.

From Travel Management on Water Resources

A decision to maintain the allocation of 161,200 acres as Closed OHV areas would have the minor effect of allowing xeroriparian areas to continue stabilization. Continuing the allocation of 325,200 acres as Limited to Existing Roads and Trails would have a minor effect on water resources since no riparian resources occur inside SDNM. Sixty five miles of the estimated 971 miles of xeroriparian washes are used as vehicles routes. The assessment of minor impact is due to the lack of riparian and relatively sparse occurrence of xeroriparian areas near heavily used areas such as Gap Well and Vekol Valley Road.

Under Alternative A, 6.6 miles out of 632 miles of routes would be closed in SDNM. Public travel in wash bottoms and dry streambeds that are part of the existing route system would continue, potentially

damaging xeroriparian vegetation, destabilizing channel banks, and introducing contaminants from spills, leaks of fuels, and oils into the groundwater system. This would lead to a minor level of impact on water resources, including an increase in sedimentation in drainages during periodic stormwater runoff events.

Restricting travel to existing routes would limit the impacts to generally minor levels over the entire Decision Area. Closing 6.6 miles of routes represents approximately one percent of the routes in the SDNM. Recovery of watershed conditions (reduced compaction, increased ground cover) over time on these routes would have a minor beneficial impact on water resources due to reduced runoff, erosion, and sedimentation in local washes.

4.10.4 ALTERNATIVE B

4.10.4.1 Lower Sonoran

Alternative B generally allows and facilitates increased public access to and use of the Decision Area, which would allow a greater number of surface-disturbing activities. As a result, Alternative B would generally increase the potential for water resource impacts compared to Alternative A. Although mitigation would be planned when there is an acceptable probability of success, residual impacts, as measured by the water resource indicators, are likely to persist from grazing, recreation, travel, lands and realty, and mineral management.

From Air Quality Management on Water Resources

Impacts from air quality management under Alternative B would be the same as those under Alternative A.

From Lands and Realty on Water Resources

The number of multiuse corridors would be the same as those described under Alternative A. As under Alternative A, the impacts would be minor, assuming BMPs for mitigating corridor impacts are implemented. Other authorized land uses, including utility-scale renewable energy development, would have the same moderate impact on water resources as described under Alternative A.

Approximately 50,300 acres are available for disposal under Alternative B. If disposal of all available land occurred, the impact could be nearly twice the impact described under Alternative A, although the total potential impact would remain moderate.

From Livestock Grazing on Water Resources

Under Alternative B, impacts from grazing would be slightly less than Alternative A. Perennial and perennial-ephemeral allotments would receive a reduction in authorized grazing preference to account for the effects of continued ephemeral grazing. Reduced grazing preference would result in a minor decrease in the impacts of grazing on water resources from those experienced under existing conditions. All land health assessment data demonstrates little or no difference in progress toward meeting land health standards between areas with and without ephemeral grazing, assuming the special rule for ephemeral grazing is followed. Impacts would be minor.

From Minerals Management on Water Resources

Impacts from mineral development would be the same as described under Alternative A.

From Recreation Management on Water Resources

Recreation allocations in the Lower Sonoran would include five SRMAs and five ERMAs. The effects of RMAs on water resources are dependent on the proposed recreation uses and are described under Alternative A. The extent of impacts from RMAs is increased under Alternative B, due to the additional management areas. Motorized travel within dry washes can destabilize banks, particularly where vehicles enter and exit the washes, damage xeroriparian vegetation, and introduce potential contaminants into surface and groundwater systems. Disturbing sensitive soils such as desert pavements and cryptogamic crusts may result in increased erosion due to exposure of bare soil.

Management decisions intended to control motorized vehicle use, manage vehicle-based camping and recreational target shooting, and other intensive recreation uses, would help to mitigate impacts on water resources. Three of the SRMAs; Buckeye Hills East Trails, Painted Rocks Trails, and Ajo Trails, emphasize motorized recreation, which increases the likelihood of water resources impacts due to surface disturbance and damage to soils.

Areas with nonmotorized uses, including Cuerda de Lena, Sentinel Plains, San Tan, and Gila Bend Mountains are unlikely to impact water resources. The remaining four SRMAs, which would be managed for a balance of motorized and nonmotorized uses, would likely have minor effects on water resources from disturbance of sensitive soil covers that expose soils to erosion, from disturbances to the bed and banks of desert washes, and from disturbance to the natural drainage patterns on motorized routes.

Based on the provisions for visitor education and control, plans for mitigation in anticipated areas of higher use, and the limited spatial extent of expected impacts, the overall impact of the additional SRMAs under Alternative B would be minor.

From Special Designations on Water Resources

Under Alternative B, designation of the Coffeepot ACEC in the Lower Sonoran would be retained. Therefore, the impacts would be the same as those under Alternative A.

From Travel Management on Water Resources

Decisions to allocate OHV Closed Area designations on all designated wilderness areas, 101,800 acres, would have a minor effect on water resources since those areas are currently closed. Maintaining the closures would have the effect of allowing all previously disturbed areas to continue their natural restoration resulting in an increase of infiltration rates. A decision to allocate 40 acres as an Open travel area would have the effect locally, of increasing disturbance on the wash bank within this area. While the area can be suitably mitigated by restoration, impacts would be moderate to major locally, but minor regionally. Motocross type of use would be expected to occur within the 40 acres designated as open. This could reduce use along washes in other areas, having a minor to moderate effect in other areas by stabilizing previously impacted areas elsewhere. Allocating the balance of acreage, 828,360 acres, to Limited to Designated Routes would have the effect of limiting travel in xeroriparian and riparian

corridors to only those routes analyzed and designated for travel and allowing for vegetation recovery and stabilization of water channels.

Compared to Alternative A, water resources would be expected to be less impacted due to the decision to have designated routes. Nearly all existing miles of roads are open under Alternative A (1,670 of the 1,688 miles in the Lower Sonoran). Only 1,241 miles are open under Alternative B. Impacts would decline in each alternative as miles of open routes are reduced. Alternative B has 198 more miles of closed routes and 180 more miles of seasonally closed roads than Alternative A. Many miles of those closures are to protect wildlife habitat management areas in the Gila Bend Mountains and in the Ajo area. These closures would reduce the impacts on water resources. Reductions in rutting, surface, and vegetation disturbance and water erosion would occur wherever routes are closed. In those specific areas where the road closures are concentrated, the impact on water resources would decline from moderate to minor. However, even with the 12 percent reduction in road miles under Alternative B, the overall impact of travel on water resources in the Lower Sonoran would remain minor. Alternative B includes plans for only 5 acres with new roads, which would be a negligible impact. Designation of routes in most areas should decrease OHV impacts over time by decreasing uncontrolled road proliferation, assuming resources are available for enforcement of designations.

Indicators of water resources impacts decrease under Alternative B from those under Alternative A. Total miles of washes in the Lower Sonoran is 1,659 miles. The number of existing road miles within these washes is 182 miles, indicating that about 11 percent of the washes are occupied by roads. The numbers of miles of roads in washes decreases from 182 miles under Alternative A to 126 miles of open and seasonally closed roads under Alternative B, a 31 percent decrease. The number of wash crossings by open roads (which provides one indication of direct impacts of roads on washes, as well as an estimate of access points for vehicles to enter washes) decreases from 1038 under Alternative A to 915 under Alternative B, a 12 percent decrease. The number of miles of roads within a 200 foot buffer distance of ephemeral washes (an indication of hydrologic connectivity) decreases from 309 miles under Alternative A to 249 miles under Alternative B, a 19 percent decrease. The overall effect is a minor decrease in impacts from Alternative A to Alternative B and an overall minor impact of these alternatives on water resources due to the distance from intermittent or perennial water sources.

From Vegetation Resources on Water Resources

Alternative B would provide measures to actively manage the restoration and reclamation of disturbed areas and control invasive species. Control of invasive plant species may increase potential for erosion and increased turbidity in water courses during storms in the short term but would effectively increase vegetation and stabilize soils in the long term. Impacts from wood harvesting would be the same as under Alternative A. Other impacts compared to Alternative A would positive with small increased emphasis on native plant reestablishment, specific protection for priority species, and additional limits on collection of native plant material including dead and down material. These practices would maintain the small amount of litter available as cover, reducing runoff and sedimentation of stream channels.

From Wildlife and Special Status Species on Water Resources

Alternative B would develop a limited number of new wildlife waters in the Lower Sonoran. The number is not specified, but it is not likely to exceed the number (eleven) planned for Alternative A. Therefore, the impacts would be negligible compared to Alternative A. Where groundwater is

developed to provide wildlife waters, there may be a negligible drawdown of groundwater elevations. Surface water developments would impound a small volume of stormwater runoff.

Water rights would be necessary for any new surface water impoundments. Impacts on surface water resources would be negligible. Existing roads required to provide access to these water sources would be used when possible. Any new roads required would cause small increases in runoff, erosion, and sedimentation. They would be closed to public use and their overall impact on water resources would be negligible.

4.10.4.2 Sonoran Desert National Monument

From Air Quality Management on Water Resources

Impacts from air quality management under Alternative B would be the same as those under Alternative A.

From Lands and Realty on Water Resources

In the SDNM, the multiuse utility corridors would remain the same as Alternative A and the impacts would be the same.

From Livestock Grazing on Water Resources

Impacts would be the same as those described under Alternative A for the area south of I-8. Impacts for the area north of I-8 would be similar to Alternative A except for the reduced number of authorized perennial AUMs. Adverse impacts on watershed conditions would be less than Alternative A due to the reduced consumption of vegetation which would provide for greater vegetative ground cover. Net effect would be a negligible reduction in adverse effects from Alternative A.

From Recreation Management on Water Resources

Compared to Alternative A, which only has 143,900 acres in a SRMA and no distinction among categories of use, management of SDNM recreation under Alternative B would be more active. Under B recreation would probably increase, but most of the Monument would be managed for undeveloped, backcountry recreation. Therefore, the impacts on water would be similar to Alternative A and minor. In the SDNM, one ERMA equal to the acreage of the Monument would be allocated.

From Special Designations on Water Resources

Under Alternative B, designation of the Vekol Valley Grassland ACEC in the SDNM would be removed and vehicle use would be allowed on routes in these areas, which would increase the potential for impacts on water resources in this portion of the SDNM as compared to Alternative A. The overall impacts from special designations in the SDNM under Alternative B would be minor.

From Travel Management on Water Resources

Decision to allocate OHV areas of Closed and Limited to Designated Routes in Alt B would have a minor effect on water resources because all routes would be designated for vehicular travel, thus

minimizing the effects of cross-country use, especially in xeroriparian washes. Compared to Alt A, Limited to Designated Route allocation would better protect water quality on all routes since the designated route system would be managed to include adding proper drainage, route signage and public maps to guide the public. Some routes would be designated in the Vekol Valley Grasslands area which has the OHV area designation of Limited to Designated Routes in this alternative, providing a minimal route network. Minor impacts on water quality in this area due to mitigation by creation of earthen water control structures on open routes could occur. All of these actions would combine to protect water resources and the functioning ecosystem.

All existing travel routes in the SDNM would be designated open, limited, or closed under Alternative B (and all other action alternatives). About 69 miles would be closed, which is comparable to the miles of closures under Alternative A (65 miles closed). The differences in impacts due to total route length and road density between the two alternatives would be negligible. The reduced impacts of motorized travel due to wilderness area restrictions would also be the same. The wilderness area size (157,700 acres) and management would be identical under Alternatives A and B. Closing 69 miles of existing travel routes accounts for about ten percent of the routes in the SDNM.

Recovery of watershed conditions (reduced compaction, increased ground cover) over time on these routes would have a minor impact on water resources due to reduced runoff, erosion, and sedimentation in local washes. All existing travel routes in the SDNM would be designated open, limited, or closed under Alternative B (and all other action alternatives). About 72 miles would be closed, which is about 65 more miles of closures than under Alternative A (6.6 miles closed). This would be a negligible change from existing conditions under Alternative A. Approximately 157,700 acres of the SDNM are in wilderness areas in both Alternatives A and B. Some routes would have increases in maintenance levels, but overall impacts on soils from travel under Alternative A and B would be similar.

There are approximately 354 miles of ephemeral washes within the SDNM. There are currently 63 miles of open roads within these washes indicating that about 5 percent of the washes are used as motorized travel routes. Under Alternative B, 34 miles of roads would occupy wash bottoms, a 27 percent decrease in mileage. There are 328 wash crossings by roads under Alternative A and a similar number of crossings under Alternative B.

The number of miles of roads close to washes (hydraulically connected) changes from 114 miles under Alternative A to 106 miles under Alternative B, a 7 percent decrease. The net effect on water resources is negligible when compared to Alternative A. The overall effect of this alternative on water resources is minor due to the distance from intermittent or perennial water bodies.

4.10.5 ALTERNATIVE C

4.10.5.1 Lower Sonoran

From Air Quality Management on Water Resources

Impacts from air quality management under Alternative C would be the same as those under Alternative A.

From Lands and Realty on Water Resources

In the Lower Sonoran under Alternative C, the multiuse corridors would be the same as those described under Alternative A. As under Alternative A, the impacts would be minor assuming BMPs for mitigating corridor impacts are implemented. The number acres of excluded from utility-scale renewable energy development is greater under Alternative C than under Alternative A. The reduced acreage available for utility-scale renewable energy development would reduce the potential for surface disturbance that would increase stormwater runoff and sedimentation and reduce the potential for withdrawal of groundwater that could lower water table elevations. Impacts on water resources would be moderate to high, locally, for a large solar installation particularly if it is using a wet cooling system that requires thousands of acre-feet of groundwater. Other potential impacts on water resources, such as disruption of the natural drainage system of the area can be mitigated. Overall, the impacts of utility-scale renewable energy development would be moderate.

Approximately 36,300 acres are available for disposal under Alternative C. If disposal of all available land occurred, the impact would be greater than the impact described under Alternative A, although the total impact would remain moderate. Land disposal has a negligible impact on water resources. The maximum potential impact from future development would be minor in terms of surface disturbance due to the small number of acres affected but moderate in terms of groundwater impacts if developments such as solar energy facilities are constructed. Potential impacts would be assessed on a proposal specific basis.

From Livestock Grazing on Water Resources

Impacts on water resources from Alternative C grazing proposals would be less than Alternative A. Perennial AUMs under Alternatives A and C are the same, but ephemeral grazing allowed under Alternative A would not occur under Alternative C. Alternative C could increase perennial stocking rates to full permitted numbers, causing concentration of use near water and gathering areas. Increased runoff and sedimentation from surface disturbance and compaction would also occur from Alternative C, although the impacts would remain minor. Current grazing intensity identified under Alternative A when combined with a potentially larger perennial herd would result in decreased water storage and surface water infiltration rates, and a reduction in residual litter associated with the lower use of ephemeral grazing identified under Alternative C. Impacts would be expected to be negligible to minor.

From Minerals Management on Water Resources

Potential impacts from mineral development would be slightly less than described under Alternative A, due to mineral withdrawals proposed in some RMZs (Painted Rock RMZ, Gunsight Wash Campground). Also, mineral materials disposals would be prohibited in areas that contain cactus ferruginous pygmy-owl habitat, eliminating potential impacts in these areas.

These differences would have a negligible effect on the overall potential impact of mineral development on water resources. Impacts could be major but would require site-specific assessments of mineral development proposals. Impacts would be expected to range from negligible to moderate.

From Recreation Management on Water Resources

Four ERMAs and four SRMAs would be allocated in the Lower Sonoran under Alternative C. Managing recreation use areas for a balance between motorized and nonmotorized uses would decrease the likelihood of increasing runoff, and sedimentation by trampling, rutting, and erosion. Alternative C would have SRMAs with a larger proportion of acres in the backcountry (423,100 acres) compared to community interface (19,900 acres) and front country (186,300 acres). Reduced motorized travel within dry washes and on sensitive soils would decrease the likelihood of altering surface flow, exacerbating bank erosion, damaging xeroriparian vegetation, increasing sedimentation, and introducing potential contaminants into ground water compared to Alternative A. Proposed management actions in the Gila Bend Mountains ERMA to restore natural conditions of disturbed areas greater than 2 acres would reduce the impacts on water resources in these areas by increasing cover and reducing the risk of accelerated erosion from roads and campgrounds. The overall impact of Alternative C of recreation management would be minor, assuming planned road and campground maintenance actions are effectively implemented.

From Special Designations on Water Resources

Under Alternative C, designation of the Coffeepot ACEC in the Lower Sonoran would be expanded to the Coffeepot Batamote ACEC covering 63,300 acres. Management decisions to avoid all surface-disturbing activities including utility-scale renewable energy development, to prohibit routes within washes, and to close washes with suitable cactus ferruginous pygmy-owl habitat to mineral material sales would have impacts on watershed conditions. Compared to Alternative A, the impacts on water from Alternative C would be greater due to the increase in the area managed with ACEC protection by a factor of four. Impacts would be minor.

From Travel Management on Water Resources

Comparative to Alternative A, the decisions to allocate most areas to Limited to Designated Routes would have minor impacts on xeroriparian and riparian areas through less use of washes as travel routes.

Alternative C would include a framework for vehicle and travel management that would, over time, decrease the effects of vehicle use on water resources compared to Alternative A. Alternative C has 319 more miles of closed routes and 132 more miles of seasonally closed roads and roads closed to public use than Alternative A. Many miles of those closures are to enhance lands managed, protect wilderness characteristics, and to protect wildlife habitat management areas in the Gila Bend Mountains and in the Ajo area. Other closures are in designated wilderness areas and in the area around the Painted Rocks Campground. These closures would reduce the impacts on soils, particularly on the sensitive areas of desert pavement and cryptobiotic crust that are common in undisturbed areas of the Ajo Block. Reduced soil impacts would result in reduced water resource impacts, particularly runoff and sedimentation. Reductions in rutting, surface and vegetation disturbance, and water erosion would occur wherever routes are closed.

In specific areas of concentrated road closures, impacts on water resources would decline from moderate to minor. Even with the 18 percent reduction in road miles under Alternative C compared to Alternative A, the overall impact of travel on water resource conditions in the Lower Sonoran would

remain minor. The probability that stormwater runoff would be concentrated on un-surfaced roads, resulting in erosion on and off the road and sediment delivery to stream channels remains relatively high.

Alternative C includes plans for 25 miles of new roads, which would have a negligible impact. In terms of water resources indicators the total miles of roads within washes decreases to 89 miles, a 40 percent decrease from Alternative A. The number of wash crossings decreases to 820, a 21 percent decrease from Alternative A. The number of miles of roads close to streams decreases to 218 miles, a 29 percent decrease from Alternative A. The net effect is a minor reduction in impacts from Alternative A and a continued minor impact on water resources overall due to the distance from intermittent or perennial water sources.

From Vegetation Resources on Water Resources

Objectives, management actions, and impacts under Alternative C would be the same as those described under Alternative A.

From Wildlife and Special Status Species on Water Resources

Four areas encompassing 425,900 acres would be designated as wildlife habitat areas (WHAs) under Alternative C. Management activities that limit the size of surface-disturbing activities and place seasonal limitations on motorized uses in certain washes and prohibit mineral material disposals in certain washes would result in reduced water resources impacts from this alternative compared to Alternative A (which would not designate any wildlife habitat areas).

Designating Category I desert tortoise Habitat as an avoidance area for all surface-disturbing activities would also reduce impacts on water resources from those under Alternative A. Limiting the size of surface-disturbing activities in wildlife management corridors would also reduce water resource impacts.

Unlike Alternative A, which allow for new wildlife water developments, wildlife water development under Alternative C would be limited to maintaining and redeveloping currently existing waters. This limitation would prevent surface-disturbances associated with the construction of new wildlife waters, but could result in localized impacts on soil and water resources due to maintaining and redeveloping existing waters. Overall impacts would be negligible.

4.10.5.2 Sonoran Desert National Monument

From Air Quality Management on Water Resources

Impacts from air quality management under Alternative C would be the same as those under Alternative A.

From Lands and Realty on Water Resources

In the SDNM, two multiuse utility corridors would be designated under Alternative C. The watershed disturbance associated with constructing underground utility corridors is greater than above ground utility corridors due to potential for disrupting natural drainage patterns and increased soil disturbance, which would increase erosion and sedimentation. The smaller number of utility corridors reduces the total area of disturbance. The net effect would be a negligible decrease in adverse watershed impacts

from Alternative C as compared to Alternative A. Prohibitions on new communication sites within the SDNM would limit the potential for construction of these sites to adversely affect watershed conditions. Impacts could range from negligible to moderate.

From Livestock Grazing on Water Resources

Impacts would be the same as those described under Alternative A for the area south of I-8. Impacts for the area north of I-8 would be similar to Alternative A, except that ephemeral grazing allowed under Alternative A would not occur under Alternative C. Eliminating grazing of ephemeral forage species would permit litter from these species to accumulate at greater rates than alternatives that permit ephemeral grazing. Increased vegetative litter would provide for greater ground cover for erosion protection and greater water holding capacity, however, it could lead to increased fuel loads, and the associated increased risk of wildfire. The net effect would be a negligible beneficial impact on runoff, erosion, and sedimentation from this alternative as compared with Alternative A. However, the elimination of grazing on 44,800 acres on the SDNM could help offset some of these impacts in those areas fenced off.

From Recreation Management on Water Resources

The entire SDNM is an ERMA consisting of the Desert Back Country RMZ and the Juan Batista de Anza National Historic Trail RMZ. Although the Anza RMZ is likely to attract increased visitation, two-thirds of that RMZ and nearly 90 percent of the Desert Back Country RMZ would be managed for undeveloped recreation activity. The undeveloped recreation includes four-wheel drive touring, which would have characteristic impacts on water resources. Overall, the impacts of Monument recreation are expected to be minor.

Groups would be limited in size and competitive motor sports would not be allowed. These management actions would reduce damage to the unsurfaced road prism, and reduce the risk of impacts from stormwater runoff and erosion from the roads on nearby washes. These positive impacts would offset the minor impacts that could be caused by increased recreational activity.

From Special Designations on Water Resources

No special designations are planned for the SDNM under Alternative C. The impact of the removal of Vekol Valley Grassland ACEC designation would be the same as the impact of the same action under Alternative B.

From Travel Management on Water Resources

A decision to maintain the allocation of 157,700 acres as Closed OHV areas would have the minor effect of allowing xeroriparian areas to continue stabilization. The allocation of 328,700 acres as Limited to Designated Roads would have a minor effect on water resources since no riparian resources occur inside SDNM. There would likely be less impact on sedimentation of water resources as a result of travel management designations under Alternative C, when compared to Alternative A. Additional engineering, possibly including the use of dust suppressants to minimize effects on air quality and visual resources, and to accommodate higher use on fewer routes could offset these impact improvements. For this reason, impacts are still assessed as minor.

In terms of the water resources indicators, the number of miles of roads within washes decreases to 30 miles under Alternative C. This decrease represents a 33 percent decrease from Alternative A. The number of wash crossings would decrease to 285, a 13 percent decrease from Alternative A. The number of miles of roads close to streams decreases to 90 miles, a 21 percent decrease from Alternative A. These impacts represent a minor decrease from Alternative A and an overall minor impact on water resources due to the widespread nature of the impact.

Approximately 175 miles of roads would be closed in the Monument under this alternative. This represents about 28 percent of the roads in the Monument. Recovery of watershed conditions over time on these routes would have a minor impact on water resources due to reduced runoff, erosion, and sedimentation in local washes.

4.10.6 ALTERNATIVE D

4.10.6.1 Lower Sonoran

From Air Quality Management on Water Resources

Impacts from air quality management under Alternative D would be the same as those under Alternative A.

From Lands and Realty on Water Resources

The number of multiuse corridors would be reduced from 10 in Alterative A to seven under Alternative D. The impacts would be minor, assuming BMPs for mitigating corridor impacts are implemented. Development of utility-scale renewable energy would be prohibited on 925,200 acres of excluded and high sensitivity areas under Alternative D, 820,200 acres more than Alternative A. Approximately 19,400 acres are available for disposal under Alternative D. If disposal of all available land occurred, the impact would be similar to that described under Alternative A. Although land disposal itself has a negligible impact on water resources, the maximum potential impact from future development would be minor in terms of surface disturbance due to the small number of acres affected but potentially moderate in terms of groundwater impacts if developments such as solar energy facilities are constructed. Potential impacts would be assessed on a proposal specific basis.

From Livestock Grazing on Water Resources

Under Alternative D, all public lands within the Lower Sonoran would be closed to grazing, therefore impacts would be negligible. Eliminating grazing would reduce impacts on water resources by reducing surface disturbance and allowing ground cover to improve through increased canopy cover of perennial vegetation, and by allowing litter from both perennial and ephemeral forage species to increase. Accumulation of litter would increase water holding capacity and improve infiltration. Areas of compacted surfaces would break down over time due to mechanical and biological activity, also providing for improved infiltration. Alternative D would have less impact on water resources when compared to Alternative A, due to the closure to grazing.

From Minerals Management on Water Resources

More areas would be excluded from mineral development under this alternative than Alternative A. Excluding these areas would reduce the potential for minerals-related impacts on water resources. Overall, impacts would be negligible to minor. Potential impacts from mineral development would depend on the development proposal and would be assessed on a site-specific basis.

From Recreation Management on Water Resources

Recreation allocations under Alternative D would include establishing two SRMAs and one ERMA; the Buckeye Hills East Trails and the Painted Rock SRMAs, and the Buckeye Hills West Trails ERMA. The effects of RMAs on water resources are dependent on the proposed recreation uses described under Alternative A. Extent of the impacts from RMAs under Alternative D are reduced from those under Alternative A, due to fewer acres of RMAs and a different recreational opportunity emphasis. Recreational use in the Buckeye Hills East Trails SRMA would emphasize nonmotorized recreation opportunities and dispersed recreational opportunities in the Buckeye Hills West Trails ERMA. Reduced emphasis on facility development and motorized recreation would result in reduced water resource impacts from those under Alternative A. Management of other recreational activities in the Lower Sonoran would be similar to other alternatives. Management decisions intended to control motorized vehicle use, manage vehicle-based camping and recreational target shooting, and other intensive recreation uses, would help to mitigate impacts on water resources. Impacts would be negligible to minor.

From Special Designations on Water Resources

A total of 218,600 acres would be included in four areas designated as ACECs: Saddle Mountain, Coffeepot Batamote, Cuerda de Lena, and Lower Gila Terraces and Historic Trails. Management decisions would limit motorized travel, surface-disturbing activities, mineral development, utility-scale renewable energy development, and developed recreation sites in some or all of these areas.

From Travel Management on Water Resources

Decisions to allocate significantly more acres to the Closed OHV area designation would have the effect of eliminating current and future impacts on xeroriparian and riparian areas within these areas. Assuming areas and roads would be properly closed to achieve restoration potential, effects on water resources would be moderate due to 342,700 more acres closed to motor vehicle use which is the primary cause of vegetation loss in washes. Alternative A would close 100,000 acres to motor vehicle use. 40 acres would not be allocated to open use under Alternative A or D. Alternative D would allocate 587,500 acres to Limited to Designated Routes, compared to 0 acres under Alternative A. Alternative D would allocate 0 acres of Limited to existing roads and trails, compared to 830,200 under Alternative A.

From Vegetation Resources on Water Resources

Vegetation treatments implemented to progress towards achievement of land health standards would benefit watershed conditions by providing appropriate cover levels to protect soils from water erosion and ensuring sufficient bank and floodplain vegetation is present along desert washes (Xeroriparian community) to provide for hydrologic function of the sites. Excluding surface-disturbing activities within

occupied acuña pineapple cactus habitat, and the habitat area of any threatened or special status species, would have positive impacts on watershed conditions in these areas. Impacts would be negligible to minor.

From Wildlife and Special Status Species on Water Resources

Surface-disturbing activities would be excluded from the Gila Bend Mountains Wildlife Habitat Area, pronghorn habitat, Category I, II, and III desert tortoise habitat, and wildlife movement corridors. These exclusions would allow the recovery of vegetative ground cover in previously disturbed areas and by preventing future disturbance. This alternative would result in minor effects on water resource effects when compared to Alternative A.

4.10.6.2 Sonoran Desert National Monument

From Air Quality Management on Water Resources

Impacts from air quality management under Alternative D would be the same as those under Alternative A.

From Lands and Realty on Water Resources

Multiuse utility corridors would not be permitted in the Monument under Alternative D and the entire Monument would be designated as an LUA exclusion area. These decisions result in reduced potential for adverse impacts on water resources under this alternative as compared to other alternatives. Minor benefits to water resource conditions should accrue from potential for reduced surface disturbance. Overall impacts would be negligible.

From Livestock Grazing on Water Resources

Under Alternative D, all public lands within the SDNM would be closed to grazing. Eliminating grazing would reduce impacts on water resources by reducing surface disturbance and allowing ground cover to improve through increased canopy cover of perennial vegetation and by allowing litter from both perennial and ephemeral forage species to increase. Accumulation of litter would increase water holding capacity and improve infiltration. Areas of compacted surfaces would break down over time due to mechanical and biological activity, also providing for improved infiltration. The net effect on water resources would be a minor under Alternatives A and D. Overall impacts would be negligible.

From Recreation Management on Water Resources

The entire Monument area would be designated as an ERMA with an emphasis on an undeveloped backcountry experience and resource-dependent activities such as hunting, camping, hiking, sightseeing, and four wheel drive touring. The designated motor vehicle system would consist entirely of primitive roads. The reduced level of development emphasized with this alternative would result in fewer water resource impacts than those associated with other alternatives. The net effect would be a reduction in the adverse effects of surface-disturbing activities on runoff, erosion and sedimentation. Overall impacts would be minor.

From Special Designations on Water Resources

Under Alternative D, designation of the Vekol Valley Grassland ACEC in the SDNM would be removed and vehicle use would be allowed on routes in these areas, which would increase the potential for impacts on water resources in this portion of the SDNM as compared to Alternative A. The overall impacts from special designations in the SDNM under Alternative D would be minor.

From Travel Management on Water Resources

Under Alternative D, decisions to allocate 313,600 acres of OHV areas of Closed designation, as compared to Alternative A which would designate 161,200 acres as closed. Alternative D would have a minor effect on water resources. This would be due to the relative low route density of routes and widespread nature of the impacts. All other areas would be Limited to Designated Routes, which would have the same effects on water resources as described in Alts B and C where routes would be designated.

About 370 miles of motorized routes within the Monument would be closed under Alternative D. This amount is substantially more than the miles of roads closed under the existing conditions or any of the other action alternatives and represents closure of 59 percent of the routes within the Monument. This would be a major change from existing conditions under Alternative A and would reduce impacts on water resources.

In terms of the water resources indicators the number of miles of roads within washes decreases to 1.4 miles under Alternative D. This decrease represents a 98 percent decrease from Alternative A. The number of wash crossings decreases to 166, a 49 percent decrease from Alternative A. The number of miles of roads close to streams decreases to 31 miles, a 73 percent decrease from Alternative A. These impacts represent a moderate decrease from Alternative A and an overall minor impact on water resources, such as runoff, erosion and sedimentation, due to the reduction in the widespread nature of the impacts. Closure of 370 miles of currently open routes in this alternative represents more than 59 percent of the road mileage within the Monument and reduces water resource impacts more than any of the other alternatives.

4.10.7 ALTERNATIVE E (PROPOSED RMP)

4.10.7.1 Lower Sonoran

From Air Quality Management on Water Resources

Impacts from air quality management under Alternative E would be the same as those under Alternative A.

From Lands and Realty on Water Resources

Alternative E impacts on water resources from land tenure changes would be somewhat greater than Alternative A due to a larger number of acres available for disposal (30,500 acres versus 27,400 acres). Impacts would depend on development occurring on the transferred lands but potential for surface

disturbance and water resource development would be greater. Lands available for disposal are less than 3 percent of the Decision Area. Overall potential for water resource impacts would be minor.

Impacts due to land use authorizations are essentially the same as Alternative C. LUA exclusion areas under Alternative E total 380,100 acres, compared to Alternative A with 105,100 acres. Compared to Alternative A, Alternative E impacts from surface disturbance associated with LUAs, would occur on about 275,000 fewer acres. The use of existing utility corridors would remain essentially the same, resulting in similar impacts. Impacts on surface acres from solar energy development is similar to those described under Alternative C. Alternative E would have 511,100 acres in areas of high sensitivity, reducing the probable future surface disturbance and potential for groundwater development under Alternative E.

From Livestock Grazing on Water Resources

Impacts from grazing on water resources within the Lower Sonoran would be essentially the same as Alternative A.

From Minerals Management on Water Resources

The potential for impacts on water resources from mineral development under Alternative E would be slightly less than under Alternative A, due to the Saddle Mountain ACEC and areas near petroglyphs in the Gila River Terraces and Southern Historic Trails ACEC being proposed for withdrawal from mineral entry and closed to leasable and saleable mineral development. Potential for impacts from mineral development continues under this alternative but would need to be assessed on a site-specific basis. Overall impacts would be negligible to moderate.

From Recreation Management on Water Resources

The impacts on water resources of recreation management under Alternative E would be similar to the impacts analyzed under Alternative B although one SRMA designated under Alternative B would not be designated under Alternative E. This could provide a minor positive impact under E, since less recreational activity would probably occur in the 48,100 acres in the ERMA. The Saddle Mountain ERMA is relatively close to an urban area and would be likely to attract more use under Alternative B than E. The result for Alternative E would be reduced surface disturbance and less damage to vegetation. This would limit the increase in bare soil and water erosion. However, even as an ERMA, some use would occur, so the differences in impacts would be negligible. Limiting the Saddle Mountain ERMA to nonmotorized use would also minimize the differences between Alternatives B and E.

Some additional differences in management between Alternatives B and E also are proposed. Alternative E camping stay lengths and infrastructure would be more limited, possibly resulting in less soil compaction, vegetation and soil surface damage, and damage to banks and xeroriparian vegetation in adjacent Gunsight Wash, resulting in less runoff, erosion and sedimentation into the wash. This would be a slightly positive impact of Alternative E.

Differences in impacts from management under Alternatives B and E in the Buckeye Hills East Trails SRMA and Buckeye Hills West Trails ERMA would be negligible.

From Special Designations on Water Resources

Alternative E proposes 198,400 acres for ACEC designation. Areas and designations are similar to Alternative D although limitations on disturbance under Alternative E are slightly less restrictive than those under Alternative D. Alternative E would result in minor impacts on water resources due to limitations on surface-disturbing activities and motorized travel. Net water resources impacts would be less than those under Alternative A. Overall impacts would be negligible.

From Travel Management on Water Resources

Decisions to allocate OHV areas in this alternative would have effects most similar to Alternatives B and C. A 40 acre Open area would be designated, having the same effects as Alt B. OHV Closed areas would be 91,000 acres, having the similar effects as Alternative A. This additional land is mostly unroaded and functions well hydrologically; therefore, the effects on water resources would be negligible.

From Vegetation Resources on Water Resources

Impacts would be similar to Alternatives B, C, and D.

From Wildlife and Special Status Species on Water Resources

Alternative E would allow for maintenance and redevelopment of existing wildlife waters and development of new ones. It would also provide for removing wildlife waters. Impacts on water resources would be similar to Alternatives A and B. Small amounts of stormwater runoff would be impounded and water rights would be necessary for new surface water developments. Well permits would be required for groundwater development. Net effect on water resources would be negligible.

4.10.7.2 Sonoran Desert National Monument

From Air Quality Management on Water Resources

Impacts from air quality management under Alternative E would be the same as those under Alternative A.

From Lands and Realty on Water Resources

Impacts on water resources from use authorizations under Alternative E would be less than Alternative A because the SDNM would be a LUA exclusion area except in established corridors. Impacts would be essentially the same as those described under Alternative C and would be negligible.

From Livestock Grazing on Water Resources

Grazing impacts on water resources would be the same as Alternatives A and C, except that impacts on water resources within the 95,290 acres proposed to be closed would benefit other water resources to an even greater extent. Impacts are nevertheless expected to be negligible to minor.

From Recreation Management on Water Resources

The entire SDNM would be managed as an ERMA under all action alternatives. Under Alternative A only about ¼ of the Monument would be an ERMA. Under Alternative E, most of the Decision Area would be managed as backcountry, which means undeveloped recreational activity. Impacts on water resources would be negligible, and similar to the other action alternatives. Impacts are positive compared to Alternative A. Since dispersed recreational target shooting throughout the Monument would continue, the impacts of target shooting under Alternative E would be the same as those described for Alternative A. However, if Management and Administrative Actions designed to change the conduct of recreational target shooters has the desired effect, impacts from recreational target shooting should be greatly decreased. If that were to happen, impacts would be negligible to minor.

From Special Designations on Water Resources

Impacts from special designations and the removal of the Vekol Valley Grassland ACEC in the

SDNM would be the same as the other action alternatives.

From Travel Management on Water Resources

Decisions to allocate OHV areas the same as Alternative B and would have similar effects. Differences to the magnitude of the impacts under this alternative would be comparative to the number of wash crossings and miles of routes that would be designated for use. Effects would be minor due to the low route density adding and addition of earthen drainage structures to help reduce concentrated flow and sedimentation.

In terms of the water resources indicators the number of miles of roads within washes increases from Alternative D to 16 miles under Alternative E. This change represents a 64 percent decrease from Alternative A, greater than a six fold increase from Alternative D, a 53 percent decrease from Alternative B and a 47 percent decrease from Alternative C. The number of wash crossings increases from Alternative D to 251 under Alternative E. This change represents a 23 percent decrease from both Alternatives A and B, a 34 percent increase from Alternative D, and a 12 percent decrease from Alternative C. The number of miles of roads close to streams increases from Alternative D to 78 miles under Alternative E. This change represents a 32 percent decrease from Alternative A, more than double the road mileage from Alternative D and a 13 percent decrease from Alternative C. These impacts represent a minor decrease from Alternatives A and an overall moderate impact on water resources due to the widespread nature of the impacts.

4.11 IMPACTS ON WILD HORSE AND BURRO MANAGEMENT

Currently, there are no herd management areas (HMAs) within the Planning Area. In 1971, the BLM classified the Painted Rocks Area as a herd area (HA) where, before 1971, wild horses and burros existed. The BLM currently manages this area with a zero horse and burro population. Previous decisions stated that the BLM was to manage this herd area for a "zero population" of wild horses and burros. These decisions were based on conflicts in the area with private landowners, agricultural interests, wildlife such as bighorn sheep, and other resources, and a lack of water available to wild burros on public lands. A target population of zero animals requires the BLM to remove all the wild

horses and burros from this herd area. Funding, however, has not been provided, and all of the wild horses and burros have not yet been removed. Nuisance horses and burros have been removed on a case-by-case basis.

Because the intent of the existing decisions and proposed alternative decision is to remove all wild horse or burros from the Painted Rocks Herd Area, any impacts from other program areas on these wild horses and burros would be negligible. Therefore, impacts from other resources are not be discussed in detail.

4.12 IMPACTS ON WILDERNESS CHARACTERISTICS

4.12.1 METHODS OF ANALYSIS

Wilderness characteristics are influenced by a number of land and resource uses, principally, the following actions, occurring on the landscape over the life of the plan:

- Proximity of motorized travel corridors
- Volume and type of traffic on travel corridors
- Quantity and type of recreational users
- Number, magnitude, and location of mining actions
- Number, size, and location of ROWs and other land use authorizations

Noise from and the evidence of motorized travel can degrade solitude; motorized intrusions can cause surface disturbances that impact naturalness, and both types of impacts can reduce opportunities for primitive unconfined recreation. Mining and LUAs sometimes result in large-scale impacts with long-term surface disturbance or permanent installations. New roads and transportation corridors can be proposed by communities and other land users. To a lesser extent, range and wildlife management projects can affect areas with wilderness characteristics. These impacts normally come from installation, maintenance, and use of range and wildlife catchments.

The analysis of potential impacts on wilderness characteristics considers wildlife habitat boundaries, range and wildlife developments, wilderness characteristic boundaries, transportation inventories and designations, ecological zones, vegetation types, and known historical and cultural sites. In the absence of data, analyses were based on the knowledge of local planners; in the absence of quantifiable data, professional judgment was used. Impacts are sometimes described using ranges of potential impacts or in qualitative terms, if appropriate.

Of the resource management elements to be addressed by the Lower Sonoran and SDNM RMP, air resources, wildlife and special status species, vegetation resources, cultural and heritage resources, visual resources, minerals management, livestock grazing management, recreation management, lands and realty management, travel management, and special designations would impact wilderness characteristics the most directly. They are discussed below.

4.12.1.1 Indicators

Impacts on wilderness characteristics result from actions that maintain, enhance, or diminish the amount, distribution, and quality of the wilderness resource indicators. Wilderness characteristic indicators include the following:

- The extent, location, distribution, and quality of naturalness and natural conditions in the landscape. Naturalness is affected by surface-disturbing activities and associated human uses and developments.

- Opportunities for the maintenance, enhancement, or diminishment of solitude and primitive unconfined recreation. Opportunities for solitude are impacted by the sights and sounds of, or evidence of, other human beings and human activities. Opportunities for primitive, unconfined recreation are affected by the presence of motorized activities and the availability, or unavailability, of landscapes conducive for such activities.

4.12.1.2 Assumptions

The following assumptions regarding the future management of wilderness characteristics are made:

- All guidelines for the maintenance of wilderness characteristics as identified in this document would be followed to the extent allowed by existing budget and available personnel.

- Any new surface-disturbing activities proposed would be subject to NEPA analysis. Proposed activities that would not initially meet wilderness characteristic objectives for the area would be mitigated to the extent needed to meet the objectives.

- Uses and activities occurring both inside and outside these lands could influence wilderness characteristics, though such influences would generally be indirect.

4.12.1.3 Program Areas with No Impacts on Wilderness Characteristics

There would be no impacts on wilderness characteristics from actions proposed under the following programs:

- Cave resources

- Paleontological resources

- Water resources

- Wild horse and burro management

4.12.1.4 Qualitative Intensity Scale

The intensities of impacts are the same as those described in **Table 4-1**, Qualitative Terms for the Intensity of Impacts.

The following analysis also considers a management action's potential to cause changes to a landscape that could alter naturalness, and maintain, reduce, or enhance opportunities for solitude and opportunities for primitive unconfined recreation. The terms localized, site-specific, and landscape level denote the extent to which impacts could occur. Site-specific impacts are generally small and are described geographically when possible. Landscape-level impacts generally occur on a broad scale and affect large areas, such as the entire Monument.

4.12.2 COMMON TO ALL ALTERNATIVES

Some management decisions for elements of lands and realty management, wildlife and habitat resource management, minerals management, water resources, and wildland fire management are common to all action alternatives.

4.12.2.1 Both Decision Areas

From Lands and Realty on Wilderness Characteristics

No areas exhibiting wilderness characteristics have been identified for disposal under any of the action alternatives. There are no impacts on wilderness characteristics.

Acquiring land or mineral estate could increase the potential for protecting naturalness, opportunities for solitude, and opportunities for primitive unconfined recreation in those areas exhibiting wilderness characteristics. In addition, acquiring land or mineral estate could provide indirect protection of wilderness characteristics because naturalness and opportunities for solitude and primitive unconfined recreation could be considered before land use authorizations and permits were granted for access or mineral extraction.

From Hazardous Materials and Public Safety on Wilderness Characteristics

Hazardous materials and solid waste issues occur on occasion within the Decision Areas. Containment and cleanup of these materials often involves the use of vehicles and equipment in surface-disturbing activities. Wilderness characteristics would be impacted by the sights and sounds and associated damage of vehicle movements and removal of contaminated soils.

With appropriate restoration and mitigation, these impacts would typically be temporary, and naturalness could be restored; however, some impacts could cause long-term degradation of naturalness. Overall, these impacts would be considered negligible as hazardous materials and solid waste issues are uncommon in these remote roadless areas.

From Soil Resources on Wilderness Characteristics

Maintaining and improving soil cover and productivity could promote, to a minor degree, retention of naturalness by preventing erosion of soils. Naturalness would be retained to the extent that native plant communities are protected from direct mortality or indirect harmed due to invasive plants.

Management actions associated with fire, lands and realty, mineral development, wildlife projects, recreation uses, OHV travel, and damage or removal of vegetation would have moderate impacts, mainly

through a failure to maintain plant communities or through degraded soil coverage and productivity in the Decision Areas. These actions also would fail to promote the retention of natural conditions due to increased erosion, loss of plant cover, a potential increase in invasive species, or localized loss of plant and ecological community diversity.

From Wildland Fire Management on Wilderness Characteristics

Wilderness characteristics could be diminished, degraded, or lost altogether due to issues with fire and fuels management, but these impacts do not vary substantially by alternative. Fires destroy vegetation, which impacts the naturalness of an area and may allow soil erosion to damage or destroy areas. Fire suppression activities also impact wilderness characteristics, such as naturalness and solitude, when heavy earth-moving equipment and vehicles are used to cut fire lines. Fire line scars can last for decades, even with reclamation. The use of fire retardants also can stain rocks and soils for up to a decade. Additionally, fire suppression activities could result in diminished naturalness and opportunities for solitude over the short term in localized areas.

Furthermore, burned landscapes denuded of vegetation are easily invaded by opportunistic, nonnative invasive plants and weeds like buffelgrass. This is a potentially severe and permanent impact if Sonoran Desert fires convert fire-intolerant native desert habitats to nonnative fire-tolerant grasslands. In summary, all the actions described can degrade or diminish naturalness over the long term and are considered major both in scope, scale and severity.

On the other hand, effective fire suppression can limit potential disturbances. Quick suppression action by ground and air-based firefighting organizations can minimize or eliminate the potential for adverse long-term effects of fire, including consequences on naturalness associated with large-scale mechanized firefighting and the severe long-term potential for nonnative ecosystem conversion. Overall, impacts would be negligible to major.

From Recreation Management on Wilderness Characteristics

Providing signs for visitor information, regulations, or interpretation could diminish naturalness in localized areas by increasing the appearance of structures. However, it is likely that signs or facilities would be located near roads or access points, where the magnitude of such intrusions would be negligible.

Allowing dispersed nonmotorized camping throughout the Lower Sonoran and SDNM would promote the retention of wilderness characteristics by providing opportunities for primitive unconfined recreation.

4.12.2.2 Lower Sonoran

From Recreation Management on Wilderness Characteristics

Dispersed recreational target shooting throughout Lower Sonoran could contribute to a loss or impairment of naturalness and opportunities for solitude and primitive recreation. Mostly these impacts would accrue on the perimeter of wilderness characteristic areas along roads due to spent shells, targets, and trash, destroyed or damaged vegetation and rock outcrops, and the unavoidable sound of

gunfire. The sound of gunfire potentially impacts the largest land area with effects on naturalness being highly localized. Sound effects vary greatly based on distance and intensity and are influenced by the size and design of the firearm, terrain features, and weather.

From Special Designations on Wilderness Characteristics

Neither designating nor not designating the Agua Caliente Road as a 30-mile Backcountry Byway would impact wilderness characteristics.

4.12.2.3 Sonoran Desert National Monument

From Minerals Management on Wilderness Characteristics

There are 8,300 acres of non-Federal mineral estate overlapping areas with wilderness characteristics within the SDNM. Developing and mining these valid existing rights would entail disturbing the land surface and building roads for access and extraction. Use of Federal surface rights during development of state minerals would impact wilderness characteristics through the long-term loss of naturalness, both on the parcel itself and on surrounding public lands. The related sights and sounds of mining would degrade or eliminate opportunities for solitude and primitive unconfined recreation on affected parcels. Mitigation strategies could be identified through discussions with the State of Arizona. Impacts also could be mitigated through Federal purchase of the State's mineral estate. Where the BLM manages the surface overlaying non-Federal minerals, it has management discretion over if and how mining can occur. As such, the impacts stated above would occur only on non-BLM lands adjacent to the area with wilderness characteristics and could indirectly impact the wilderness characteristics on BLM land. Consequently, impacts from potential development of State mineral estate would be considered negligible to moderate over both the short and long term.

The likelihood of State minerals ownership being developed within the SDNM is considered extremely low as no such applications have ever been presented. As a result, impacts from potential development of State minerals would be unlikely and negligible over both the short and long term. Consequently, State mineral ownership in the SDNM is not discussed further in this analysis.

From Livestock Grazing on Wilderness Characteristics

The continued closure of grazing allotments south of I-8 would help maintain or enhance naturalness and opportunities for solitude and primitive unconfined recreation over the long term. Impacts would be negligible.

From Special Designations on Wilderness Characteristics

Neither maintaining nor not maintaining the Vekol Valley ACEC in the SDNM would impact lands with wilderness characteristics, as the ACEC does not contain wilderness characteristics.

4.12.3 ALTERNATIVE A (NO ACTION)

No part of the Lower Sonoran or SDNM Decision Areas are allocated to lands managed to protect wilderness characteristics under Alternative A; however, other decisions under this alternative could

impact the baseline conditions that support existing wilderness characteristics. Therefore, analysis of these potential impacts is focused on the likelihood that management decisions under Alternative A would affect these baseline conditions. Wilderness characteristics could be maintained under Alternative A, but this outcome would be an incidental byproduct of management actions implemented for other purposes.

Although some individual proposed decisions would act to maintain wilderness characteristics, the overall effect of Alternative A would be minor to moderate reductions in the extent, distribution, and quality of wilderness characteristics. The degrees of naturalness and outstanding opportunities for solitude and primitive unconfined recreation would decline over the expected life of the RMP. This reduction would occur principally because Alternative A would not specifically establish lands managed to protect wilderness characteristics. Wilderness characteristics could be expected to degrade over time, principally from incremental impacts that would occur as consequences of:

- Allowing motorized land uses, mineral sales and leases, ROWs, and other land use authorizations that are incompatible with maintaining wilderness characteristics
- Generally managing affected areas without adequate resource allocations or special designations that, although established for other purposes, also would have the incidental effect of helping to maintain wilderness characteristics
- Rapidly increasing demands for access to and use of public lands for multiple purposes that are projected to occur in the Decision Area, largely due to the region's population and development growth

4.12.3.1 Both Decision Areas

From Cultural and Heritage Resources on Wilderness Characteristics

Although cultural and heritage resources are not included as primary attributes contributing to wilderness characteristics, future site development for public interpretive and educational purposes, excavation for scientific study, and similar activities may have negligible to minor effects on the naturalness and solitude of lands with wilderness characteristics. Difficulty of access would relegate most site development or interpretation to the periphery of such areas. Impacts would be negligible.

From Livestock Grazing on Wilderness Characteristics

Indirect and moderate impacts on naturalness could result where livestock congregate around water sources, corrals, staging areas, or fence lines, leading to erosion, trampling, impairment of scenery and vistas, dust emissions, and damage to the plant communities. Conversely, naturalness in and around rare plant and desert tortoise habitats could be indirectly enhanced if livestock waters were modified or moved from such areas. This would result in a moderate, but localized, improvement in naturalness.

Implementation-level decisions that would increase the number or density of fences, livestock waters, or corrals could result in reduced naturalness where these livestock management structures are obvious features within the landscape.

Continuing the current livestock program could have localized impacts on naturalness and outstanding opportunities for solitude and primitive unconfined recreation. Taken as a whole, however, current-grazing regimes would not detract from nor greatly alter currently inventoried and documented wilderness characteristics over the life of the plan. Landscapes like Saddle Mountain and Face Mountain, documented to have wilderness characteristics in 1980, still retain wilderness character at the same or even greater levels today, after an additional 30 years of livestock grazing.

Localized impacts could occur with potential minor to moderate effects due to the following

- Livestock-use adjustments with increased or fewer animals
- Changes to grazing management systems
- Potentially large ephemeral turnouts causing short-term impacts on naturalness and loss of solitude and primitive recreation opportunities from trail-cutting and damage to vegetation by livestock and cattle waste
- Construction or abandonment of rangeland developments

Such actions would degrade or enhance naturalness and opportunities for solitude and primitive unconfined recreation.

4.12.3.2 Lower Sonoran

From Air Quality on Wilderness Characteristics

The use of motorized vehicles on paved and unpaved roads results in emissions of particulate matter and of carbon monoxide, nitrogen dioxide, volatile organic compounds, and sulfur dioxide from the combustion of fuel.

Under Alternative A, no specific measures are planned to control fugitive dust emissions that exceed regulatory limits, such as by lowering speed limits, using dust suppressants, reducing vehicle use intensity or duration, reducing route density, or considering temporary, seasonal, or permanent route closures. Instead, these measures would be taken on a case-by-case basis as problems are identified, which generally is not as effective as a proactive approach. Projected population growth is expected to result in increased use of motorized vehicles, potentially resulting in minor to moderate long-term impacts on naturalness through deteriorated air quality.

From Lands and Realty on Wilderness Characteristics

Utility corridors under Alternative A would be designated along the borders of the Batamote Mountains area of the Ajo Block and in the Saddle Mountain area. These corridors, if used, could have moderate impacts on naturalness along the extremities of wilderness characteristic areas. Impacts would accrue, mainly through direct, long-term surface disturbances and indirect residual impacts on visual resources. Up to 16,000 acres of areas exhibiting wilderness characteristics could be impaired or foregone over the long term under full utilization of the utility corridors. Elsewhere, utility corridors would have negligible to minor effects on wilderness characteristic areas.

Eight to ten new solar energy plants of 8,000 to 10,000 acres each are expected to be constructed in the first five years of the plan, with one or two additional plants constructed every five years over the life of the plan. In addition, there will be an increase of requests for transmission lines and access for operations and maintenance of the solar farms. Naturalness and opportunities for solitude and primitive unconfined recreation could be subject to major impacts, potentially completely foregone. Over the life of the plan, up to an estimated 21,500 acres known to have wilderness characteristics could be exposed to major impacts from energy development. These impacts would be located in the lower elevations of Saddle Mountain, with the effects mainly occurring on the lower desert plains and bajadas (areas with five percent elevation slope or less). These slopes are suitable for solar installations, utility infrastructure, and transportation alignments.

Transportation-corridor demand will increase with regional population growth over the life of the plan. Transportation corridors could be sited anywhere, as indicated by regional transportation planning over the preceding 10 years. Permanent transportation and associated LUA corridors could cause major to moderate degradation of wilderness characteristics. These impacts would mainly be found in the Saddle Mountain area, with road corridors sited in less mountainous terrain and often overlapping on lands subject to the solar and energy developments described previously.

From Minerals Management on Wilderness Characteristics

About 12,700 acres of state mineral rights overlap with Lower Sonoran areas known to have wilderness characteristics. Developing and mining these valid existing rights would entail disturbing the land surface and building roads for access and extraction activities. The use of federal surface rights during development of state minerals would impact wilderness characteristics through the long-term loss of naturalness, both on the parcel itself and on surrounding public lands. The related sights and sounds of mining would degrade or eliminate opportunities for solitude and primitive unconfined recreation on affected parcels.

Impacts could be mitigated using strategies determined jointly with the State of Arizona or through Federal purchase of the mineral estate. The likelihood of State mineral ownership being developed is considered low to moderate in the Lower Sonoran. Consequently, impacts from potential development of State mineral estate would be considered negligible to moderate over both the short and long term.

Implementation of Alternative A would leave all areas with wilderness characteristics open to entry under the mining laws. Mining claims could be located and minerals extracted, impacting naturalness and the opportunities for solitude and primitive unconfined recreation. Mining claim location, assessment, and development could have negligible to major impacts on wilderness characteristics, not only from the mining itself, but also from access roads, transport, and increasing public access to remote areas.

It is impracticable to precisely assess impacts from locatable mineral development because these developments are driven by the location of mineral deposits. However, the loss or impairment of wilderness characteristics is more likely where there is moderate to higher locatable mineral potential, primarily the wilderness characteristic areas in the Saddle Mountain area and the central part of the Batamote Mountains. On the other hand, impacts are anticipated to be only minor to negligible in areas with low locatable mineral potential.

Short- and long-term moderate impacts on wilderness characteristics could result from oil, gas, sodium, and geothermal energy leasing; however, the potential for mineral leasing in these areas is low, reducing the likelihood of impacts. Wilderness characteristics in the southern part of Saddle Mountain could be degraded over the southern third of the area if geothermal energy were developed. Between 5,000 and 10,000 acres of wilderness characteristic lands could be subject to minor to moderate impairment from energy development under generous leasing development scenarios for geothermal or oil and gas.

Saleable mineral potential (mainly crushed stone, sand and gravel, decorative rock, granite, and volcanic stone) is present in nearly all of Saddle Mountain and the Ajo Block (BLM 2004 and 2009). The number of new mineral pits or quarries that might locate in areas with wilderness characteristics is not known; however, impacts on naturalness and outstanding opportunities for solitude and primitive unconfined recreation would likely have major long-term impacts in localized areas. Both mountainous, wash, and bajada areas could be affected, depending on location, demand, and saleable mineral contracts. Over the life of the plan, areas such as Saddle Mountain and lands located near major county and state roads and communities could be more subject to mineral sales. Wilderness characteristics in more remote, mountainous interior areas and in the Ajo Block would be less likely to be impacted over the life of the plan.

From Recreation Management on Wilderness Characteristics

Because Alternative A would not establish recreation standards and management prescriptions for visitation, facility development, or other recreation activities, recreation standards would not be employed to protect or maintain wilderness characteristics. Overall, long-term loss, impairment, or diminishment of wilderness characteristics due to recreation management would be minor to moderate in localized areas and potentially impact up to 25 percent of wilderness characteristics. On the other hand, about 75 percent of such lands could be managed under compatible ROS classifications, offering protection to wilderness characteristics. These remaining areas would experience negligible to no effects from the absence of wilderness characteristics management emphasis.

The Saddle Mountain, Ajo Trails, Gila Trails, and Sentinel Plain Lava Flow SRMAs would continue in the Lower Sonoran under Alternative A, overlapping 203,800 acres known to contain wilderness characteristics. (See **Table 4-16**, Acres of Lands with Wilderness Characteristics within SRMAs and inventoried ROS Settings, Alternative A). Because Alternative A would not allocate any lands managed to protect wilderness characteristics, at some point in the future, these SRMAs might have standards established for visitation, facility development, or other recreation-related considerations that would not maintain wilderness characteristics, thus impairing or impacting them to a minor degree.

Areas outside these SRMAs would continue to be managed as an ERMA and would not have facilities or visitation standards established to conserve wilderness characteristics, potentially causing long-term impacts on wilderness characteristics on approximately 72,700 acres.

The existing inventoried ROS management classes would be implemented under Alternative A and would interact with wilderness characteristics as identified in **Table 4-16**, Acres of Lands with Wilderness Characteristics within SRMAs and Inventoried ROS Settings, Alternative A. Rural and roaded natural areas tend to have more intensive recreation and land uses that shift the landscape away from naturalness, are less remote, and provide less opportunity for solitude.

Table 4-16
Acres of Lands with Wilderness Characteristics within SRMAs and Inventoried ROS Settings, Alternative A

	SRMA			
ROS	Saddle Mountain	Sentinel Plain	Ajo Trails	Gila Trails
Rural	0	0	0	2,400
Roaded Natural	2,100	2,700	13,600	9,200
Semiprimitive Motorized	34,400	4,300	88,200	38,500
Semiprimitive Nonmotorized	0	8,300	0	100
Primitive	0	0	0	0
Total Acres of Lands with Wilderness Characteristics	*36,500*	*15,300*	*101,800*	*50,200*

About 75 percent of wilderness characteristic acreage is located within semiprimitive motorized, semiprimitive nonmotorized, and primitive ROS classes. Semiprimitive motorized areas tend to have more dispersed motorized uses, providing moderate opportunities for solitude away from roads and generally maintaining naturalness. However, continued motorized access could degrade naturalness over time, particularly considering the expected population increases. Semiprimitive nonmotorized and primitive areas do not have motorized access and tend to support protection and maintenance of wilderness characteristics.

SRPs would continue to be authorized and could include competitive or commercial permits. Short- and long-term degradation of wilderness characteristics could result.

From Special Designations on Wilderness Characteristics

Because the Coffeepot Botanical ACEC in the Lower Sonoran is known to contain wilderness characteristics, maintaining this ACEC designation with existing restrictions on motorized vehicles and livestock developments would support the conservation of such characteristics.

From Travel Management on Wilderness Characteristics

The lack of a comprehensive travel management plan, combined with the expected increase in motorized recreation use, could result in moderate long-term losses or impairment of wilderness characteristics. Under Alternative A, off-highway vehicle use would be limited to existing or designated roads and trails, except in wilderness areas and the Coffeepot Botanical ACEC. Wilderness areas and the ACEC would be closed to motorized travel.

Approximately 1,670 miles of road would be open for motorized use. Current route density and use intensities in the Ajo Block and the Saddle Mountain areas would be maintained, potentially fragmenting wilderness characteristics, moderately reducing the amount of landscape in a natural condition, and diminishing opportunities for solitude and primitive recreation throughout. Wilderness characteristics would remain unchanged in the core areas away from roads and primitive roads, but the long-term amounts of acreage protecting wilderness characteristics over the long term could be smaller than prescribed in any other alternative.

From Visual Resources on Wilderness Characteristics

VRM classifications on wilderness characteristics are detailed in **Table 4-17**, Acres of Lands with Wilderness Characteristics but not Managed to Protect Those Characteristics within Visual Resources Management Classes. Approximately 75,200 acres of wilderness characteristics in the Lower Sonoran would be managed to VRM Class II standards, which would support continued naturalness. Approximately 88,300 acres of wilderness characteristics in the Lower Sonoran would be managed as VRM Class III, and 113,000 acres of wilderness characteristics in the Lower Sonoran would be managed as VRM Class IV. VRM Class III and VRM Class IV would tend to allow the moderate degradation of naturalness and natural conditions, especially in more pristine areas, over the lifetime of the RMP.

Table 4-17
Acres of Lands with Wilderness Characteristics but not Managed to Protect Those Characteristics within Visual Resource Management Classes

Alternative	Visual Resource Management Class			
	Class I	Class II	Class III	Class IV
Lower Sonoran				
Alternative A	0	75,200	88,300	113,000
Alternative B	0	65,300	199,500	11.700
Alternative C	0	103,645	44,655	100
Alternative D	0	0	0	0
Alternative E	0	97,400	125,800	1,900
SDNM				
Alternative A	0	62,800	67,000	23,200
Alternative B	0	146,000	7,000	0
Alternative C	0	40,800	0	0
Alternative D	0	0	0	0
Alternative E	0	42,000	100	0

From Vegetation Resources on Wilderness Characteristics

A lack of decisions under Alternative A specifically intended to protect or restore native vegetation could impact naturalness from minor effects on major ecosystem conversion. Small localized harvesting of plant materials would result in negligible short-term impacts on naturalness. Not minimizing the spread of nonnative noxious species would impact the naturalness of the wilderness characteristic areas over the long term, with potential moderate to major effects. The loss of native plants and the spread of nonnative vegetation would contribute to increased size and intensity of wildfires, which in turn would destroy the nonfire-adapted native vegetation of the Sonoran Desert.

From Wilderness Characteristics on Wilderness Characteristics

Land use authorizations, visual resources, and other land uses would not be employed to protect or maintain wilderness characteristics. This is because alternative A would not allocate any lands managed to protect wilderness characteristics, future standards and management prescriptions established for visitation, facility development, and other recreation-related considerations. Overall, long-term loss, impairment, or diminishment of wilderness characteristics would be anticipated in localized areas, with

major impacts happening on about five percent of land and minor impacts on wilderness characteristics on 23 percent. The remaining 72 percent of wilderness characteristics would experience minor, negligible, or no effects from the absence of management to protect wilderness characteristics.

From Wildlife and Special Status Species on Wilderness Characteristics

The lack of specific decisions to protect ecological, biological, soil, and water resources would tend to cause the degradation of natural resources over the life of the plan and therefore degrade naturalness. Minor to moderate long-term impacts on naturalness would result from the lack of comprehensive area-wide allocations to protect core areas of wildlife habitat. Constructing facilities in wildlife movement corridors and sensitive habitats, not improving habitat connectivity, and not minimizing physical barriers to movement would impact wilderness characteristics by detracting from naturalness.

Minor long-term contributions to naturalness and primitive recreation may result if populations of native wildlife are maintained at current or enhanced levels. In the Saddle Mountain area, implementation of Alternative A would continue to restrict fencing in bighorn sheep lambing areas but would provide no other measures to protect the naturalness of this area through the protection of core wildlife habitat.

4.12.3.3 Sonoran Desert National Monument

From Air Quality on Wilderness Characteristics

Impacts from air quality on wilderness characteristics would be similar to those discussed under Alternative A for the Lower Sonoran, except, the degree of potential impacts in the SDNM would be much less, trending from minor to negligible. Proclamation-stipulated management prescriptions, in and of themselves, consign protective measures for the Monument's objects and landscapes, joined with stipulated limitations on OHV travel.

From Lands and Realty on Wilderness Characteristics

Utility corridors under Alternative A would be designated along State Route 238, I-8, and the TEP transmission lines, potentially impacting wilderness characteristics in the desert bajadas of the Sand Tank Mountains and along the Butterfield Stage corridor. The corridor, if used, could have moderate impacts on naturalness along the extremities of these wilderness characteristic areas, mainly through direct long-term surface disturbances and indirect visual resource aftereffects. Wilderness characteristics on up to 7,600 acres could be impaired or foregone over the long term under full development scenarios for the utility corridors. Protection of Monument objects under the Proclamation, however, could mitigate these impacts to minor if only smaller parts of the corridors nearest the highways were used and strict visual mitigation were applied.

From Recreation Management on Wilderness Characteristics

The Gila Trail SRMA in the SDNM would cover some areas exhibiting wilderness characteristics in the central Maricopa Mountains north of Highway 238. Because Alternative A would not manage any lands to protect wilderness characteristics, this SRMA could have future standards established for visitation, facility development, and other recreation-related considerations that could fail to protect wilderness characteristics. Areas outside of this SRMA would continue to be managed as ERMAs and, as such,

would not have facilities or visitation standards established to conserve wilderness characteristics, potentially causing minor long-term impacts.

Existing ROS management classes would be implemented under Alternative A and would interact with wilderness characteristics, as identified in **Table 4-16**, Acres of Lands with Wilderness Characteristics within SRMAs and inventoried ROS Settings, Alternative A. Impacts from implementation of ROS classes would be the same as described previously for the Lower Sonoran. Wilderness characteristics would be maintained unchanged in semiprimitive nonmotorized areas and would experience minor impairment along the Anza Trail. Elsewhere, the condition of wilderness characteristics would mostly be unchanged over the life of the plan by maintaining current inventoried ROS classes.

Special recreation permits would continue to be authorized and may include commercial permits in areas with wilderness characteristics. Short-term degradation of wilderness characteristics could result, mainly for solitude opportunities.

Most current forms of recreation pursuits, with the exception of target shooting, travel management, and its associated OHV uses, would have negligible impacts on wilderness characteristics. Allowing dispersed nonmotorized camping throughout the SDNM would promote retention of wilderness characteristics by providing opportunities for primitive unconfined recreation. Hunting, hiking, sightseeing, backpacking, orienteering (cross-country racing), and horseback riding would have negligible to no impacts on wilderness characteristics.

The use of firearms throughout the SDNM could diminish naturalness and opportunities for solitude where spent shells, targets, and trash or gunfire degrades the landscape. Target shooters damage rocks and destroy plants when they use them as targets or when the rocks and plants are behind shooting areas or on backdrops. Areas closest to urban areas with decent road access could have moderate impacts with a complete loss of naturalness over localized areas. Remote areas with poor motorized access would experience negligible to minor effects over the life of the plan.

From Special Designations on Wilderness Characteristics

Not designating I-8 or State Route 238 as National Scenic Byways would have no impact on wilderness characteristics.

From Travel Management on Wilderness Characteristics

Under Alternative A, OHV use would be limited to existing or designated roads and trails, except in wilderness areas and the Vekol Valley ACEC. About 570 miles would be open for motorized use in the SDNM. The lack of a comprehensive travel management plan, combined with the expected increase in recreation, use could result in some long-term loss or impairment to wilderness characteristics along open roads. Moreover, there would be some fragmentation of wilderness characteristic acreage and landscapes from roads and primitive roads passing through or entering areas. Overall, these impacts would be negligible to minor, as the Monument Proclamation prohibits cross-country motorized travel and harm to or removal of Monument objects. Wilderness characteristics would remain undisturbed and generally unchanged in core areas removed from roads and primitive roads.

It is assumed most existing motorized vehicle roads, primitive roads, and wash routes would be kept open under this alternative. Motorized routes would continue into the Maricopa Mountains, the Butterfield Stage/Anza Trail area, the Sand Tank Mountains, and the White Hills. All these areas, with the exception of the White Hills and the western part of the South Maricopa Mountains, would be penetrated or crossed by the maximum number of vehicle routes in the desert plains, through washes, and across foothills and uplands. The amount of wilderness characteristics exposed to the sights and sounds of motorized travel would be the greatest under this alternative, and the moderate adverse effects on solitude and primitive recreation would be the maximum level presented by any alternative. Moreover, the wilderness characteristic landscapes and acreage represented within the Sand Tank Mountains would be subject to major fragmentation and segmentation into smaller areas under this alternative.

From Vegetation Resources on Wilderness Characteristics

Impacts would be the same as those described under Alternative A for the Lower Sonoran, except that the collection of seeds, plant materials, flowers, dead or down plant materials, or other vegetation is generally prohibited in the SDNM. Long-term contributions to naturalness would result from the protection of the Monument's biological and ecological objects. Additionally, the use of native species and seeds in restoration projects and the control of invasive species would contribute to maintaining or enhancing naturalness and natural conditions. Limiting the spread of nonnative vegetation would reduce the size and intensity of wildfires that destroy native vegetation, representing additional protection for the Monument's nonfire-adapted plant communities.

From Visual Resource on Wilderness Characteristics

VRM classifications on areas that exhibit wilderness characteristics are identified in **Table 4-17**, Acres of Lands with Wilderness Characteristics but not Managed to Protect Those Characteristics within Visual Resources Management Classes. Approximately 62,800 acres of wilderness characteristics would be managed to VRM Class II standards, which would support continued naturalness. Approximately 67,000 acres of wilderness characteristics would be managed as VRM Class III, and 23,200 acres would be managed as VRM Class IV. However, the Monument Proclamation's restrictions on travel, mineral development, and other land use authorizations, as well as its restrictions on changing or impairing current visual and scenic landscape conditions means that impacts on visual resources are expected to be negligible. As a result, wilderness values directly and indirectly associated with scenery and visual resources would not be greatly influenced over the lifetime of the RMP.

From Wilderness Characteristics Management on Wilderness Characteristics

Because Alternative A would not allocate any SDNM to be managed to protect wilderness characteristics, no future standards or management prescriptions established for protection of management objects, visitation, facility development or other recreation-related considerations, land use authorizations, visual resources, or other land uses would be employed to protect or maintain wilderness characteristics. Overall, long-term loss, impairment, or diminishment of wilderness characteristics would be anticipated in localized areas, with major impacts occurring on about five percent and minor impacts on four percent of wilderness characteristics. The remaining 91 percent of wilderness characteristics would experience minor, negligible, or no effects from the absence of

wilderness characteristics management due to the overarching protection established by the Monument Proclamation.

From Wildlife and Special Status Species on Wilderness Characteristics

Substantial protection of ecological, biological, soil, and associated Monument objects would occur due to the Monument management under the Proclamation, which in turn would offer greater protection to naturalness and opportunities for solitude and primitive recreation. Long-term enhancement of naturalness and primitive recreation may result if populations of native wildlife are maintained at current or enhanced levels. Enhanced wildlife populations might result from additional waters, which in turn would increase opportunities for primitive recreation opportunities, such as wildlife observation and hunting. Wildlife waters would continue to be developed and maintained on a case-by-case basis. The presence of new permanent waters or other structures would pose minor, albeit long-term, impacts on naturalness.

4.12.4 ALTERNATIVE B

Alternative B identifies the greatest extent of uses on public lands and provides opportunities for those uses, including motorized recreation opportunities. As under Alternative A, no part of the Decision Areas would be allocated to protecting wilderness characteristics under Alternative B. Naturalness and outstanding opportunities for solitude and primitive unconfined recreation would be maintained only as an incidental by-product of management actions implemented for other purposes. Although some individual proposed decisions would protect wilderness characteristics, the overall effect of Alternative B would be to moderately reduce the extent, distribution, and quality of naturalness and outstanding opportunities for solitude and primitive unconfined recreation over the life of the RMP.

Nevertheless, Alternative B would contribute to naturalness and outstanding opportunities for solitude and primitive unconfined recreation to a greater degree than Alternative A. Naturalness would be maintained by implementing measures to control fugitive dust emissions, emphasize wildlife habitat connectivity, ensure use of native vegetation in restoration efforts, maintain native wildlife populations (especially sensitive species), and restrict motorized travel to a designated route system. In contrast, increased development of cultural sites for public visitation and increased density of new wildlife and livestock water developments would detract from naturalness to a greater degree than would Alternative A.

4.12.4.1 Both Decision Areas

From Air Quality on Wilderness Characteristics

Compared to Alternative A, Alternative B would more effectively reduce impacts on naturalness from deteriorated air quality by controlling excessive fugitive dust through a variety of methods. Moreover, the overall route system and road network would be reduced by 17 percent under Alternative B, further reducing areas subject to increased dust emissions and noncompliance.

From Cultural and Heritage Resources on Wilderness Characteristics

A framework for the proactive management of cultural and heritage resources would be enacted under all action alternatives. Under Alternative B, the development of cultural sites for public visitation would be emphasized. Future site development for public interpretive and educational purposes, excavation for scientific study, or similar activities would reduce naturalness. Such impacts would be greater than under Alternative A due to Alternative B's emphasis on the development of cultural sites for public visitation.

From Wildlife and Special Status Species on Wilderness Characteristics

In general, ecological, biological, soil, and water resource decisions under Alternative B would contribute to naturalness to a greater degree than those under Alternative A by emphasizing the maintenance and restoration of natural landscapes, vegetation and soils, connectivity of wildlife habitat, use of native vegetation in restoration efforts, and maintaining or enhancing populations of native wildlife, especially sensitive species.

Limiting or restricting the construction of facilities in wildlife movement corridors and sensitive habitats, improving habitat connectivity, and minimizing physical barriers to movement would support wilderness characteristics by protecting naturalness. The density of artificial wildlife waters could be increased. Construction activities would detract from naturalness, causing short-term impacts on wilderness characteristics, while the presence of new permanent structures would detract from naturalness in the long term.

Populations of native wildlife would be maintained under Alternative B by reintroducing, transplanting, and stocking supplemental native wildlife; by using existing earthen livestock waters as refugia for native wildlife where livestock grazing is no longer permitted; and by restricting or placing LUAs and fences to avoid adverse impacts on wildlife. Long-term contributions to naturalness may result from such actions if populations of native wildlife would be maintained at natural levels or enhanced.

Under Alternative B, seasonal restrictions would be placed on competitive and speed events authorized by SRPs in Category I or Category II tortoise habitat; mining restrictions would be implemented to ensure no net loss of tortoise habitat; and conservation measures would be enacted for endangered species, such as Sonoran pronghorn, and special status species, such as cactus ferruginous pygmy-owl. Such management decisions may result in long-term contributions to naturalness if native or sensitive wildlife species would be conserved.

From Livestock Grazing on Wilderness Characteristics

The prospective for improved forage or vegetation conditions from modified grazing practices and approximately 40 percent reduction in AUMs could result in long-term vegetative and visual impacts on the landscape that would maintain or improve naturalness. Forage allocated to livestock would instead be available to native wildlife. The sights of cattle trails, cow waste, and trampled vegetation would be moderately reduced, enhancing wilderness characteristics. Impacts from livestock infrastructure management would be similar to those described under Alternative A.

4.12.4.2 Lower Sonoran

From Lands and Realty on Wilderness Characteristics

Impacts of multiuse utility corridors, LUAs and other land use allocations would generally be similar to those described under Alternative A, except that Alternative B would allow major utilities to be developed outside of existing corridors, which would degrade wilderness characteristics where they occur. Wilderness characteristics near Saddle Mountain and the Batamote Mountains would be most impacted along their perimeters, with up to 8,000 acres impacted under maximum use of the utility corridors. Perimeter areas are most subject to the sights, sounds, surface disturbance, and physical infrastructure found in utility corridors.

Impacts from utility-scale renewable energy development would be the same as described under Alternative A.

From Minerals Management on Wilderness Characteristics

Impacts from mineral and energy management would generally be the same as under Alternative A.

From Recreation Management on Wilderness Characteristics

All areas with wilderness characteristics would be located within ERMAs, with the exception of the Sentinel Plain and Painted Rock Mountains areas. Alternative B would not manage SRMA or ERMA areas to protect wilderness characteristics. Because of this, no future standards would be established for visitation, facility development, or other recreation-related considerations that would necessarily consider naturalness and outstanding opportunities for solitude and primitive unconfined recreation. The lack of management actions specifically protecting wilderness characteristics could impact them.

Recreation management in the Ajo ERMA would focus on maintaining the low intensity, dispersed use, and natural character of the area and would tend to support protecting wilderness characteristics. Recreation management in the Saddle Mountain SRMA would support more intensive recreation uses and could include such actions as developing additional vehicle routes or hiking trails that would be less supportive of wilderness characteristics. Recreation management in the Ajo Trails SRMA would focus on providing enjoyable motorized recreation experiences, including the development of additional vehicle routes, thus slightly diminishing wilderness characteristics along roads and primitive roads over the long term. Wilderness characteristics in the interior of these areas would be less affected by recreation management actions.

Existing inventoried ROS management classes would be replaced by backcountry, front country, and community interface settings under Alternative B. Approximately 76 percent of areas with wilderness characteristics would be allocated as backcountry, which are nonmotorized, dispersed recreation areas that would support protecting wilderness characteristics. Backcountry settings, nonetheless, would be intersected by passage zones, which would provide motorized recreation access into areas with wilderness characteristics. Impacts from passage zones would be similar in effect to the semiprimitive motorized ROS settings described under Alternative A.

The remaining portions of areas with wilderness characteristics would be allocated mainly to front country under Alternative B. These areas are settings for intensive resource-dependent recreation uses and not generally conducive for protecting wilderness characteristics in the long term. Impacts from front country recreation would be similar in effect to the roaded natural and rural ROS settings under Alternative A.

Since Alternative B would not manage any lands to protect wilderness characteristics, future recreation standards and management prescriptions established for visitation, facility development, and other recreation-related considerations would not be employed to protect or maintain wilderness characteristics. Overall, long-term loss, impairment, or diminishment of wilderness characteristics due to recreation management would be minor to moderate in localized areas. These wilderness characteristics would be foregone altogether in localized areas subject to development or on lands more heavily used by motorized users or by recreational target shooters. This could affect up to 24 percent of areas with wilderness characteristics. On the other hand, 76 percent of such lands would be managed as backcountry, offering protection for wilderness characteristics. These remaining areas with wilderness characteristics would experience negligible to no effects from the absence of wilderness characteristics management emphasis.

From Special Designations on Wilderness Characteristics

The Coffeepot Botanical ACEC, which contains wilderness characteristics, would lose its designation under Alternative B, and vehicle travel through roads in the area would be allowed. Such actions would slightly threaten known wilderness characteristics in the area, with potential minor loss or diminishment of such values over the long term.

From Travel Management on Wilderness Characteristics

Under Alternative B, vehicles would be limited to designated routes and a comprehensive travel management system would be developed. Route miles could be reduced by an estimated 25 percent over the life of the plan. This would allow for maintenance of wilderness characteristics, especially where wilderness characteristics are threatened or subject to heavy motorized use and the proliferation of vehicle routes. This protection would be offered by the selectively closing vehicle routes and rerouting others.

Alternative B's closures and restrictions would primarily be on roads that provide duplicate access, so these changes would not substantially change the overall array of motorized vehicle access in areas with wilderness characteristics from Alternative A. However, where these route vehicle limitations, restrictions, or closures overlap with wilderness characteristics, long-term protective contributions to naturalness and outstanding opportunities for solitude and primitive unconfined recreation would result.

From Vegetation Resources on Wilderness Characteristics

Decisions specifically intended to protect or restore native vegetation under Alternative B could impact naturalness, ranging from minor to moderate effects, more than under Alternative A. Minimizing the spread of nonnative noxious species would impact the naturalness of the wilderness characteristic areas over the long term, with potential moderate protective effects. Hindering the spread of nonnative vegetation would also assist with decreasing the size and intensity of wildfires, and limiting ecosystem

conversions of the nonfire-adapted native vegetation of the Sonoran Desert over the long term. Long-term contributions to naturalness would result from the use of native species and seeds in all restoration.

From Visual Resources on Wilderness Characteristics

Approximately 65,300 acres would be managed to VRM Class II standards, which would tend to support continued naturalness. An additional 199,500 acres would be managed to VRM Class III standards and 11,700 acres would be managed to VRM Class IV standards (see **Table 4-17**, Acres of Lands with Wilderness Characteristics but not Managed to Maintain those Characteristics within Visual Resource Management Classes). Managing lands with wilderness characteristics as VRM Class III or IV could allow development that would impair the wilderness characteristics, particularly naturalness. Overall, Alternative B represents 90 percent fewer acres of wilderness characteristics managed to Class III or Class IV visual than under Alternative A, which would help to maintain naturalness and landscape-based sightseeing. In addition, the emphasis on use of dark skies technologies (to combat light pollution) would help to protect wilderness and associated scenic characteristics under Alternative B.

From Wilderness Characteristics on Wilderness Characteristics

As under Alternative B, no lands would be allocated to protect wilderness characteristics. Impacts would be slightly less than described under Alternative A due to more proactive management for travel, recreation management, visual resources, and cultural and heritage resources. Overall, long-term loss, impairment, or diminishment of wilderness characteristics would be anticipated in localized areas, with major impacts occurring on less than two percent and minor impacts on up to 23 percent of areas with wilderness characteristics. The remaining 75 percent of wilderness characteristics would experience minor to no effects from the absence of management emphasis for wilderness.

4.12.4.3 Sonoran Desert National Monument

From Lands and Realty on Wilderness Characteristics

Three aboveground, one-mile-wide utility corridors would be allocated. These impacts would accrue along the periphery of areas with wilderness characteristics. Impacts would be similar to those described under Alternative A, except the potential footprint of effects on wilderness characteristics would be smaller and more negligible. Acreage potentially affected would be reduced by 1,200 acres and restricted to lands near Bender Wash south of I-8.

Wildlife and Special Status From Recreation Management on Wilderness Characteristics

Under Alternative B, all areas with wilderness characteristics would be located within ERMAs. As Alternative B would not allocate lands managed to protect wilderness characteristics, future standards established for visitation, facility development, and other recreation-related considerations would be established that would not necessarily consider naturalness and outstanding opportunities for solitude and primitive unconfined recreation, thus impacting wilderness characteristics. Recreation management, however, would focus on maintaining the low intensity, dispersed use, and natural character of the area and would tend to support protecting wilderness characteristics.

Existing inventoried ROS management classes would be replaced by recreation management settings under Alternative B. The principal advantage of ERMA allocations under Alternative B would be that wilderness characteristics would be managed subject to the RMZs displayed in **Table 4-17**, Acres of Lands Managed to Protect Wilderness Characteristics within ERMAs and Recreation Management Settings, Alternative C (although not managed to protect them).

Most current forms of dispersed recreation use, with the exception of target shooting, would have negligible impacts on wilderness characteristics, as described previously under Alternative A.

The overall impact on wilderness characteristics from recreational target shooting would be negligible under Alternative B. The use of firearms would have the same impacts as described under Alternative A, except these effects would be limited to a much smaller area of the Monument. The area most impacted would be located on lands west of the South Maricopa Mountains Wilderness. The reduced road network under this alternative would further offer fewer suitable landscapes available for target shooting, limiting the breadth and scope of associated impacts in potentially suitable target shooting areas. On the other hand, target shooters could be more concentrated along the fewer miles of open road, thus increasing impacts in localized areas.

From Special Designations on Wilderness Characteristics

The Vekol Valley ACEC designation would be removed, but no impacts would occur along the Juan Bautista de Anza NHT, and emphasis would be placed on motorized access to interpretive facilities. Motorized access would impact wilderness characteristics directly adjacent to the Anza NHT. Such impacts would be similar to Alternative A and are considered inconsequential. Not designating I-8 or State Route 238 as National Scenic Byways would have no impact on wilderness characteristics.

From Travel Management on Wilderness Characteristics

Under Alternative B, vehicles would be limited to designated routes and a comprehensive travel management system would be developed. This would allow for maintenance of wilderness characteristics, especially where wilderness characteristics are threatened by heavy motorized use and proliferation of vehicle routes. Selectively closing vehicle routes or rerouting others would constitute the most specific route designations.

Alternative B would reduce vehicle route system miles by over 12 percent. Route closures and restrictions would primarily be on roads that provide duplicate access, so these changes would not considerably change the motorized vehicle access from Alternative A. However, where these route limitations, closures, or restrictions overlap with wilderness characteristics, long-term contributions for maintaining naturalness and outstanding opportunities for solitude and primitive unconfined recreation would result.

Potential impacts from use of existing roads to wilderness characteristics are reflected by reductions in the opportunity for solitude, changing the quality of primitive unconfined recreational experiences, and detracting from the naturalness of an area.

The motorized vehicle travel route network designated under Alternative B represents slightly more protection for wilderness characteristics than provided by Alternative A. Closures or restrictions on

about 70 miles of road and primitive road would protect or enhance wilderness characteristics, mainly in the Sand Tank Mountains and White Hills areas. Wilderness characteristics elsewhere would not be as well protected.

The use of designated roads and primitive roads by motorized vehicles could impact the opportunity for solitude most of all. These types of impacts are most often found and most intense from November through April. The greater the number of routes within areas of wilderness characteristics, the greater the potential to impact wilderness characteristics. Under existing guidance, motorized vehicle operators were generally allowed to pull off from the centerline of an existing trail as far as 300 feet onto public land. Under this alternative, the vehicle would be allowed to travel only 25 feet from the centerline, greatly reducing the potential disturbance footprint on wilderness characteristics.

From Vegetation Resources on Wilderness Characteristics

Impacts are similar to those described for Alternative A.

From Visual Resources on Wilderness Characteristics

Approximately 146,000 acres in the SDNM would be managed to VRM Class II standards, which would support continued naturalness. Approximately 7,000 acres would be managed as VRM III (see **Table 4-17**, Acres of Lands with Wilderness Characteristics but not Managed to Maintain those Characteristics within Visual Resource Management Classes). Overall, Alternative B represents fewer acres of wilderness characteristics managed to Class III and IV than under Alternative A, which would help to maintain naturalness. In addition, the emphasis on use of dark skies technologies would help to protect wilderness characteristics under Alternative B. However, due to the Proclamation and protection of Monument objects, coupled with associated restrictions on travel, mineral development, and other land use authorizations, degradation of current visual and scenic landscape conditions is not expected.

From Wilderness Characteristics on Wilderness Characteristics

Like Alternative A, no lands would be managed to protect wilderness characteristics. Impacts would be slightly less than described under Alternative A, due to more proactive management for travel, recreation management, visual resources, and cultural and heritage resources. Overall, long-term loss, impairment, or diminishment of wilderness characteristics would be anticipated in localized areas, with major impacts occurring on less than one percent and minor impacts on up to four percent of areas with wilderness characteristics. The remaining 95 percent of wilderness characteristics would experience minor, negligible, or no effects from the absence of wilderness characteristics management emphasis, due to the overarching protection established by the Monument Proclamation.

4.12.5 ALTERNATIVE C

In general, Alternative C would contribute to naturalness and outstanding opportunities for solitude and primitive, unconfined recreation to a much greater degree than Alternatives A and B. This is due primarily to the allocation of 240,300 acres (128,100 acres in Lower Sonoran and 112,200 acres in SDNM) as lands managed to protect wilderness characteristics (see Map 2-3c).

In the Lower Sonoran, although land uses, such as major mineral extraction or new LUAs servicing valid existing rights, could still occur in areas of wilderness characteristics, managing these lands would place a priority on directing incompatible land uses to other locations or requiring that they be implemented in a manner that would minimize or mitigate impacts on naturalness and opportunities for solitude and primitive unconfined recreation.

In the SDNM, protecting wilderness characteristics would be a priority for lands allocated for this purpose when approval of other land uses or management actions is being considered.

The following activities would take place under Alternative C:

- Private or State inholdings would be acquired when available.
- Closed vehicle routes would be converted for use by bicycle, equestrian, or hiking trails, as appropriate.
- Existing, unused disturbed areas would be rehabilitated to meet natural resource restoration objectives.
- Recreation facilities would be developed when compatible with protecting wilderness characteristics.
- New LUAs would be excluded to minimize impacts on lands managed to protect wilderness characteristics.
- Compatibility of other proposed projects with maintenance of wilderness characteristics would be evaluated on a case-by-case basis.
- Commercial recreation operations would be permitted only if consistent with wilderness characteristics.

Such actions in both Decision Areas would result in contributions to naturalness and outstanding opportunities for solitude and primitive unconfined recreation within lands managed to protect wilderness characteristics.

Under Alternative C, the following would contribute substantially to maintenance or enhancement of naturalness:

- The allocation of WHAs (Lower Sonoran)
- Removal of ineffective wildlife water developments
- Lack of new wildlife water construction
- Prohibition on wood harvesting
- Allocation of the Saddle Mountain SCRMA (Lower Sonoran)

- Greater allocation of VRM Classes II and III
- Reclassification of all livestock grazing allotments to perennial use only
- Allocation of SRMAs coinciding with all areas of wilderness characteristic
- Restrictions to motorized travel
- Enlargement of the Coffeepot - Batamote Botanical ACEC

4.12.5.1 Both Decision Areas

From Air Quality on Wilderness Characteristics

Actions and impacts from air quality decisions would be the same as under Alternative B.

From Cultural and Heritage Resources on Wilderness Characteristics

Implementation of Alternative C measures for cultural and heritage resources would contribute to naturalness to a greater degree than Alternatives A and B due to increased emphasis on cultural resource protection and less emphasis on development for public visitation.

From Livestock Grazing on Wilderness Characteristics

Impacts would be the same as described under Alternatives A and B, except no ephemeral grazing would occur. This reclassification would enhance naturalness in the long term as ephemeral forage would not be removed and would become available to wildlife. The sight, sound, smell, and other impacts from large ephemeral turnouts would not occur, enhancing naturalness and maintaining opportunities for primitive recreation in a more natural-appearing and untrammeled environment. Compared to Alternatives A and B, Alternative C would have both amplified and proactive contributions to naturalness, solitude, and primitive recreation values.

4.12.5.2 Lower Sonoran

From Lands and Realty on Wilderness Characteristics

In the Lower Sonoran, impacts from lands and realty would be similar to those described under Alternative B. However, lands managed to protect wilderness characteristic allocations would be exclusion areas for utility-scale renewable energy development, LUAs, and multiuse utility corridors. Accordingly, impacts from such LUAs would mainly be indirect, chiefly visual, and overall negligible.

From Minerals Management on Wilderness Characteristics

Impacts from management of mineral resources would be the same as those described under Alternative B, with one exception. Lands managed to protect wilderness characteristics would be closed to mineral material sales. Naturalness, solitude, and primitive unconfined recreation indicators would not be impacted by discretionary mineral material sales for rocks, gravel, sand, granite, and other common materials.

Impacts under Alternative C would be the same as under Alternative B from reintroducing, transplanting, and stocking supplemental native species using existing earthen livestock waters as refugia for native wildlife, where livestock grazing would no longer permitted; restricting or mitigating the placement LUAs; and installing fences to avoid adverse impacts on wildlife.

Alternative C there would be impacts due to restrictions placed on competitive and speed events authorized by SRPs in Category I and Category II tortoise habitat, mining restrictions (Lower Sonoran) in tortoise habitat, and conservation measures for sensitive species, such as Sonoran pronghorn and cactus ferruginous pygmy-owl. Such management decisions may result in long-term contributions to naturalness on lands managed to protect wilderness characteristics. Sensitive native wildlife species would be conserved, more so than under Alternative B, as additional management actions aimed at this goal would be implemented under Alternative C.

Overall, implementation of the ecological and biological resource measures under Alternative C would contribute to naturalness to a greater degree than would implementation of Alternatives A and B. This would come about by protecting core areas of wildlife habitat, emphasizing connectivity of wildlife habitat, removing ineffective wildlife water developments, lacking new wildlife water construction, prohibiting wood harvesting, requiring use of native vegetation in restoration efforts, and applying measures to maintain populations of native wildlife, especially sensitive species.

From Recreation Management on Wilderness Characteristics

Under Alternative C, nearly all areas with wilderness characteristics would be located within ERMAs. Compared to Alternative B, with its focus on motorized recreation opportunities, recreation management under Alternative C would be more compatible with protecting wilderness characteristics with a more balanced set of motorized and nonmotorized recreation opportunities. The future standards established for visitation, facility development, and other recreation-related activities in the ERMAs would consider naturalness and outstanding opportunities for solitude and primitive unconfined recreation.

Areas with wilderness characteristics that are not allocated as lands managed to protect wilderness characteristics would be released from such management considerations. This action could result in a gradual impairment or loss of wilderness characteristics in unallocated areas over the life of the plan, totaling up to 148,400 acres, or 39 percent of all lands with wilderness characteristics. These figures represent a worst-case scenario. Actual impacts are anticipated to be much less than described under Alternatives A and B, due to other land use operational procedures and protective prescriptions.

Impacts from front country, backcountry, community interface, and passage zones would be similar to Alternative B. On areas with wilderness characteristics not established to protect such characteristics, approximately 66 percent of lands would be managed as backcountry. Allocated backcountry settings would support protecting naturalness and opportunities for solitude and primitive recreation. Approximately 95 percent of lands managed to protect wilderness characteristics would be located in backcountry settings, which would support protecting these characteristics, as identified in **Table 4-18**, Acres of Lands Managed to Protect Wilderness Characteristics within SRMAs and Recreation Management Settings, Alternative C.

Table 4-18
Acres of Lands Managed to Protect Wilderness Characteristics within SRMAs and Recreation Management Settings, Alternative C

SRMA or ERMA	Recreation Management Setting			Lands Managed to Protect Wilderness Characteristics
	Backcountry	Front Country	Community Interface	
Ajo ERMA	58,200	600	0	58,800
Saddle Mountain SRMA	14,700	3,200	0	17,900
SDNM ERMA	110,200	2,000	0	112,200

SRMA and ERMA allocations under Alternative C would substantially contribute to naturalness and opportunities for solitude and primitive unconfined recreation than would Alternatives A and B. Management of the Saddle Mountain SRMA and Ajo ERMA under Alternative C would be more compatible with protecting wilderness characteristics due to a greater focus on nonmotorized recreation.

Actions and impacts resulting from administration of SRPs would be similar to Alternative B.

From Special Designations on Wilderness Characteristics

Alternative C would enlarge the Coffeepot-Batamote ACEC to 63,300 from Alternative A's and Alternative B's 8,900 acres, overlapping with approximately 12,800 acres of lands managed to protect wilderness characteristics. Measures to conserve the outstanding botanical diversity and sensitive plant and wildlife species in the ACEC would preserve naturalness.

From Travel Management on Wilderness Characteristics

Alternative C would close, limit, limit seasonally, or administratively restrict up to 30 percent (an estimated 500 miles) of road than would be instigated under Alternative A, and an estimated 101 road miles limited or closed to public use than under Alternative B. Route closures in the Ajo ERMA would moderately contribute to protecting wilderness characteristics by decreasing motorized vehicle access and increasing naturalness and opportunities for primitive unconfined recreation.

Projected road closures in the Saddle Mountain SRMA would moderately contribute to protection of wilderness characteristics by closing a few key routes and increasing naturalness and opportunities for primitive unconfined recreation. Long-term contributions to naturalness and outstanding opportunities for solitude and primitive unconfined recreation would for the most part occur in areas where projected route restrictions or closures to motorized travel overlap with lands managed to protect wilderness characteristics.

From Vegetation Resources on Wilderness Characteristics

As under Alternative B, localized harvesting of plant materials in the Lower Sonoran would result in short-term minor detractions from naturalness. Under Alternative C, long-term impacts from vegetation resources would be similar to those described under Alternative B. This would include long-term contributions to naturalness resulting from the prohibition on wood harvesting, use of native species in

restoration projects, and control of invasive species, which would limit the spread of nonnative vegetation and reduce the size and intensity of wildfires.

From Visual Resources on Wilderness Characteristics

Under Alternative C, lands managed to protect wilderness characteristics would be managed under VRM Class II, as identified in **Table 4-19**, Acres of Lands Managed to Protect Wilderness Characteristics and VRM Classes, Alternatives C, D, and E. Accordingly, there would be few noticeable visual intrusions to distract from the naturalness of the areas. VRM Class II allocations would safeguard naturalness and scenic vistas in lands managed to protect wilderness characteristics, more so than under Alternatives A and B, which do not contain lands managed to protect wilderness characteristics.

Table 4-19
Acres of Lands Managed to Protect Wilderness Characteristics and VRM Classes, Alternatives C, D, and E

Alternative	Class I	Class II	Class III	Class IV
Lower Sonoran				
Alternative C	0	128,100	0	0
Alternative D	0	250,000	0	0
Alternative E	0	91,200	0	0
SDNM				
Alternative C	0	112,200	0	0
Alternative D	154,800	0	0	0
Alternative E	0	107,800	0	0

On lands with wilderness characteristics not managed to protect those characteristics, 128,100 acres would be managed under VRM Class II standards, which would provide some protection to the naturalness of these areas by preventing development incompatible with VRM Class II objectives. The remaining 44,800 would be managed under VRM Class III or IV standards, which may allow development that could impact the naturalness of the areas.

From Wilderness Characteristics on Wilderness Characteristics

Naturalness, solitude, and the opportunity for unconfined and primitive recreation would be maintained and receive priority management attention on 128,100 acres of lands managed to protect wilderness characteristics. This represents 46 percent of lands with wilderness characteristics in the Lower Sonoran. For the most part, this would prevent the any level of impairment or loss of naturalness, the depreciation of scenic values, or loss or dilapidation of solitude and primitive recreation opportunities. This would come about through resource development, motorized use, or increased visitor or commercial uses on lands managed to protect wilderness characteristics.

Wilderness characteristics on the remaining 54 percent of area with wilderness characteristics could be diminished or foregone over the long term. Impacts, whatever their varying magnitudes, would derive primarily from increased motorized recreation use, mining, utility-scale renewable energy development, and lands and realty actions. However, a designated and implemented travel route management system would further mitigate or diminish impacts on lands managed to protect wilderness characteristics.

Overall, impacts on areas of wilderness characteristics not allocated as lands managed to protect wilderness characteristics would be considered minor to major.

From Wildlife and Special Status Species on Wilderness Characteristics

Four expansive WHAs would be allocated to protect core areas of wildlife habitat and would moderately contribute to the naturalness and outstanding opportunities for solitude and primitive unconfined recreation exhibited on lands managed to protect wilderness characteristics. The allocation of WHAs would overlap and moderately support the maintenance of wilderness characteristics on approximately 48 percent (61,000 acres) of lands managed to protect such characteristics, especially in the Ajo Block area.

4.12.5.3 Sonoran Desert National Monument

From Lands and Realty on Wilderness Characteristics

No new multiuse utility corridors and only underground LUA uses in the Gila Bend to Santa Rosa and I-8 corridor would be authorized. No communication sites would be allowed. These actions would contribute to maintaining naturalness more than Alternatives A and B.

Impacts along I-8 would be similar to Alternative B, affecting lands managed to protect wilderness characteristics along the northern parts of Bender Wash. The sights, sounds, and intrusion of roads, utilities, and communication facilities in this corridor would be less apparent in areas of wilderness characteristics to the south allocated as lands managed to protect wilderness characteristics.

From Recreation Management on Wilderness Characteristics

Allocation of the entire SDNM as an ERMA under Alternative C would substantially contribute to naturalness and opportunities for solitude and primitive unconfined recreation than would Alternatives A and B. Compared to Alternative B, with its focus on motorized recreation opportunities, recreation management under Alternative C would be more compatible with protecting wilderness characteristics with a more balanced set of motorized and nonmotorized recreation opportunities. Future standards established for visitation, facility development, and other recreation in the SDNM would consider naturalness and outstanding opportunities for solitude and primitive unconfined recreation.

Existing ROS management classes would be replaced by recreation management settings under Alternative C. Areas with wilderness characteristics not allocated as lands managed to protect wilderness characteristics would be managed as the recreation management settings displayed in **Table 4-18**, Acres of Lands Managed to Protect Wilderness Characteristics within SRMAs and Recreation Management Settings, Alternative C.

Most current forms of recreation use, with the exception of target shooting, would have negligible impacts on areas with wilderness characteristics, as described under Alternative A.

The overall impact on wilderness characteristics from recreational target shooting would be negligible under Alternative C. The use of firearms would have the same impacts as described under Alternative B. except adaptive and proactive management would be applied to these lands to manage shooting. The

reduced road network under this alternative would further offer fewer suitable landscapes available for target shooting, limiting the breadth and scope of associated impacts in potentially suitable target shooting areas. On the other hand, target shooters could be more concentrated along open roads, thus increasing impacts in localized areas.

From Special Designations on Wilderness Characteristics

Removal of the Vekol Valley ACEC would have no impact on wildness characteristics. The Juan Bautista de Anza NHT would be managed with a priority on scientific research opportunities, while protecting the historic landscape elements and cultural resources and providing compatible public use and interpretive opportunities. Impacts on naturalness and outstanding opportunities for solitude and primitive unconfined recreation are not anticipated on areas of wilderness characteristics adjacent to the Anza NHT.

Designation of State Route 238 as a National Scenic Byway would maintain naturalness, through the prescription and maintenance of more natural-appearing Sonoran Desert landscapes along I-8 and State Route 238. Impacts would be moderate along I-8 and negligible along State Route 238.

From Travel Management on Wilderness Characteristics

Closure of over 36 percent of road miles in the SDNM, as compared with the road network prescribed under Alternative A, would contribute to wilderness characteristics maintenance or enhancement by closing key routes and increasing naturalness and opportunities for primitive unconfined recreation. Long-term contributions to naturalness and outstanding opportunities for solitude and primitive unconfined recreation would occur in areas where these route restrictions or closures to motorized travel overlap with lands managed to protect wilderness characteristics. Compared with Alternative A, Alternative C represents a moderate protective enhancement for lands managed to protect wilderness characteristics, both in lands allocated and lands not allocated, to protect wilderness characteristics.

The motorized vehicle route network presented under Alternative C represents considerably more protection for wilderness characteristics than provided by the travel management networks under Alternatives A and B. Closures or restrictions on over 212 miles of road and primitive road would protect wilderness characteristics in all lands managed to protect wilderness characteristics. The Alternative C route management network reduces impacts from road use on lands managed to protect wilderness characteristics, increases solitude values, and improves the extent and quality of primitive unconfined recreation. Under this alternative, vehicle operators would be allowed to travel only 25 feet from the centerline, thus greatly reducing the potential footprint of staging and camping disturbances within areas of wilderness characteristics.

From Vegetation Resources on Wilderness Characteristics

Impacts are similar to Alternative B, with one exception: ephemeral forage would remain on the lands, enhancing naturalness and maintaining current aesthetics valued by primitive recreationists.

From Visual Resources on Wilderness Characteristics

No impacts are anticipated on wilderness values from VRM management. Under Alternative C, lands managed to protect wilderness characteristics would be managed under VRM II, as identified in **Table 4-19**, Acres of Lands Managed to Protect Wilderness Characteristics and VRM Classes, Alternatives C, D, and E. This VRM allocation would contribute toward naturalness of lands managed to protect wilderness characteristics, appreciably more so than under Alternatives A and B.

On lands with wilderness characteristics not managed to protect those characteristics, 40,800 acres would be managed under VRM Class II standards, which would provide some protection to the naturalness of these areas by preventing development incompatible with VRM Class II objectives.

From Wilderness Characteristics on Wilderness Characteristics

Naturalness, solitude, and the opportunities for unconfined and primitive recreation would be maintained and would receive priority management attention on 112,200 acres of lands managed to protect wilderness characteristics. This represents 72 percent of Monument areas with wilderness characteristics. For the most part, this allocation would have moderate influence in preventing the loss of naturalness, the depreciation of scenic values, or loss or degradation of solitude and primitive recreation opportunities, whether through increased visitor use, increasing motorized activity, land use authorizations, or commercial uses.

Areas with wilderness characteristics not managed to protect wilderness characteristics total 42,600 acres, representing 28 percent of the Monument's areas with wilderness characteristics. Over the life of the plan, wilderness characteristics on up to 12,200 acres, or about 25 percent of unallocated lands, could experience minor loss or diminishment. This would be due to recreation uses, infrastructure installed to protect Monument objects, cultural resource management, and other land use authorizations. Overall, Alternative C represents more potential loss of 38 percent more wilderness characteristics than described under Alternative A, due to more proactive visitor use, cultural resource, and travel route management, along with associated infrastructure.

Unallocated areas with wilderness characteristics would be managed to VRM Class II (see **Table 4-17**, Acres of Lands with Wilderness Characteristics but not Managed to Maintain those Characteristics within Visual Resource Management Classes). The VRM classifications would, for the most part, maintain naturalness within areas of wilderness characteristics not allocated as lands managed to protect wilderness characteristics. Protection would be much greater visually than presented by Alternatives A and B because all acreage would be managed as VRM Class II.

From Wildlife and Special Status Species on Wilderness Characteristics

Overall, implementation of the ecological, biological, and vegetative resource measures under Alternative C would contribute to naturalness to a greater degree than would implementation of Alternatives A and B. This would come about by protecting core areas of wildlife habitat, emphasizing connectivity of wildlife habitat, removing ineffective wildlife water developments, lacking new wildlife water construction, prohibiting wood harvesting, requiring use of native vegetation in restoration efforts, and applying measures to maintain populations of native wildlife, especially sensitive species.

4.12.6 ALTERNATIVE D

Alternative D would place the greatest emphasis on resource protection and conservation and on opportunities to visit remote settings and experience nonmotorized primitive recreation. All areas with wilderness characteristics in both Decision Areas would be allocated as lands managed to protect wilderness characteristics under Alternative D, or approximately 404,800 acres (250,000 acres in the Lower Sonoran and 154,800 acres in the SDNM; see Map 2-3d). Management under Alternative D would be the most protective of naturalness and outstanding opportunities for solitude and primitive unconfined recreation among all alternatives.

Under Alternative D, any proposed developments, actions, or other uses would be required to consider and maintain naturalness and outstanding opportunities for solitude and primitive unconfined recreation within the 404,800 acres that would be managed to protect wilderness characteristics. Additionally, a prohibition on wood harvesting, widespread allocation of VRM Class I in the SDNM, discontinuance of all livestock grazing, maximum restrictions and closures to motorized travel, and designation of certain expansive ACECs would contribute substantially to protecting wilderness characteristics.

Impact analysis on lands managed to protect wilderness characteristics described under Alternative D are based on the assumption that all the units contain wilderness characteristics, including all lands in the citizens' proposal. It may not necessarily be the case, based on the BLM's knowledge of the Planning Area, that the entire citizens' proposal addressed under Alternative D contains wilderness characteristics.

4.12.6.1 Both Decision Areas

From Air Quality on Wilderness Characteristics

Impacts for air quality decisions would be the same as under Alternative B.

From Cultural and Heritage Resources on Wilderness Characteristics

Cultural resource decisions under Alternative D would likely contribute to naturalness to a greater degree than under Alternatives A, B, and C, due to increased emphasis on resource protection and less emphasis on development for public visitation.

From Visual Resource Management on Wilderness Characteristics

Under Alternative D, all lands managed to protect wilderness characteristics would have VRM Class II designations. These lands would receive nearly the highest visual and scenic resource protection, with greater wilderness characteristic acreage under VRM Class II than under any other alternative.

From Wildlife and Special Status Species on Wilderness Characteristics

Under Alternative D, dispersed, undeveloped recreation would be emphasized. Route systems would be designated that decrease wildlife habitat fragmentation, wildlife disturbance, and vegetation damage. Unlike Alternative A, B, and C, land use authorizations, mining sites, developments, facilities, and activities would be mitigated, with particular attention to maintaining wildlife habitat and movement

corridors. Such actions would support protecting wilderness characteristics on approximately 119,800 additional acres (30 percent) managed to protect wilderness characteristics. Impacts could be moderate to major, depending on location. Impacts would take the form of added protection to naturalness and outstanding opportunities for solitude and primitive unconfined recreation. Hunting and wildlife viewing opportunities could especially improve.

The removal of all wildlife water developments would provide moderate long-term enhancements to naturalness due to the removal of man-made structures in lands managed to protect wilderness characteristics; however, a potential major long-term loss of naturalness, hunting, and wildlife observation opportunities would result due to loss of wildlife populations cut off from natural water sources and dependent on removed artificial wildlife waters.

Impacts under Alternative D would be similar to Alternatives B and C by reintroducing, transplanting, and stocking supplemental native wildlife; by using existing earthen livestock waters as refugia for native wildlife where livestock grazing is no longer permitted; and by restricting or placing LUAs and fences to avoid adverse impacts on wildlife. Overall, however, implementation of the ecological and biological resources decisions under Alternative D would detract from naturalness, in contrast to Alternatives B and C, due to the removal of all wildlife water catchments but would contribute to naturalness compared to Alternative A.

From Livestock Grazing on Wilderness Characteristics

Under Alternative D, closing all livestock grazing allotments when current permits expire would support long-term maintenance of naturalness. All forage allocated to livestock would instead be available to native wildlife. Compared to Alternatives A, B, and C, implementation of the Alternative D grazing management would result in increased contributions to naturalness. Fencing, corrals, roads, wells, staging areas and other infrastructure affiliated with livestock operations could be removed and the landscapes restored or reclaimed. There would be no visual, aesthetic, or olfactory evidence of large turnouts of livestock, creating more natural and undeveloped landscapes.

4.12.6.2 Lower Sonoran

From Lands and Realty on Wilderness Characteristics

Impacts from allocation of utility-scale renewable energy development and utility corridors would be similar as described under Alternative C. All lands managed to protect wilderness characteristics in the Lower Sonoran would be exclusion areas. Such decisions would contribute to maintaining naturalness and natural landscapes to a greater degree than all other alternatives.

From Minerals Management on Wilderness Characteristics

Restrictions, prohibitions, exclusions, and closures on mining, leasing, saleables, and exploration would provide the maximum protection to all 250,000 acres managed to protect wilderness characteristics. Impacts could still occur from leasable and locatable minerals, but these would represent minor to moderate localized impacts and would be similar to those described under Alternatives B and C.

From Recreation Management on Wilderness Characteristics

Overall, recreation management in the Lower Sonoran under Alternative D would contribute to naturalness and opportunities for solitude and primitive unconfined recreation to a substantially greater degree than all other alternatives under consideration. Alternative D would focus on nonmotorized low-intensity recreation, which would help protect wilderness characteristics. SRPs would not be issued for commercial, competitive, or vending under Alternative D, further enhancing solitude and primitive recreation.

Table 4-20
Acres of Lands Managed to Protect Wilderness Characteristics within Recreation Management Areas and Settings, Alternative D

	Recreation Management Setting			Lands Managed to Protect Wilderness Characteristics
SRMA or ERMA	Backcountry	Front Country	Community Interface	
LSFO	0	0	0	250,000
SDNM	0	0	0	154,800

From Special Designations on Wilderness Characteristics

Under Alternative D, four ACECs would be designated to protect and conserve cultural and natural resource values. These ACECs overlap approximately 148,100 acres (37 percent) managed to protect wilderness characteristics, thus contributing substantially to naturalness. Unlike Alternative A, ACEC management prescriptions under Alternative D would have a moderate to major effect on preserving lands managed to protect wilderness characteristics.

From Travel Management on Wilderness Characteristics

Closing an estimated 53 percent of motorized road network miles prescribed under Alternative A to motorized recreation through travel management decisions and coinciding with lands managed to protect wilderness characteristics would decrease impacts of motorized vehicles and human uses. Moreover, Alternative D's potential travel management motorized network would support long-term maintenance of naturalness and primitive unconfined recreation with unroaded tracts to a greater extent than any other alternative.

From Vegetation Resources on Wilderness Characteristics

Under Alternative D, long-term impacts from vegetation resources would be similar to those under Alternatives B and C, including long-term contributions to naturalness from prohibiting wood harvesting, using native species in restoration projects, and controlling invasive species, which would limit the spread of nonnative vegetation and would reduce the size and intensity of wildfires.

From Wilderness Characteristics on Wilderness Characteristics

All areas with wilderness characteristics in the Lower Sonoran would be managed to protect those characteristics. Naturalness, solitude, and the opportunity for unconfined and primitive recreation would

be maintained and would receive priority management attention on 250,000 acres. For the most part, this allocation would prevent the loss of naturalness, the depreciation of scenic values, or loss or degradation of solitude and primitive recreation opportunities, whether through increased visitor use, increasing motorized activity, or prohibited commercial uses.

All Lower Sonoran lands with wilderness characteristics would be managed for protection of wilderness characteristics over the long term, with management augmented by VRM Class II visual resource protection allocations. Alternative D represents the largest contiguous extent of lands managed to protect wilderness characteristics allocations under any of the alternatives.

4.12.6.3 Sonoran Desert National Monument

From Lands and Realty on Wilderness Characteristics

No multiuse utility corridors would be designated and no new LUAs would be allowed. These decisions would contribute to naturalness to a greater degree than all other alternatives and would protect wilderness characteristics over the largest possible area.

From Recreation Management on Wilderness Characteristics

Compared with Alternative A, impacts on lands managed to protect wilderness characteristics from recreation management would be negligible.

Future standards established for visitation, facility development, and other recreation activities must consider naturalness and outstanding opportunities for solitude and primitive unconfined recreation. In addition, Alternative D would focus on nonmotorized and low intensity recreation, which would help protect and add to wilderness characteristics. All wilderness characteristic lands would be allocated as such, with these values paramount, with the exception of Monument objects, in all land use decisions, allocations and planning.

The prohibition of target shooting throughout the SDNM would maintain naturalness and opportunities for solitude because copious spent shells, targets, and trash, damage or destruction of plants, rocks, and protected Monument objects, and the unrestrained and inescapable sound of gunfire would be removed from the SDNM landscape. All direct and indirect recreational target shooting impacts would be eliminated under this alternative, as opposed to the more widespread but localized target shooting impacts described under Alternative A.

From Special Designations on Wilderness Characteristics

Removing the Vekol Valley ACEC designation would not impact the area as the current National Monument designation would provide greater protection to Wilderness Characteristics. The Juan Bautista de Anza NHT would be managed with a priority on protecting cultural resources while providing some scientific research opportunities that are not ground disturbing, therefore resulting in negligible impacts on wilderness characterisicts. Impacts on naturalness and outstanding opportunities for solitude and primitive unconfined recreation are not expected on allocated lands managed to protect wilderness characteristics next to the Anza NHT.

Designation of I-8 and SR-238 as National Scenic Byways would have no impact on wilderness characteristics, except to emphasize maintenance of current scenic values in the Bender Wash area along the south side of the highway.

From Travel Management on Wilderness Characteristics

Closing over 62 percent of road miles within the SDNM to motorized recreation through travel management decisions, where routes traverse lands managed to protect wilderness characteristics, would eliminate impacts of motorized vehicles and human uses. Alternative D's travel management prescriptions support long-term maintenance and protection of naturalness and primitive unconfined recreation to a greater extent than any other alternative. The landscapes with wilderness characteristics are the largest and most intact land areas brought forward in the range of action alternatives.

All lands managed to protect wilderness characteristics within the SDNM would be closed OHV allocation areas. No new roads could be constructed, providing the maximum protection over the long term from new roads or primitive roads.

The motorized vehicle route network designated under Alternative D represents considerably more protection for lands managed to protect wilderness characteristics than provided by the travel management networks under Alternatives A, B, and C. Closures or restrictions on over 370 miles of road and primitive road would protect or have major enhancing effects on wilderness characteristics on all lands managed to protect wilderness characteristics. The Alternative D travel management network eliminates impacts from road use on wilderness characteristics, increases solitude values to the broadest extent in the SDNM wilderness characteristic areas, presents the largest and least fragmented wilderness characteristic areas, and improves the extent and quality of primitive unconfined recreation across the largest scope of any of the alternatives.

From Vegetation Resources on Wilderness Characteristics

Impacts are the same as those described under Alternative C for the Monument.

From Wilderness Characteristics on Wilderness Characteristics

All areas with wilderness characteristics in the SDNM would be managed to protect those characteristics. Naturalness, solitude, and the opportunity for unconfined and primitive recreation would be maintained and would receive priority management attention on 154,800 acres allocated as lands managed to protect wilderness characteristics. For the most part, this allocation would prevent the loss of naturalness, the depreciation of scenic values, or loss or degradation of solitude and primitive recreation, whether through increased visitor use, increased motorized activity, or commercial or recreation uses.

All SDNM areas with wilderness characteristics would be managed to protect wilderness characteristics over the long term, with management augmented by a closed OHV area designation, maximum visual resource protection, and the most acreage allocated as lands managed to protect wilderness characteristics. Moreover, the lands allocated under Alternative D encompass five large tracts. This represents the largest contiguous extent of lands managed to protect wilderness characteristics allocated under any of the alternatives.

4.12.7 ALTERNATIVE E (PROPOSED RMP)

Under Alternative E, approximately 199,000 acres (91,200 acres in the Lower Sonoran and 107,800 acres in the SDNM) would be allocated as lands managed to protect wilderness characteristics (Map 2-3e). Implementation of Alternative E would contribute to protecting wilderness characteristics to a lesser degree than would Alternatives C and D but would support protecting wilderness characteristics to a substantially greater degree than would Alternatives A and B. This is due primarily to the allocation of lands managed to protect wilderness characteristics, within which any proposed developments, actions, or other uses, would be required to consider and maintain naturalness and outstanding opportunities for solitude and primitive unconfined recreation. In addition, all of the following would contribute substantially to safeguarding wilderness characteristics in areas not allocated to protect wilderness characteristics;

- The allocation of one WHA to protect core areas of wildlife habitat
- Case-by-case management of artificial wildlife waters
- Prohibition on wood harvesting
- Allocation of VRM Class II
- Allocation of SRMAs
- Restrictions on or closures to motorized travel
- Designation of four ACECs

4.12.7.1 Both Decision Areas

From Air Quality on Wilderness Characteristics

Actions and impacts from air quality decisions would be the same as under Alternative B.

From Cultural and Heritage Resource on Wilderness Characteristics

Overall impacts would be similar to Alternative C from cultural resource management, including an emphasis on resource protection, scientific research, and inventory, with some sites made available for public use, group use, and heritage sites.

4.12.7.2 Lower Sonoran

From Lands and Realty on Wilderness Characteristics

Impacts from decisions relating to utility-scale renewable energy development, multiuse utility corridors, LUAs, and other land uses would be similar to Alternative D on lands managed to protect wilderness characteristics. The impacts would be similar to Alternative B for areas with wilderness characteristics not managed to protect those characteristics.

From Livestock Grazing on Wilderness Characteristics

Under Alternative E in the Lower Sonoran, lands managed to protect wilderness characteristics would be managed under a perennial-ephemeral grazing regime, which would have impacts similar to a combination of Alternatives A and C. Livestock forage allocations, livestock use adjustments, changes to grazing management systems, and construction or abandonment of rangeland developments would include strong consideration for wilderness characteristics.

Areas with wilderness characteristics that would not be allocated to protect those characteristics (158,800 acres) would be subject to impacts similar to those described under Alternatives A and C. Implementation of Alternative E would contribute to naturalness to a lesser degree than Alternative D (where all allotments would be closed). Impacts resulting from Alternative E are similar to Alternative A.

From Minerals Management on Wilderness Characteristics

Impacts from mineral management would be similar to Alternative C.

From Recreation Management on Wilderness Characteristics

Allocation of SRMAs and ERMAs would have moderate impacts on lands managed to protect wilderness characteristics as future standards established for visitation, facility development, and other recreation-related considerations would consider maintaining the settings for naturalness and outstanding opportunities for solitude and primitive unconfined recreation. The Saddle Mountain ERMA would help protect wilderness characteristics, although its emphasis on community recreation with a balance of motorized and nonmotorized recreation would allow moderate degradation of some unmanaged wilderness characteristics. The Ajo ERMA would help maintain lands managed to protect wilderness characteristics by focusing intensive motorized recreation outside of these areas. In both ERMAs, backcountry recreation settings would maintain wilderness characteristics of lands managed to protect such characteristics (see **Table 4-21**, Acres of Lands Managed to Protect Wilderness Characteristics within SRMAs and Recreation Management Settings, Alternative E). In summary, impacts from SRMA and ERMA allocations under Alternative E are similar to Alternative A, except that the SRMAs and ERMAs under Alternative E are driven by recreational outcomes.

Table 4-21
Acres of Lands Managed to Protect Wilderness Characteristics within SRMAs and Recreation Management Settings, Alternative E

	Recreation Management Setting			Lands Managed to Protect Wilderness Characteristics
ERMA	Backcountry	Front Country	Community Interface	
Ajo ERMA	45,500	0	0	45,500
Saddle Mountain	17,540	0	0	17,540
SDNM	104,300	3,500	0	107,800

Management of SRMAs where no areas are managed to protect wilderness characteristics may maintain such characteristics as an incidental result of recreation decisions; however, the focus of management

would not be intended to protect characteristics and could likely result in loss of those characteristics in the long term.

All 91,200 acres allocated as lands managed to protect wilderness characteristics would be assigned to the backcountry, which could help protect wilderness characteristics. This is similar to Alternative A, where ROS-inventoried classifications were applied.

From Special Designations on Wilderness Characteristics

Under Alternative E, four ACECs would be designated. The Coffeepot Batamote-Sauceda ACEC and the Saddle Mountain ACEC would, respectively, overlap by 44,400 and 17,540 acres managed to protect wilderness characteristics. They also would overlap adjoining area with wilderness characteristics that would not be allocated as lands managed to protect wilderness characteristics. The Cuerda de Lena ACEC would also overlap with the Black Mountain area, which would not be managed to protect wilderness characteristics. The focus on protection and conservation of cultural and natural resource values of these ACECs would contribute to maintaining naturalness and outstanding opportunities for solitude and primitive unconfined recreation. Under Alternative E, prospective impacts would be greater than under Alternatives A, B, and C but less than under Alternative D because fewer acres would be allocated as lands managed to protect wilderness characteristics.

From Travel Management on Wilderness Characteristics

Alternative E would close, limit, or seasonally restrict motorized use on an estimated 275 more miles (31 percent) of road than under Alternative A and 140 more miles than under Alternative B. It would open 10 more miles than under Alternative C and 260 more miles than under Alternative D.

Lands managed to protect wilderness characteristics, totaling 91,200 acres, would be limited OHV use areas, which would help protect naturalness and outstanding opportunities for solitude and primitive unconfined recreation. Overall, route closures and restrictions would generally have the same effect as described under Alternative C for lands managed to protect wilderness characteristics. Areas with wilderness characteristics not managed as such would be much less protected than under Alternative D but would be much more protected by a designated travel route network than under Alternatives A or B.

From Vegetation Resources on Wilderness Characteristics

As under Alternatives B and C, small localized harvesting of plant materials would result in short-term detractions from naturalness. Under Alternative E, long-term supporting impacts from vegetation resources would be similar to those under Alternative B, C, and D, including long-term contributions to naturalness resulting from the prohibition on wood harvesting, use of native species in restoration projects, and control of invasive species. This last would limit the spread of nonnative vegetation and would reduce the size and intensity of wildfires.

From Visual Resources on Wilderness Characteristics

Lands managed to protect wilderness characteristics would be managed to VRM classes, as depicted in **Table 4-19**, Acres of Lands Managed to Protect Wilderness Characteristics and VRM Classes,

Alternatives C, D, and E. VRM allocations would support protecting wilderness characteristics on lands so managed, with all acres assigned to VRM II. Alternative E would provide less continuance to naturalness than under Alternatives C or D but more than under Alternatives A or B.

On lands with wilderness characteristics not managed to protect those characteristics, 91,200 acres would be managed under VRM Class II standards, which would provide some protection to the naturalness of these areas by preventing development incompatible with VRM Class II objectives. The remaining 158,800 acres would be managed under VRM Class III or IV standards, which may allow development that could impact the naturalness of the areas.

From Wilderness Characteristics on Wilderness Characteristics

Naturalness, solitude, and the opportunity for unconfined and primitive recreation would be maintained and would receive priority management attention on 91,200 acres, or 10 percent of Lower Sonoran public lands. For the most part, allocations to lands managed to protect wilderness characteristics would prevent the loss of naturalness, the depreciation of scenic values, or loss or degradation of solitude and primitive recreation opportunities on allocated lands, whether through increased visitor use, increased motorized activity, or prohibited commercial uses.

A total of 158,800 acres, representing 64 percent of the area with wilderness characteristics in the Lower Sonoran, would not be managed to protect wilderness characteristics, which would not be a priority. Moderate impacts on areas with wilderness characteristics would be anticipated from mineral and energy development, new roads and utility corridors, increased motorized recreation uses, and other land use authorizations. However, major loss or impairment of wilderness characteristics would be localized to surface-disturbing activities.

From Wildlife and Special Status Species on Wilderness Characteristics

Impacts would be similar to all other action alternatives by reintroducing, transplanting, and stocking supplemental native wildlife; by using existing earthen livestock waters as refugia for native wildlife where livestock grazing is no longer permitted; and by restricting or placing LUAs and fences to avoid adverse impacts on wildlife. Overall, implementation of the ecological and biological resources measures under Alternative E would contribute to naturalness to a similar degree as under Alternative C and to a greater degree than under Alternatives A, B, and D. This would be due to emphasizing connectivity of wildlife habitat, using native vegetation in restoration efforts, implementing measures to maintain populations of native wildlife, and not implementing measures to unnaturally manipulate native wildlife populations.

Development of wildlife waters on a case-by-case basis would have impacts on areas with wilderness characteristics similar to those described under Alternative A.

4.12.7.3 Sonoran Desert National Monument

From Lands and Realty on Wilderness Characteristics

Impacts from lands and realty decisions under Alternative E would be similar to those described for Alternative C.

From Livestock Grazing on Wilderness Characteristics

Areas with wilderness characteristics not allocated to protect those characteristics (47,000 acres in the SDNM) would have impacts as described under C, except that ephemeral grazing would occur. Ephemeral grazing would temporarily detract from or impair naturalness in the short term, as ephemeral forage would be removed and unavailable to wildlife. There would be sights, sounds, smells, and other impacts from large ephemeral turnouts on the SDNM, detracting from naturalness and hindering visitors seeking opportunities for primitive recreation in a more natural and untrammeled environment. However, ephemeral turnouts typically occur in only two or three years out of ten, so these impacts would be minor.

From a livestock grazing management perspective, implementation of Alternative E would contribute to naturalness to a greater degree than Alternatives A.

From Recreation Management on Wilderness Characteristics

Continuance of naturalness and opportunities for solitude and primitive unconfined recreation would be similar to Alternative C. Lands managed to protect wilderness characteristics would include 104,300 acres (or 97 percent) of backcountry and 3,500 acres of front country. In areas of wilderness characteristics that would not be managed to protect those characteristics, 1,600 acres would be assigned to the backcountry zone, which would tend to protect wilderness characteristics. About one percent of these wilderness characteristics would be allocated to the front country and thus would be much more likely to incur a degradation of wilderness characteristics. Impacts resulting from authorization of SRPs would be similar to those described under Alternative B.

Impacts from any specific recreation use on lands managed to protect wilderness characteristics would be considered negligible and easily corrected or mitigated through adaptive management. Areas not managed to protect wilderness characteristics would, for the most part, retain wilderness characteristics over the long term, as described under Alternative C, along with their associated primitive recreation and solitude opportunities.

Since dispersed recreational target shooting throughout the Monument would continue, the impacts of target shooting under Alternative E would be the same as those described for Alternative A. However, if Management and Administrative Actions designed to change the conduct of recreational target shooters has the desired effect, impacts from recreational target shooting should be greatly decreased. If that were to happen, impacts would be negligible to minor.

From Special Designations on Wilderness Characteristics

Impacts from managing the Juan Bautista de Anza NHT would be the same as under Alternative D.

Designation of I-8 and State Route 238 as National Scenic Byways, of 30 miles and 18 miles length respectively, would have a slight protective effect due to prescriptions and management oversight of the maintenance of scenic values along these highways.

From Travel Management on Wilderness Characteristics

Route closures and restrictions, representing a 40 percent reduction in road and primitive road miles than under Alternative A, would have the same effects as described under Alternative C.

Impacts from the SDNM Route Designation would be identical to those described under Alternative C.

From Vegetation Resources on Wilderness Characteristics

Impacts on areas with wilderness characteristics are similar to those described under Alternatives A and B.

From Visual Resources on Wilderness Characteristics

Lands managed to protect wilderness characteristics would be managed to VRM Class II, as depicted in **Table 4-19**, Acres of Lands Managed to Protect Wilderness Characteristics and VRM Classes, Alternatives C, D, and E. This VRM allocation would support protecting wilderness characteristics in lands allocated to protect those characteristics. Due to fewer acres managed to protect wilderness characteristics, Alternative E would offer less protection for visually related wilderness characteristics than Alternatives C and D but more so than under Alternatives A and B.

On lands with wilderness characteristics not managed to protect those characteristics, 46,900 acres would be managed under VRM Class II standards, which would provide some protection to the naturalness of these areas by preventing development incompatible with VRM Class II objectives. The remaining 100 acres would be managed under VRM Class III or IV standards, which may allow development that could impact the naturalness of the areas.

From Wilderness Characteristics on Wilderness Characteristics

Naturalness, solitude, and the opportunities for unconfined and primitive recreation would be maintained and would receive priority management on 107,800 acres allocated to lands managed to protect wilderness characteristics. This represents 70 percent of Monument lands identified to possess wilderness characteristics. Impacts would be similar to those described under Alternative C, with only four percent less acreage allocated to lands managed to protect wilderness characteristics than for that alternative. For the most part, this allocation would prevent the loss of naturalness, the depreciation of scenic values, and the loss or degradation of solitude and primitive recreation opportunities, whether through increased visitor use, motorized activity, or commercial uses.

Areas with wilderness characteristics but not allocated as lands managed to protect wilderness characteristics total 47,000 acres, representing 30 percent of the total Monument lands identified to possess wilderness characteristics. Minor to negligible changes to the nature of these lands would be anticipated, as fully described under Alternative C.

From Wildlife and Special Status Species on Wilderness Characteristics

Overall, implementation of the ecological and biological resources measures under Alternative E would contribute to maintaining naturalness to a similar degree as under Alternative C and a to greater degree than under Alternatives A, B, and D. This result is primarily due to emphasizing connectivity of wildlife

habitat, use of native vegetation in restoration efforts, measures to maintain populations of native wildlife, and a lack of measures to unnaturally manipulate native wildlife populations. Development of wildlife waters on a case-by-case basis would have minor impacts on areas with wilderness characteristics, as described under Alternative A, but only in localized areas. Impacts would be boosted to moderate in localized areas if new road access were required to access new water developments.

4.13 IMPACTS ON WILDLAND FIRE MANAGEMENT

This section analyzes the impacts of resource management actions on Wildland Fire Resources. Impacts on fire and fuels management would result from actions that would affect the type and abundance of fuels, increase or limit sources of ignition, and affect fire-suppression activities. Nonnative plant establishment and spread can greatly increase the amount of fuels, the intensity and size of fires, and can shorten fire-return intervals. Short-term effects on fire and fuels management, which are defined as those lasting no more than five years, are important, but the more critical impacts are those that would endure throughout and past the life of the RMP. The largest factor contributing to increased desert wildland fires is the increased population growth of Metropolitan Phoenix. Fuel conditions fluctuate greatly based on annual precipitation levels and the presence of nonnative plants. Due to the establishment and spread of nonnative plants, Sonoran desert scrub and riparian areas within the Planning Area, which are not adapted to fire, are now at high risk of major, long-term changes to the native plant communities (BLM 2003).

Illegal border activity would continue to increase human-caused fires. Military training operations over and adjacent to the Planning Area would also continue to be a source of human-caused fires. All of these sources of wildfires are exacerbated by the fact that annual exotic grasses and forbs continue to spread throughout the Planning Area, providing a continuous fuel bed for wildfires, especially in above-average rainfall years.

4.13.1 METHODS OF ANALYSIS

4.13.1.1 Indicators

The following impact indicators were used in this assessment:

- Amount of annual exotic grasses or forbs, measured in pounds per acre.
- Fire frequency, measured by the change in the number of human-caused wildland fires. This indicator measures the effectiveness of preventative management actions such as education and restrictions on travel and use within and outside the wildland-urban interface (WUI). The number of human-caused starts is dependent on access and development.
- Fire Regime Condition Class (FRCC), which measures the effectiveness of fuels, emergency stabilization, and other vegetation treatments. Change in FRCC is dependent on changes in fire return interval and fire severity and is a measure of the degree of departure from a historical reference condition as it pertains to both vegetation seral classes and fire frequency. The BLM policy requires current and desired resource conditions related to fire management to be described in terms of three FRCCs.

4.13.1.2 Assumptions

The following assumptions regarding the future management of wildland fire are made:

- A direct relationship exists between the density of human use within the Planning Area and the frequency of human-ignited fires (and the intensity of use is expected to increase over the life of the plan).
- A direct relationship exists between fuel loading and potential fire size and intensity.
- Invasive species would carry fire, and an increase in invasive species would decrease fire return intervals and increase fire intensities.
- Livestock and water supply developments could be used for fire suppression when water is present.
- Increased motorized vehicle activity or an increased number of motor vehicle routes would result in an increased number of starts within the Planning Area.
- If non-fire adapted vegetative communities experience wildland fire, they would move into the CC 3 category.

4.13.1.3 Program Areas with No Impacts on Wildland Fire Management

There would be no impacts on wildland fire management from actions proposed under the following resource management programs:

- Caves and Cave Resources
- Paleontological and Geological Resources
- Water Resources
- Wild Horse & Burro Management

4.13.1.4 Qualitative Intensity Scale

The intensities of impacts are the same as those described in **Table 4-1,** Qualitative Terms for the Intensity of Impacts. In terms of changes to a plant community, as described by FRCC, a negligible or minor impact would result in no change to condition class. A plant community currently in CC 1 would remain in CC 1 if it experienced a minor change. A moderate impact would be represented by a change in CC from CC 1 to CC 2 or a change from CC 2 to CC 3. A major impact would be represented by a change in CC from the current condition class to CC 3.

4.13.2 COMMON TO ALL ALTERNATIVES

4.13.2.1 Both Decision Areas

From Air Quality on Wildland Fire Management

Air resources may have a general impact on fire and fuels management in areas that are designated as nonattainment for PM_{10}. Within these areas, it may not be practical to use prescribed fire as a management tool. Following ADEQ smoke permitting requirements would ensure that impacts on air quality are minor.

From Cultural and Heritage Resources on Wildland Fire Management

Cultural and heritage resources may have an impact on fire and fuels management activities in areas where cultural resources are present. This would require close cooperation with a cultural resources resource advisor during suppression operations. Fuels treatment activities would need to be designed to avoid known cultural and heritage sites while implementing mitigation measures to protect unknown occurrences of these resources. Close coordination with cultural resource specialists and following the Section 106 consultation process would ensure that impacts on cultural and heritage resources are in most cases minor.

From Public Safety and Hazardous Materials on Wildland Fire Management

Public safety and hazardous materials considerations would have an impact on fire and fuels management activities in areas where known or suspected hazards are present. This would require close coordination with resource advisors and may result in modified suppression tactics being used to prevent firefighters from being exposed to hazardous materials. Fuels treatments may require surveys for hazardous materials prior to treatment as well as mitigation measures for encounters with previously unknown contaminated areas. Use of mitigation measures and coordination with resource advisors would result in most impacts being minor, but in certain cases wildfire suppression operations would have to be indirect, allowing larger areas of desert plant communities to burn, and the impact would be major.

From Special Designations on Wildland Fire Management

Special designation areas would have an impact on fire suppression and fuels treatment activities. These activities would have to follow the restrictions for each area (Wilderness, ACEC, and NHT) and may have to restrict the use of mechanized suppression tactics and fuels treatments. Most restrictions do allow exceptions for restricted uses with prior authorization from line managers. In most situations this would mitigate the impacts on fire suppression activities and allow impacts to be relatively minor (e.g., with line manager approval the BLM can use aviation resources in a wilderness to keep a fire small).

From Soil Resources on Wildland Fire Management

Soil resources may have a localized impact on fire and fuels that would remain the same across all alternatives. Sensitive soil types or areas where run-off is a management concern could reduce the BLM's ability to conduct prescribed burns in some areas. The management of wilderness areas, cultural

and heritage resources, and special status species would also have an impact on fire and fuels in all alternatives as treatment methods would be constrained particularly with regard to use of equipment.

From Wildland Fire Management on Wildland Fire Management

Fuels treatment activities would reduce the size and severity of wildfires within the Planning Area and would improve the FRCC rating for lands within the Planning Area. Prevention and mitigation activities would reduce the number of human-caused starts and thus maintain condition class rating for the lands within the Planning Area. A full suppression response would reduce the size of fires within the Planning Area. Fire and fuels management activities and treatments could damage resources by spreading weeds and creating soil disturbance, but, by following mitigation measures and close coordination with resource advisors, these impacts should remain minor.

From Wildlife and Special Status Species on Wildland Fire Management

Wildlife and Special Status Species may have an impact on fire and fuels management in areas where these resources are present. Management of this resource would require close cooperation with resource advisors and implementation of conservation measures where appropriate. Fuels treatment activities would need to be designed to avoid and mitigate damage to these resources and may result in treatments being modified or relocated to avoid major consequences. Close coordination with resource specialists and following the Section 7 consultation process would ensure that impacts on wildlife and special status species are minor.

4.13.2.2 Lower Sonoran

No unique impacts are described for all alternatives in the Lower Sonoran.

4.13.2.3 Sonoran Desert National Monument

No unique impacts are described for all alternatives in the SDNM.

4.13.3 ALTERNATIVE A (NO ACTION)

4.13.3.1 Both Decision Areas

From Lands & Realty on Wildland Fire Management

While corridors could serve as areas of nonnative plant establishment, associated roads may increase access to areas to where fire suppression is needed. If fuel levels in corridors are maintained at low levels, they could also be used as fire breaks during fire-suppression activities. Overhead utility lines and aboveground pipelines in corridors would continue to present hazards to fire fighters during suppression operations in site-specific areas. The establishment of solar energy farms would reduce the incidence of fire in the immediate vicinity of the solar panels, but an increased road network in and around the perimeter of the solar fields may lead to nonnative plant establishment and an increased incidence of fires.

From Livestock Grazing on Wildland Fire Management

The Cameron allotment in the Lower Sonoran would remain closed and all grazing allotments south of I-8 and within the SDNM would be permanently terminated at the expiration of current permits. All other allotments in both Decision Areas would be open and classified as perennial, ephemeral, or perennial-ephemeral. In years of higher precipitation and vegetation growth, ephemeral grazing would reduce fuel levels from annual and perennial plants, although not enough to alleviate the risk of fire in non-fire adapted communities in these high-growth years. Allotments classified as perennial and perennial-ephemeral would have year-long livestock use which would likely decrease fuel production. Conversely, continued livestock use would cause the introduction and continued spread of invasive species, increasing the fire load. A few existing range water sources for livestock could provide sources of water for use in fire-suppression activities.

From Minerals Management on Wildland Fire Management

Mineral development and associated roads would increase the spread of invasive species but would also provide improved access for fire suppression.

From Vegetation Resources on Wildland Fire Management

Ecological and biological resources management under Alternative A would target populations of invasive and noxious weeds and restrict uses in areas of importance to special status species. This could decrease nonnative plant populations and minimize establishment and spread near targeted areas, which may decrease fuel levels and fire intensity and lengthen fire-return intervals in the long term.

From Visual Resources on Wildland Fire Management

Visual resources would be managed using Class I (91,800 acres in the Lower Sonoran and 158,700 acres in the SDNM), Class II (116,300 acres in the Lower Sonoran and 91,600 acres in the SDNM), Class III (279,600 acres in the Lower Sonoran and 116,400 acres in the SDNM) and Class IV (442,500 acres in the Lower Sonoran and 119,700 acres in the SDNM) VRM designations. Class I and Class II designations require the highest level of restoration and reclamation when activities that disturb the visual landscape occur, which could require more restoration and reclamation activity after wildland fire management to restore the scenic quality.

From Wilderness Characteristics on Wildland Fire Management

Under Alternative A, a lack of protection for wilderness characteristics would not limit activities that increase the potential for nonnative plant establishment and spread and, in the long-term, would likely lead to increases in fuel levels, intensity, size of areas burned, and human-ignited fires as well as shortened fire-return intervals.

From Wildland Fire Management on Wildland Fire Management

Impacts from wildland fire management are the same across all alternatives with the exception of Alternative A, which allows for the management of wildfire for multiple objectives. Fire and fuels management under Alternative A would use wildfire as a tool to achieve resource goals in areas adapted

to and tolerant of fire and would use MIST tactics when possible. In Alternative A, use of fire as a tool is restricted to the interior chaparral community in the Miami-Globe area. Specific management actions also would include a reduction in fuel levels using guidelines in the Arizona Statewide LUP Amendment for Fire, Fuels, and Air Quality Management (BLM 2004).

4.13.3.2 Lower Sonoran

From Recreation Management on Wildland Fire Management

Increased levels of recreation would likely increase the level of human-ignited fires, surface disturbance, and fuel levels associated with nonnative plant establishment and spread. Increased recreation would be expected in all areas, but particularly in SRMAs and ERMAs (totaling 379,400 acres in the Lower Sonoran) and along the Juan Bautista de Anza NHT.

Under Alternative A, recreation (e.g., user selected camping sites, campfires, and target shooting) and the lack of facilitated recreational management on designated access point requirements could increase the potential for human-ignited fires from sparks, escaped fires, and firebrands.

From Travel Management on Wildland Fire Management

The Coffeepot Botanical ACEC (8,900 acres in the Lower Sonoran) would be closed to motorized vehicle use. Such restrictions could limit access to areas for fire suppression and could limit surface disturbance and nonnative plant establishment.

Under Alternative A, the current OHV-class designation and route system would generally remain in place. Motorized vehicles would be limited to existing or designated routes on 819,500 acres of the Lower Sonoran Decision Area, and approximately 110,700 acres of the Lower Sonoran would be closed to motorized-vehicle use. Off-road emergency and administrative uses, such as for fire suppression, would be authorized. These restrictions would limit increases in fuel levels from nonnative plant establishment. Although motor-vehicle use is limited to existing or designated routes, few routes have been designated as open, limited, or closed to use. This could increase fuel loads because the lack of such designations would mean the absence of a clearly delineated travel network, increased route proliferation, and an elevated degree of surface disturbance and associated increase in nonnative plant establishment.

4.13.3.3 Sonoran Desert National Monument

From Recreation Management on Wildland Fire Management

Impacts would be the same as those described under Alternative A for the Lower Sonoran, except 143,900 acres would be allocated as a SRMA in the Monument.

From Travel Management on Wildland Fire Management

The Vekol Valley Grassland ACEC (3,500 acres in the SDNM) would be closed to motorized vehicle use. Such restrictions could limit access to areas for fire suppression and limit surface disturbance and nonnative plant establishment. Under Alternative A, the current OHV-class designation and route system would generally remain in place. In the SDNM, approximately 325,200 acres would be limited to

existing or designated routes and 161,200 acres would be closed. Off-road emergency and administrative uses, such as for fire suppression, would be authorized. These restrictions would limit increases in fuel levels from nonnative plant establishment. Although motor-vehicle use is limited to existing or designated routes, few routes have been designated as open, limited, or closed to use. This could increase fuel loads because the lack of such designations would mean the absence of a clearly delineated travel network, increased route proliferation, and an elevated degree of surface disturbance and associated increase in nonnative plant establishment.

4.13.4 ALTERNATIVE B

4.13.4.1 Both Decision Areas

From Lands & Realty on Wildland Fire Management

The impacts on fire and fuels from multiuse utility corridors and LUAs would be similar to those discussed under Alternative A. Utility-scale renewable energy sites and other land uses would impact fire and fuels in a manner similar to that discussed under Alternative A over the long term by increasing the potential for nonnative plant establishment and spread and increasing access for fire-suppression activities. Impacts of land use and disposal in the SDNM would be similar to those discussed under Alternative A.

From Livestock Grazing on Wildland Fire Management

Under Alternative B, fewer livestock would cause an increase in fuel load. Otherwise, impacts from livestock-utilization levels would be the same as discussed under Alternative A.

From Minerals Management on Wildland Fire Management

Impacts from mineral resource decisions would be the same as those described in Alternative A.

From Vegetation Resources on Wildland Fire Management

Vegetation resources management under Alternative B would target populations of invasive and noxious weeds, actively restore disturbed areas, and restrict uses in areas of importance to special status species. Compared to Alternative A, these actions could decrease sources of nonnative plant propagules and minimize establishment and spread near targeted areas, which may decrease fuel levels and fire intensity and lengthen fire-return intervals in the long term. Development and maintenance of wildlife waters in both Decision Areas would create the need for access roads associated with these waters. While such roads would increase access for fire suppression activities, they would also increase access for other activities, which could increase the occurrences of human-ignited fires as well as increasing fuel levels associated with nonnative plant establishment and spread.

From Visual Resources on Wildland Fire Management

In terms of VRM, 51,400 more acres would be assigned to VRM Class I and II in the Lower Sonoran and 127,400 more acres would be assigned to VRM Class II in the SDNM compared to Alternative A. Such increases in VRM Class I and/or Class II areas would proportionally decrease overall changes to the

vegetation communities from surface disturbing activities, thus decreasing spread of nonnative plants that increase fuel loads.

From Wilderness Characteristics on Wildland Fire Management

Impacts would be the same as those described under Alternative A for both Decision Areas.

From Wildland Fire Management on Wildland Fire Management

Fire and fuels management decisions under Alternative B are similar to those of Alternative A with the exception that wildfire would not be managed to meet multiple objectives. Under Alternative B, all wildfires would be suppressed regardless of whether the plant community is fire-adapted or not. The fire-adapted communities make up less than one percent of the public lands within the Planning Area making managing wildfire for multiple objectives an impractical option. Prescribed fire may still be implemented to benefit fire-adapted plant communities such as the desert grassland areas (like those found in the Vekol Valley of the SDNM) and chaparral/mid-elevation scrub areas. Full suppression of wildfires in plant communities that are not adapted to fire, such as Sonoran Desert scrub, would decrease their conversion into nonnative grasslands. This, in turn would reduce the size of wildfires occurring within the Planning Area. Fuels management treatments would be integrated with vegetation management activities to reduce the occurrence and density of weed species, restore plant communities damaged by wildfire, and protect areas from future fire occurrence.

4.13.4.2 Lower Sonoran

From Recreation Management on Wildland Fire Management

Impacts from SRMA and ERMA allocations in the Lower Sonoran would be the same as described under Alternative A but more widespread as 826,600 acres would be designated as SRMAs and ERMAs under Alternative B. As the recreation uses increase in the Decision Area, more widespread active management of recreation uses could decrease fire danger by reducing the spread of invasive species, improper use of campfires, and inappropriate target shooting. In addition, about 45 percent of the Lower Sonoran would be allocated as backcountry RMZ, which would limit activities that lead to increases in fuel levels from nonnative plant establishment in disturbed areas.

Community interface RMZs are the main settings for intensive resource-dependent recreational uses and would not be as conducive to limiting fuel levels and minimizing human-ignited fires over the long term as the backcountry RMZ. Front country and community interface RMZ allocations would be similar in effect to the roaded-natural and semi-primitive nonmotorized settings under Alternative A. The remaining areas not allocated as SRMAs in the Lower Sonoran under Alternative B would be managed as ERMAs with impacts similar to those described in Alternative A; although impacts would be much less widespread because only about one-fifth the Decision Area would be within the ERMA allocation under Alternative B.

From Travel Management on Wildland Fire Management

Under Alternative B, vehicle use in the Lower Sonoran would be limited to designated routes within the 828,360 acres outside of wilderness areas and closed on 101,800 acres in wilderness areas. Alternative B

recommends designated access points for motorized and mechanized entry into public lands, particularly near metropolitan areas. Limiting motorized/mechanized uses would limit or contain the amount of surface disturbance and nonnative plant establishment.

In the Lower Sonoran, 70 miles of routes would be closed, which would eliminate the impacts of motorized-vehicle use on fire and fuels management along the closed routes; however, it would also decrease access for fire suppression activities along the same routes.

Under Alternative B, agencies involved in fire-suppression activities may drive off-road in critical situations. This would allow access to areas such as closed routes and would reduce the time needed to access and suppress fires. Accessing a fire sooner may decrease the overall size of the area that would burn, decrease risk to fire fighters, and decrease the cost of fire suppression. Native vegetation not adapted to fire in burned areas may not be able to compete with nonnative plants, especially grasses that respond favorably to fire. Reducing the size of burned areas would lower the overall potential for nonnative plant establishment and spread, and would limit associated increases in fuel levels.

4.13.4.3 Sonoran Desert National Monument

From Recreation Management on Wildland Fire Management

The entire SDNM would be allocated as one ERMA under Alternative B, with 76 percent of the SDNM being allocated as backcountry RMZ and 22 percent allocated as front country. While the majority of the Decision Area would be in the backcountry setting, thus limiting activities that lead to increased fuel levels, Alternative B would allocate the largest area among the alternatives to the front country RMZ, where limits on activities that increase fuel levels would not exist.

From Travel Management on Wildland Fire Management

In the SDNM, 328,700 acres would be limited to designated routes and 157,700 acres in wilderness areas would be closed. Alternative B recommends designated access points for motorized and mechanized entry into public lands, particularly near metropolitan areas. Restricting motorized and mechanized uses would limit or contain the amount of surface disturbance and nonnative plant establishment. Seventy miles of routes would be closed in the SDNM, which would eliminate the impacts of motorized-vehicle use on fire and fuels management along the closed routes; however, it would also decrease access for fire suppression activities along the same routes.

Under Alternative B, agencies involved in fire-suppression activities may drive off-road in critical situations. This would allow access to areas such as closed routes and would reduce the time needed to access and suppress fires. Accessing a fire sooner may decrease the overall size of the area that would burn, decrease risk to fire fighters, and decrease the cost of fire suppression. Native vegetation not adapted to fire in burned areas may not be able to compete with nonnative plants, especially grasses that respond favorably to fire. Reducing the size of burned areas would lower the overall potential for nonnative plant establishment and spread, and would limit associated increases in fuel levels.

4.13.5 ALTERNATIVE C

4.13.5.1 Both Decision Areas

From Lands & Realty on Wildland Fire Management

In the Lower Sonoran, impacts from multiuse utility corridors and LUAs would be similar to those described in Alternatives A and B. Impacts from considering requests for major utilities outside of designated corridors and proposals for utility-scale renewable energy sites and other uses would be similar to those described in Alternative B.

In the SDNM, the Santa Rosa-Gila Bend and I-8 multiuse utility corridors would be designated; however, impacts would be reduced as only transportation and underground utilities would be allowed. Underground utilities would be less of a hazard to fire fighters than the overhead and aboveground utilities authorized under Alternative B.

Finally, impacts on fire and fuels from land use authorizations would be further decreased as uses that occupy more than one acre over the long term would not be approved.

From Livestock Grazing on Wildland Fire Management

The types of impacts from the continuation of livestock utilization levels would be the same as those described under Alternatives A and B. However, under Alternative C, supplemental ephemeral grazing would not be allocated on allotments that are presently classified as perennial/ephemeral. This would cause an increased fuel load during abundant ephemeral forage years.

From Minerals Management on Wildland Fire Management

Mineral resource management impacts would be the same as those described in Alternatives A and B.

From Vegetation Resources on Wildland Fire Management

Impacts would be similar to those described in Alternative B.

From Visual Resources on Wildland Fire Management

Under Alternative C, more acres in both decisions areas would be assigned to VRM Classes I and II than under Alternative A or B. Such increases in VRM Class I and/or Class II acreage would proportionally decrease overall changes to the vegetation communities from surface disturbing activities, thus decreasing the spread of nonnative plants that increases fuel loads.

From Wilderness Characteristics on Wildland Fire Management

Approximately 128,100 acres in the Lower Sonoran and 112,200 acres in the SDNM would be allocated as lands managed to protect wilderness characteristics. These allocations, combined with the backcountry RMZ designation, would minimize nonnative plant establishment, thus decreasing associated fuel levels and fire intensities.

From Wildland Fire Management on Wildland Fire Management

The impacts of fire management decisions on fire and fuels resources are the same as described under Alternative B.

4.13.5.2 Lower Sonoran

From Recreation Management on Wildland Fire Management

In the Lower Sonoran, Alternative C would allocate 820,300 acres of SRMAs and ERMAs, which is slightly less than those allocated in Alternative B. Impacts due to the active management of recreation uses in SRMAs and ERMAs would be similar to, but less widespread than, impacts under Alternative B. Additionally, 66 percent of the SRMAs and ERMAs would be assigned to the backcountry setting under Alternative C, which would further reduce impacts in the form of increased fuel loads and human-ignited fires associated with front country and community interface settings. Impacts from management of ERMAs in the Lower Sonoran under Alternative C would be similar in nature to those described under Alternative B.

From Travel Management on Wildland Fire Management

Under Alternative C, impacts from restricting motorized and mechanized vehicles to existing or designated routes as well as designating routes as open, limited, or closed to OHV use would be the same as those described under Alternative B.

Impacts from encouraging designated access point use for entering public lands would be the same as under Alternative B. Specific impacts from closing routes would be the same as under Alternative A, although more widespread, as 319 more miles of routes would be closed compared to Alternative A.. Impacts from allowing agencies involved in fire-suppression activities to drive off-road in critical situations would be the same as described under Alternative B.

4.13.5.3 Sonoran Desert National Monument

From Recreation Management on Wildland Fire Management

As under Alternative B, the entire SDNM would be allocated as a SRMA; however, five percent more lands in the Monument would be assigned to the backcountry RMZ, which would slightly decrease the area exposed to a greater potential of increased fuel loads and human-ignited fires. Additionally, as management changed to emphasize Monument resources protection, decreased surface disturbance and opportunities for nonnative plant establishment would occur. In the SDNM, limits on camping site locations and campfires could limit the extent of human ignited fires. Limits on target shooting in both Decision Areas could have a similar impact.

From Travel Management on Wildland Fire Management

Under Alternative C, impacts from limiting motorized and mechanized vehicles to existing or designated routes as well as designating routes as open, limited, or closed to OHV use would be the same as those described under Alternative B.

Impacts from encouraging designated access point use for entering public lands would be the same as those described under Alternative B.

Specific impacts from closing routes would be the same as under Alternative A, although more widespread as 252 more miles of routes would be closed compared to Alternative A. Impacts from allowing agencies involved in fire-suppression activities to drive off-road in critical situations would be the same as those described under Alternative B.

4.13.6 ALTERNATIVE D

4.13.6.1 Both Decision Areas

From Lands & Realty on Wildland Fire Management

Impacts from multiuse utility corridors and LUAs in the Lower Sonoran would be similar to those discussed under Alternative C, although not as widespread as there would only be seven multiuse utility corridors allocated. ACECs would be exclusion areas outside of utility corridors which would limit vehicles and reduce the opportunities for nonnative vegetation establishment and spread, resulting in fewer human-induced ignitions. Smaller test sites could be located within the ACECs that would result in impacts similar to Alternative B.

From Livestock Grazing on Wildland Fire Management

Under Alternative D all grazing allotments would be closed when their current permits expire. As allotments are closed, there would be the potential for an increase in fuel levels, which could lead to increases in fire intensities and a shortening of fire-return intervals. Conversely, livestock would no longer be present to introduce and spread invasive species, thus avoiding a further increase in fuel load.

From Minerals Management on Wildland Fire Management

Under Alternative D, impacts from mineral resource decisions would be the same as Alternatives A, B, and C, but much less area would be impacted due to the large areas closed to mineral development.

From Vegetation Resources on Wildland Fire Management

Impacts would be similar to those described in Alternative B.

From Visual Resources on Wildland Fire Management

Alternative D provides the most acres assigned to VRM Classes I and II (77 percent in the Lower Sonoran and 100 percent in the SDNM) of all the alternatives. These allocations would minimize the potential for nonnative plant establishment and associated increases in fuel levels and fire intensities and would require restoration to a greater extent than under any other alternative.

From Wilderness Characteristics on Wildland Fire Management

Approximately 250,000 acres in the Lower Sonoran and 154,800 acres in the SDNM would be allocated as lands managed to protect wilderness characteristics, which would be the largest area protected under

these designations among the alternatives. These allocations would minimize the potential for nonnative plant establishment and associated increases in fuel levels and fire intensities.

From Wildland Fire Management on Wildland Fire Management

The impacts of fire management decisions on fire and fuels resources are the same as those under Alternative B.

4.13.6.2 Lower Sonoran

From Recreation Management on Wildland Fire Management

Alternative D would allocate a total of 57,500 acres of SRMAs and ERMAs, which is the smallest area allocated as SRMAs and ERMAs among the action alternatives. Impacts would be similar to Alternative B; however, impacts from allocating front country and community interface settings would be greatly contained due to 256,500 fewer acres devoted to these settings under Alternative D. These management prescriptions would greatly decrease nonnative plant establishment and associated increases in fuel levels, fire intensities, and shortened fire-return intervals. The remaining 872,700 acres not allocated as SRMAs or ERMAs in the Lower Sonoran would not be allocated. While general impacts would be similar in nature to those under Alternative B, the scope would be reduced under Alternative D because a greatly reduced route network would limit motorized access to these areas, limiting the spread of invasive species and human-ignited fires.

From Travel Management on Wildland Fire Management

Impacts from limiting vehicles to existing or designated routes in both Decision Areas would be the same as those described under all other action alternatives. Alternative D would close the most acres and the greatest number of miles among the alternatives, consequently causing the greatest decrease in surface disturbance and nonnative plant establishment in the Lower Sonoran. Impacts from allowing agencies involved in fire-suppression activities to drive off-road in critical situations would be the same as those described under Alternative B.

4.13.6.3 Sonoran Desert National Monument

From Recreation Management on Wildland Fire Management

Under Alternative D, none of the SDNM would be allocated as SRMAs or ERMAs. Impacts would include decreased nonnative plant establishment, leading to decreases in fuel levels and fire intensities and lengthening return intervals. Vehicle camping restrictions would reduce human-ignited fires from sparks, escaped fires, and firebrands because camping would be limited to existing and designated sites in the SDNM. Closure of areas to target shooting would eliminate this use as a cause of fire ignitions.

From Travel Management on Wildland Fire Management

Impacts would be the same as those described under Alternative D for the Lower Sonoran.

4.13.7 ALTERNATIVE E (PROPOSED RMP)

4.13.7.1 Both Decision Areas

From Lands & Realty on Wildland Fire Management

In the Lower Sonoran, impacts from multiuse utility corridors and LUAs would be similar to those described in Alternatives A and B. Impacts from considering requests for major utilities outside of designated corridors and proposals for utility-scale renewable energy sites and other uses would be similar to those described in Alternative B. In the Lower Sonoran, Alternative E would designate eight corridors, thus decreasing impacts in comparison to Alternative A. In the SDNM, impacts from utility corridors, future LUAs, utility-scale renewable energy development sites, and other land uses would be similar to those under Alternative C with a few exceptions. The Gila Bend-Santa Rosa utility corridor would allow above-ground utility lines, with impacts on fires and fuels similar to those described for Alternative B.

From Livestock Grazing on Wildland Fire Management

Under Alternative E, effects from grazing would be similar to those described in Alternative B in both Decision Areas.

From Minerals Management on Wildland Fire Management

Mineral resource management impacts would be the same as those for Alternatives A, B, and C.

From Vegetation Resources on Wildland Fire Management

Impacts would be similar to those described in Alternative B.

From Visual Resources on Wildland Fire Management

The types and extents of impacts from VRM in both Decision Areas would be the similar to those described in Alternative C.

From Wilderness Characteristics on Wildland Fire Management

In the Lower Sonoran, 91,200 acres would be allocated as lands managed to protect wilderness characteristics, and 107,800 acres would be managed as such in the SDNM, which would be less than under Alternatives C and D (but more than Alternatives A and B, where no lands managed to protect wilderness characteristics would be allocated). These allocations would minimize nonnative plant establishment and associated increases in fuel levels and fire intensities.

From Wildland Fire Management on Wildland Fire Management

The impacts of fire management decisions on fire and fuels resources are the same as those described in Alternative B.

4.13.7.2 Lower Sonoran

From Recreation Management on Wildland Fire Management

Impacts from SRMA allocations would be most similar to those described in Alternative C. This would prevent an increase in nonnative plant establishment and associated increases in fuel levels and fire intensities and shortened fire-return intervals.

From Travel Management on Wildland Fire Management

The impacts from limiting vehicles to designated routes in both Decision Areas would be the same as under all other action alternatives. Requiring vehicles to utilize designated access points in the metropolitan areas would have the same impacts as in Alternative B. Impacts from closing 200 miles of routes in the Lower Sonoran would be the same as under Alternative C and would result in more area of impact compared to Alternatives A, B, and C, but a smaller area of impact compared to Alternative D. Impacts from allowing agencies involved in fire-suppression activities to drive off-road in critical situations would be the same as those described in Alternative B.

4.13.7.3 Sonoran Desert National Monument

From Recreation Management on Wildland Fire Management

Impacts from SRMA allocations would be most similar to impacts described in Alternative C. This would prevent an increase in nonnative plant establishment and the associated increases in fuel levels and fire intensities and shortened fire-return intervals.

As under Alternatives B, C, and D, the entire SDNM would be managed as one SRMA. Impacts would be similar to those described in Alternative C. Approximately 16 percent of the area would be allocated to the front country RMZ and 84 percent to backcountry RMZ. This would decrease nonnative plant establishment and associated increases in fuel levels and fire intensities and shortened-return intervals. Restrictions would be placed on recreational uses, including limiting camping to existing and designated sites. . These types of restrictions would decrease the likelihood of invasive species spread and human-ignited fires. Since dispersed recreational target shooting would be allowed to continue, the impacts of target shooting under Alternative E would be the same as those described for Alternative A. However, if Management and Administrative Actions designed to change the conduct of recreational target shooters has the desired effect, impacts from recreational target shooting should be greatly decreased. If that were to happen, impacts would be negligible to minor.

From Travel Management on Wildland Fire Management

Impacts would be the same as those described under Alternative E for the Lower Sonoran, except that closing 194 miles of the routes in the SDNM would result in more area of impact compared to that under Alternatives A, B, and C, but a smaller area of impact compared to that under Alternative D.

4.14 IMPACTS ON WILDLIFE AND SPECIAL STATUS SPECIES

This section analyzes the impacts of management actions on wildlife and special status species. Each of the action alternatives provides for overall ecosystem health, diversity, maintenance and enhancement of native wildlife populations, and proper management of threatened and endangered species and their habitats. The wildlife and special status resource objectives stress the importance of natural ecological processes and functions and focus on land uses and discretionary actions to support multiple uses that are consistent with sustaining these natural ecological processes and functions.

The primary impacts on wildlife and special status species resources stem from resource conflicts with other management programs within the Planning Area and include loss or alteration of native habitats, increased habitat fragmentation, changes in habitat and species composition, and loss of wildlife.

Impacts on wildlife and special status species resources in the Planning Area from other management programs could include, but are not limited to, the loss or alteration of native habitats, increased invasion of noxious weeds and other exotic weed species, decreased water availability, disruption of species behavior leading to reduced reproductive fitness or increased susceptibility to predation, and direct mortality. Surface-disturbing activities that alter vegetation characteristics (e.g., the structure, composition, or production of the vegetative community) have the potential to affect habitat suitability for wildlife and special status species, particularly where the disturbance removes or reduces cover or food resources. Even minor changes to vegetation communities have the potential to affect resident wildlife and special status species populations if there is no suitable or available habitat in close proximity to areas that have been disturbed and are considered unsuitable.

Direct impacts on wildlife and special status species from management activities may result in mortality or displacement of individuals and alteration of immediate environments through the loss of, or changes to, key habitat components. Key habitat components include food availability; quantity and quality of habitat; cover from predators and extreme temperatures; nesting, roosting, denning, breeding, and young rearing habitats; water availability and access; and movement corridors to promote genetic flow and diversity. Direct impacts may affect wildlife or special status species populations or habitats for the duration of the action, for a few days thereafter, for several growing seasons, or may continue indefinitely where the action results in permanent habitat loss.

Indirect impacts on wildlife and special status species resources from management activities could result from changes in composition, recovery, or rehabilitation of the habitat. These impacts may be long-term or short-term depending on the severity of the habitat alteration. They may change species assemblages (i.e., the relative abundances or species composition of plant or animal communities), species behavior, or overall population trends, which would benefit some species while negatively affecting others. The direct and indirect impacts of management actions on wildlife and special status species resources may vary widely depending on a variety of factors such as the dynamics of the habitat (e.g., the community type, size, shape, complexity, stage, and condition of plant or animal communities); season, intensity, duration, frequency, and extent of the disturbance; rate and composition of vegetation recovery; change in vegetation structure; soil type, topography and microhabitat sites; animal species that are present; and the ability of species to adapt to, immigrate to, or emigrate from a site following a disturbance.

The following resources are expected to impact wildlife and special status species: lands and realty management, livestock grazing management, minerals management, wildlife and special status species

management, recreation management, special designations, travel management, visual resources management, wilderness characteristics, and wildland fire management.

Of the resource management elements to be addressed by the PRMP/FEIS, public safety and hazardous materials have the potential to harm wildlife and special status species. Cleanup of such sites could cause short-term impacts through soil disturbance or vegetation removal, but in the long-term, these actions could improve the ecological conditions in the immediate areas of such actions. Grazing by burros in the Painted Rock Herd Area could impact ecological resources; however, burro numbers are expected to remain near zero in all alternatives. Livestock grazing, recreation, special designations, travel management, and lands managed to protect wilderness characteristics would impact wildlife and special status species and habitat and are discussed below.

4.14.1 METHODS OF ANALYSIS

4.14.1.1 Indicators

Management actions described in the alternatives could result in impacts on the wildlife program. Indicators used to quantitatively assess management changes include the following:

- Degradation or improvement in wildlife habitat quality due to changes in vegetation abundance or quality.
- Changes in wildlife population numbers.
- Shifts in wildlife use of habitat due to the availability of movement from one area to another.

4.14.1.2 Assumptions

The following assumptions regarding wildlife and special status or plant species are made:

- Wildlife habitat would be managed for wildlife and migratory birds with an emphasis on special status species.
- Special status species habitat would be managed for the benefit of those species as a priority over other resource allocations and uses.
- All surface-disturbing activities would include mitigation and adaptive management to reduce impacts on special status species and their habitat.
- In general, vegetative communities are considered to be in good condition, but small localized impacted areas may be present.
- Although some areas are more suitable for different classes and species of wildlife, the impacts on different classes of wildlife would be similar and are not discussed separately.

Program Areas with No Impacts on Wildlife and Special Status Species

Management actions associated with the following program areas are expected to have no impacts on wildlife and special status species: air resources, caves and cave resources, cultural and heritage resources, paleontological resources, vegetation resources, visual resources, water resources, soil resources, wild horse and burro management, and hazardous materials and public safety. It is anticipated that these programs would have no impacts, and they are not be analyzed further in this document with respect to wildlife and special status species.

4.14.1.3 Qualitative Intensity Scale

The qualitative terms for intensity of impacts are generally the same as those adopted (see **Table 4-1**, Qualitative Terms for the Intensity of Impacts) in **Section 4.1.6**. In addition to the definitions and thresholds identified for the SDNM, impacts specific to wildlife and special status species are measured as follows:

- Negligible. Impacts include but are not limited to: wildlife remaining in the area without having to relocate due to interactions or surface disturbance created by humans, livestock, or other wildlife; wildlife expending little to no energy to avoid such interactions or surface disturbance; and wildlife not being beleaguered during normal everyday routines such as loafing, feeding, or shading. Populations would be expected to remain at current levels or increase. Habitat connectivity would remain good; movements, seasonal or otherwise, would not be affected; and approximately 80 to 100 percent of the habitat is unfragmented. Overall change to wildlife populations, habitat quality, or habitat connectivity would be undetectable.

- Minor. Impacts could include but are not limited to: wildlife having to move small distances but remaining in the same vicinity as before the interactions or surface disturbance created by humans, livestock, or other wildlife; wildlife expending minor amounts of energy to avoid such interactions; and wildlife routines being beleaguered for a short term. Populations would be expected to remain at current levels or increase. Habitat connectivity would remain good, and movements, seasonal or otherwise, would be affected only for brief periods during such interactions. Approximately 60 to 80 percent of the habitat would be unfragmented. Overall change to wildlife populations, habitat quality, or habitat connectivity would be apparent and measurable but small and localized with in the footprint of the action.

- Moderate. Impacts could include but are not limited to: wildlife vacating the area for a short time but returning shortly after actions are no longer considered a threat; wildlife expending moderate energy to avoid interactions or surface disturbance created by humans, livestock, or other wildlife. Populations would be expected to remain at current levels or decrease slightly. Habitat connectivity could be reduced, and movement corridors, seasonal or otherwise, could be affected for longer periods of time. Approximately 40 to 60 percent of the habitat would be unfragmented. Overall change to wildlife populations, habitat quality, or habitat connectivity would be readily apparent and measurable over a larger area but would occur mainly within the footprint of the action.

- Major. Impacts could include but are not limited to: wildlife moving great distances to avoid interactions or surface disturbance created by humans, livestock, or other wildlife; wildlife vacating the area over the long term or abandoning it altogether; or wildlife expending moderate to great amounts of energy to avoid such interactions. Populations would be expected to decline locally. Habitat connectivity could be reduced or movement corridors fragmented. Wildlife movements, seasonal or otherwise, could be affected for long periods of time, and corridors could be eliminated due to frequency of such uses or other factors associated with them. As much as 40 percent of the habitat would be unfragmented. Overall change to wildlife populations, habitat quality, and habitat connectivity would be highly noticeable and extend well beyond the footprint of the action.

- Short-term. Impacts would generally last less than a single year or growing season.

- Long-term. Impacts would result in a change in a resource, or its condition would last longer than a single year or growing season.

4.14.2 COMMON TO ALL ALTERNATIVES

4.14.2.1 Common to Both Decision Areas

From Wildland Fire Management on Wildlife and Special Status Species

Vegetation communities in both the Lower Sonoran and SDNM Decision Areas are predominantly Sonoran Desert types that are not adapted to fire. In these areas, both natural and human-caused fires would be suppressed. Various resource management objectives would result in modified fire-suppression activities to limit long-term effects as defined in the management actions below. A few areas may meet the criteria for utilizing prescribed fire to meet resource objectives. These objectives include:

- Improve vegetation, wildlife habitat, or watershed conditions;

- Maintain non-hazardous levels of fuels;

- Reduce the hazardous effects of unplanned wildland fires;

- Meet other resource objectives.

Areas that could meet these criteria include stretches of the Gila River where tamarisk has suppressed native riparian vegetation and some parts of the Vekol Valley Grassland where fire may improve natural conditions of the grassland while protecting non-fire adapted vegetation communities in the vicinity.

When applying fuels-treatment methods, BLM policies, procedures, and plans are to be followed in all cases. The manual, chemical, biological, and fire-treatment methods that might be used are described in **Section 4.8**, Impacts on Vegetation Resources. There are several treatment methods and standard operating procedures that would be used in a vegetation-treatment program. Impacts of suppression activities would range from negligible to major, depending on the time of year and the duration and intensity of the fire. Impacts at this level would be an improvement compared to current conditions.

From Wildlife and Special Status Species Management on Wildlife and Special Status Species

Raptor habitat would be maintained or improved under all alternatives. By maintaining or improving habitat for raptors, it is expected that localized populations would remain stable or increase. All alternatives would avoid authorizing developments, uses, or activities within 300 meters (328 yards) of occupied raptor nests and may require developments to be relocated or seasonally limited to avoid disturbing raptors during the nesting season. Authorized developments, uses, and activities within 0.5 mile of communal raptor nesting areas would be avoided as to not disturb communal nesting areas. Impacts on raptors from these types of activities would be negligible to minor for all alternatives.

4.14.2.2 Lower Sonoran

No unique impacts have been identified for the Lower Sonoran Decision Area that would be common to all alternatives.

4.14.2.3 Sonoran Desert National Monument

From Special Designations on Wildlife and Special Status Species

All action alternatives would remove the Vekol Valley ACEC designation. The Vekol Valley ACEC is within the SDNM. The Monument's protections of Monument objects supersede those of the ACEC and justify its removal. Negligible impacts would be expected from the ACEC withdrawal.

From Minerals Management on Wildlife and Special Status Species

The SDNM is withdrawn from new mineral entry under all alternatives. The withdrawal was established in the proclamation that established the Monument. This withdrawal would have a protective effect on wildlife and special status species, as ground disturbance from exploration, prospecting, and other activities associated with mineral development would be generally prohibited.

In those few parcels (25,800 acres) within SDNM where the surface is owned by the US and the subsurface is owned by a non-federal entity, minerals development may still occur. Depending upon the extent and intensity of a project and associated disturbance, there may be direct effects on wildlife and special status species, such as disturbance or mortality from collisions with vehicles or heavy equipment, destruction of occupied burrows, or noise. However, the BLM, as the owner/manager of the surface, would work with operators to mitigate impacts. Methods would likely include project design features or best management practices that reduce or eliminate impacts on the habitat at the project site.

4.14.3 ALTERNATIVE A (NO ACTION)

Under this alternative, resources are managed to maintain the present levels of resource use and quality of public lands. The allocation of lands and resources remains essentially unchanged, reflecting only those changes identified in current LUP decisions. Some decisions in Alternative A would support maintaining or enhancing wildlife species and their habitats, but the overall impact of Alternative A on wildlife and special species and habitat generally would lead in the opposite direction. With few specific decisions to manage public uses to protect wildlife and wildlife habitat, increased loss or alteration of native habitats,

increased habitat fragmentation, changes in habitat and species composition, and loss of wildlife could occur under Alternative A.

4.14.3.1 Both Decision Areas

From Wildlife and Special Status Species Management on Wildlife and Special Status Species

No specific management objectives for special status species are specified in Alternative A; therefore, important habitat for special status plant and animal species would be protected on a case-by-case basis to maintain occupied and suitable habitats of such species. Species of concern include cactus ferruginous pygmy-owl, Sonoran desert tortoise, and bighorn sheep.

Constructing wildlife habitat improvement projects and wildlife water sources could cause short-term loss of vegetation for wildlife habitat; however, wildlife waters provide water for wildlife and support distribution of wildlife in the long term. Implementation of use restrictions and conservation measures for special status species on a case-by-case basis could also reduce or eliminate disturbances that would otherwise have affected wildlife resources.

New wildlife water developments would continue to be evaluated and constructed on a case-by-case basis. Although many wildlife species use water developments, some species (e.g., desert bighorn, mule deer, and game birds) use water developments more than others, particularly during stressful periods such as lambing, fawning, and the summer months (Rosenstock et al. 2004). Impacts on wildlife from localized water developments could result in population expansion of some species in both numbers and distribution. The effect on wildlife populations is expected to be minor to moderate. Additional wildlife water sources could increase the ability for wildlife to travel from one area to another, creating a minor to moderate improvement in habitat connectivity. Wildlife water sources also would improve the quality of habitats that currently are void of water sources, resulting in a minor to moderate impact on wildlife. New wildlife waters could have a negligible impact if they attract wildlife in numbers great enough to displace or damage animal and plant species that are already present in the area. Wildlife also may become dependent on these water sources and could be affected if the water source were removed, not maintained or allowed to go dry. The impact on wildlife could require that a species may have to vacate the area and find new water sources. A species could face mortality if unable to relocate.

Under Alternative A, the potential for disease introduction into native sheep habitats is reduced through use of the guidelines set forth in IM No. 98-140, including a restriction on permitting domestic sheep grazing within nine miles of wild sheep habitats. The impact of this action would have a minor effect on the persistence of wild sheep populations. Prohibiting domestic sheep grazing within nine miles of wild sheep habitat provides a minor improvement of habitats for other grazing wildlife species, such as mule deer, pronghorn, and Sonoran desert tortoise, since removing domestic sheep grazing would reduce competition and improve forage availability.

Existing management actions for categorized Sonoran desert tortoise habitat would continue to ensure that adequate habitat is protected and available to support viable populations and habitat of Sonoran desert tortoise consistent with criteria contained in the Desert Tortoise Range Wide Plan and Arizona Implementation Strategy (BLM 1988, 1990), as amended. Following the Range Wide Plan, impacts on desert tortoises from other actions and uses would be reduced and could assist in maintaining or improving habitat and populations.

4.14.3.2 Lower Sonoran

From Lands & Realty on Wildlife and Special Status Species

Land tenure adjustments could impact wildlife habitat management practices. The potential disposal of 18,900 acres under Alternative A could have impacts that range from negligible to major and would vary by area depending on whether the disposed-of parcels contained important wildlife habitat areas or resulted in a reduction of habitat available for wildlife use. However, most of the parcels identified for disposal are small, are surrounded by lands that are not managed by or are inaccessible to the BLM, and have abundant habitat available next to or in close proximity to the disposal areas. Therefore, negligible to minor impacts on wildlife are expected.

Development of energy projects, mainly solar, would have impacts on wildlife habitat management ranging from minor to major. Development of such projects would decrease the amount of available forage for wildlife species and would cause the destruction of dens, nests, or burrows and the mortality of species in the area because solar development practices involve clearing vegetation and leveling the ground. For wildlife to not be affected, the proposal would have to be located in areas where habitat values are so poor or fragmented that wildlife cannot occupy it. Conflicts could be avoided by employing adaptive management and BMPs to allow multiple uses with minor impacts on wildlife.

Designation of up to ten utility corridors through the Planning Area could lead to construction of new access roads and associated increased vehicle traffic. Impacts would likely be negligible from conflicts between vehicles and wildlife where the corridors are limited to administrative access or where current projects already exist. Overall impacts from Alternative A lands and realty management on wildlife are expected to range from negligible to major.

From Livestock Grazing on Wildlife and Special Status Species

Impacts on wildlife or special status species from livestock grazing are poorly documented in the scientific literature in the Sonoran Desert (Hall et al. 2005). In general, impacts from grazing could include competition for space, forage, cover, and water resources throughout the Decision Areas. In addition, livestock grazing may alter vegetation structure and composition, thus affecting wildlife habitat (Hall et al. 2005).

Research indicates that there is a high probability that disease is transmitted from domestic livestock to wildlife, particularly when there is direct contact between domestic sheep and bighorn sheep. The major disease that poses a threat to bighorn sheep is Pasturella. Pasturella is a bacterium that occurs in nasal passages of both bighorn sheep and domestic sheep and goats. When Pasturella is introduced to bighorn sheep, it can cause respiratory issues such as pneumonia and can ultimately lead to mortality of individuals or entire herds.

Constructing rangeland development projects and new water sources would cause short-term losses of vegetation for wildlife habitat by removing or trampling vegetation but could improve water availability for wildlife and support distribution of wildlife in the long term. Moderate impacts typically occur within areas where livestock are concentrated, such as water sources, salting and supplement areas, or areas in which livestock are trailed or worked. Impacts associated with grazing range from negligible to major.

From Minerals Management on Wildlife and Special Status Species

Mineral development could impact wildlife habitat management by disturbing surfaces and decreasing vegetation. Wildlife may vacate the area during active mineral operations, thus reducing occupancy by wildlife and reducing available space and habitat. However, small mining operations less than five acres in size would have minor impacts on wildlife. The size of an operation and the amount of human activity would dictate the level of impacts on wildlife species and could be moderate depending on the amount of habitat fragmentation and human activity. Some wildlife species could become accustomed to the activity over a relatively short period of time, negating the impact by habituation on their own concurrence. If so, impacts could be minor on some wildlife species. The level of impact on wildlife would vary by the size of the mineral development but generally would be minor in scale. Overall impacts on wildlife are expected to range from negligible to moderate under Alternative A.

From Recreation Management on Wildlife and Special Status Species

In the Lower Sonoran, current levels of recreation management do not adequately address impacts on wildlife and special status species. Informal unauthorized recreational use areas are developed continually and cause habitat loss and disturbance. The existing management identifies a recreation opportunity spectrum including primitive, semi-primitive nonmotorized, semi-primitive motorized, roaded natural, rural, and urban. Primitive areas with low visitation and intensively used areas with high visitation are intermingled and dispersed throughout the Planning Area. Overall impacts from recreation classifications on wildlife are expected to range from negligible to major depending on the intensity, duration, and concentration of recreational uses.

From Special Designations on Wildlife and Special Status Species

Currently, the Coffeepot ACEC encompasses approximately 8,900 acres of public lands under Alternative A. This ACEC was designated for the protection of the endangered Acuña cactus. There are scattered populations of this cactus within the boundaries of the ACEC, and management is focused on this single species. The area does contain an active gas pipeline and numerous routes that could affect the existence of the species. The ACEC also is in close proximity to the town of Ajo, and recreation and mining uses occur within the ACEC, which could lead to further habitat fragmentation for the cactus. Impacts on the Acuña cactus are expected to range from negligible to moderate under current conditions of the ACEC.

From Travel Management on Wildlife and Special Status Species

Travel on 819,500 acres of public lands in the Lower Sonoran would continue to be allocated as limited to existing routes. Travel on 110,700 acres would be closed, with approximately 91,750 acres designated as wilderness areas, and 8,900 acres allocated for the Coffeepot Botanical ACEC. Travel on 21,400 acres would be limited to designated routes. Impacts on wildlife resources are expected to be minor to moderate.

The designation of wilderness affords the highest level of protection for unfragmented habitat. Wilderness areas contain special status species habitat for Sonoran desert tortoise, desert bighorn sheep, and potential foraging habitat for lesser long-nosed bats.

The number of open routes under Alternative A in the Lower Sonoran could cause impacts that could range from negligible to moderate in the form of conflicts between wildlife and vehicles. However, a well-designed route system could support wildlife management by facilitating access for wildlife movement and wildlife developments across the landscape. Closed or limited routes would generally be expected to reduce the level of conflict, and impacts from vehicles to wildlife habitat management impacts would be expected to range from negligible to minor.

Under Alternative A, few restrictions would be placed on motorized or nonmotorized users accessing the public lands in the Planning Area other than the prohibition of motorized cross-country travel. Multiple access points could result in habitat fragmentation through the creation of multiple routes, increased soil erosion and compaction, and loss of vegetation as routes proliferate and the hydrologic flow is altered or diverted. Increases in surface disturbance may result in increases in noxious and invasive weeds from importation by vehicles, urban developments, roadways, livestock, equestrian users, and hikers, all of which could reduce native vegetation, alter vegetative composition, and reduce habitat suitability for some wildlife species. Some wildlife or special status species may be displaced or face mortality as a result of increased human interaction and habitat alteration. Impacts from interactions between humans and wildlife vary greatly, from negligible to major.

Typically, negligible and minor impacts on wildlife are expected where use is infrequent and human interactions are few. Interactions are fewer in areas where roads and trails are infrequently used, such as rough roads or wilderness trails. In Alternative A, there are approximately 34 miles of nonmotorized trails and approximately 582 miles of primitive roads where wildlife impacts are expected to be negligible to minor. Moderate to major impacts typically occur where use is more frequent and interactions between wildlife and humans are greater. These are typically routes and roads that are maintained for more frequent, higher speed travel. In Alternative A, there are approximately 16 miles of maintained roads where impacts are expected to be moderate. At this time it is expected that there would be no major impacts associated with travel for any of the alternatives.

Sonoran desert tortoise habitat would continue to be managed consistent with the objectives outlined in the Desert Tortoise Rangewide Plan (BLM 1988) and Strategy for Tortoise Management on Public Lands in Arizona (BLM 1990). Identification and management of OHV use under limited funding would continue to be a challenge in controlling route proliferation and unauthorized uses. Habitat fragmentation and direct disturbance to wildlife resources would occur.

Overall impacts would be expected to range from negligible to moderate depending on the location and duration of surface-disturbing activities.

From Wilderness Characteristics on Wildlife and Special Status Species

Because no lands managed to protect wilderness characteristics would be allocated under Alternative A, no impacts would occur.

4.14.3.3 Sonoran Desert National Monument

From Lands & Realty on Wildlife and Special Status Species

The designation of three utility corridors north of I-8 could lead to new access roads and associated increased vehicle traffic. The areas designated for transmission LUAs could increase perching opportunities for raptors as well as increasing wire line strikes and electrocutions for some avian species. The corridors also could serve as areas where wildlife would travel from one area to another with the removal of vegetation. Removing vegetation in areas could assist wildlife in short term dispersal in a relatively secure manner; however, it also could increase predation on some species with the removal of cover for escape. Overall impacts from the utility corridors would be expected to range from negligible to minor.

From Livestock Grazing on Wildlife and Special Status Species

Under Alternative A, Livestock grazing authorizations south of I-8 in the SDNM were terminated when existing grazing permits expired as directed by Presidential Proclamation 7397. Grazing in the SDNM north of I-8 would continue as perennial, perennial/ephemeral, and ephemeral use, consistent with current permits. Within these open areas, wildlife would compete for space, forage, cover, and water resources. In addition, fences associated with grazing management can limit movement for large mammalian species, such as bighorn sheep, and contribute to habitat fragmentation (Hall et al. 2005). Plant community composition and wildlife or special status species populations would be maintained or decreased.

Construction of rangeland development projects and water sources would cause short-term losses of vegetation for wildlife habitat by removing or trampling vegetation but could improve water availability for wildlife and support distribution of wildlife in the long term. Moderate impacts typically occur within areas where livestock are concentrated, such as water sources, salting and supplement areas, or areas in which livestock are trailed and/or worked. Overall impacts would be minor to moderate.

Domestic sheep and goat grazing could continue within the Monument, although currently there are no permits for these types of livestock. Impacts would be the same as described for Alternative A for the Lower Sonoran.

Refer to **Table 4-25**, Impacts from Implementation-Level Decisions on Wildlife and Special Status Species Monument Objects, for impacts related to AUM allocations in the SDNM.

From Recreation Management on Wildlife and Special Status Species

Recreation uses in the SDNM would be allowed to the extent they are consistent with protection of Monument objects. Overall impacts on wildlife are expected to be negligible to minor.

Retaining target shooting throughout the entire Monument would act to disperse the impacts of recreational target shooting throughout the Monument and, target shooting would continue in areas that are known to be unsuitable for this activity. Due to observed increases in recreational target shooting activity since designation of the SDNM, the BLM would expect to see impacts on Monument objects, to include wildlife, spread over an increasingly larger area of the SDNM as new target shooting

sites are established and existing sites grow in extent. Impacts could include but are not limited to the direct loss, mortality or injury of individual animal species and avoidance of traditional habitats while target shooting is taking place. Impacts would be expected to range from negligible to moderate depending on the location and duration of target shooting and impacts on wildlife in the immediate area.

From Special Designations on Wildlife and Special Status Species

Currently, there are 3,500-acres of public lands within the Vekol Valley Grassland ACEC, located within the SDNM. The Vekol Valley Grassland ACEC was designated before the conception of the SDNM. A decision in a previous RMP closes the Vekol Valley Grassland ACEC to OHV use and remains in effect. In all alternatives except Alternative A, the Vekol Valley ACEC designation would be removed as the SDNM proclamation contains prescriptions that protect the area with more stringent conservation measures than the ACEC. Impacts of retaining the ACEC would range from negligible to minor based on current restrictions within the ACEC.

From Travel Management on Wildlife and Special Status Species

Refer to **Table 4-25**, Impacts from Implementation-Level Decisions on Wildlife and Special Status Species Monument Objects, for impacts related to travel management.

From Wilderness Characteristics on Wildlife and Special Status Species

Because no lands managed to protect wilderness characteristics would be allocated under Alternative A, no impacts on wildlife would occur.

4.14.4 ALTERNATIVE B

4.14.4.1 Common to Both Decision Areas

From Wildlife and Special Status Species Management on Wildlife and Special Status Species

Alternative B would be similar to Alternative A except that the lesser long-nosed bat foraging habitat, populations, and connectivity would be protected under Alternative B. Protecting these habitats from fragmentation would ensure species foraging capabilities within both Decision Areas and would protect objects within the Monument, particularity saguaro cactus. Impacts on the lesser long-nosed bat would be negligible to minor from all alternatives.

Pronghorn habitat would be protected to achieve recovery goals as set forth in the Sonoran Pronghorn Recovery Plan. Sonoran pronghorn habitat would be open to all locatable and leasable minerals exploration and development, as well as mineral material disposals. Surface disturbance associated with locatable and leasable minerals exploration and development and mineral material disposals could reduce habitat availability, habitat connectivity, and localized populations of the Sonoran pronghorn. Allowing these surface disturbing activities within the pronghorn habitat could have major impacts on both the species and its habitat within the Lower Sonoran Decision Area.

Southwestern willow flycatcher, yellow-billed cuckoo, and Yuma clapper rail habitats in the Fred J. Weiler Green Belt and the Gila River bed would be maintained or improved. Under this alternative,

attention would be focused on reducing the amount and number of nonnative invasive species in the Green Belt riparian zone. Projects would be engineered to improve habitat quality, increase localized populations, and improve connectivity of riparian habitats. Habitat improvement projects could impact some species by removing the nonnative invasive species and creating areas that are void of plant structure as natural communities of riparian vegetation reestablish themselves. Impacts on the three species from habitat improvement projects would be expected to be minor to moderate.

Bat species populations and habitat would be maintained or improved in coordination with the AGFD. Bat roosts associated with natural caves and abandoned mines would be gated to restrict access by humans but still allow bats the use of such features. Gating these features would provide bats areas of refuge from harassment by humans and could increase localized populations. Impacts on bats are expected to be negligible to minor.

Suitable or occupied habitat for the cactus ferruginous pygmy-owl would be maintained or improved by avoiding surface-disturbing activities within 0.5 miles of occupied nest sites from February 1st through July 15th. Avoiding surface-disturbing activities during this time would allow the pygmy-owl to breed, nest, and fledge young in relative seclusion. Impacts on the pygmy-owl are expected to be negligible to minor.

Sonoran desert tortoise habitat would be maintained or improved as outlined in the Desert Tortoise Range Wide Plan (BLM 1988). Category I, II, and III tortoise habitat would be open to all land uses and activities and would be managed through existing regulations. Mitigation and compensation may be required to achieve the no net loss criteria in the range wide plan. This alternative would allow surface disturbance at a small scale to accommodate land uses that could impact the tortoise. Impacts on desert tortoise are expected to be minor to moderate under this alternative.

Wildlife movement corridors would be managed for habitat connectivity to improve habitat quality, increase local populations, and connect habitat areas for wildlife usage. Impacts on corridors would be mitigated to reduce effects of possible collisions with vehicles and human interactions. Impacts on corridors are expected to be negligible to minor for wildlife species in both Decision Areas.

Existing wildlife waters would be maintained or redeveloped as necessary to provide year-round water sources for wildlife species. Additional wildlife waters could be developed, and existing wildlife waters would be removed and potentially relocated to higher priority areas if a water catchment is not needed or does not attract wildlife use. Such actions would be done in cooperation with AGFD to provide the density and distribution of wildlife waters needed to sustain and enhance native wildlife population numbers or distribution across their range. Impacts on wildlife from wildlife waters would be negligible to minor in both Decision Areas.

Nonnative invasive animal species would be prohibited unless peer-reviewed scientific literature stated that the introduced species would have no detrimental effects on any native wildlife species within in the Planning Area. Typically, non-native species out-compete native species for resources; however if an introduced species does not cause competition for resources needed for the continued existence of native species, they could be introduced. Impacts on wildlife would negligible to minor in both Decision Areas.

4.14.4.2 Lower Sonoran

From Lands & Realty on Wildlife and Special Status Species

In general, impacts from utility corridors, energy projects and LUAs on wildlife habitat management would be similar to those described in Alternative A. However, development of new energy projects and allowance of minor and non-linear LUAs to be located outside of designated corridors could affect wildlife habitat, leading to moderate impacts on wildlife due to the removal of acreage and habitat available for wildlife usage, the potential to fragment habitat, and the likelihood of additional road development and access. Overall impacts from Alternative B would range from negligible to moderate.

Impacts from land tenure adjustment on wildlife habitat management in the Lower Sonoran would be similar to the scale of impacts described under Alternative A. However, more habitat could be impacted because approximately 36,300 acres would be available for disposal under Alternative B. Overall impacts from land tenure adjustment would be expected to range from negligible to moderate under Alternative B.

From Livestock Grazing on Wildlife and Special Status Species

Management of perennial grazing allotments with a reduction in the authorized grazing preference would have a minor impact on wildlife habitat management. The reduction in livestock numbers would improve quality and quantity of habitat for most wildlife species. Requiring changes such as intensive management of livestock operations would generally improve wildlife habitat conditions. Land health standards and guides would be established to maintain or improve habitat for wildlife and vegetative components utilized by both wildlife and livestock. Habitat improvement for some wildlife species (such bighorn sheep, desert tortoise and other grazers) would be moderate under this alternative, but impacts would be minor to negligible for other species of wildlife that compete less with livestock. Allotments that are meeting or exceeding standards would be considered as providing habitat for healthy sustainable wildlife populations. Domestic sheep and goat grazing would be prohibited within nine miles of bighorn sheep habitat, as in Alternative A.

The effect of changing grazing practices in Alternative B would have a negligible-to-minor impact on habitat connectivity, which would be a less significant impact than under Alternative A.

From Minerals Management on Wildlife and Special Status Species

Impacts associated with minerals management under Alternative B would be less than under Alternative A. Management of mineral development on wildlife habitat would increase habitat availability by requiring plans of operations and minimizing the footprint of mining operations in areas of important wildlife habitat for all wildlife species, with an emphasis on special status species habitats. Overall impacts on wildlife are expected to range from negligible to moderate under Alternative B.

From Recreation Management on Wildlife and Special Status Species

Designation of SRMAs and ERMAs is intended to direct and control the amount of recreation uses to reduce conflicts with other resources. Recreation use in the front country setting is expected to be higher and closer to the urban interface. Approximately 263,300 acres, or 34 percent of the Lower

Sonoran, would be allocated in the front county zone. Increased usage in this area could result in impacts on wildlife resources that range from minor to major, depending on the species and habitat impacted. Development of recreation facilities would result in habitat loss and disturbance. All authorized actions would be implemented with BMPs and standard operating procedures to minimize impacts on wildlife resources.

Approximately 347,200 acres, or 45 percent of the Lower Sonoran, would be allocated in the backcountry setting. Impacts on wildlife resources are expected to be less in the backcountry. The emphasis in this zone would be natural primitive landscapes, resulting in limited access and less ground disturbance to vegetation and wildlife habitat. Impacts could be negligible to minor.

From Special Designations on Wildlife and Special Status Species

Under Alternative B, impacts from special designations would be similar to those discussed under Alternative A except that the Coffeepot Botanical ACEC would be closed to OHV use, reducing fragmentation and the possible crushing of individual plants. Mining activities would be required to be mitigated to not disturb individual Acuña cactus plants and avoid known populations of the cactus, thereby reducing habitat fragmentation and allowing persistence of the species on a small scale. Livestock use would be managed to perpetuate botanical diversity, and range developments would not be located in areas that would increase livestock use where local populations of the cacti could be found. Overall impacts would range from negligible to moderate.

From Travel Management on Wildlife and Special Status Species

Under Alternative B, 101,800 acres would be closed to motor vehicle use, and 91,750 acres would be closed with the designation of two wilderness areas. Impacts are expected to be similar to those described in Alternative A. In Alternative B, routes would be limited to designated roads within the Coffeepot Botanical ACEC. This could result in minor to moderate impacts on biological resources within the ACEC. The potential for route proliferation in the areas is limited somewhat by terrain; however, the potential for increased activity does exist. Habitat loss and fragmentation likely would continue to increase under Alternative B.

On approximately 825,400 acres, motorized travel would be limited to designated roads and trails. Impacts on wildlife could range from minor to moderate based on specific route designations and location and type of use in special status species habitat areas. Requiring designated routes should reduce route proliferation and reduce the potential for habitat fragmentation.

Approximately 40 acres would be designated as open for recreational activities. The proposed open area is within the current range of the endangered Sonoran pronghorn. There are minor impacts on pronghorn habitat due to the location of Ajo.

Alternative B would limit travel to designated routes. Impacts associated with unmanaged travel detailed in Alternative A would be reduced. Under Alternative B, more restrictions would be placed on motorized and nonmotorized users accessing the public lands in the Planning Area. Limited access points would reduce habitat fragmentation through limiting the creation of multiple routes; reduction in soil erosion, compaction, and loss of vegetation as routes are controlled; and avoiding alteration or diversion of hydrologic flow. Decreases in surface disturbance may result in reduced incidences of noxious and

invasive weed importation by vehicles, urban developments, roadways, livestock, equestrian users, and hikers. Some wildlife or special status species may be displaced or could face mortality as a result of human interaction and habitat alteration but fewer than in Alternative A. Impacts from interactions between humans and wildlife vary greatly from negligible to major.

Impacts under Alternative B would be similar to impacts under Alternative A except that Alternative B proposes approximately 38 miles of nonmotorized trails and approximately 495 miles of primitive roads where wildlife impacts are expected to be negligible to minor. Moderate to major impacts typically occur where use is more frequent and interactions between wildlife and humans are greater. These are typically routes and roads that are maintained for more frequent, higher speed travel. In Alternative B, there are approximately 29 miles of maintained roads proposed where impacts are expected to be moderate.

Overall impacts on wildlife under Alternative B would be less than under Alternative A and are expected to range from negligible to moderate.

From Wilderness Characteristics Management on Wildlife and Special Status Species

Impacts would be the same as those discussed under Alternative A.

4.14.4.3 Sonoran Desert National Monument

From Lands & Realty on Wildlife and Special Status Species

Impacts from multiuse utility corridors, energy projects, and LUAs on wildlife habitat management would be similar to those described in Alternative A.

From Livestock Grazing on Wildlife and Special Status Species

Impacts would be similar to those described under Alternative A for the SDNM, except that fewer acres would be available for livestock grazing (244,000 acres), and more forage (3,382 AUMs) would become available for wildlife. However, the 83 miles of fencing required to exclude livestock would also cause habitat fragmentation and inhibit wildlife movement along the wildlife corridors in the area. Moreover, livestock waters within the 8,500 acres proposed to be fenced off may become unavailable to wildlife as well, resulting in reduction of habitat values for many species. Positive and negative impacts would likely cancel each other out under this alternative.

Table 4-25, Impacts from Implementation-Level Decisions on Wildlife and Special Status Species Monument Objects, for impacts related to AUM allocations in the SDNM.

From Minerals Management on Wildlife and Special Status Species

Impacts would be the same as those described under Alternative A for the SDNM.

From Recreation Management on Wildlife and Special Status Species

In the SDNM, impacts would be similar to the Lower Sonoran except that approximately 107,200 acres (22 percent of the Decision Area) would be allocated as front country, and approximately 377,600 acres (78 percent of the Decision Area) would be allocated as backcountry.

Under Alternative B, up to 12 additional 0.25-acre visitor contact sites or other small pullouts would be provided. These facilities would be located in areas previously disturbed to the extent possible; thus, the area of new disturbance would total approximately three acres. There would be one 24-site campground, up to three visitor-contact sites of 0.25-acre each, three group campsites, one equestrian corral, one OHV/ATV parking area, one day-use and interpretive area, and one six-mile, nonmotorized trail through Butterfield Pass situated in the Anza RMZ. To the extent possible, these facilities would be located in areas previously disturbed; thus, the area of new disturbance would total approximately 6 to 10 acres. Localized disturbance would occur but would be negligible to minor, which would be less impactful than Alternative A.

Recreational target shooting would be prohibited on approximately 390,500 acres, or 80.3%, of the SDNM determined to be unsuitable for this activity due to a prevalence of Monument objects. Recreational target shooting would continue on approximately 95,900 acres, or 19.7%, of the SDNM where Monument objects are not prevalent. Impacts on wildlife would be expected to decrease as compared to Alternative A. Wildlife would be afforded the opportunity to remain in traditional habitats with relatively few interruptions from human disturbance associated with target shooting. Mortality and harassment form target shooting and human disturbance would be expected to decrease, as compared to Alternative A, as the amount of open areas for target shooting are limited to 19.7% of the Monument. Most mobile wildlife species, would avoid target shooting areas and human interactions to a certain degree. Impacts would be expected to range from negligible to moderate.

From Special Designations on Wildlife and Special Status Species

Under Alternative B, impacts would be similar to those discussed under Alternative A except that the Coffeepot Botanical ACEC would be closed to OHV use, thereby reducing fragmentation and the possibility of crushing individual Acuña cactus plants. Mining activities would be required to be mitigated so as to not disturb individual Acuña cactus plants and to avoid known populations for the cactus, reducing habitat fragmentation and allowing the persistence of the species on a small scale. Livestock use would be managed to perpetuate botanical diversity, and range developments would not be located in areas that would increase livestock use where local populations of the cactus could be found. Overall impacts would be negligible.

From Travel Management on Wildlife and Special Status Species

Refer to **Table 4-25**, Impacts from Implementation-Level Decisions on Wildlife and Special Status Species Monument Objects, within **Section 4.26**, Implementation-Level Analysis.

From Wilderness Characteristics on Wildlife and Special Status Species

Impacts would be the same as those described for Alternative A.

4.14.5 ALTERNATIVE C

4.14.5.1 Common to Both Decision Areas

From Wildlife and Special Status Species Management on Wildlife and Special Status Species

Alternative C introduces Wildlife Habitat Areas (WHAs) in the Batamote Mountains, Cuerda de Lena, the Gila Bend Mountains, and Saddle Mountain. Impacts common to both Decision Areas from WHAs would include the following.

Retention of public lands within the WHAs would improve habitat quality, maintain or increase local populations of wildlife, and provide connectivity to habitats used by wildlife. Impacts on wildlife from retaining public lands in the WHAs would be negligible.

Maintenance of utility corridors, including vegetation clearing, would be restricted to the existing authorized LUA corridor within the WHAs. This would reduce disturbance outside of utility corridors, leaving habitat available for wildlife. Some wildlife species use utility corridors as feeding, resting, or travel areas and use vegetation surrounding the utility corridors for other day-to-day activities. Through limitation of vegetation clearing to within the existing corridor, habitat fragmentation would be reduced to only the areas needed for the maintenance of utilities. Impacts on wildlife would be negligible to minor, less than under Alternative A.

Routes that conflict with resource protection and management could be closed, limited by seasonal restrictions, or mitigated to prevent habitat degradation and fragmentation. Using closures, seasonal restrictions, and mitigation to prevent habitat degradation and fragmentation would improve habitat quality, local populations, and the connectivity of habitats for wildlife species. Impacts on wildlife from transportation routes would be negligible to minor, less than under Alternative A.

Through the route-designation process, route densities would be reduced and the designation of upland routes would be emphasized. Necessary use of access routes in washes would be allowed; however, these access routes may contain seasonal closures; impacts would be less than those under Alternative A.

All new roads or highways crossing public land would be designed to facilitate movement of wildlife, and impacts would be mitigated to minimize disturbance.

Special status species habitat areas would be maintained during road improvements (e.g., altering, upgrading, paving, and widening), and improvements would have to meet Sonoran desert tortoise protection standards. Mitigation may include at-grade wildlife crossings, wildlife under- or over passes, wildlife-appropriate fencing, speed limits, and other appropriate actions; impacts would be less than those under Alternative A.

Surface-disturbing activities affecting an area greater than 40 acres, including land use authorizations, utility-scale renewable-energy development, and recreation facilities, would be avoided. Overall impacts on wildlife under Alternative C are expected to range from negligible to minor.

Under Alternative C, surface-disturbing activities affecting an area greater than 40 acres, including land use authorizations and utility-scale renewable-energy development, would be avoided within WHAs. Uses would be concentrated in less sensitive resource areas or in previously disturbed areas. If no other options existed, impacts from activities would be mitigated and managed to ensure consistency with management objectives, including an emphasis on maintaining wildlife habitat and connectivity. Impacts would be expected to range from negligible to moderate.

Surface-disturbing activities affecting an area smaller than 40 acres would be allowed if the use and disturbance were mitigated and managed to ensure consistency with management objectives and emphasized maintaining wildlife habitat and connectivity. Uses would be concentrated in less sensitive resource areas or in previously disturbed areas whenever feasible. Impacts would be expected to range from negligible to moderate.

WHAs would be open to extraction of leasable minerals, geothermal resources, and mineral materials on a case-by-case basis. All impacts from surface-disturbing activities affecting an area greater than 40 acres would have to be mitigated and managed to ensure consistency with management objectives and emphasize maintenance of wildlife habitat and connectivity. Impacts would be expected to range from negligible to moderate.

The construction of new routes would be allowed if they were consistent with natural resource objectives and did not conflict with wildlife management objectives. Closed roads could be converted for use as nonmotorized trails if they were consistent with natural resource objectives. Impacts would be expected to range from negligible to minor.

Under Alternative C, motorized vehicle use would be prohibited in washes in the Batamote Mountains WHA that were found to contain occupied or suitable cactus ferruginous pygmy-owl habitat to protect pygmy-owls during the breeding, nesting, and dispersal season from April 15th to August 31st. All other areas would be limited to existing or designated routes. Impacts would be expected to range from negligible to minor.

Under Alternative C, the Cuerda de Lena WHA would be closed to public use including all lands, discretionary minerals, and recreation activities during pronghorn fawning, from March 15th to July 15th, or as determined annually by the Sonoran pronghorn recovery team. The area would remain open to locatable mineral entry but closed to leasable and mineral materials actions, including exploration and development. Federal, state, and local government employees and permit holders operating within the scope of their authorizations would be exempt from the closure. Impacts would be expected to range from negligible to minor.

Motorized vehicle use would be prohibited in washes that are found to contain occupied or suitable cactus ferruginous pygmy-owl habitat during the breeding, nesting, and dispersal season from April 15th to August 31st. All other areas would be limited to existing or designated routes. Impacts would be expected to range from negligible to minor.

Mineral material disposals would be prohibited in washes that are found to contain occupied or suitable cactus ferruginous pygmy-owl habitat. Impacts would be expected to range from negligible to minor.

Overall impacts on wildlife would be expected to range from negligible to moderate under Alternative C within the WHAs, resulting in fewer impacts than under Alternative A.

4.14.5.2 Lower Sonoran

From Lands & Realty on Wildlife and Special Status Species

In the Lower Sonoran, impacts from utility corridors, energy projects, and LUAs on wildlife habitat management would be similar to those discussed under Alternative B. Impacts from land tenure adjustment on wildlife habitat management would be greater than under Alternative A and similar to those under Alternative B because 36,300 acres would be available for disposal under Alternative C.

From Livestock Grazing on Wildlife and Special Status Species

Management of all perennial/ephemeral grazing allotments as perennial only, with no additional ephemeral use, would result in a minor improvement of wildlife habitat by reducing the long-term competition between livestock and wildlife for important annual forage species. Requiring a seasonal adjustment in permitted use (approximately 65 percent during the winter-spring season [October 1st to April 30th] and approximately 35 percent during summer season [May 1st to September 30th]) would result in a minor improvement to wildlife habitats by increasing available habitat for wildlife during the winter, spring, and summer seasons. Habitat improvement for some wildlife species would be moderate under this alternative (including bighorn sheep, mule deer, Sonoran desert tortoise, and other grazers) but minor to negligible for other species of wildlife that compete less with livestock. Domestic sheep and goat grazing would be prohibited within nine miles of bighorn sheep habitat, and effects would be the same as those discussed under Alternative A.

Allotments meeting or exceeding standards would be considered to be providing habitat for healthy sustainable wildlife populations. The effect of changing grazing practices in Alternative C would have a negligible impact on habitat connectivity. Management prescriptions in Alternative C would result in a greater improvement to wildlife habitat than would occur in Alternative A.

From Minerals Management on Wildlife and Special Status Species

Impacts from mineral development on wildlife habitat management would be similar to those described in Alternative B.

From Recreation Management on Wildlife and Special Status Species

Impacts would be similar to those described in Alternative B except that 186,300 acres (29 percent of the Lower Sonoran) would be allocated as front country and 423,100 acres (66 percent of the Lower Sonoran) as backcountry.

From Special Designations on Wildlife and Special Status Species

Under Alternative C, the Coffeepot Botanical ACEC would be replaced by the Coffeepot Batamote ACEC which Coffeepot would encompass 63,300 acres of public lands. This ACEC is being proposed to protect lesser long-nosed bat and cactus ferruginous pygmy-owl habitats; the outstanding botanical diversity of the native plant communities; botanical resources unique to the area such as the Acuña

cactus, desert bighorn sheep, and other diverse wildlife populations; and outstanding landscape and scenic features. The Coffeepot Batamote ACEC also contains an endangered plant species: the Acuña cactus. The cactus ferruginous pygmy-owl has been petitioned for listing under the ESA, and habitat is available for it within the ACEC. The ACEC contains 100 percent public lands, and it is recommended that those lands be retained under public ownership. Impacts from retaining the public lands within the ACEC would be negligible.

New routes in washes would be prohibited within the ACEC unless conflicts with wildlife were mitigated and minimization criteria were established during route designations. At the time of route designations, mitigation, adaptive management, and BMPs would be used to avoid harassment and long-term displacement of wildlife. By using these techniques, negligible to minor impacts on wildlife would be expected to occur.

Camping within the Coffeepot Batamote ACEC would be limited to dispersed and undeveloped sites. Minor impacts on wildlife are expected to occur from limiting camping in this manner. New utility, communication, transportation, and utility-scale renewable energy development would be avoided within the ACEC. Impacts on wildlife would be expected to be negligible to minor.

Motorized vehicle routes would be closed or limited with mitigation to avoid conflicts with wildlife habitat management, and new routes would be prohibited with the exception of routes needed for resource-management protection purposes. Mitigation, adaptive management, and BMPs would be used to avoid harassment and long-term displacement of wildlife. Impacts on wildlife would be expected to be negligible to minor. Nonmotorized trails would be permitted within the ACEC as long as their impacts were mitigated and adaptive management and BMPs were used to avoid harassment and long-term displacement of wildlife. Impacts to wildlife would be expected to be negligible to minor.

Within the ACEC, new utilities would be required to be buried underground within existing LUAs to retain the unencumbered viewshed. New LUAs would not be approved outside the existing LUA. Requiring the burial of LUAs and excluding all applications outside the existing LUAs within the ACEC would likely result in negligible to minor impacts on wildlife. Mitigation, adaptive management, and BMPs would be used to avoid harassment and long-term displacement of wildlife.

Recreational development would be limited to the minimum requirements to protect resources and provide for public safety. Impacts on wildlife would be expected to be negligible to minor.

The Coffeepot Batamote ACEC would be closed to livestock grazing, and infrastructure associated with grazing would be removed. Once grazing is removed, impacts on wildlife would be expected to be negligible to minor; however, removing associated infrastructure could cause major impacts on wildlife, especially if water sources were removed. Water is a scarce resource in the Sonoran Desert, and removing any water source could be detrimental to wildlife species that have become accustomed to a particular water source. Local populations of wildlife in the area would have to relocate and possibly face mortality without water.

The ACEC would be closed to all forms of mineral entry, though existing valid rights would be recognized. Mitigation, adaptive management, and BMPs would be used for existing mineral rights to avoid harassment and long-term displacement of wildlife. Impacts on wildlife would be expected to be negligible to minor.

Overall impacts on wildlife would be expected to range from negligible to minor, less than impacts under Alternative A.

From Travel Management on Wildlife and Special Status Species

Under Alternative C, motorized use would be limited to designated routes, similar to limitations under Alternative B. Under this alternative, 101,800 acres would be closed to motor vehicle use, and 828,460 acres would be limited to designated routes. No open areas would be designated. Impacts under Alternative C would be similar to those described for Alternative B. Under Alternative C, some routes (132 miles) would be closed seasonally to reduce conflicts in special status species habitats. These closures would reduce disturbance and human interactions during breeding, nesting, lambing, and fledging lifecycles. Under Alternative C, there would be approximately 12 miles of nonmotorized trails and approximately 358 miles of primitive roads where wildlife impacts would be expected to be negligible to minor. Moderate to major impacts typically occur where use is more frequent and interactions between wildlife and humans are greater. These typically are routes and roads that are maintained for more frequent, higher speed travel. Under Alternative C, there would be approximately 25 miles of maintained roads where impacts would be expected to be moderate.

From Wilderness Characteristics on Wildlife and Special Status Species

Approximately 128,100 acres would be allocated as lands managed to protect wilderness characteristics under this alternative. Proactive wildlife management would be limited; however, allowable uses prescribed to protect and enhance wilderness characteristics would benefit wildlife resources. Impacts on wildlife resources are expected to be negligible to minor.

4.14.5.3 Sonoran Desert National Monument

From Lands & Realty on Wildlife and Special Status Species

Impacts from utility corridors would be similar to those described in Alternative A but reduced due to the elimination of the Tucson Electric Power multiuse utility corridor and the reduction in size of the remaining two corridors to a 0.5 mile wide limit. Overall impacts on wildlife would be expected to range from negligible to minor.

From Livestock Grazing on Wildlife and Special Status Species

Impacts would be similar to those described under Alternative A for the SDNM, except that 44,800 acres north of I-8 would become unavailable for livestock grazing and the corresponding 1,611 AUMs would become available for wildlife forage. Although encompassing a much larger area than proposed under Alternative B, Alternative C would only require about 47 miles of new fences to restrict livestock because the fencing would tie into existing fences and topographic features, such as cliffs, gorges, and rocky outcrops. This proposed fence line would result in fewer impacts to habitat fragmentation and wildlife movement along the wildlife movement corridors in the area. Impacts from Alternative C for the SDNM would be moderate due to increased cover, space, and forage available within the areas closed to livestock.

In areas open to grazing, allotments would be reclassified as perennial only, which would further increase the amount of annual forage available to wildlife. Impacts would be negligible to minor, similar to those described in Alternative A. Within the SDNM, domestic sheep and goat grazing would be eliminated under Alternative C, which would have a negligible impact because there are currently no permits for goats or sheep in the SDNM. Overall impacts of Alternative C on wildlife from livestock grazing would be minor to moderate.

Refer to **Table 4-25**, Impacts from Implementation-Level Decisions on Wildlife and Special Status Species Monument Objects, for impacts related to AUM allocations in the SDNM.

From Minerals Management on Wildlife and Special Status Species

Impacts from mineral development on wildlife habitat management would be similar to those described in Alternative A.

From Recreation Management on Wildlife and Special Status Species

In the SDNM, impacts would be similar to those discussed under Alternative B except 55,500 acres, or nine percent of the SDNM, would be allocated as front country and 383,500 acres, or 88 percent of the SDNM, as backcountry.

Impacts on wildlife would be expected to decrease as compared to Alternative A and B. Wildlife would be afforded the opportunity to remain in traditional habitats with very few interruptions from human disturbance associated with target shooting. Mortality form target shooting and harassment would be expected to dramatically decline, as compared to Alternative A and B, as the amount of open areas are for target shooting are restricted to 0.2% of the Monument. Most mobile wildlife species, would avoid target shooting areas and human interactions to a certain degree. Impacts would be expected to range from negligible to minor.

From Special Designations on Wildlife and Special Status Species

There are no special designations proposed for wildlife in the SDNM. Thus, there would be no impacts.

From Travel Management on Wildlife and Special Status Species

Refer to **Table 4-25**, Impacts from Implementation-Level Decisions on Wildlife and Special Status Species Monument Objects, for impacts related to travel management.

From Wilderness Characteristics on Wildlife and Special Status Species

Approximately 112,200 acres of the SDNM would be allocated as lands managed to protect wilderness characteristics under Alternative C. Impacts on wildlife would be expected to be negligible in comparison to the level of protection prescribed in the proclamation.

4.14.6 ALTERNATIVE D

4.14.6.1 Common to Both Decision Areas

From Wildlife and Special Status Species Management on Wildlife and Special Status Species

Alternative D only addresses the proposal of the Gila Bend Mountains WHA. Impacts on the Gila Bend WHA would be similar to those described in Alternative C except that, under Alternative D, the WHA would be an exclusion area for all surface-disturbing activities, including land use authorizations such as seismic, solar, wind, and other renewable energy development; testing and exploration; and recreation facilities. The WHA would be closed to all locatable and leasable minerals exploration and development (including geothermal and sodium) and mineral materials disposal. Public lands in the WHA would be recommended for withdrawal from all forms of mineral entry. Overall impacts on wildlife under Alternative D would be expected to range from negligible to minor, less than under Alternative A.

From Livestock Grazing on Wildlife and Special Status Species

Cessation of grazing throughout the Decision Areas under Alternative D would result in the greatest improvement to wildlife resources. Removing livestock would improve habitats for wildlife over the long term by reducing competition for resources. Habitats would be expected to improve and more closely resemble a natural state. However, the removal of livestock also would shift the burden of maintaining water facilities from livestock operators to state and federal wildlife managers. This could result in declining water availability for wildlife. Overall, habitat quality would improve for some wildlife species, resulting in major impacts on bighorn sheep, mule deer, Sonoran desert tortoise, and other grazers, and negligible to minor impacts on other wildlife species that compete less with livestock. Species that depend on livestock or live synergistically with livestock (such as the brown-headed cowbird) may see a reduction in habitat quality, and populations of cattle-dependent species may decline locally. Such declines may in turn increase populations of species affected by nest parasitism, including the southwestern willow flycatcher.

On a case-by-case basis, up to 1,647 miles of fencing in the Lower Sonoran and 130 miles of fencing in the SDNM would be considered for removal in areas, and the burden of removal would fall on state and federal wildlife managers. Removal of fences would improve movement for some wildlife species that have difficulty negotiating passage ways at fences. The effect of changing grazing practices in Alternative D would have a minor impact on habitat connectivity. Cessation of grazing in Alternative D would cause the greatest improvement to wildlife habitat in general than would occur in any other alternative, with minor to moderate impacts. Overall impacts from the cessation of livestock grazing in both Decision Areas would be expected to range from moderate to major.

4.14.6.2 Lower Sonoran

From Lands & Realty on Wildlife and Special Status Species

In the Lower Sonoran, impacts from utility corridors, energy projects, and LUAs on wildlife and special status species would be the least intrusive compared to any other alternative. Impacts from land tenure adjustment on wildlife habitat management would be greater under Alternative D than under Alternative

A, because approximately 26,200 acres would be available for disposal under Alternative D. Impacts would be negligible to minor.

From Minerals Management on Wildlife and Special Status Species

Impacts from mineral development on wildlife and special status species would be similar to those described in Alternative B.

From Recreation Management on Wildlife and Special Status Species

This Alternative D would allocate approximately 78,100 acres as front country and approximately 21,600 acres as backcountry. There would be less management direction in areas outside of the management zones. Fewer SRMAs and RMZs would be allocated under this alternative, with impacts similar to Alternative A.

From Special Designations on Wildlife and Special Status Species

There are a total of four ACECs proposed under Alternative D. Under Alternative D the following ACECs would be designated: Coffeepot Batamote ACEC, Cuerda de Lena ACEC, Lower Gila Terraces and Historic Trails ACEC, and the Saddle Mountain ACEC. The intent of the proposed ACECs is to prevent irreparable damage to important historic, cultural, or scenic values; wildlife resources; other natural systems or processes; and to protect life and provide safety from natural hazards.

Coffeepot Batamote ACEC. Under Alternative D, approximately 77,600 acres of public lands would be designated as the Coffeepot Batamote ACEC to protect habitat and populations of the endangered Acuña cactus.

All public lands within this ACEC would be retained. New LUAs, including utility-scale renewable energy development, would be excluded from the ACEC to reduce habitat fragmentation within the ACEC. Utility LUAs would be excluded from the remaining area to retain habitat connectivity and natural settings associated with the ACEC.

New routes would be prohibited within washes unless conflicts with wildlife and cultural resources were mitigated during route designation to minimize habitat fragmentation. Motorized vehicle use would be prohibited in washes that contain occupied or suitable cactus ferruginous pygmy-owl habitat to protect pygmy-owls during the breeding, nesting, and dispersal season. Prohibiting motorized vehicle use in areas that contain occupied or suitable cactus ferruginous pygmy-owl habitat would afford the owls the opportunity to complete life cycle requirements uninterrupted by human activities. The construction of nonmotorized trails would be permitted within the ACEC as long as mitigation occurred to protect special status species habitat.

Desert washes (xeroriparian) within the ACEC would be closed to all camping from April 15th to August 31st to protect pygmy-owls during the breeding, nesting, and dispersal season, reducing human-caused harassment during critical stages of the owl's life cycle.

The ACEC would be closed to livestock grazing to protect the outstanding botanical resources. Closing the ACEC to grazing would allow vegetation to reach desired plant communities and reduce

competition between wildlife and cattle for food, water, and space resources. Fencing and facilities (e.g., corrals, etc.) related to grazing operations would be removed. Removal of these facilities would allow wildlife to move unencumbered within the ACEC; however, if water sources are removed, wildlife may vacate areas that have traditionally held water for livestock. The ACEC would be closed to all forms of mineral extraction; however, valid existing rights would be honored. Closing the ACEC to all forms of mineral extraction could retain habitat availability for wildlife.

Overall impacts on wildlife and special status species are expected to range from negligible to minor, which would be less than impacts under Alternative A.

Cuerda de Lena ACEC. The proposed Cuerda de Lena ACEC encompasses approximately 58,500 acres of public lands. This ACEC is proposed to protect habitat for the endangered Sonoran pronghorn and to protect habitat for other wildlife species, including the cactus ferruginous pygmy-owl. The vast majority of the ACEC is public land with approximately 70 acres of private land and approximately 640 acres of state land. It is recommended that lands not in public ownership be acquired to further protect habitat for the Sonoran pronghorn as funding and opportunities arise.

Within the ACEC, surface-disturbing maintenance associated with LUAs would be limited to the authorized LUA grant. Mitigation, adaptive management, and BMPs would be used to avoid harassment and long-term displacement of wildlife. Impacts on wildlife would be expected to be minor.

It is proposed that the ACEC be closed to public entry from March 15th through June 15th in accordance to the Sonoran pronghorn recovery team recommendations. This closure to entry to the public allows the pronghorn females to birth uninterrupted, allows newborn pronghorn the opportunity to wean without distractions, and allows male pronghorn the ability to seek females for procreation undisturbed. Closure of the area to public entry during this timeframe would be expected to result in negligible impacts on the Sonoran pronghorn. This closure would allow the lesser long-nose bat to forage without human disturbance and would allow the cactus ferruginous pygmy-owl to breed, hunt, and brood uninterrupted.

Camping within the ACEC would be limited to dispersed and undeveloped sites. Negligible to minor impacts on wildlife would be expected to occur. Overall impacts on wildlife and special status species within the ACEC would be expected to range from negligible to minor, which would be less than impacts described under Alternative A.

Lower Gila Terraces and Historic Trails ACEC. Under Alternative D, this proposed ACEC would encompass approximately 82,500 acres of public lands. The intent of the ACEC would be to increase habitat availability by limiting surface-disturbing activities within its boundaries. Route designation and the criteria used for minimization would decrease impacts on wildlife by allowing interdisciplinary teams to evaluate and reduce the amount of roads, trails, and routes that would be in conflict with wildlife management goals and objectives. Overall impacts on wildlife would be expected to be negligible to minor, which would be less than impacts described under Alternative A.

Saddle Mountain ACEC. Under Alternative D, this proposed ACEC would encompass approximately 48,500 acres. The intent of the ACEC would be to increase habitat availability by limiting surface-disturbing activities within its boundaries with a focus on habitat conservation.

Route designation and the criteria used for minimization would decrease impacts on wildlife by allowing interdisciplinary teams to evaluate and reduce the amount of roads, trails, and routes that would be in conflict with wildlife management goals and objectives. Overall impacts on wildlife and special status species would be expected to be negligible to minor, which would be less than impacts described under Alternative A.

From Travel Management on Wildlife and Special Status Species

Motorized use in Alternative D would be limited to designated routes in the same manner as in Alternatives B and C. No open areas would be designated. In this alternative, approximately 378,300 acres would be closed to motor vehicle use and approximately 551,900 acres would be limited to designated routes. The increase in closed areas would improve habitat connectivity and reduce impacts from human disturbance on wildlife resources; resulting in fewer impacts than those under Alternative A.

In Alternative D, there would be approximately 49 miles of nonmotorized trails and approximately 219 miles of primitive roads where wildlife impacts would be expected to be negligible to minor. Moderate to major impacts typically occur where use is more frequent and interactions between wildlife and humans are greater. In Alternative D there would be approximately 25 miles of maintained roads where impacts would be expected to range from negligible to moderate. Overall impacts on wildlife from Alternative D would be less than those described under Alternative A.

From Wilderness Characteristics on Wildlife and Special Status Species

Alternative D would contain the largest number of wilderness characteristic acreage—approximately 276,500 acres. Impacts would be expected to be similar to those described in Alternative C, except the intensity would increase slightly due to the larger area of lands managed to protect wilderness characteristics allocation.

4.14.6.3 Sonoran Desert National Monument

From Lands and Realty Management on Wildlife and Special Status Species

Impacts from utility corridors, LUAs, utility-scale renewable energy development, and land tenure adjustment would be negligible, as the entire SDNM would be a utility-scale renewable energy development and LUA exclusion area. No corridors would be allocated in the SDNM.

From Minerals Management on Wildlife and Special Status Species

Impacts from mineral development on wildlife habitat management would be similar to those discussed under Alternative A.

From Recreation Management on Wildlife and Special Status Species

In Alternative D, up to fifteen 0.25-acre visitor-contact stations and minimal pullouts would be provided. These facilities, to the extent possible, would be located in areas previously disturbed and may total up to four acres of new disturbance. Impacts under Alternative D would be less than those under Alternative A. Impacts on wildlife are expected to be negligible to minor.

Impacts from target shooting would be negligible, as the SDNM would be closed to target shooting.

From Special Designations on Wildlife and Special Status Species

There would be no special designations proposed for wildlife in the SDNM; therefore no impact is expected.

From Transportation and Access Management on Wildlife and Special Status Species

Refer to **Table 4-25**, Impacts from Implementation-Level Decisions on Wildlife and Special Status Species Monument Objects, for impacts related to route designations within the SDNM.

From Wilderness Characteristics on Wildlife and Special Status Species

Approximately 154,800 acres would be allocated as lands managed to protect wilderness characteristics under Alternative D. This allocation is 37 percent more than Alternative C and more than any other alternative. Impacts on wildlife are expected to be negligible due to the level of protection prescribed in the proclamation. Impacts would be similar to those described in Alternative C, except the intensity would be greater due to the larger amount of lands that would be managed to protect wilderness characteristics.

4.14.7 ALTERNATIVE E (PROPOSED RMP)

4.14.7.1 Common to Both Decision Areas

From Wildlife and Special Status Species Management on Wildlife and Special Status Species

Alternative E, the BLM would only designate the Gila Bend Mountains WHA. Impacts from designation of the WHA would be similar to those described in Alternative D except that under Alternative E habitat conservation would be emphasized.

Surface-disturbing activities affecting an area greater than 40 acres, including land use authorizations and utility-scale renewable-energy development, would be avoided within suitable habitat. Uses would be concentrated in less sensitive resource areas or in previously disturbed areas. If no other options existed, activity impacts would be mitigated and managed to ensure consistency with wildlife management objectives, with an emphasis on maintaining habitat and connectivity. The WHA would be open to leasable minerals and geothermal resources. However, the area would contain a No Surface Occupancy stipulation within suitable bighorn sheep habitat. The WHA would be open to mineral material sales on a case-by-case basis. Surface-disturbance greater than 40 acres would be avoided within suitable bighorn sheep habitat. Uses would be concentrated in less sensitive resource areas or in previously disturbed areas. If no other options existed within bighorn sheep habitat, activity impacts would be mitigated and managed to ensure consistency with wildlife management objectives emphasizing habitat and connectivity. Overall impacts on wildlife under Alternative E would be less than under Alternative A and would be expected to range from negligible to minor.

4.14.7.2 Lower Sonoran

From Lands & Realty on Wildlife and Special Status Species

Impacts from utility corridors, energy projects, and LUAs on wildlife and special status species in the Lower Sonoran would be similar to those discussed under Alternative C due to similarities in the number, width, and location of utility corridors and reduced acreage between Alternatives C and E.

Impacts from land tenure decisions on wildlife operations in the Lower Sonoran would be similar to those discussed under Alternative C due to similar numbers of acres that would be available for disposal. However, through the identification process, impacts on wildlife habitat are expected to range from negligible to minor under this alternative.

From Livestock Grazing on Wildlife and Special Status Species

Alternative E represents a combination of Alternatives A and C. Impacts from grazing on wildlife would be very similar to those described in Alternative C because AUMs would remain unchanged.

Ephemeral use and associated impacts would be similar to those described in Alternative A. Alternative E does include similar seasonal livestock restrictions to those in Alternative C. Impacts related to seasonal livestock restrictions would also be the same as in Alternative C. Using a full suite of allocations to perennial, perennial-ephemeral, and ephemeral would provide more flexibility to appropriately manage livestock and wildlife habitat as compared to Alternative A. Changes in habitat conditions resulting from management prescriptions in Alternative E would be similar to those under Alternative A. Impacts would be expected to range from negligible to minor.

From Minerals Management on Wildlife and Special Status Species

Impacts from mineral development on wildlife and special status species would be similar to those described in Alternative A, except that Saddle Mountain would be closed to saleable mineral disposal, thus decreasing potential conflicts with wildlife and special status species. Overall impacts would be expected to range from negligible to minor.

From Recreation Management on Wildlife and Special Status Species

Impacts from recreation management would be similar to those discussed under Alternatives B and C except 244,000 acres would be allocated as front country and 345,100 acres as backcountry.

From Special Designations on Wildlife and Special Status Species

Coffeepot Batamote ACEC. Under Alternative E, impacts on wildlife and special status species would be similar to those discussed under Alternative D. However, the reduction in acres designated as the Coffeepot Batamote ACEC under Alternative E is based on elevation requirements and soil characteristics needed by the Acuña cactus. Under Alternative E, an area of approximately 61,300 acres of public lands would be designated as the Coffeepot Batamote ACEC.

All camping (vehicle-based and primitive) would be limited to designated sites within the ACEC from April 15th to August 31st to protect pygmy-owls during the breeding, nesting, and dispersal season.

Designating camping areas within the ACEC would allow the general public to use the ACEC while providing protections to the owl during life cycle requirements.

Motorized vehicle use would be restricted in washes that contained occupied or suitable cactus ferruginous pygmy-owl habitat from April 15th to August 31st to protect pygmy-owls during the breeding, nesting, and dispersal season. All other areas would be limited to existing or designated routes. Such restrictions would afford the public recreational opportunities while protecting the owl and its life cycle requirements.

Livestock facilities could be developed to improve livestock distribution and natural resource conditions when the facilities are not in conflict with wildlife or cultural resources. Allowing grazing within the ACEC could improve habitat characteristics for wildlife species within the ACEC. Livestock development impacts would be mitigated to allow passage (in the case of fences) and use (in the case of water sources) by wildlife.

Washes in the ACEC would be closed to disposal of mineral materials. Closing washes to the disposal of material minerals would retain wash characteristics for wildlife species in the ACEC and reduce the amount of fragmentation and retain natural settings within the xeroriparian systems. Management of mineral uses would occur through plans of operation. Valid existing rights would be honored; however, potential surface disturbance would be minimized through plans of operations where appropriate. Impacts on wildlife would range from negligible to minor with proper management, which would be less than impacts described under Alternative A.

Cuerda de Lena ACEC. Alternative E is similar to Alternative D. However, under Alternative E, the ACEC would be closed to mineral material disposals. As a result of closing the area to mineral material disposals, habitat would remain connected and available for wildlife use. Valid existing rights would be honored; however, surface disturbance would be minimized through plans of operation where appropriate. Through plans of operations on existing rights, the footprints of operations could be decreased in the ACEC to allow for habitat availability for all wildlife species. Impacts would be expected to range from negligible to minor, which would be less than impacts described under Alternative A.

Lower Gila Terraces and Historic Trails ACEC. Under Alternative E, impacts would be similar to those discussed under Alternative D. However, under Alternative E mineral material disposals would not be allowed within 500 feet of cliff faces to protect raptor nesting areas. Impacts from Alternative E would be the same as those described under Alternative D, which would be less than impacts described under Alternative A.

Saddle Mountain ACEC. Alternative E would be similar to Alternative D except livestock grazing would be managed to ensure the resource values of the ACEC were maintained and protected. Managing livestock grazing in this manner would allow the persistence of habitat for wildlife species within the ACEC and reduce competition for resources needed by wildlife for life cycle requirements. Overall impacts from Alternative E would be expected to range from negligible to minor, which would be less than impacts described under Alternative A.

From Travel Management on Wildlife and Special Status Species

As in all other action alternatives, motorized use in Alternative E would be limited to designated routes. Motor vehicle use would be prohibited on 152,800 acres and 777,360 acres would be limited to designated routes. No open areas would be designated. The increase in closed areas would improve habitat connectivity and reduce impacts from human disturbance on wildlife resources.

Impacts under Alternative E would be similar to those described for Alternative C. Under Alternative E, some routes would be seasonally closed (141 miles) to reduce conflicts in special status species habitats. These closures would reduce disturbance and human interactions during breeding, nesting, lambing, and fledging lifecycles. In Alternative E there would be approximately 38 miles of nonmotorized trails and approximately 330 miles of primitive roads in which wildlife impacts would be expected to be negligible to minor. Moderate to major impacts typically occur where use is more frequent and interactions between wildlife and humans are greater. These are typically routes and roads that are maintained for more frequent higher speed travel. In Alternative E, there would be approximately 29 miles of maintained roads where impacts would be expected to be moderate. Overall impacts on wildlife from Alternative E would be less than those described under Alternative A and would be expected to range from negligible to moderate.

From Wilderness Characteristics on Wildlife and Special Status Species

Impacts would be similar to those discussed under Alternative C, except 36,900 fewer acres of would be allocated as lands managed to protect wilderness characteristics—29 percent fewer than under Alternative C. Overall impacts would be expected to range from negligible to minor.

4.14.7.3 Sonoran Desert National Monument

From Lands & Realty on Wildlife and Special Status Species

Impacts from lands and realty management would be the same as those described in Alternative D.

From Livestock Grazing on Wildlife and Special Status Species

Under Alternative E, 95,290 acres north of I-8, including the Conley Allotment inside the SDNM boundaries, would become unavailable to livestock grazing and available to wildlife. Impacts from these closures would be similar to those described for Alternative C, except greater with the closure of the Conley Allotment. The entire Conley Allotment would be closed to grazing. Areas that would remain available for grazing would see similar impacts to those described under Alternative A for the SDNM. Impacts from domestic sheep and goat grazing would be similar to those described under Alternative C. Overall impacts would be moderate.

Refer to **Table 4-25**, Impacts from Implementation-Level Decisions on Wildlife and Special Status Species Monument Objects, for impacts related to AUM allocations in the SDNM.

From Minerals Management on Wildlife and Special Status Species

Impacts from mineral development on wildlife habitat management would be similar to those described under Alternative A.

From Recreation Management on Wildlife and Special Status Species

In the SDNM, impacts from recreation management would be similar to those described under Alternative B, except 78,700 acres would be allocated as front country and 406,500 acres would be allocated as backcountry. Overall impacts would be expected to range from negligible to minor.

Since dispersed recreational target shooting throughout the Monument would continue, the impacts of target shooting under Alternative E would be the same as those described for Alternative A. However, if Management and Administrative Actions designed to change the conduct of recreational target shooters has the desired effect, impacts from recreational target shooting should be greatly decreased. If that were to happen, impacts would be negligible to minor.

From Special Designations on Wildlife and Special Status Species

There are no special designations proposed for wildlife in the SDNM; therefore no impact is expected.

From Travel Management on Wildlife and Special Status Species

Refer to **Table 4-25**, Impacts from Implementation-Level Decisions on Wildlife and Special Status Species Monument Objects, for impacts related to route designations in the SDNM.

From Wilderness Characteristics on Wildlife and Special Status Species

Impacts would be similar to those discussed under Alternative C, except four percent fewer (4,300) acres would be allocated as lands managed to protect wilderness characteristics under Alternative E.

4.15 IMPACTS ON LANDS AND REALTY MANAGEMENT

The following analysis discusses the impacts on lands and realty from the proposed alternatives and management actions in Chapter 2, Alternatives. Impacts may result from actions that effect land tenure (ownership) or opportunities for land use authorizations (including utility-scale renewable energy development) within the Lower Sonoran and SDNM Decision Areas.

Land tenure adjustments include acquisition of non-public lands as well as disposals of identified parcels. The amount of land administered by the BLM could increase or decrease under the various alternatives depending on the availability of land for acquisition and the ability of the BLM to sell or exchange lands identified for disposal. All public lands would remain under federal ownership with the SDNM.

4.15.1 METHODS OF ANALYSIS

4.15.1.1 Indicators

Management actions described in the alternatives could result in impacts on the lands and realty program. The following indicators were used during the analysis of lands and realty:

- Acres retained in public lands base,
- Acres identified as being suitable for disposal,

- Acres identified as land use authorization (LUA) avoidance and exclusion areas,
- Acres avoided and excluded from utility-scale renewable energy development, and
- Public land acres proposed for withdrawal.

4.15.1.2 Assumptions

The following assumptions regarding the future management of lands and realty are made:

- Alternatives A through E identify specific parcels potentially suitable for disposal. It is expected that over the next 20 years, all acres identified would be removed from federal ownership.
- Lands not designated as potentially suitable for disposal would be retained.
- Withdrawals are completed for many types of uses, including power-site reserves, power projects, administrative sites, stock driveways, and irrigation projects. In some cases, other federal agencies pursue and hold withdrawals, including the Bureau of Indian Affairs, US Department of the Interior, Bureau of Reclamation (BOR) and Federal Energy Regulatory Commission (FERC). With such withdrawals, surface management jurisdiction may actually be transferred to the other federal agency. However, for the purposes of analysis, only the acres of public lands (withdrawals) retained under BLM administration are analyzed or used as an indicator to determine availability of public land for multiple-use purposes in this document.
- LUAs, including ROWs, leases, and permits, are used for roads, water pipelines, natural gas pipelines, power lines, telephone lines, fiber-optic cables, railroads, highways, canals, ditches, apiary sites, and communications sites. Acres of open, avoidance, and exclusion areas are used as indicators to determine the availability for LUAs.
- Lands that fall under the low sensitivity conflict analysis areas are expected to be fully developed over the next 20 years.

4.15.1.3 Program Areas with No Impacts on Lands and Realty Management

There would be no impacts on lands and realty from actions proposed under the following program areas:

- Public Safety and Hazardous Materials Management; and
- Wild Horse and Burro management.

4.15.1.4 Qualitative Intensity Scale

In addition to the description of qualitative terms for the intensity of impacts discussed in **Table 4-1,** Qualitative Terms for the Intensity of Impacts, the qualitative intensity levels from impacts from other

program areas on lands and realty are further described below through a range of varying thresholds, based on the indicators described above.

- Negligible**.** 100 acres or less potentially would be disposed, acquired, avoided to LUAs, excluded to LUAs, or withdrawn, and conflicts with LUAs would be nonexistent.
- Minor. 100 to 5,000 acres potentially would be disposed, acquired, avoided to LUAs, excluded to LUAs, or withdrawn, and conflicts with LUAs would be limited.
- Moderate. 5,000 to 10,000 acres potentially would be disposed, acquired, avoided to LUAs, excluded to LUAs, or withdrawn, and conflicts with LUAs would occur but could be mitigated.
- Major. 10,000 acres or more potentially would be disposed, acquired, avoided to LUAs, excluded to LUAs, or withdrawn, and conflicts with LUAs would be of concern.

4.15.2 COMMON TO ALL ALTERNATIVES

4.15.2.1 Both Decision Areas

From Air Quality on Lands & Realty Management

The lands and realty program must follow policy, regulations, and laws at all levels of government to minimize fugitive dust when processing all lands actions. Proposals for actions that could potentially degrade air quality would have to be mitigated, sited in acceptable alternative locations, or, in some rare cases, denied. According to ADEQ, there are currently three PM_{10} nonattainment zones in the Planning Area (the Ajo, Miami, and the Phoenix areas). Approximately 79,900 acres of BLM-administered surface estate lie within these nonattainment areas, this is equivalent to six percent of BLM-administered lands within the LSFO. The BLM is required to include mitigating stipulations when granting new authorizations in these nonattainment zones. This could potentially increase the number of LUA applications rejected if they do not agree to the terms and conditions proposed by the BLM.

Complying with laws and regulations that govern air quality could also affect LUAs and BLM actions to obtain physical and legal access.

From Cave Resources on Lands & Realty

No caves have been identified in the Planning Area, and there are currently no impacts from cave resources to land tenure, LUAs, withdrawals, or utility-scale renewable energy development. Identification of caves within affect land tenure adjustments and areas identified for disposal, limit LUA processing, or prevent utility-scale renewable energy development in site-specific areas. However, due to the relatively small scale of these sites, impacts on lands and realty would be negligible.

From Livestock Grazing on Lands & Realty

LUAs that traverse areas where livestock grazing occurs could require mitigation that involves excluding livestock grazing during the construction and rehabilitation phases of the project. Mitigation could also

be required to facilitate livestock movement or provide for public safety (e.g. fencing and cattle guards) throughout the effective period of the authorization. However, livestock grazing would not be expected to prohibit LUAs or disposals.

From National Byways on Lands & Realty

Management actions to maintain the character of landscapes within byway corridors would impact lands and realty actions by requiring specific siting or mitigation measures to ensure land use activities are consistent with the established VRM settings.

From Paleontological Resources on Lands & Realty

As with cave resources, there are currently no known impacts from paleontological resources to land tenure, LUAs, withdrawals, or utility-scale renewable energy development. However, identification of paleontological sites within the Planning Area could potentially affect land tenure adjustments and areas identified for disposal, limit LUA processing, or prevent utility-scale renewable energy development in site-specific areas. However, due to the relatively small scale of these sites, impacts on lands and realty would be negligible.

From Soil Resources on Lands & Realty

Soils management would call for developments and ground-disturbing activities to be located away from areas of significant desert pavement, cryptogamic crust, and other sensitive or fragile soils that are vulnerable to disruption or have high wind or water erosion potential. This would affect LUAs and the BLM's actions to obtain physical and legal access. Under all of the alternatives, proposals for actions that could potentially impact these soil types would require mitigation or relocations, which would result in increased project costs.

From Vegetation Resources on Lands & Realty

Managing for vegetation calls for the avoidance of all surface disturbing activities (which include any development related to LUAs) within Acuña cactus habitat. Acuña cactus habitat constitutes three percent of the Planning Area (approximately 37,600 acres)The intensity of the impacts from this avoidance area would be major,; however, because this habitat is isolated from population and utility service areas, impacts would be negligible. Authorized surface-disturbing activities within habitat areas of any endangered, threatened, or special status plants would be avoided to ensure stable populations, which would result in impacts on LUAs and result in additional mitigation or re-location of the LUA. The total acres of endangered, threatened, or special status plant habitats are not known and additional areas may be identified; therefore impacts from this action cannot be quantified. Management of the WHAs under all alternatives restricts vegetation clearing in and around utility corridors to the existing authorized LUA corridor only.

From Water Resources on Lands & Realty

to avoid adverse effects on springs, streams, or seeps; a decrease of water availability at existing wells; or conflicts with other resource management goals would impact LUAs. Mitigation or relocation would be required for proposals for facilities and LUAs that would impact water resources. However, due to

limited water resources within the Planning Area, impacts on lands and realty from the management actions for water resources would be limited.

From Wildland Fire Management on Lands & Realty

Wildland fire management under all of the alternatives would protect facilities on public lands authorized through the lands and realty program by reducing fuel loads and suppressing fires.

4.15.2.2 Lower Sonoran

From Minerals Management on Lands & Realty

The management of fluid minerals, solid leasable minerals, mineral materials, and locatable minerals could result in requests for ROWs and permits for utilities and access roads. Therefore, the more lands that are available to mineral entry, the greater the potential for LUAs.

From Vegetation Resources on Lands & Realty

The Fred J. Weiler Green Belt consists of 41,907 acres, or approximately five percent of the LSFO Decision Area. This area would be allocated as an LUA avoidance area and would be excluded from potential renewable development, which could potentially increase land use activities on nearby BLM-administered lands.

4.15.2.3 Sonoran Desert National Monument

From Minerals Management

The SDNM is withdrawn from new mineral entry under all alternatives. The withdrawal was established in the proclamation that established the Monument.

In those few parcels (25,800 acres) within SDNM where the surface is owned by the United States and the subsurface is owned by a non-federal entity, minerals development may still occur and LUAs would likely be associated with these actions.

4.15.3 ALTERNATIVE A (NO ACTION)

4.15.3.1 Both Decision Areas

No lands managed to protect wilderness characteristics would be allocated under Alternative A.

4.15.3.2 Lower Sonoran

From Cultural and Heritage Resources on Lands & Realty

LUAs, land tenure adjustments, acquisition of access to public lands, and utility-scale renewable energy development could be affected by cultural resources management direction. Lands and realty actions are considered federal undertakings and must avoid inadvertent damage to federal and non-federal cultural resources through compliance with Section 106 of the NHPA. When a lands action is proposed, an

inventory is conducted, and impacts on important cultural sites are avoided by project redesign/rerouting, or mitigation of adverse impacts through data recovery. Such actions to avoid adverse impacts could increase processing costs and processing time for both the federal and non-federal parties, which could dissuade the proponent from utilizing federal lands for their proposed project if the suggested mitigation strategies are too cumbersome.

Under Alternative A, land use authorizations (including renewable utility-scale renewable energy authorizations) would continue to be permitted on a case-by-case basis with appropriate mitigation measures to protect cultural resources. Impacts on lands and realty would be negligible as there are no major restrictive allocations, only site-specific concerns.

From Lands & Realty on Lands & Realty

Land Use Authorizations. Under this alternative, LUAs within the LSFO would be authorized on a case-by-case basis and, there would be 105,100 acres of LUA exclusion area, In addition, ten 1-mile wide utility corridors would be designated and large distribution systems would be encouraged to be situated within these utility corridors. Exclusion areas would limit the siting or location of LUAs and result in additional pressure on areas with less sensitive resources. This would be a moderate to major impact. Restricting all major linear LUAs within the utility corridors would assist the lands and realty program in managing these facilities and limit resource degradation throughout the LSFO but it would also limit the siting of LUAs and could discourage projects or development.

Land Tenure. In Alternative A, 27,400 acres have been identified as suitable for disposal. Impacts from land tenure actions are anticipated to be moderate to major, as the disposal of federal lands would mean that the federal lands base would be minimized, thus limiting the amount of lands eligible for potential authorizations. Impacts from the potential acquisition of non-federal lands would result in the opposite impact, as the BLM-administered lands in the LSFO would be increased, thus increasing the potential for more LUAs.

Utility-Scale Renewable Energy Development. Renewable energy facilities were not specifically addressed in previous planning efforts therefore no management actions are specified under this alternative.

From National Trails on Lands & Realty

No management prescriptions for National Trails are specified for Alternative A.

From Recreation Management on Lands & Realty

Implementation of Alternative A would retain the allocations of 379,400 acres of the Lower Sonoran in four SRMAs. The placement of power lines, pipelines, or communication facilities outside existing utility corridors and other land use authorizations, such as apiary permits, could be restricted to specific locations or excluded from certain locations within the SRMAs to support maintaining the desired recreational setting, accommodate recreation facilities and developments, or avoid public safety concerns. Specifically, land use authorizations could be restricted within ¼-mile of historic and prehistoric trail segments within the Lower Gila Trail Historic SRMA and in the southern and western portions of the Saddle Mountain SRMA that are managed for remote and undeveloped recreation. Impacts would are anticipated to be minor.

From Special Designations on Lands & Realty

The Coffeepot Botanical ACEC (consisting of 8,900 acres) would be an LUA avoidance area, which could require new facilities to be installed in less desirable locations to avoid sensitive areas. The Coffeepot Botanical ACEC would also be an area that prohibits utility-scale renewable energy development. These restrictions would concentrate use on public lands designated as low sensitivity for utility-scale renewable energy development and lands outside LUA exclusion and avoidance areas within the LSFO. All public lands within the ACECs and the Anza Trail would be retained, and state and private lands would be acquired if there is a willing seller. This would prevent any lands within these areas from being "suitable for disposal," thus limiting the agency's ability to use funds to acquire highly desired parcels in accordance with FLFTA. However, by retaining and managing consolidated tracts of land, the agency's ability to meet many of the program specific objectives would become less cumbersome and could result in more efficient and cost effective management.

From Travel Management on Lands & Realty

Under Alternative A, 100,000 acres would be closed to vehicle use in the LSFO. These closures could result in a moderate to major impact to the lands and realty program, as they could restrict land use authorizations in these areas. Approximately 830,200 acres would be restricted to existing routes. These restrictions could have a moderate to major impact on the lands and realty program as they would limit opportunities for land use authorizations to areas along existing or designated routes if the authorization (e.g., ROWs) required motorized vehicle access for construction, operation, or maintenance (unless administrative access was granted for such purposes).

From Visual Resources on Lands & Realty

Alternative A has 91,800 acres within Class I, all of which lie within wilderness areas; therefore, impacts from visual VRM Class I designations would be negligible. For impacts from wilderness, refer to Impacts from Special Designations. Within Alternative A, 116,300 acres (approximately 13 percent of the Decision Area) would be allocated to VRM Class II. Visual resources would be managed by using existing utility corridors. In addition, the BLM would not approve LUAs that are inconsistent with VRM Class I and Class II, thus creating the need to select a more suitable location. Such a situation could prove to be costly to certain proposals and deter utility development in the LSFO. Portions of the designated multiuse utility corridor that crosses the Batamote and Coffeepot Mountains in the Lower Sonoran would overlap with VRM Class II areas, which could trigger the need for higher mitigation standards for major utilities and other LUAs. However, there is little likelihood of demand for such authorizations in this area, so there would be little practical effect on land use authorizations.

From Wilderness Characteristics on Lands & Realty

No lands managed to protect wilderness characteristics would be allocated under Alternative A.

From Wildlife and Special Status Species Management on Lands and Realty

Wildlife habitat areas (WHAs) would not be designated under Alternative A so there would be no impacts from the WHAs on lands and realty. Special status species direction would have impacts on the lands and realty program by restricting authorizations in certain areas to avoid impacts on special status

species' habitats, (e.g., Sonoran pronghorn, lesser long-nosed bat, and Acuña cactus); Categories I, II, and III desert tortoise habitat; or other important habitats. Decisions could require new facilities to be installed in less than desirable locations to avoid such habitats. Since pronghorn habitat is located in an area not likely subject to land use authorizations, therefore restrictions are expected to be minimal. Restrictions in Sonoran desert tortoise habitats, however, would likely impact LUAs that use utility corridors as most mountains in the LSFO where these developments occur include Sonoran desert tortoise habitat. Where seasonal restrictions limit the time available to complete activities, relocation of surface facilities may be required. Proposed activities such as land tenure changes or requests for LUAs would be evaluated to ensure that they do not allow a net loss in Sonoran desert tortoise habitat (Categories I, II and III). In addition, appropriate mitigation measures would be required for approval of land use authorizations on a case-by-case basis to protect tortoise habitat, long-nosed bat habitat, Acuña cactus habitat, or other important habitats. Facilities proposed to be constructed under various LUAs or access easements in areas where special status species (or their habitat) are present may need to be mitigated, constructed in alternative locations, or, in some rare cases, dropped from consideration. Land tenure adjustments such as exchanges or sales proposed in areas where special status species could be adversely affected may need to be restructured or eliminated from consideration. Such actions could increase processing costs and time.

4.15.3.3 Sonoran Desert National Monument

From Cultural and Heritage Resources on Lands & Realty

Although specific cultural and historic objects were listed for protection within the Monument, impacts from cultural and heritage resources on Lands and Realty would be the same as those described under Alternative A for the LSFO.

From Lands & Realty on Lands & Realty

Land Use Authorizations. Land use authorization would be allowed within the SDNM if the surface disturbing activity does not disturb any Monument objects. Impacts from this action would be moderate, as the mitigation required limiting the impacts on the objects could promote more intensive use on nearby federal lands or would dissuade proponents from developing on federal lands altogether. Three 1-mile wide utility corridors would be designated under Alternative A. Large distribution systems would be encouraged to be situated within these utility corridors. The confinement of all major linear LUAs within the utility corridors would present minor impacts, as it would assist the lands and realty program in managing these facilities while also limiting resource degradation throughout the Planning Area. Conflicts between LUA holders and other uses within these corridors would be possible.

Land Tenure. All 486,400 acres of public land within the SDNM would be retained; therefore, no lands would be allocated as suitable for disposal. Impacts would be negligible from this action, as there are few lands within the Monument that meet the criteria as lands suitable for disposal. The potential acquisition of non-federal lands within the Monument would result in the increase and greater consolidation of BLM-administered lands, which would assist the BLM in fulfilling the objectives set forth in the Monument Proclamation but would also increase the potential for more LUAs within the SDNM.

The SDNM is excluded from any potential utility-scale renewable energy development. This would result in more intensive use on BLM-administered lands outside of the SDNM.

From National Trails on Lands & Realty

No management prescriptions for National Trails are specified for Alternative A.

From Recreation Management on Lands & Realty

In the SDNM, retaining the Lower Gila Historic Trail SRMA (137,100 acres) could place restrictions on land use authorizations as described for the Lower Sonoran, although these would be unlikely to be different from those required throughout the SDNM based on the Monument Proclamation. Impacts are anticipated to be minor.

From Special Designations on Lands & Realty

Impacts would be the same as those described under Alternative A for the LSFO. There also is only one ACEC (Vekol Valley Grasslands) allocated under Alternative A in the SDNM. Because the ACEC lies within the SDNM, the prescription set forth for the ACEC are met by the designation of the SDNM.

From Travel Management on Lands & Realty

Under Alternative A, 161,200 acres would be closed to vehicle use. These closures could restrict land use authorizations in these areas as a result of access limitations. Approximately 325,200 acres would be restricted to existing routes, , which could limit opportunities for land use authorizations to areas along existing or designated routes if the authorization (e.g., ROW) required motorized vehicle access for construction, operation, or maintenance (unless administrative access was granted for such purposes). Not having a designated route network within the SDNM could create minor impacts on current LUA holders as access roads to their facilities are not designated for administrative purposes only and are open to the public, which leaves their facilities susceptible to vandalism. However, not designating routes within the utility corridors also minimizes potential conflicts with future LUAs within the corridors.

From Visual Resources on Lands & Realty

Impacts would be the same as those described under impacts from Alternative A in the LSFO, with exception that 158,700 acres (all within wilderness areas) would be allocated as VRM Class I and 91,600 acre would be designated as VRM Class II.

From Wilderness Characteristics on Lands & Realty

No lands managed to protect wilderness characteristics would be allocated under Alternative A.

From Wildlife and Special Status Species Management on Lands & Realty

Impacts would be the same as those described under Alternative A for the LSFO, with the exception that varying wildlife habitats are protected as a Monument object by the Monument Proclamation, which could limited LUAs from being authorized in the Monument.

4.15.4 ALTERNATIVE B

4.15.4.1 Both Decision Areas

No unique impacts are identified for the both Decision Areas under Alternative B.

4.15.4.2 Lower Sonoran

From Cultural and Heritage Resources on Lands & Realty

Ninety percent of known and evaluated cultural resource sites would be allocated to one of five use categories and implement specific management actions that would impact lands and realty through the following actions: retaining public lands and acquiring state and private parcels and or easements; sites allocated to use category identified in **Appendix I** would be closed to locatable minerals and mineral material disposals and would be recommended for withdrawal; leases of energy LUAs in public use sites would contain a no surface occupancy stipulation; public use sites would be avoidance or exclusion areas for energy development and corridor LUAs. These actions would restrict the location of LUAs and other developments and would require additional siting and compliance efforts. There for impacts from this alternative would be greater than those under Alternative A and would be minor to moderate.

From Lands & Realty on Lands & Realty

Land Use Authorizations. Unlike Alternative A, LUA restrictions from resource program areas have been consolidated in the lands and realty program through two allocations: LUA exclusion areas and LUA avoidance areas. Exclusion areas are areas where new land use authorizations would be prohibited (except within designated multi-use utility corridors or for public safety purposes, as permitted by the authorizing official). LUA exclusion areas include designated wilderness areas, Sentinel Plain (military land relinquished back to the BLM), the Juan Bautista de Anza NHT, and lands designated under VRM Class I. LUA avoidance areas would be areas where new land use authorizations would be strongly discouraged. Authorizations made in these avoidance areas would have to be compatible with the purpose for which the area was designated and not be otherwise feasible on lands outside the avoidance area. LUA avoidance areas could include ACECs, BLM threatened and endangered species habitats (including desert tortoise habitats), VRM Class II lands, SCRMAs, the Fred J. Weiler Green Belt, and cultural sites allocated to a use category (such as public and conservation use sites). Under Alterative B, 126,500 acres (approximately 13 percent of the Decision Area) would be designated as LUA exclusion areas, and 520,900 acres (approximately 51 percent of the Decision Area) would be designated as LUA avoidance areas. Impacts from the designation of LUA exclusion areas would be major, as no new authorizations would be allowed within these areas. This restriction would promote more intensive use on nearby lands or would dissuade proponents from developing on BLM-administered lands altogether. While less restrictive, LUA avoidance areas would have a moderate impact on the lands and realty program because it could potentially dissuade proponents from location on BLM-administered lands or extensive mitigation strategies would be required to meet the purposes for which the area was initially designated. Communication facilities in Alternative B would be authorized only within the designated Oatman Mountain Communication Site or within previously disturbed areas on an as–needed, case-by-case basis. Newly designated communication site locations would be evaluated within the LSFO to meet future demands if needed. The small number of communication sites in the Planning Area could discourage

development of communication sites within the LSFO. However, there is still ample space on the Oatman Mountain Communication Site for future development and designated sites would be considered if the demand for communication facilities drastically increased. Ten 1-mile wide multiuse utility corridors would be designated under Alternative B (the same number of multi-use corridors as Alternative A in which all compatible utility uses (including transportation, telephone, irrigation, water/gas pipelines, fiber-optic and electrical transmission lines) would be allowed unless otherwise specified by the authorizing official. The confinement of all major linear LUAs within the multi-use utility corridors would assist the lands and realty program in managing these facilities while also limiting resource degradation throughout the LSFO, but it would also limit the siting of LUAs and could discourage projects or development. Impacts would be the same as those described in Alternative A, except that that approximately 38,200 acres (3 percent of the public lands within the Planning Area) would be identified as suitable for disposal Alternative B would propose the most acres suitable for disposal. Impacts from Alternative B would be major.

Utility-Scale Renewable Energy Development. Management decisions related to the authorization of utility-scale renewable energy developments was guided by the Analysis of Renewable Energy Development (**Appendix N**, Analysis for Renewable Energy Sensitivity), which used GIS data to depict varying degrees of resource sensitivity to utility-scale renewable energy development on federal lands. The Analysis for Utility-scale Renewable Energy Sensitivity (**Appendix N**, Analysis for Renewable Energy Sensitivity) characterizes public lands in one of four sensitivity categories used to make decisions on where to permit utility-scale renewable energy developments on federal lands. These sensitivity categories include: prohibited, high, moderate, and low known sensitivity. The categories were then use to identify utility-scale renewable energy development exclusion and avoidance areas. In Alternative B, potential renewable energy developments would be prohibited on lands that fall under the "excluded" areas. Applications for renewable energy developments in "high or moderate sensitivity" categories would be avoided. The areas prohibited from renewable energy development constitute 16 percent of the Decision Area (approximately 145,000 acres). The impacts would be major and would promote more intensive use on other BLM-administered lands or would dissuade proponents from developing on lands within the LSFO altogether.

From National Trails on Lands & Realty

Management actions to maintain the integrity of historic trails and visual setting would call for retention of public lands and acquisition of state and private lands or easements along the Juan Bautista de Anza NHT and within the two Anza NHT Management Areas. These lands would not be available for R&PP sales or leases. These actions would limit the siting of LUAs and reduce the areas for disposal thus impacting land tenure designations and adjustments.

From Recreation Management on Lands & Realty

Under Alternative B, the general impacts of allocating SRMAs and ERMAs would be similar to those described under Alternative A. However, under Alternative B, nearly three times the acres would be allocated to nearly three times the number of SRMAs. Over the life of the plan, substantial increases in recreational use are expected. An increased number of SRMAs may help to manage recreation uses to avoid conflicts with land use authorizations. Conflicts are most likely in SRMAs near the urban interface and those planned for intensive recreation activity, including the Buckeye Hills East Trails, Ajo Trails, and Arlington Trails SRMAs that would be allocated primarily for motorized recreation uses, as well as the

other urban interface SRMAs (Saddle Mountain, Rainbow Valley, and Buckeye Hills West) that would be allocated for mixed motorized and nonmotorized uses. Recreation within the SRMAs would be managed to maintain or produce various recreation settings and opportunities; which could restrict, limit or require that land use authorizations be mitigated in active recreation areas. Impacts would be moderate.

From Special Designations on Lands & Realty

Impacts would be the same as those discussed for Alternative A.,

From Travel Management on Lands & Realty

Impacts would be the same as those described in Alternative A for the LSFO, except that slightly fewer acres (91,100) would be closed while the remainder would be classified as limited to designated routes. However, impacts would still be moderate to major.

From Visual Resources on Lands & Realty

Impacts would be similar to but greater than those described under Alternative A in the LSFO, because fewer acres (64,900 acres) would be managed as VRM Class II (7 percent as compared to 13 percent in Alternative A) but additional management would be implemented as outlined in **Table 2-11**, Management Actions and Allowable Uses for Visual Resources**.** These actions would include the following: incorporate visual design considerations consistent with the Visual Resource Contrast Rating Manual H-8431-1 to meet VRM class objectives for the area; implement measures to mitigate potential visual impacts; project restoration; specific management prescriptions for the viewshed of the Juan Bautista de Anza NHT, Painted Rock, Agua Caliente and Ajo Scenic Loop roads, Highway 238 and Interstate 8; maintain or improve dark, clear skies; restrictions on permanent outdoor lighting in VRM Class I areas; and the use of dark-sky-friendly technology would be emphasized. Although decreasing the total VRM Class II acres could lessen restrictions on LUAs for Class II areas, the additional restrictions would result in greater impacts from visual resources and management to lands and realty as a whole.

From Wilderness Characteristics on Lands & Realty

No lands managed to protect wilderness characteristics would be allocated under Alternative B.

4.15.4.3 Sonoran Desert National Monument

From Cultural and Heritage Resources on Lands & Realty

Impacts would be the same as those described for Alternative A; however, under this alternative, sites would be identified and allocated to one of five use categories.

From Lands & Realty on Lands & Realty

Land Use Authorizations. Unlike Alternative A, LUA restrictions from resource program areas have been consolidated in the lands and realty program through two allocations: LUA exclusion areas and LUA avoidance areas. LUA Exclusion areas are areas where new land use authorizations would be prohibited (except within designated multi-use utility corridors or for public safety purposes, as permitted by the authorizing official). LUA exclusion areas include designated wilderness areas, the Juan

Bautista de Anza NHT, and lands designated under VRM Class I. LUA avoidance areas would be areas where new land use authorizations would be strongly discouraged. Authorizations made in these avoidance areas would have to be compatible with the purpose for which the area was designated and not be otherwise feasible on lands outside the avoidance area. LUA avoidance areas would include ACECs, VRM Class II lands, SCRMAs, the Fred J. Weiler Green Belt, and cultural conservation and public use sites. Under Alternative B, 164,900 acres (approximately 33 percent of the SDNM) would be designated as LUA exclusion areas. The remaining portions of the Monument, consisting of 321,500 acres (approximately 60 percent of the Monument), would be designated as LUA avoidance areas. This restriction would have moderate to major impacts, as it would promote more intensive use on nearby BLM-administered lands or would dissuade proponents from developing within the area altogether. While less restrictive, LUA avoidance areas would have a minor to moderate impact on the lands and realty program because they could potentially discourage development due to the fact that they would have to use extensive mitigation strategies to meet the purposes for which the area was initially designated.

The lack of communication sites in the Monument would put additional pressure on the Oatman Mountain Communication Site if there were an increase in demand for this use. Three 1-mile wide multiuse corridors would be designated under Alternative B (the same number of multiuse corridors as Alternative A). All compatible utility uses (including transportation, telephone, irrigation, water/gas pipelines, fiber optic and electrical transmission lines) would be allowed in these corridors unless otherwise specified by the authorizing official. The confinement of all major linear LUAs within multiuse utility corridors would present moderate impacts, as it would assist the lands and realty program in managing these facilities, while also limiting resource and Monument object degradation. In some cases, the requirement that all major linear LUAs be placed within these corridors could discourage proponents from placing facilities on BLM-administered lands as these corridors may not be provide a feasible route to their desired facility.

Land Tenure. Impacts would be the same as those described in Alternative A for the SDNM.

Utility-Scale Renewable Energy Development. The SDNM is excluded from any potential utility-scale renewable energy development. This would result in more intensive use on BLM-administered lands outside of the SDNM.

From National Trails on Lands & Realty

Impacts would be the same as those for Alternative B of the LSFO.

From Recreation Management on Lands & Realty

The impacts of the SRMA allocation in the SDNM are similar to those in the Lower Sonoran. Differences include subsuming the Gila Trails SRMA into the larger SDNM ERMA, which includes the desert backcountry RMZ, Juan Bautista de Anza NHT RMZ, and the Sonoran Desert RMZ. Impacts would still be minor.

From Special Designations on Lands & Realty

Impacts would be the same as those discussed in Alternative A for the SDNM, except that the Vekol Valley ACEC would not be carried forward.

From Travel Management on Lands & Realty

Impacts would be the same as those described in Alternative A for the SDNM, except that slightly fewer acres (157,700) would be closed to OHV use and the remainder would be limited to designated routes (328,700 acres) Impacts would still be moderate to major.

From Visual Resources on Lands & Realty

Impacts would be the same as those described under Alternative B for the LSFO, except that under Alternative B, inserting the Gila Bend to Santa Rosa multiuse utility corridor into a VRM Class III area would reduce the restrictions placed on associated land use authorizations within the corridor. However, outside the corridor, designating approximately 219,000 acres of the Decision Area as VRM Class II (26 percent increase in VRM Class II acres compared to Alternative A) could restrict land use authorizations by imposing greater design and siting requirements. However, the Monument is already a LUA avoidance area under Alternative B.

From Wilderness Characteristics on Lands & Realty

No lands managed to protect wilderness characteristics would be allocated under Alternative B.

4.15.5 ALTERNATIVE C

4.15.5.1 Both Decision Areas

No unique impacts are identified for both Decision Areas under Alternative C.

4.15.5.2 Lower Sonoran

From Cultural and Heritage Resources on Lands & Realty

Impacts would be the same as those described under Alternative B for the LSFO, except that Alternative C contains two cultural resource allocations referred to as SCRMAs. These designations would impact approximately 127,600 BLM acres, or 13 percent of the Decision Area. Because SCRMAs are moderate sensitivity renewable energy conflict areas, utility-scale renewable energy development would be avoided within SCRMAs. This in turn would place more strain on low sensitivity areas within the LSFO. Similarly, SCRMAs would be designated as LUA Avoidance areas, preventing certain LUAs from being authorized in these SCRMAs, resulting in the same impacts as to utility-scale renewable energy development potential. According to the management prescription in Alternative C for SCRMAs, all lands within the SCRMAs would be required to be retained in federal ownership. The potential acquisition of lands in the SCRMAs could increase the amount of land managed by the BLM. These newly acquired lands would hold the same restrictions on utility-scale renewable energy developments and other LUAs; therefore impacts from the potential acquisition of inholdings would be the same. By

retaining and managing consolidated tracts of land, the agency's ability to meet many of the program specific objectives would become less cumbersome and could result in more efficient and cost effective management. However, due to the total acres identified for avoidance, the impact under this alternative would be major.

From Lands & Realty on Lands & Realty

Land Use Authorizations. Impacts would be that same as those described in Alternative B for the LSFO, except that more acres (604,300 acres) would be designated as a LUA avoidance areas. Impacts related to communication sites would be the same as those described in Alternative B. Impacts related to multiuse utility corridors would be the same as those described in Alternative B; however, Alternative C would remove the Gila Bend to Ajo corridor and a section of the El Paso Natural Gas and Tucson Electric Power corridors that travel from Ajo, AZ to the Tohono O'odham Indian Reservation.

Impacts would be the same as those described in Alternative A, except that 36,200 acres would be identified as suitable for disposal

Utility-Scale Renewable Energy Development. Impacts would be the same as those described in Alternative B, except that more acres (271,900 acres) would be excluded from renewable energy development under Alternative C.

From Recreation Management on Lands & Realty

Impacts from establishing four SRMAs and four ERMAs in the Lower Sonoran would be similar to those discussed under Alternative B.. Alternative C would not allocate the San Tan Mountains. Impacts would remain moderate.

From National Trails on Lands & Realty

Impacts would be the similar to Alternative B; however, the Anza NHT corridor and the two Anza NHT Management Areas would be an exclusion area for major utility-scale renewable energy development and new major linear LUAs and the Anza NHT corridor would be an exclusion area for all minor linear and nonlinear LUAs except as described in the Lands & Realty section (See Section 2.8.1). LUAs would be mitigated to be consistent with management objectives and prescriptions, and only if impacts are determined to have a negligible to minor effect to resources. Utility development could continue on a case-by-case basis in existing utility multiuse corridors and only if impacts are determined to have a negligible to minor effect to resources. This alternative would have the greatest impact on lands and realty and would restrict siting of utility-scale renewable energy developments and LUAs.

From Special Designations on Lands & Realty

Impacts would be the same as those discussed in Alternative A, except that the Coffeepot ACEC would be replaced with the Coffeepot Batamote ACEC, which consist of 63,300 acres, an area much larger than under Alternative A.

From Travel Management on Lands & Realty

Impacts would be the same as those described in Alternative B for the LSFO.

From Visual Resources on Lands & Realty

Under Alternative C, impacts from VRM would be similar to those described for Alternative B, with the exception that substantially more acres would be managed under VRM Class II (42 percent of the Decision Area, compared to 13 percent in Alternative A). This alternative would result in more impacts on land and realty compared to Alternative A.

From Wilderness Characteristics on Lands & Realty

Under Alternative C, 128,100 acres would be allocated as lands managed to protect wilderness characteristics. These lands constitute approximately 14 percent of the Decision Area. Under Alternative C, the following would occur: private or state in-holdings, including subsurface, would be acquired when available from willing owners; lands managed to protect wilderness characteristics would be managed as exclusion areas for placement of new utility scale renewable energy developments; lands managed to protect wilderness characteristics would be managed as avoidance areas for minor and nonlinear LUAs with the exception for law enforcement, public-safety or administrative purposes as approved by the authorized officer; any potential new minor and nonlinear LUAs, and maintenance of existing facilities, would be evaluated and allowed under specific circumstances as outlined in **Table 2-15,** Management Actions and Allowable Uses for Wilderness Characteristics; existing facilities and projects no longer active would be removed if practicable. As exclusions and avoidance areas for LUAs, communication sites, utility-scale renewable energy development, and other LUAs would be discouraged. If placement in these areas is necessary, holders would be required to meet additional mitigation measures to meet the objectives set forth for lands managed to protect wilderness characteristics. Land acquisitions would place additional bureaucratic and financial responsibility on the BLM and, under Alternative C; additional restrictions would be placed on LUA holders who already have authorizations for facilities. All maintenance procedures on these existing LUAs would be required to be compatible with protecting wilderness characteristics and protecting or improving natural or heritage resource conditions. This could become a financial burden on current LUA permit holders within these areas, and in select cases, some might vacate existing authorizations. Impacts from wilderness characteristics on lands and realty would be greater than under Alternative A; however, these impacts would be reduced due to the fact that these areas are for the most part secluded from high intensity population areas.

From Wildlife and Special Status Species Management on Lands & Realty

Impacts would be the same as those described under Alternative B for the Lower Sonoran. except that WHAs would be designated and additional avoidance areas would be implemented. The Saddle Mountain and Gila Bend Mountains WHAs' management prescriptions for placement of LUAs would concentrate land uses to already developed or disturbed areas and avoid core wildlife areas. For the Batamote Mountains and Cuerda de Lena WHAs, management prescriptions would require avoidance to the maximum extent possible of land uses within the WHAs, except within the designated corridor that traverses the Batamote WHA or if no other appropriate location could be found. These decisions could restrict land uses and authorizations and increase stipulations and mitigation on projects located within the WHAs. However, the effects of these limitations are expected to be minimal due to the remoteness of the WHAs, which hold little potential for such land uses. In addition, restrictions in the Cuerda de Lena area due to the presence of Sonoran pronghorn would likely preclude any such land uses regardless of the WHA allocation.

4.15.5.3 Sonoran Desert National Monument

From Cultural and Heritage Resources on Lands & Realty

Impacts would be the same as those described from cultural and heritage resources in the LSFO, except that 16,200 acres would be allocated as an SCRMA under Alternative C in the Monument. Impacts would be also major.

From Lands & Realty on Lands & Realty

Land Use Authorizations. Impacts on LUAs would be that same as those described in Alternative B for the SDNM. However, only two 0.5-mile wide multiuse utility corridors (underground facilities only) would be designated under Alternative C. As a result, there would be less space for additional utility lines to be placed in these corridors compared to Alternative A, which could spur conflicts between LUA holders.

Land Tenure. Impacts would be the same as those described in Alternative A for the SDNM.

Utility-Scale Renewable Energy Development. Impacts would be the same as those described under Alternative A for the SDNM.

From National Trails on Lands & Realty

Impacts would be the same as those described for Alternative B.

From Recreation Management on Lands & Realty

Impacts from establishing the SDNM as an SRMA would be similar to Alternative B.

From Special Designations on Lands & Realty

Impacts would be the same as those described in Alternative B for the SDNM.

From Travel Management on Lands & Realty

Impacts would be the same as those described in Alternative B for the SDNM.

From Visual Resources on Lands & Realty

Impacts would be the same as those described under Alternative B for the SDNM, except that approximately 267,300 acres would be designated as VRM Class II (55 percent of the Monument, an increase of about 37 percent over Alternative A) designations, which would further prohibit, restrict, or modify the location of other land use authorizations, as VRM Class II are allocated as LUA avoidance areas. This alternative would result in greater impacts on lands and realty when compared to Alternative A.

From Wilderness Characteristics on Lands & Realty

Impacts would be the same as those described in Alternative C for the LSFO, except that 112,200 acres would be allocated as lands managed to protect wilderness characteristics (approximately 23 percent of the Monument).

From Wildlife and Special Status Species Management on Lands & Realty

Impacts would be the same as those described in Alternative B for the SDNM.

4.15.6 ALTERNATIVE D

4.15.6.1 Both Decision Areas

No unique impacts are identified for the both Decision Areas under Alternative D.

4.15.6.2 Lower Sonoran

From Cultural and Heritage Resources on Lands & Realty

Because more emphasis would be placed on the protection of cultural resources under Alternative D, it may be more difficult for LUAs to be approved. More LUAs would be restricted in areas of sensitive cultural resources under Alternative D than under Alternative A due to the management of priority areas and cultural resource allocations. Although there are no SCRMA designations within the LSFO under Alternative D, these areas would be designated as ACECs, which would result in impacts due to restrictions on lands and realty actions. For a discussion of the impacts related to these ACEC designations, refer to the Impacts from Special Designations Management section for Alternative D.

From Lands & Realty on Lands & Realty

Land Use Authorizations. Impacts would be that same as those described in Alternative B except that under Alternative D, the greatest number of acres (510,700 acres, approximately 60 percent of the Decision Area) would be designated as LUA exclusion areas. This alternative would result in major impacts. Impacts related to communication sites would be the same as those described in Alternative B. Impacts related to multiuse utility corridors would be the same as those described for Alternative C; however, Alternative D would propose the fewest multiuse utility corridors (7 corridors). The Palo Verde Devers and Santa Rosa to Gila Bend corridors would be eliminated from this alternative. Impacts would be moderate.

Land Tenure. Impacts would be the same as those described in Alternative A, except that this alternative would identify the least amount of acres suitable for disposal (19,400 acres).

Utility-Scale Renewable Energy Development. Impacts would be the same as those described in Alternative B, except that Alternative D would have the greatest amount of exclusion acres for utility-scale renewable energy development (511,500 acres, approximately 55 percent of the LSFO).

From National Trails on Lands & Realty

Impacts would be the same as those described in Alternative B.

From Recreation Management on Lands & Realty

Impacts from establishing two SRMAs, and one ERMA in the Lower Sonoran would be negligible due to a 93 percent decrease in acres managed as SRMAs and ERMAs. Alternative B and in Alternative C).

From Special Designations on Lands & Realty

Impacts would be the same as those discussed under Alternative A, except that fours ACECs would be allocated. Under Alternative D, 267,100 acres (approximately 28 percent of the LSFO) would be designated as ACECs. In addition, ACECs would be exclusion areas for utility-scale renewable energy development and exploration, and multiuse utility corridors. New major linear LUAs would be excluded outside of the corridors and utilities would be required to be installed underground within the existing multiuse utility corridors to retain the viewshed. This alternative would result in the greatest impacts on lands and realty because it would allocate the most acres for ACECs and as exclusion areas thus limiting location of LUAs and development and potentially discouraging use of the BLM-administered lands within the LSFO. Impacts from these allocations would be major.

From Travel Management on Lands & Realty

Impacts would be similar to but greater than those described in Alternative A because substantially more acres (342,700) would be closed with the remainder limited to designated routes (587,500 acres). Alternative D would be the most restrictive alternative to LUAs, due to the fact that the greatest amount of acres would be closed to vehicle use, potentially increasing the access limitations in certain areas of the LSFO. Impacts from this alternative on lands and realty would be major.

From Visual Resources on Lands & Realty

Impacts would be the same as those described under Alternative B for the LSFO, except that 622,400 acres (67 percent of the Decision Area, compared to 13 percent in Alternative A) would be designated VRM Class II lands. Alternative D would be the most restrictive alternative to the lands and realty program, as almost 87 percent of the LSFO is either an LUA avoidance or exclusion area. All designated multiuse utility corridors would be located within VRM Class III areas, which would not result in such restrictions.

From Wilderness Characteristics on Lands & Realty

Impacts would be the same as those described under Alternative C, except that 250,000 acres would be allocated as lands managed to protect wilderness characteristics (approximately 27 percent of the LSFO compared to 14 percent in Alternative C). Under Alternative D, lands managed to protect wilderness characteristics would be managed as exclusion areas for minor and nonlinear LUAs with the exception for law enforcement, public safety, or administrative purposes as approved by the authorized officer, which makes it the most restrictive alternative resulting in the greatest impacts on the lands and realty program.

From Wildlife and Special Status Species Management on Lands & Realty

Impacts would be the same as those described in Alternative C for the LSFO.

4.15.6.3 Sonoran Desert National Monument

From Cultural and Heritage Resources on Lands & Realty

Impacts would be the same as those described in Alternative D for the LSFO.

From Lands & Realty on Lands & Realty

Alternative D would be the most restrictive alternative to LUAs in the SDNM, because the entire SDNM (486,400 acres) would be designated an LUA exclusion area, and there would be no multiuse utility corridor designations, which means that no major linear LUAs would be allowed to traverse the SDNM. As a result, no LUAs would be allowed within the SDNM (with the exception of authorizations related to public safety). This action would promote more intensive use on BLM-administered lands outside of the SDNM or would dissuade proponents from developing on BLM-administered lands altogether. The lack of multiuse utility corridors within the SDNM could also disrupt future proposals for major utility lines from the eastern to the western portions of the state. Impacts related to communication sites would be the same as those described under Alternative B.

Impacts on land tenure would be the same as those described in Alternative A for the SDNM.

Development impacts to utility-scale renewable energy would be the same as those described in Alternative A for the SDNM.

From National Trails on Lands & Realty

Impacts would be the same as those described for Alternative B.

From Recreation Management on Lands & Realty

Due to the fact the Monument is a LUA exclusion area and prohibited from utility-scale renewable energy development and disposals, the impacts from recreation would be negligible. From Special Designations on Lands & Realty Impacts would be the same as those discussed in the Alternative B of the SDNM.

From Special Designations on Lands & Realty

Impacts would be the same as those discussed in Alternative C for the SDNM.

From Travel Management on Lands & Realty

Impacts from travel management would be similar to impacts described under Alternative B for the SDNM; however, 313,600 acres (almost twice that under Alternative A) would be closed and 172,800 acres would be limited to designated routes. Alternative D would be the most restrictive alternative to LUAs, due to the fact that the greatest amount of acres would be closed to vehicle use, potentially

increasing the access limitations in certain areas of the SDNM. Impacts from this alternative on lands and realty would be major.

From Visual Resources on Lands & Realty

Impacts from visual resources on lands and realty would be limited under Alternative D, because the entire SDNM would be an LUA exclusion area that prohibits utility-scale renewable energy development and land disposals.

From Wilderness Characteristics on Lands & Realty

Impacts would be the same as those described for Alternative D of the LSFO, except that 154,800 acres would be allocated as lands managed to protect wilderness characteristics.

From Wildlife and Special Status Species Management on Lands & Realty

Impacts would be the same as those described under Alternative C for the SDNM.

4.15.7 ALTERNATIVE E (PROPOSED RMP)

4.15.7.1 Both Decision Areas

No unique impacts are identified for the both Decision Areas under Alternative E.

4.15.7.2 Lower Sonoran

From Cultural and Heritage Resources on Lands & Realty

Impacts would be the same as those described in Alternative D for the LSFO.

From Lands & Realty on Lands & Realty

Land Use Authorizations. Alternative D would be the most restrictive alternative to LUAs in the SDNM, because the entire SDNM (486,400 acres) would be designated an LUA exclusion area, and there would be no multiuse utility corridor designations, which means that no major linear LUAs would be allowed to traverse the SDNM. As a result, no LUAs would be allowed within the SDNM (with the exception of authorizations related to public safety). This action would promote more intensive use on BLM-administered lands outside of the SDNM or would dissuade proponents from developing on BLM-administered lands altogether. The lack of multiuse utility corridors within the SDNM could also disrupt future proposals for major utility lines from the eastern to the western portions of the state. Impacts related to communication sites would be the same as those described under Alternative B.

Land Tenure. Impacts would be the same as those described in Alternative A for the SDNM.

Utility-Scale Renewable Energy. Development Impacts would be the same as those described in Alternative A for the SDNM.

From National Trails on Lands & Realty

Impacts would be the same as those described for Alternative B,

From Recreation Management on Lands & Realty

Due to the fact the Monument is a LUA exclusion area and prohibited from utility-scale renewable energy development and disposals, the impacts from recreation would be negligible. From Special Designations on Lands & Realty Impacts would be the same as those discussed in the Alternative B of the SDNM.

From Special Designations on Lands & Realty

Impacts would be the same as those discussed in Alternative C for the SDNM.

From Travel Management on Lands & Realty

Impacts from travel management would be similar to impacts described under Alternative B for the SDNM; however, 313,600 acres (almost twice that under Alternative A) would be closed and 172,800 acres would be limited to designated routes. Alternative D would be the most restrictive alternative to LUAs, due to the fact that the greatest amount of acres would be closed to vehicle use, potentially increasing the access limitations in certain areas of the SDNM. Impacts from this alternative on lands and realty would be major.

From Visual Resources on Lands & Realty

Impacts from visual resources on lands and realty would be limited under Alternative D, because the entire SDNM would be an LUA exclusion area that prohibits utility-scale renewable energy development and land disposals.

From Wilderness Characteristics on Lands & Realty

Impacts would be the same as those under described for Alternative D for the LSFO, except that 91,300 acres would be allocated as lands managed to protect wilderness characteristics.

From Wildlife and Special Status Species Management on Lands & Realty

Impacts would be the same as those described under Alternative C for the SDNM.

4.15.7.3 Sonoran Desert National Monument

From Cultural and Heritage Resources on Lands & Realty

Impacts would be the same as those described in Alternative D for the SDNM.

From Lands & Realty on Lands & Realty

Land Use Authorizations. Impacts related to LUA exclusion and avoidance Areas would be that same as described in Alternative D. Impacts related to communication sites would be the same as those described in Alternative B. Impacts related to multiuse utility corridors would be the same as those described in Alternative D.

Land Tenure. Impacts would be the same as those described in Alternative A for the SDNM.

Utility-Scale Renewable Energy Development. Impacts would be the same as those described in Alternative A for the SDNM.

From National Trails on Lands & Realty

Impacts would be the same as those described for Alternative B.

From Recreation Management on Lands & Realty

Impacts from recreation decisions under Alternative E in the SDNM would be similar to those described under Alternative C.

From Special Designations on Lands & Realty

Impacts would be the same as those discussed in Alternative D for the SDNM.

From Travel Management on Lands & Realty

Impacts would be the same as described under Alternative B for the SDNM.

From Visual Resources on Lands & Realty

Impacts would be the same as those described under Alternative C for the SDNM.

From Wilderness Characteristics on Lands & Realty

Impacts would be the same as those described under Alternative C.

From Wildlife and Special Status Species Management on Lands & Realty

Impacts would be the same as those described under Alternative C for the SDNM.

4.16 IMPACTS ON LIVESTOCK GRAZING

Impacts on livestock grazing are generally the result of activities that affect forage levels, the ability to construct range improvements, human disturbance of livestock, and costs associated with livestock management to the operators. In general, management actions to improve or protect resources could increase the amount of forage available for livestock grazing. Management actions that increase surface disturbance and destroy vegetation would decrease the amount of forage available for livestock grazing.

Management actions that restrict the location, extent, or type of rangeland projects may reduce the efficiency of the livestock management program and reduce the area available for livestock grazing.

4.16.1 METHODS OF ANALYSIS

4.16.1.1 Indicators

Management actions described in the alternatives could result in impacts on the grazing program. Indicators used to quantitatively assess management changes include the following:

- Reduction or increase of acres available for livestock grazing.
- Reduction or increase of forage resources available to livestock grazing.

Limitations or restrictions on the access to, placement of, and type or scale of livestock management facilities, including watering facilities and pipelines, livestock handling facilities, and fencing.

4.16.1.2 Assumptions

The following assumptions regarding the future management of livestock grazing are made:

- All existing leases and permits would be subject to Terms and Conditions by the authorizing officer.
- Although some areas are more suitable for different classes of livestock, the impacts from different classes of livestock would be similar and would not be discussed separately.
- Grazing is likely to directly impact the surface in areas where livestock concentrate.
- Construction of range improvements (e.g., fences, pipelines, water wells, troughs, and reservoirs) would result in a localized loss of vegetation throughout their useful life.
- Range improvements generally lead to improved livestock distribution and improved resource conditions.
- Livestock grazing management actions would comply with Arizona Standards for Rangeland Health and Guidelines for Grazing Administration.

Requiring livestock operators to remove livestock during periods of drought for up to one year would potentially impact livestock operator flexibility and viability. However, over the long term this could maintain or improve the vegetative communities and forage conditions.

4.16.1.3 Program Areas with No Impacts on Livestock Grazing

There would be no impacts on livestock grazing management from actions proposed under the following program areas: air quality and wild horse & burro management.

4.16.1.4 Qualitative Intensity Scale

The intensities of impacts are described using the following definitions:

- Negligible: The impact would not be detectable or measurable. There would be no appreciable change to available forage or the grazing operations.
- Minor: The impact would be slightly detectable and measurable. There would be a slight change to available forage and the grazing operations.
- Moderate: The impact would be very apparent and measureable. There would be a limited change to available forage and the grazing operations.
- Major: The impact would be severe. There would be a substantial change to the grazing operations.

4.16.2 COMMON TO ALL ALTERNATIVES

4.16.2.1 Both Decision Areas

From Cave Resources on Livestock Grazing

Activities associated with management of cave resources would affect relatively small, localized areas and would not have measurable impacts on livestock. Impacts would be negligible to minor.

From Paleontological Resources on Livestock Grazing

Management, identification, and protection of significant paleontological resources would protect vegetation and maintain available forage. Activities associated with management of paleontological resources would affect relatively small, localized areas and would not have measurable impacts on livestock forage. Even under the most intense management (e.g. site excavation), the amount of acreage disturbed would likely be very small. Fencing paleontological resource sites and excluding grazing from these sites would result in a minimal loss of forage. Impacts would be negligible to minor.

From Recreation Management on Livestock Grazing

As recreational use is expected to increase throughout the Decision Areas due to an increase in the region's population, impacts on livestock grazing would likely occur from recreation management.

Human activities, including vehicular traffic, noise, OHV operation, and camping could have a minor impact to grazing operations by increasing the likelihood of harassment, injury, or displacement of livestock. This avoidance or displacement could negatively affect livestock distribution patterns. In general, SRMAs would be more likely to have the type of intensive uses that would cause these impacts.

The areas outside SRMAs would be allocated as ERMAs, which are managed to custodial standards and do not generally provide structured recreational opportunities. ERMAs would not typically include the proactive development of facilities or specific management actions that would prevent conflicts between grazing operations and recreation uses. However, over the lifetime of the RMP, increases in population

and recreation would cause similar impacts in ERMAs as in SRMAs, particularly near urban areas, increasing the potential for conflicts between livestock and recreationists.

From Soil Resources on Livestock Grazing

Restricting developments and ground-disturbing activities from areas of significant desert pavement, cryptogamic crust, and soils that are vulnerable to disruption or have high wind or water erosion potential could have a minor impact by limiting the location of livestock management facilities. However, limiting developments in these areas could also reduce surface disturbance and retain forage for grazing livestock.

From Special Designations on Livestock Grazing

Managing the Juan Bautista de Anza National Historic Trails consistent with NPS standards would help protect the historic landscape and visual values of this historic trail. This would have minor impacts on livestock operations by restricting placement of range improvement projects designed to improve livestock distributions (e.g. water developments, fences, etc.) on or near the Anza Trail. This impact on livestock distribution could be offset by locating range improvement projects 0.25 to 0.5 mile away from the trail and restricting salts and supplements on or near the trail.

Managing 249,500 acres as wilderness areas in both Decision Areas to maintain naturalness would reduce surface disturbance and retain forage for livestock grazing. However, management actions intended to limit human intrusions and permanent facilities could have a minor impact on livestock operations by restricting livestock use and the location of new rangeland improvement projects to locations outside of the wilderness area.

From Water Resources on Livestock Grazing

Restricting facilities not related to water management outside riparian areas and the 100-year floodplain of washes or water ways, in a manner that avoids changing natural water flow or watershed dynamics, and consistent with other resource and public safety goals could restrict the development of livestock management facilities or require existing facilities to be relocated or modified if they are significantly affecting watershed or floodplain function. The intensity of the impact would generally be minor, but could vary based on the necessity of the project.

From Wildland Fire Management on Livestock Grazing

Managing areas as suitable for wildland fire and allowing prescribed fire and treatments would impact livestock grazing by reducing the amount of forage and area available for livestock grazing in the short term, but could improve vegetation condition in the long term in fire-adapted communities. The level of impact would vary depending upon the size of the area burned. Fire in Sonoran Desert communities that are not fire adapted would reduce the amount of forage available to livestock on a longer term. Suppression of wildfires in the Sonoran Desert would have short-term impacts by removing vegetation but would reduce overall impacts on livestock forage in the long term by retaining the vegetative communities and stabilizing the soil. Impact intensities could range from negligible to major, depending on the size of the burn.

From Vegetation Management on Livestock Grazing

Under all alternatives, emphasis is placed on protection of the vegetative communities across both Decision Areas. Management actions, such as requiring mitigation or avoidance of vegetation removal for projects in order to protect vegetation resources, would protect or restore vegetation communities and would generally increase available forage for livestock grazing. Actions that would reduce, damage, or destroy vegetation communities, such as burning or thinning, would generally decrease available forage for livestock grazing. Any of these actions are likely to be negligible to minor in scale and in some cases may be short term.

4.16.2.2 Lower Sonoran

From Recreation Management on Livestock Grazing

The entire Lower Sonoran Decision Area would be open to recreational target shooting under all alternatives. Impacts from this would be negligible in areas of light use, and minor in areas of moderate to heavy use. Direct and indirect impacts would include soil disturbance from vehicular traffic to and from the sites and loss of vegetation from vehicles and human trampling. Additionally, litter from shell casings and targets are often left behind, impacting the quality and quantity of vegetation and soils affected. Impacts could be moderate to major if livestock are wounded or killed, or if range improvement projects are vandalized, which would become a financial loss to the livestock operator.

From Special Designations on Livestock Grazing

Management of the Fred J. Weiler Green Belt to protect riparian habitat for Southwestern willow flycatcher and the yellow-billed cuckoo may limit or exclude use of the riparian area. However, this would have a minor impact on livestock management, as currently only one allotment makes use of the Green Belt. All other allotments have the Green Belt fenced off to livestock for the enhancement of riparian vegetation and important wildlife habitat.

4.16.2.3 Sonoran Desert National Monument

From Minerals on Livestock Grazing

The SDNM is withdrawn from new mineral entry under all alternatives. The withdrawal was established in the proclamation that established the Monument. This withdrawal would have a protective effect on livestock grazing, as ground disturbance from exploration, prospecting, and other activities associated with mineral development would be prohibited.

In those few parcels (25,800 acres) within SDNM where the surface is owned by the US and the subsurface is owned by a non-federal entity, minerals development may still occur. Depending upon the extent and intensity of ground disturbance, livestock could be excluded during active operations or until the landscape has been reclaimed, thus reducing available forage. An increased level of disturbance and harassment of livestock from mineral development could also occur. The level of impact on livestock operations would vary by the size of the mineral development, but are generally expected to be minor in scale. However, the BLM, as the administrator of the surface, would work with operators to mitigate

and further reduce impacts. Methods would likely project design features and BMPs, such as required fencing and posted speed limits to prevent injuries to livestock.

From Vegetation Resources on Livestock Grazing

Within the SDNM emphasis is placed on protection of the vegetative communities and the vegetative objects of the Monument. Grazing management changes, such as requiring deferred or seasonal grazing, could be required as mitigation if the intensity of the impact to the vegetation from grazing (i.e. changes in vegetation composition, structure and diversity) is determined to be at moderate levels. The impact to the livestock operators would depend on the scale of the management change required and could vary from negligible to major and could include the elimination of livestock grazing within parts or all of the Monument.

4.16.3 ALTERNATIVE A (NO ACTION)

4.16.3.1 Both Decision Areas

From Cultural and Heritage Resources on Livestock Grazing

Management, identification, and protection of significant cultural resources would tend to protect vegetation and maintain available forage. Activities associated with management of cultural resources would affect relatively small, localized areas and would not have measurable impacts on livestock forage. Even under the most intense management (e.g. site excavation), the amount of acreage disturbed would likely be very small. Fencing cultural resource sites and excluding grazing from these sites would result in a minimal loss of forage. Impacts would be negligible to minor.

4.16.3.2 Lower Sonoran

From Lands & Realty on Livestock Grazing

Land tenure adjustments could impact livestock operations and management. The potential disposal of 30,800 acres would have impacts that range from negligible to major and would vary by allotment due to the loss of parcels that contain important range developments or facilities, and reduce forage available for livestock. Replacement or relocations of these facilities could mitigate some of the impacts. Acquisition of parcels within allotments could help livestock operations by eliminating or avoiding incompatible uses and facilitating management.

Development of energy projects, mainly solar, would have impacts ranging from moderate to major on some livestock operations by removing acreage and associated forage available for livestock grazing and would potentially remove livestock developments needed for the appropriate management of livestock operations.

The designation of up to 10 multiuse utility corridors throughout the Decision Area could lead to new access roads and associated increased vehicle traffic. The impacts would likely be negligible from conflicts between vehicles and livestock (direct collision or harassment) where the corridors are limited to administrative access only or current projects that already exist.

From Livestock Grazing on Livestock Grazing

Under Alternative A, grazing allotments in the LSFO Decision Area would continue to be allocated as perennial, perennial/ephemeral, or ephemeral, as currently designated. Grazing permit renewals would be based on rangeland health evaluations, with associated NEPA analysis, as appropriate to allotment-specific characteristics and multiple use requirements. Because this alternative is the least restrictive to livestock grazing, impacts on livestock operators are expected to be negligible, and would be addressed on a case-by-case basis through the permit renewal process. Approximately 830,200 acres, with a total of 17,541 corresponding AUMs, would remain available for livestock grazing. Approximately 100,000 acres comprised of the Cameron Allotment, the Fred J. Weiler Green Belt, the Sentinel Plain, Ajo parcels, and other areas that are currently unavailable for grazing would remain so for wildlife habitat and other uses. Existing and proposed management actions would continue to involve each livestock operator, stakeholder, and the interested public for individual allotments on a case-by-case basis.

Range improvement projects would be developed and analyzed pursuant to 43 CFR 4120-3. Surface disturbance from constructing rangeland development projects and water sources would cause negligible impacts from short-term losses of vegetation for forage, but would support appropriate distribution and management of livestock in the long term.

From Minerals Management on Livestock Grazing

Mineral development within the 614,900 acres currently open to mineral entry could impact livestock operations by disturbing surfaces and decreasing vegetation. Livestock could be excluded during active mineral operations, thus reducing available forage. An increased level of disturbance and harassment of livestock from mineral development could also occur. The level of impact on livestock operations would vary by the size of the mineral development but are generally expected to be minor in scale.

From Recreation Management on Livestock Grazing

Under Alternative A, four existing SRMAs totaling 379,400 acres would be retained in the Lower Sonoran Decision Area. Recreation facilities could have minor impacts by displacing or harassing livestock, limiting range developments, or impeding livestock operations. However, the SRMAs would provide opportunities for active management of recreation, including directing uses to avoid conflicts or minimizing uses that might harm livestock operations, potentially limiting the impact.

Under Alternative A, requiring SRPs and establishing camping facilities could control the areas where surface disturbance from recreation occurs and reduce the loss of forage available for livestock grazing. Managing recreation use and evaluating recreation impacts on resource conditions could increase the amount of forage available for livestock grazing by restricting increased recreation use. Managing areas to protect visual and scenic resources or as semi-primitive nonmotorized and primitive areas could have a minor impact by restricting the location, extent, or type of rangeland improvement projects.

Existing ROS management classes would be retained under Alternative A. Areas that have an ROS classification of rural or roaded natural, which are relatively rare in the Decision Areas, are more likely to have moderate impacts with intensive recreation use that may displace livestock. Areas that have a ROS classification of semi-primitive nonmotorized and primitive would have minor impacts and be less likely to have intensive recreation use that would displace or harass livestock, but actions intended to

maintain these classifications could restrict the location, extent, or type of rangeland improvement projects.

From Special Designations on Livestock Grazing

Managing the 8,900 acre Coffeepot Botanical ACEC would have a minor impact by reducing grazing management flexibility and limiting grazing in the area through the decision to not allow new range developments.

From Travel Management on Livestock Grazing

Allocation of 1,670 miles of open routes under Alternative A in the Lower Sonoran Decision Area could lead to minor impacts due to conflicts between livestock and vehicles. This route system also supports livestock operations by providing access to livestock developments. Fifteen miles of closed or limited routes would minimize the level of conflict and the impact to livestock operations.

From Visual Resource Management on Livestock Grazing

Under Alternative A, only wilderness areas would be managed as VRM Class I. Restrictions on range developments would occur from the Wilderness designation and VRM I would not add to these impacts significantly. These requirements, such as restricting the height or location of a project, would likely require only minor changes to any potential projects. Managing 19 percent of the Decision Area under VRM Class II standards would place additional requirements on range developments to comply with the visual protection requirements of the class. Managing 80 percent of the Decision Area to meet VRM Class III or IV objectives would support range developments with few requirements to comply with visual protection requirements.

From Wilderness Characteristics on Livestock Grazing

No lands managed to protect wilderness characteristics would be allocated under Alternative A, Therefore, impacts on livestock grazing would be negligible.

From Wildlife and Special Status Species on Livestock Grazing

Management actions that limit projects, such as requiring mitigation or relocation of projects within 0.25 mile of active cactus ferruginous pygmy-owl nest sites, within 300 feet of the edge of desert washes in wildlife corridors, within 4 miles of known lesser long-nosed bat roosts, and in category I and II desert tortoise habitat could affect livestock grazing operations with impacts that vary from negligible to minor by limiting the placement of or requiring mitigation for new range improvement projects.

The requirement to keep domestic sheep grazing as far as practicable from bighorn sheep habitat would effectively eliminate the possibility of sheep grazing within the majority of the Decision Area. However, this would likely only be a minor impact as all current grazing permits are for cattle or horses.

Wildlife management actions that serve to support wildlife populations, such as not allowing new fencing in bighorn sheep habitat, can impact livestock grazing by making livestock operations less efficient, limiting livestock management options, or closing or restricting areas to livestock grazing. The intensity of the impact would vary by the area restricted by the action. Constructing new wildlife waters could

have minor impacts from increased roads and road density and increased conflicts between vehicles and livestock.

4.16.3.3 Sonoran Desert National Monument

From Lands & Realty on Livestock Grazing

The designation of three utility corridors within the Monument could lead to new access roads and associated increased vehicle traffic. However impacts from the corridors would likely be negligible from conflicts between vehicles and livestock, and may improve livestock distribution across the Monument's allotments. New land use authorizations could have impacts on livestock operations that vary from negligible to moderate, based on the size of the surface disturbance, due to loss of forage and potential increase in conflicts between vehicles and livestock (direct collision or harassment). Development of energy projects, mainly solar, is not expected to have impacts on livestock operations, as it is not likely any projects would be developed due to the emphasis placed on protection of the objects of the Monument.

From Livestock Grazing on Livestock Grazing

Under Alternative A, livestock grazing permits on the SDNM south of I-8 would remain closed, pursuant to the Presidential Proclamation. Livestock grazing on 252,500 acres north of I-8 would continue to be allocated as perennial, perennial/ ephemeral, or ephemeral, for a total of 8,703 AUMs. Under current management, grazing permit renewals would be based on Rangeland Health Evaluations, with associated NEPA analysis, as appropriate to allotment-specific characteristics and if determined to be compatible with protecting Monument resources. Because this alternative is the least restrictive to livestock grazing, impacts on livestock operators are expected to be negligible and would be addressed on a case-by-case basis through the permit renewal process. Those areas, which total 8,500 acres, where livestock grazing was found to be incompatible with the protection of Monument objects would be addressed in individual allotment evaluations and permit renewals. Existing and proposed management actions would continue to involve each livestock operator, stakeholder, and the interested public for individual allotments on a case-by-case basis.

Range improvement projects would be developed and analyzed pursuant to 43 CFR 4120-3. Surface disturbance from constructing rangeland development projects and water sources would cause negligible impacts from short-term losses of vegetation for forage, but would support appropriate distribution and management of livestock in the long term.

From Recreation Management on Livestock Grazing

Impacts would be the same as those described under Alternative A for the LSFO Decision Area, except that in the SDNM, the Gila Trail SRMA would be retained to protect resource values and to restore surface disturbance from recreation uses within 0.25 mile of historic and prehistoric trails segments, which could have a minor impact to livestock operations by increasing forage available for livestock grazing.

Under Alternative A, the entire Monument (approximately 482,334 acres of public land) is currently open to recreational target shooting. Impacts would be similar to those identified for the Lower

Sonoran Decision Area. These impacts would be negligible in areas of light use, and minor in areas of moderate to heavy use.

From Special Designations on Lands & Realty

There are no special designations in the Monument that impact current livestock grazing operations. The Vekol Valley Grassland ACEC is located in an area south of I-8 that is currently closed to livestock grazing.

From Travel Management on Livestock Grazing

Managing 568 miles of open routes in the SDNM under Alternative A could cause minor impacts due to conflicts between livestock and vehicles. However this route system would also support livestock operations by providing access to livestock and range improvements across the allotments. Closed or limited routes would minimize the level of conflict with livestock and the impact to livestock operations.

From Visual Resources on Livestock Grazing

Managing 19 percent of the Decision Area under VRM Class II standards would place some requirements on range developments to comply with the visual protection requirements of the class. These requirements, such as restricting the height or location of a project, would likely require minor to moderate changes to any potential projects. Managing 49 percent of the SDNM to meet VRM Class III or IV objectives would not place any substantial restrictions on range developments, such as requiring a project be relocated. Only wilderness areas would be managed as VRM Class I under Alternative A and would restrict future range developments.

From Wilderness Characteristics on Livestock Grazing

No lands managed to protect wilderness characteristics would be allocated under Alternative A and impacts would be negligible.

From Wildlife and Special Status Species Management on Livestock Grazing

Impacts would be the same as those described under Alternative A for the Lower Sonoran Decision Area, except within the SDNM emphasis is placed on protection of the biological objects of the Monument. Grazing management changes, such as requiring deferred or seasonal grazing, could be required as mitigation if the intensity of the impact to wildlife from grazing (i.e. changes in vegetation composition, structure and diversity) is determined to be at moderate levels during the rangeland health evaluation and permit renewal process or habitat management plan development for specific allotments or areas.

The impacts on the livestock operators would depend on the scale of the management change required to mitigate the impact and could vary from negligible to major and could include the elimination of livestock grazing within parts or all of the Monument.

Domestic sheep grazing would be prohibited within the Monument, which could reduce the flexibility of the operators. However, this impact would be negligible because all current grazing permits are for cattle and horses.

4.16.4 ALTERNATIVE B

4.16.4.1 Both Decision Areas

There are no unique impacts for both Decision Areas under Alternative B.

4.16.4.2 Lower Sonoran

From Cultural and Heritage Resources on Livestock Grazing

Identification and protection of significant cultural resources in the Lower Sonoran Decision Area would tend to protect vegetation and maintain available forage. Activities associated with management of cultural resources would affect relatively small, localized areas and would not have measurable impacts on livestock forage. For example, the Butterfield West Public Use Site along the Anza-Butterfield Trail proposed under Alternative B may affect the Amavisca Allotment, which is an ephemeral allotment. The Sundad Public Use Site proposed for the Gable Ming Allotment may affect more vegetation and forage availability because the Gable Ming is a perennial allotment (see Map 2-1b), However, impacts from these public use sites are expected to be negligible because very little acreage is involved. Even under the most intense management (i.e. site excavation), the amount of acreage disturbed would likely be very small. Fencing cultural resource sites to exclude grazing from these sites would result in a minimal loss of forage. Impacts would be negligible to minor.

From Lands & Realty on Livestock Grazing

In general, impacts from multiuse utility corridors, energy projects and LUAs on livestock operations would be similar to Alternative A. Development of new energy projects could lead to moderate to major impacts on 452,000 acres due to the removal of acreage available for livestock grazing and the loss of range improvement projects. The fewest amount of LUA Exclusion areas (among the action alternatives) have been allocated in Alternative B, therefore, development of new LUAs to be located outside of designated corridors could lead to minor impacts on grazing operations due to the removal of forage for livestock and the likelihood of additional road development and access leading to the potential increase in conflicts between vehicles and livestock (direct collision or harassment).

Impacts from land tenure adjustment on livestock operations in the Lower Sonoran Decision Area would be the same scale of impact as described under Alternative A. However, more allotments would be impacted due to the increase in acres (38,300 acres total) that would available for disposal under Alternative B.

From Livestock Grazing on Livestock Grazing

Under Alternative B, approximately 830,200 acres would remain available for livestock grazing, but perennial stocking rates would be reduced by approximately 41 percent. Approximately 10,431 AUMs would still be available as forage for cattle. Ephemeral grazing applications would continue to be considered to supplement the base herds in years of above-average precipitation.

This alternative could make forage more available in the long run, which in turn would increase weight gains in cattle. Conversely, however, managing perennial grazing allotments with a reduction of 41

percent in the authorized grazing preference could have moderate to major impacts by reducing the long-term viability of some livestock operations. The reduction in livestock numbers could leave some operators with herd sizes too small to support their current operations. Operators would have to acquire additional lands in order to support a viable operation, which, in some cases, could be cost-prohibitive. Other impacts would be similar to Alternative A.

From Mineral Management on Livestock Grazing

Impacts from mineral development on livestock operations in the LSFO Decision Area would be similar to Alternative A, but potentially occurring over more acres (653,200). The level of impact on livestock operations would vary by the size of the mineral development but are generally expected to be minor in scale because livestock and mineral development often coincide on the same lands. Fencing of specific developments would continue to occur, but these are typically small in scale, with minor impacts on livestock grazing.

From Recreation Management on Livestock Grazing

The overall effects on livestock operations under Alternative B would be similar in nature to Alternative A. However, impacts would increase to moderate levels as there would be a greater than three-fold increase over Alternative A in the area designated for SRMAs and ERMAs. Under Alternative B, impacts from front country and community interface settings would have moderate impacts and be similar to those from the roaded natural ROS settings under Alternative A.

Impacts from backcountry and passage settings would be most similar to semi-primitive motorized and semi-primitive nonmotorized ROS settings under Alternative A and have only minor or negligible impacts on grazing operations and livestock/recreation user conflicts. In particular, allotments in the RMAs allocated for motorized recreation use (Buckeye Hills East Trails, Ajo, and Painted Rock) and those along the urban interface (Saddle Mountain, and Buckeye Hills West SRMAs) would experience the greatest conflicts with recreation use. The specific allotments that would be impacted include Kirian, Lower Vekol, Palo Verde Mountains, Conley, Beloat, Arnold, Powers Butte, Turner, Saddle Mountain, Ward, Carter-Herrera, Clem, Artex, and Childs.

From Special Designations on Livestock Grazing

Management of the 8,900 acre Coffeepot Botanical ACEC would the same as Alternative A. This would have a minor impact to grazing operations by reducing grazing management flexibility by limiting new range developments. Increased vehicle traffic associated with designating the Agua Caliente Road as a backcountry byway could have minor impacts on the livestock operations by increased conflicts between vehicles and livestock and potential increased vandalism of rangeland improvement projects.

From Travel Management on Livestock Grazing

The proposed route network under Alternative B would cause conflicts similar to those described under Alternative A on open routes, but slightly less widespread because approximately 70 fewer miles of routes would be open to the public under Alternative B. This route system would continue to support livestock operations by providing access to livestock and livestock developments.

From Visual Resources on Livestock Grazing

Impacts from the allocation of VRM Classes on livestock operations would be similar (minor) to those described under Alternative A. However, a 40 percent increase in areas managed under VRM Class II standards would increase the area that additional mitigation, such as restricting the height or location of a project, would be required on range developments.

From Wilderness Characteristics on Livestock Grazing

No lands managed to protect wilderness characteristics would be allocated under Alternative B, resulting in negligible impacts.

From Wildlife and Special Status Species Management on Livestock Grazing

Impacts would be the same as those described under Alternative A for the LSFO Decision Area, except where new roads are required for constructing new wildlife waters, which could cause minor impacts from increased conflicts between vehicles and livestock through direct collision or harassment.

4.16.4.3 Sonoran Desert National Monument

From Cultural and Heritage Resources on Livestock Grazing

Based on the results of the Compatibility Analysis (**Appendix E**), livestock grazing has been determined to be incompatible with 8,500 acres in the SDNM, some of which are cultural and heritage resources (the Anza and Mormon Battalion trails, for example). Under Alternative B, these 8,500 acres would be specifically fenced off to ensure that non-compatible areas are protected, per the Monument proclamation. Approximately 83 miles of fencing would be needed to exclude these areas to livestock grazing. Included in this area would be approximately 10 acres around the North Tank on the Conley Allotment along the Anza NHT. This exclosure would decrease available forage for livestock. Additional water developments would likely be necessary to offset the loss of water sources within the exclosures.

Identification and protection of additional cultural resources and Monument objects would tend to protect vegetation and maintain available forage. Activities associated with management of cultural resources would affect relatively small, localized areas and would not have measurable impacts on livestock forage. Impacts from development of the Christmas Camp Public Use Site and the Anza-Butterfield Interpretive Trail Area in the Conley Allotment, and the Bighorn and Happy Camp Public Use Sites on the Bighorn Allotment (see Map 2-1b), such as loss of vegetation and available forage, are expected to be negligible because very little acreage would be involved in the development of these sites. Even under the most intense management (e.g. site excavation), the amount of acreage disturbed would likely be very small. Fencing additional cultural resource sites to exclude grazing from these sites would result in a minimal loss of forage. Impacts would be negligible to minor.

From Lands & Realty on Livestock Grazing

Impacts from multiuse utility corridors on livestock operations would be the same as Alternative A. New land use authorizations could have impacts on livestock operations; however, impacts would likely be negligible, as the Monument is an avoidance area for development projects. There would be no

impacts from the development of energy projects as the Monument is an exclusion area from large renewable energy developments.

From Livestock Grazing on Livestock Grazing

Under Alternative B, stocking rates on grazing allotments north of I-8 would be allocated as perennial grazing and would be reduced by approximately 39 percent. Ephemeral grazing applications would continue to be considered. This alternative also eliminates approximately 8,500 acres currently available for grazing that have been determined to be incompatible with the protection of Monument objects from livestock grazing. These 8,500 acres would be made unavailable by fencing off these specific areas. This would leave approximately 244,000 acres of the Monument still open with an associated 5,321 AUMs of forage for livestock use.

Approximately 83 miles of fencing would be needed to exclude these specific areas to livestock grazing. Included in this area would be approximately 10 acres around the North Tank on the Conley Allotment. Additional water developments would likely be necessary to offset the loss of water sources within the exclosures. Managing 8,500 fewer acres with more fence lines, fewer waters, and a reduction of 39 percent in the authorized grazing preference could have a major impact by reducing the long-term viability of some livestock operations, especially when considered with the cumulative impacts of the closure of those areas south of I-8, as well. The reduction in livestock numbers could leave some operators on the SDNM with herd sizes too small to support their current operations. Operators would have to acquire additional lands in order to support a viable operation, which, in some cases, could be cost-prohibitive.

All associated range improvement projects within and outside the fenced exclosures would have to be addressed on a case-by-case basis. Other impacts would be similar to Alternative A. Combined impacts from Alternative B would likely be minor to moderate for allotments such as Beloat, Arnold, Hazen, and Lower Vekol but could be moderate to major for operators of the Bighorn and Conley Allotments.

From Recreation Management on Livestock Grazing

The overall effects on livestock operations under Alternative B would be similar in nature to Alternative A; however, impacts could increase with management allocation increases. Under Alternative B, impacts from front country and community interface setting would be similar to those from the roaded natural ROS settings under Alternative A. Impacts from backcountry and passage RMZs would be most similar to semi-primitive motorized and semi-primitive nonmotorized ROS settings under Alternative A.

Managing the entire SDNM as an ERMA would not affect potentially increasing forage available for livestock grazing compared with Alternative A. Managing 84 percent of the SDNM SRMA to meet backcountry setting objectives, however, could restrict the location, extent, or type of rangeland improvement projects compared to Alternative A. This would likely have, at most, a minor impact on livestock operations.

Under Alternative B, impacts from recreational target shooting would be similar to Alternative A. However, only about 95,900 acres would be available for target shooting activities. This is approximately 386,434 fewer acres available for target shooting than under Alternative A, and a significant decrease (80 percent) in potential impacts on forage and vegetative cover available for livestock, as well as a decrease

in the chances of the animals themselves being injured or killed by target shooters. Therefore, impacts from target shooting under alternative B is expected to be negligible to minor.

From Special Designations on Livestock Grazing

Impacts would be similar to those described under Alternative A for the SDNM. However, under Alternative B, the Vekol Valley Grassland ACEC would no longer be designated because the Monument Proclamation provides adequate protection for the resources intended to be protected under the original ACEC. Additionally, approximately 10 acres of the Anza NHT around North Tank on the Conley Allotment would be fenced off. Livestock grazing was found to be incompatible with this Monument object (see **Appendix E**, Compatibility Analysis: Livestock Grazing on the Sonoran Desert National Monument) and would be excluded from this site. Mitigation in the form of an alternate water source for livestock may be required.

From Travel Management on Livestock Grazing

The proposed route network under Alternative B would cause conflicts similar to those described under Alternative A resulting in minor impacts, but slightly minimized because approximately 100 fewer miles of routes in the SDNM would be open to the public. This route system would continue to support livestock operations by providing access to livestock and livestock developments. However, the additional 83 miles of fencing could restrict some access to recreationists, who could cut fences or leave gates open, creating management issues for livestock operators. Impacts would depend on the scale and frequency of vandalism by allotment. For example, impacts would be negligible for the Beloat, Hazen, and Arnold Allotments where no additional fencing is proposed. Impacts for the Bighorn Allotment permittee would be minor, with an additional 14 miles of fencing to maintain, and impacts on the Conley Allotment operator would be moderate, with 69 miles of fencing to maintain. Installation of cattleguards and strategically located gates in heavily trafficked areas would help mitigate this impact.

From Visual Resources on Livestock Grazing

Managing 39 percent more of the Decision Area as VRM Class II as compared to Alternative A could reduce surface disturbance from human uses but also would restrict operator flexibility by impacting the location, extent, or type rangeland improvement projects. The impact could range from minor changes to the project design to a moderate impact from requiring relocation of the project.

From Wilderness Characteristics on Livestock Grazing

No lands managed to protect wilderness characteristics would be allocated under Alternative B, resulting in negligible impacts.

From Wildlife and Special Status Species on Livestock Grazing

Most impacts would be similar to those described under Alternative B for the LSFO Decision Area. However, on the SDNM, 8,500 acres, with 83 miles of fencing, is proposed to be fenced off to protect Monument objects from livestock grazing. Water sources within this exclosure may remain available for wildlife, which could impact livestock that have come to rely on those water sources. This could result

in livestock tearing down fences to get to their habitual water holes, which in turn would result in downed barbed wire and cattle trespassing into exclosures.

Diligence would be required from all parties to ensure fencing is maintained and adequate water sources are provided for cattle and wildlife outside the exclosures. In general, direct impacts from wildlife on livestock grazing would remain negligible, and resemble those described in Alternative A. However, indirect impacts from the fence exclosure would require additional water sources for the benefit of both livestock and wildlife.

4.16.5 ALTERNATIVE C

4.16.5.1 Both Decision Areas

No unique impacts exist for both decision areas under Alternative C.

4.16.5.2 Lower Sonoran

From Cultural and Heritage Resources on Livestock Grazing

Impacts would be the same as those described under Alternative B, except for the allocation of the Gila River Terraces and Lower Gila Historic Trail SCRMA that runs through much of the Lower Sonoran Decision Area (see Map 2-1c).

Additionally, the proposed Saddle Mountain SCRMA would impact several grazing allotments in the Saddle Mountain area, including the Clem (South), Saddle Mountain, and Ward Allotments. The Carter-Herrera and Turner Allotments would also be affected, but they are managed by the Hassayampa Field Office. These SCRMAs would have minor impacts on these livestock operations by placing additional restrictions on the location of livestock developments, numbers, and operations to reduce wildlife and livestock conflicts in these areas. Increased restrictions on vehicle uses and mineral material development in washes could help protect these areas for livestock use and decrease livestock harassment from vehicles.

From Lands & Realty on Livestock Grazing

In the LSFO Decision Area, the intensity of the impacts from multiuse utility corridors, energy projects and LUAs on livestock operations would be similar to Alternative B, but would occur over less area due to fewer acres available for these projects. Impacts from land tenure adjustment on livestock operations would be greater than under Alternative A.

From Livestock Grazing on Livestock Grazing

Alternative C attempts to balance resource protection with human use and influence. The proposed combination of natural processes and "hands on" techniques would reduce the need for intensive livestock management and mitigation efforts needed to avoid or reduce impacts on and from livestock grazing.

Under this alternative, grazing allotments that are currently designated as perennial/ephemeral would be allocated as perennial only, with no supplemental ephemeral grazing applications considered when additional forage is available. This alternative would impact 14 allotments that are currently designated as perennial/ephemeral. These allotments would instead be managed similar to the 9 allotments in the LSFO Decision Area that are currently perennial only. This alternative would not apply to the 21 allotments that are designated ephemeral only. Those allotments would continue to be managed in accordance with the Special Ephemeral Rule.

Alternative C further proposes to restrict the portion of the Bighorn Allotment that is in the LSFO Decision Area (outside the SDNM boundaries) to winter season of use only (October 1st through April 30th). This would have a minor impact on the livestock operator by not permitting utilization of any summer forage. Additionally, this alternative proposes to close the portion of the Table Top Allotment to livestock grazing. This would result in negligible impacts on livestock or the permittee because this portion of the allotment has been managed with the remainder of the allotment that was closed to livestock grazing through the Presidential Proclamation.

Seasonal adjustments in grazing on perennial allotments would be considered during the permit renewal process, and would propose approximately 65 percent use during the winter-spring season (October 1st to April 30) and approximately 35 percent use during the summer season (May 1st to September 30th). These management changes, and any actions designed to adjust livestock numbers or require more intensive management (pasture rotations, seasonal removals, etc.), would likely have moderate to major impacts on operator costs. For example, increased pasture rotations and seasonal removals could increase the number of employees needed to facilitate this intensive management. While this would provide income for these employees in the short term, it could become cost-prohibitive for some livestock operators. However, individualized consultation, coordination, and cooperation with the affected parties during the permit renewal process could help lessen financial impacts on the operator while also decreasing impacts of grazing on rangeland resources.

From Mineral Management on Livestock Grazing

The intensity of the impacts from mineral development on livestock operations would be the same as Alternative A; however this would occur over substantially less acreage in the Planning Area (340,600).

In addition, allocation of four WHAs in the LSFO Decision Area could have minor impacts on livestock operations by placing additional restrictions on the location of livestock developments and operations to reduce wildlife and livestock conflicts in these areas. Increased restrictions on vehicle uses and mineral material development in washes could reduce impacts on vegetation and retain forage for livestock use and decrease livestock harassment from vehicles.

From Recreation Management on Livestock Grazing

General impacts from recreation on livestock operations would be similar to Alternative B. Alternative C proposes managing for nearly equal access for motorized and non-motorized uses. In comparison to Alternative B, this would entail a 45 percent increase in the back country and passage settings and a 20 percent decrease in front country and community Interface settings. These actions would result in a decrease of certain intensive recreation uses and the associated minor impacts on livestock and livestock

operations. Allotments in the urban interface would continue to see increased recreational use as populations grow resulting in minor to moderate impacts.

From Special Designations on Livestock Grazing

Managing grazing allotments within all ACECs as perennial only would have moderate to major impact by reducing the livestock operator's ability to utilize ephemeral forage with additional permitted livestock, which could reduce the long-term viability of some livestock operations. Managing 14,400 acres as the Coffeepot Batamote Botanical ACEC could have a minor impact to grazing operations by reducing grazing management flexibility through the management action to limit all surface disturbing activities. This could restrict new range developments that could improve livestock distribution within the allotment. Impacts from designation of the Agua Caliente Road as a backcountry byway would be the same as Alternative B.

From Travel Management on Livestock Grazing

A decrease in the miles of open routes in the LSFO Decision Area compared to Alternative A would minimize conflicts between vehicles and livestock. This route system would continue to support livestock operations by providing access to livestock and livestock developments.

From Visual Resources on Livestock Grazing

General impacts from VRM Class allocations on livestock operations would be similar to those described under Alternative A. However, a substantial increase in VRM Class II (approximately 387,800 acres) over Alternatives A, as well as an additional 91,800 acres under VRM Class I standards could reduce surface disturbance and increase the amount of forage available for livestock grazing. These allocations would also necessitate additional mitigation on range developments on more than half of the Decision Area in order to make less of a visual impact to humans, but this would have only minor impacts on livestock.

From Wilderness Characteristics on Livestock Grazing

Managing 128,100 acres in the Lower Sonoran Decision Area as allocated lands managed to protect wilderness characteristics could reduce surface disturbance from activities and maintain available forage in these areas, such allocations would also have a minor impact to some livestock operations by increasing the mitigation requirements and potential changes in type and location for range developments in these areas.

From Wildlife and Special Status Species on Livestock Grazing

Impacts would be the same as those described under Alternative B for the Lower Sonoran Decision Area, except, not allowing for the development of new wildlife waters would eliminate any minor impacts associated with increased roads and road density and increased conflicts between vehicles and livestock from new waters.

4.16.5.3 Sonoran Desert National Monument

From Cultural and Heritage Resources on Livestock Grazing

Impacts would be the same as those described under Alternative B, except for the allocation of the Gila River Terraces and Lower Gila Historic Trail SCRMAs that runs along the Anza-Butterfield Trail, primarily through the Conley and Bighorn Allotments (see Map 2-1c). The SCRMAs proposed under Alternative C would increase the width of the Anza-Butterfield Interpretive Trail proposed under Alternative B. The SCRMAs would have minor impacts on these livestock operations by placing additional restrictions on the location of livestock developments, numbers, and operations to reduce wildlife and livestock conflicts in these areas. However, approximately 44,800 acres that are proposed to be fenced off to livestock could make these restrictions moot within the exclosed areas.

From Lands & Realty on Livestock Grazing

Impacts from utility corridors would be similar to Alternative A (negligible), except somewhat reduced due to a 0.5 mile wide limit on the corridor size and the elimination of the Tucson Electric Power corridor. Impacts from new land use authorizations and the development of energy projects would be the same as Alternative B.

From Livestock Grazing on Livestock Grazing

Under Alternative C, grazing allotments within the SDNM south of I-8 would remain closed. Those allotments in the Monument that are north of I-8 would be allocated as perennial only, with no ephemeral grazing applications considered. The Arnold Allotment, which is designated as ephemeral only, would not be affected by this alternative and would continue to be managed in accordance with the Special Ephemeral Rule.

Additionally, Alternative C proposes to fence off the 8,500 acres of Monument objects determined to be incompatible with livestock grazing, plus an additional 36,300 acres that connect or surround those 8,500 acres. Although a total of 44,800 acres is proposed to be removed from livestock use, only about 47 miles of new fencing would be required to accomplish this. These new fences would tie into existing fences and make use of topographic barriers, such as cliffs, gorges, and rocky outcrops to decrease the amount of fencing needed, and thus decrease the impacts from the fence line. This would result in fewer breaches by livestock, which in turn would decrease materials and operational costs to both the permittee and the BLM. Range improvement projects within the exclosure areas would be addressed on a case-by-case basis, pursuant to 43 CFR 4120. Any range improvement projects within the exclosure would likely have to be removed or modified for the benefit of wildlife and vegetation resources. Affects from the loss of water sources inside the exclosure would be mitigated by installing other water sources outside the exclosure for the benefit of livestock and wildlife.

Requiring changes to allotment grazing management systems could have impacts on livestock operators that would vary depending upon the scale of the change. Management changes resulting in adjusting livestock numbers or requiring more intensive management (pasture rotations, seasonal removals, etc.) would affect operator costs and would likely have moderate to major impacts. For example, the closure of portions of allotments south of I-8 has already impacted the management and finances of those permittees affected by the Proclamation. Cumulatively, more intense management of those areas north

of I-8, including increased pasture rotations and seasonal removals, could become cost-prohibitive for some livestock operators or make future operations untenable. However, individualized consultation, coordination, and cooperation with the effected parties would help lessen financial impacts on the operator while also decreasing impacts of grazing on rangeland resources and Monument objects.

From Recreation Management on Livestock Grazing

General impacts from recreation on livestock operations would be similar to Alternative B, except that managing for a balance of uses between motorized and nonmotorized recreational uses with more backcountry and passage settings would decrease certain intensive recreation uses and the associated impacts on livestock and livestock operations that were described in Alternative B.

Allotments in the urban interface would continue to see increased recreational use as populations grows, resulting in minor to moderate impacts from conflicts between recreationists and livestock.

Under Alternative C, impacts from target shooting would be similar to Alternative A. However, less than 1,134 acres would be open to target shooting and in limited, designated areas. This would decrease direct and indirect impacts on livestock and livestock grazing by as much as 99.8 percent. Therefore, impacts are expected to be negligible.

From Special Designations on Livestock Grazing

Impacts would be the same as those described under Alternative B for the SDNM, except designating Highway 238 and I-8 as scenic byways may have a minor impact on grazing permittees by restricting the location, extent, or type of livestock developments allowed.

From Travel Management on Livestock Grazing

The proposed route network under Alternative C would minimize conflicts between vehicles and livestock as compared to Alternative A with approximately 183 miles of routes in the SDNM open to the public. This route system would continue to support livestock operations by providing access to livestock and livestock developments. However, the additional 47 miles of fencing could restrict some access to recreationists, who could cut fences or leave gates open, creating management issues for livestock operators. Impacts would depend on the scale and frequency of vandalism by allotment. For example, impacts would be negligible for the Beloat, Hazen, and Arnold Allotments where no additional fencing is proposed. Impacts for the Conley Allotment permittee would be minor, with an additional 18 additional miles of fencing to maintain, and impacts on the Bighorn Allotment operator would be moderate, with 27 more miles of fencing to maintain. Installation of cattle guards and strategically located gates in heavily trafficked areas would help mitigate this impact.

From Visual Resources on Livestock Grazing

General impacts from VRM Class allocations on livestock operations would be similar to those described under Alternative B but with a 48,300 acre increase in VRM Class II. This could reduce surface disturbance and increase the amount of forage available for livestock grazing. Such allocations would also necessitate additional mitigation on range developments. The impact could range from minor changes to the project design to a moderate impact from requiring relocation of the project.

From Wilderness Characteristics on Livestock Grazing

Managing 9,520 acres in the SDNM north of I-8 as allocated lands managed to protect wilderness characteristics could reduce surface disturbance and maintain available forage; however this allocation would also have a minor impact to livestock operations by increasing the mitigation requirements and potentially changes in type and location for range developments in the Big Horn grazing allotment.

From Wildlife and Special Status Species on Livestock Grazing

The impacts from wildlife and special status species management would be similar to those described under Alternative B for the SDNM except that 47 miles of fence line would exclose a total of 44,800 acres, rather than the 8,500 acres proposed in Alternative B. This is significantly less acreage and AUMs available for livestock use, which would then become available for wildlife. In general, direct impacts from wildlife on livestock grazing would remain negligible, and resemble those described in Alternative A. However, indirect impacts from the fence exclosure would require an AUM reduction, more fencing, and additional water sources for the benefit of both livestock and wildlife.

4.16.6 ALTERNATIVE D

4.16.6.1 Both Decision Areas

From Livestock Grazing on Livestock Grazing

Under Alternative D, all allotments would become unavailable to livestock grazing as permits expire. All livestock grazing would eventually be eliminated across both Decision Areas. Under Alternative D, all livestock on BLM-administered land would be removed. Approximately 1,780 miles of fence line across the entire Planning Area could potentially be removed to enhance wildlife habitat, visual resources, and recreational opportunities. Approximately 130 miles of fencing in the SDNM, and 1,647 miles of fencing in the Lower Sonoran Decision Area could potentially be removed. The burden of removing fences would fall on state and federal wildlife managers. Fences along ROWs, such as highways, roads, railways, and utility corridors, would remain in place. New fencing would also need to be installed in order to prevent livestock trespass into allotments where federal grazing permits have expired, but where state and private lands are still being grazed. The burden of installing fencing would also fall upon federal employees.

Range improvement projects, such as wells, corrals, pipelines, troughs, and water catchments would also become the responsibility of state and federal employees. All range improvement projects, including but not limited to fence lines and water developments, would either be removed or modified on a case-by-case basis, and the BLM would be required to reimburse the permittees for the cost of the range improvement, in accordance with 43 CFR 4120.

Under Alternative D, because all livestock would be removed from public lands, direct and indirect impacts to or from livestock would be eliminated. Approximately 1,416,600 acres would no longer be used for livestock grazing and approximately 26,244 AUMs would become available for wildlife forage and habitat. This would have major impacts on the economic viability of cattle operations because permittees would be required to turn to other means to sustain their herds or get out of the ranching

business altogether. In turn, those towns and communities that are dependent on the ranching industry could see moderate to major economic impacts, as well.

4.16.6.2 Lower Sonoran

No unique impacts have been identified for the LSFO Decision Area in Alternative D.

4.16.6.3 Sonoran Desert National Monument

No unique impacts have been identified for the SDNM in Alternative D.

4.16.7 ALTERNATIVE E (PROPOSED RMP)

4.16.7.1 Both Decision Areas

No unique impacts have been identified for Both Decision Areas under Alternative E.

4.16.7.2 Lower Sonoran

From Cultural and Heritage Resources on Livestock Grazing

Impacts of Alternative E would be the same as those described under Alternative C for the Lower Sonoran Decision Area, except the allocation of the Lower Gila Terraces and Historic Trails SCRMAs would be developed through the SDNM but not in the Lower Sonoran Decision Area.

From Lands & Realty on Livestock Grazing

Impacts from multiuse utility corridors would be the same as Alternative D. Impacts from energy projects on livestock operations in the Lower Sonoran Decision Area would be similar to Alternative C due to similarity in acres available for projects. Impacts from land use authorizations would be slightly less than under Alternative C because 45,100 fewer acres would be set aside as LUA-exclusion areas. Impacts from land tenure actions on livestock operations in the Decision Area would be similar to Alternative A due to similar numbers of acres that would be available for disposal.

From Livestock Grazing on Livestock Grazing

Alternative E offers a prescription for managing grazing on the Lower Sonoran Decision Area while providing long-term protection and resource conservation. Under Alternative E, grazing allotments would be allocated as perennial, perennial/ephemeral, or ephemeral, as appropriate to allotment-specific characteristics.

Impacts from these allocations would be similar to Alternative A by providing more flexibility to appropriately manage livestock.

Similar to Alternative C, Alternative E proposes to restrict the portion of the Bighorn Allotment that is in the LSFO Decision Area (outside the SDNM boundaries) to winter season of use only (October 1st through April 30th). This would have a minor impact on the livestock operator by not permitting utilization of any summer forage. Additionally, this alternative proposes to close the portion of the Table

Top Allotment south of I-8 to livestock grazing. This would result in negligible impacts on livestock or the permittee because this portion of the allotment has been managed with the remainder of the allotment that was closed to livestock grazing through the Presidential Proclamation.

Managing perennial grazing allotments with slight reduction in the authorized grazing preference could have a moderate to major impact by reducing the long-term viability of some livestock operations. Allowing supplemental ephemeral authorizations could offset some of the impact to the livestock operations by allowing additional livestock during years of ephemeral production.

Seasonal adjustments in grazing on perennial allotments would be considered during the permit renewal process based on the findings from land health evaluations conducted at that time. These management changes and any actions to adjust livestock numbers or require more intensive management (pasture rotations, seasonal removals, etc.) would likely have moderate to major impacts on operator costs. For example, increased pasture rotations and seasonal removals could increase the number of employees needed to facilitate this intensive management. While this would provide income for these employees in the short term, it could eventually bankrupt some livestock operators. However, individualized consultation, coordination, and cooperation with the affected parties during the permit renewal process could help lessen financial impacts on the operator while also decreasing impacts of grazing on rangeland resources.

From Minerals Management on Livestock Grazing

The level of impact from mineral development on livestock operations would be the same as Alternative C, although there is an increase of 35,800 acres available for development for a total of 376,400 acres.

From Recreation Management on Livestock Grazing

Impacts from recreation on livestock operations would be the same as those under Alternative C due to similar RMZ acreage.

From Special Designations on Livestock Grazing

Management actions for the 8,900 acre Coffeepot Botanical ACEC, the 58,500 acre Cuerda de Lena ACEC, and the 48,500 acre Saddle Mountain ACEC would have a negligible impact on grazing allotments. Management actions for ACECs allow livestock facilities to be developed if they improve natural resource conditions by improving livestock distribution.

Approximately 82,500 acres would be designated as the Lower Gila Terraces and Historic Trails ACEC. Designation of the ACEC would have minor impacts on livestock operations by placing some restrictions on the location of livestock developments to protect the cultural resources. Impacts from designation of the Agua Caliente Road as a backcountry byway would be the same as Alternative B.

From Travel Management on Livestock Grazing

Impacts from travel management on livestock operations would be similar to those under Alternative C for the LSFO Decision Area, due to similar miles of open vehicle routes.

From Visual Resources on Livestock Grazing

Impacts from the allocation of VRM Classes on livestock operations would be the same as those described under Alternative B for the LSFO Decision Area.

From Wilderness Characteristics on Livestock Grazing

Impacts would be the same as described under Alternatives A and B. No lands managed to protect wilderness characteristics are north of I-8.

From Wildlife and Special Status Species Management on Livestock Grazing

Impacts would be the same as those described under Alternative B for the LSFO Decision Area.

4.16.7.3 Sonoran Desert National Monument

From Cultural and Heritage Resources on Livestock Grazing

Impacts would be similar to those described under Alternative C. However, because the Conley Allotment would be closed to livestock grazing, North Tank would not have to be fenced off. The Anza NHT and interpretive/public use sites would likely be expanded because their impacts would be negligible, since there would be no cattle in Conley. Impacts from the public use sites proposed on the Bighorn Allotment would have the same impacts as described for Alternative C.

From Lands & Realty on Livestock Grazing

Impacts from multiuse utility corridors would be the same as those described in Alternative C. Impacts from the development of energy projects would be the same as Alternative B. There would be no impacts from LUAs as the Monument is excluded from any new projects.

From Livestock Grazing on Livestock Grazing

Impacts from grazing actions would be similar to Alternative A by allowing a full suite of allocations to perennial, perennial-ephemeral, and ephemeral permits north of I-8. This would provide flexibility to appropriately manage livestock. Grazing would be adjusted as needed in the permit renewal process, in accordance with grazing regulations and in response to the grazing determinations required by the Proclamation.

Impacts from seasonal adjustments would be similar to Alternative C. Likewise, Alternative E reflects the exclosures and associated impacts described in Alternative C. Additionally, Alternative E proposes making the entire portion of the Conley Allotment within the SDNM boundaries unavailable to livestock grazing. The Conley Allotment had the largest departure from Standard 3 and the most acreage found to be incompatible with current grazing practices (see **Appendix E**, Compatibility Analysis: Livestock Grazing in the Sonoran Desert National Monument). Impacts from this alternative would have major impacts on the permittee of the Conley Allotment by decreasing the preference inside the SDNM to zero AUMs and proportionately decreasing remaining AUMs allocated for portions outside the Monument boundary.

Range improvement projects would experience the same impacts as described in Alternative C, except that projects across the entire Conley allotment would be affected. Water developments would be removed or modified for the enhancement of wildlife and other uses. Permittees would be reimbursed for the range improvement projects that would be removed, in accordance with 43 CFR 4120. At the expense of the federal government, miles of fencing would also need to be constructed to prevent livestock trespass into the closed Conley Allotment from adjacent state and private lands.

From Recreation Management on Livestock Grazing

Impacts would be similar to and have the same intensity as those described in Alternative B for the SDNM. Since dispersed recreational target shooting throughout the Monument would continue, the impacts of target shooting under Alternative E would be the same as those described for Alternative A. However, if Management and Administrative Actions designed to change the conduct of recreational target shooters has the desired effect, impacts from recreational target shooting should be greatly decreased. If that were to happen, impacts would be negligible to minor.

From Special Designations on Livestock Grazing

Impacts would be the same as those described under Alternative C for the SDNM.

From Travel Management on Livestock Grazing

The proposed route network would minimize conflicts between vehicles and livestock as compared to Alternative A, with approximately 243 miles of routes in the SDNM open to the public. This route system would continue to support livestock operations by providing access to livestock and livestock developments.

From Visual Resources on Livestock Grazing

General impacts from VRM Class allocations on livestock operations would be similar to those described under Alternative C, but with 27,900 more acres categorized as VRM Class II. This could reduce surface disturbance and increase the amount of forage available for livestock grazing. Such allocations would also necessitate additional mitigation on range developments. The impact could range from minor changes to the project design to a moderate impact from requiring relocation of the project.

From Wilderness Characteristics on Livestock Grazing

Managing lands with wilderness characteristics in the SDNM by allocating them as lands managed to protect wilderness characteristics would have the same impacts as Alternative C, but with a slight decrease of 1,300 acres.

From Wildlife and Special Status Species Management on Livestock Grazing

Impacts would be the same as those described under Alternative C for the SDNM, except that the Conley Allotment would be unavailable for grazing, and associated AUMs would be allocated to wildlife.

4.17 IMPACTS ON MINERALS MANAGEMENT

The following evaluation discusses the impacts on mineral resources from the proposed management decisions in **Chapter 2**, Alternatives. Impacts may result from actions that restrict or prohibit surface-disturbing activities associated with minerals and energy exploration or development, including closures. Two levels of analysis are used to evaluate impacts on Minerals Management. The first level of analysis evaluates mineral potential on all BLM-administered mineral estate regardless of surface ownership in an attempt to provide a comprehensive accounting of the BLM's federal mineral estate. All acreages and calculations for this analysis include BLM-managed minerals under BLM-managed surface estate, in addition to BLM-managed subsurface minerals under surface lands owned by other federal agencies and non-federal jurisdictions, such as the State of Arizona, parks, counties, and private owners (i.e., split estate).

The second level of analysis evaluates impacts only on the portion of BLM-administered mineral estate *under* BLM-managed surface estate. This analysis focuses on BLM management actions proposed in **Chapter 2**, Alternatives, which only affect surface acres managed by the BLM. This analysis does not include split-estate lands since BLM decisions would not apply to other surface land owners.

Proclamation 7397 that established the SDNM closed the area to all forms of mineral entry and leasing, subject to valid existing rights. As of June 14, 2010, all previously existing mining claims within the SDNM have been allowed to lapse by the claimants. Additionally, there are no existing mineral leases or mineral materials contracts or permits within the SDNM.

There are a few parcels (25,800 acres) within the Monument where the surface is owned by the United States and the subsurface is owned by a non-federal entity where minerals development may still occur. Additionally, there are two mineral material sources pits associated with the Interstate 8 ROW where ADOT is authorized to acquire sand and gravel for maintenance of the highway. These are not mineral sales administered by the minerals program but rather, as a part of the I-8 ROW administered by the Lands and Realty program However, should a mineral owner wish to develop the mineral deposits, the BLM, as the owner/manager of the surface, would work with operators to mitigate impacts on affected sites and Monument objects with project design features and best management practices.

As described in **Section 3.3.3**, Minerals Management (**Table 3-21**, Leasable Mineral Potential in the Lower Sonoran Decision Area), approximately 735,600 acres (86 percent) of areas currently open to mineral activity in the Lower Sonoran have low potential for oil and gas, and the remaining 116,700 acres (14 percent) has moderate potential. Furthermore, approximately 753,900 acres (88 percent) of areas currently open to mineral activity in the Lower Sonoran have low potential for sodium, and the remaining 94,000 acres (11 percent) has moderate potential. Due to the relatively low potential for these minerals in the Lower Sonoran, coupled with an absence of resource development interest over the last two decades, impacts on these fluid leasable minerals are expected to be negligible and would not be further discussed in this section. Impacts on geothermal resources (also managed as a fluid leasable mineral) are discussed in detail.

4.17.1 METHODS OF ANALYSIS

4.17.1.1 Indicators

The following indicators were used during the analysis of this section:

- The amount of land made unavailable for mineral resource activities;
- The restrictions that may be placed on mineral claiming, leasing, or development activities; and
- The potential for the presence of mineral resources on these lands.

4.17.1.2 Assumptions

The following assumptions regarding the future of minerals management are made:

- Demand for mineral commodities, construction materials, and energy resources would increase over the long term in the US and within the Planning Area.
- Increased demand for energy and minerals would stimulate exploration for potential resources, predominately within areas of known high and moderate potential within the Planning Area.
- It is assumed there would be no major change in the legal framework under which locatable, leasable, and saleable minerals are administered.
- The BLM would ensure alternatives in this plan would not compromise valid and existing mineral rights.
- There would continue to be controversy surrounding mineral development associated with a range of societal pressures. This controversy would require more BLM federal land managers' time and resources as they attempt to move federal properties forward through mineral exploration, permitting, and development.
- The BLM would provide for timely permit evaluation and processing of all mineral exploration and development proposals, subject to personnel and administrative constraints.

4.17.1.3 Program Areas with No Impacts on

There would be no impacts on minerals management from actions proposed under the following program areas:

- Cave Resources
- Livestock Grazing
- Paleontological Resources

- Soil Resources
- Wild Horse & Burro Management
- Wildland Fire Management

4.17.1.4 Qualitative Intensity Scale

The intensities of impacts are the same as those described in **Table 4-1**, Qualitative Terms for the Intensity of Impacts.

4.17.2 COMMON TO ALL ALTERNATIVES

4.17.2.1 Both Decision Areas

No impacts from any of the program areas are identified for both Decision Areas for all action alternatives.

4.17.2.2 Lower Sonoran

Under all alternatives, the potential for locatable, leasable, and saleable minerals would remain the same; however, the availability of extracting the minerals would vary by alternative based on BLM management actions proposed in **Chapter 2**, Alternatives. **Table 4-22,** Mineral Closures by Alternative for the Lower Sonoran Decision Area, illustrates the total acreage open and closed by mineral potential (high, moderate, low) for locatable, leasable, and saleable minerals. The analyses tied to this table, titled "Impacts to Federal Mineral Estate (Including Split Estate)" under each alternative include BLM-administered mineral estate, regardless of surface ownership (i.e., analysis includes split estate). Alternatively, the analysis that discusses impacts on minerals from various BLM resource programs (e.g., titled, "From Cultural Resources on Minerals Management") focuses only on impacts for the portion of the BLM-administered mineral estate *under* BLM-managed surface estate. This analysis does not include split-estate lands since BLM decisions would not apply to other surface land owners.

Table 4-22
Mineral Closures by Alternative for the Lower Sonoran Decision Area

	Alternative				
	A	**B**	**C**	**D**	**E**
Federal Mineral Estate Potential[1]	*1,087,300*	*1,087,300*	*1,087,300*	*1,087,300*	*1,087,300*
Locatable Minerals					
Existing Withdrawals – Closed to Mineral Entry	235,000	235,000	235,000	235,000	235,000
High Potential	4,700				
Moderate Potential	76,900				
Low Potential	153,400				
Additional Acreage Considered for Withdrawal	0	2,400	2,300	394,900	2,300
High Potential	n/a	*	*	4,700	*

Table 4-22
Mineral Closures by Alternative for the Lower Sonoran Decision Area

	Alternative				
	A	**B**	**C**	**D**	**E**
Moderate Potential	n/a	0	0	139,400	0
Low Potential	n/a	2,400	2,300	250,800	2,300
Open to Mineral Entry	852,300	849,900	850,000	457,400	850,000
Leasable Minerals – Geothermal Resources[2]					
Existing Closures to Geothermal Leasing	235,000	235,000	235,000	235,000	235,000
High Potential	2,800				
Moderate Potential	132,800				
Low Potential	99,400				
Additional Closures to Geothermal Leasing	0	2,100	109,000	584,900	56,000
High Potential	n/a	0	7,100	22,600	5,200
Moderate Potential	n/a	2,100	51,300	414,500	*
Low Potential	n/a	0	50,600	147,800	50,800
Open to Geothermal Leasing	852,300	850,200	743,300	267,400	796,300
Saleable Minerals (Mineral Material)					
Existing Closures to Saleable Minerals	235,000	235,000	235,000	235,000	235,000
Potential for Crushed Stone, Decorative Rock, Boulders and Related Products[3]	133,700				
Potential for Sand and Gravel, Aggregate, Fill Material, and Related Products[3]	99,300				
Additional Closures to Saleable Minerals	0	24,700	193,300	560,200	209,500
Potential for Crushed Stone, Decorative Rock, Boulders and Related Products[3]	n/a	9,400	128,300	283,400	120,100
Potential for Sand and Gravel, Aggregate, Fill Material, and Related Products[3]	n/a	15,300	65,000	276,800	89,400
Open to Saleable Minerals	852,300	827,600	659,000	292,100	642,800

Source: BLM 2012xx [BLM GIS Reference]
*Denotes a non-zero acreage less than the GIS analytical threshold of 100 acres.
[1]Federal mineral estate acreage includes BLM-managed minerals under BLM-managed surface estate, in addition to BLM-managed minerals under subsurface owned by other federal agencies and non-federal jurisdictions, such as state land, parks, county land, and private land.
[2]Impacts on oil and gas and sodium are expected to be negligible and therefore not discussed in this section.
[3]The sum of the categories for mineral potential (specific to saleable minerals) may be greater than the total area proposed for closure because overlap between these categories may exist.

As mentioned previously, geothermal resources is the only fluid leasable discussed in detail because impacts on other fluid minerals in the Lower Sonoran (e.g., oil and gas, and sodium) are expected to be negligible due to their lack of potential in the Planning Area.

From Air Quality on Minerals Management

All mineral development would be required to meet air quality standards as set by law. Such requirements can result in delays in permitting and added compliance/mitigation costs or outright denial of mining permits. Mineral development proposals that cannot meet standards would not be allowed to proceed.

From Water Resources on Minerals Management

All mineral development would be required to meet water quality standards as set by law. Such requirements can result in delays in permitting and added compliance/mitigation costs or outright denial of mining. Mineral development proposals that cannot meet standards would not be allowed to proceed.

4.17.2.3 Sonoran Desert National Monument

No impacts were analyzed for actions related to the SDNM, as the Monument has been withdrawn from mineral entry.

4.17.3 ALTERNATIVE A (NO ACTION)

4.17.3.1 Both Decision Areas

No impacts from any of the program areas are identified for both Decision Areas in Alternative A.

4.17.3.2 Lower Sonoran

Impacts on the Federal Mineral Estate (including Split Estate)

Under Alternative A, 235,000 acres (22 percent) of BLM-administered mineral estate (1,087,300 acres) would remain withdrawn from the location of mining claims, closed to leasing, and closed to the disposition of saleable minerals. No additional areas would be recommended for withdrawal or proposed for mineral closure under this alternative. As such, there would be no decrease in the area currently available to mineral activity and therefore negligible impacts on the BLM-administered mineral estate are anticipated (**Table 4-22,** Mineral Closures by Alternative for the Lower Sonoran Decision Area).

From Cultural and Heritage Resources on Minerals Management

All mineral development on BLM-administered lands would be required to identify and avoid or mitigate, through documentation or collection, impacts on cultural resources. These requirements would add delays and additional costs to mineral development.

From Lands & Realty on Minerals Management

Under Alternative A, BLM-administered lands available for mineral development would be reduced by as much as 20,000 acres (3 percent of currently open lands) through disposal of public lands by various means. The public land to be disposed of includes an existing mineral materials operation (Arizona Pacific Materials II, LLC) and a mineral materials site used by the Maricopa County Department of Transportation (Courthouse Pit) through a free use permit. Ten utility corridors could interfere with or eliminate mineral exploration and development within their boundaries.

Utility-scale renewable energy facilities in the valley areas could remove large tracts of land from availability for mineral development, primarily for sand and gravel mineral material resources.

From Recreation Management on Minerals Management

Implementation of Alternative A would retain the four SRMAs (Gila Trail, Saddle Mountain, Ajo, and Sentinel Plain) totaling 379,400 acres. Allocation of SRMAs could restrict mineral development when such development conflicts with recreation facilities and developments that support the recreation purposes of the area. This conflict is likely to be minor since recreation facilities require a negligible percentage of the landscape. Conversely, active management of recreation could be used to direct recreation use away from energy and mineral development areas, thus decreasing conflicts. This capability would likely become increasingly important as the population grows and recreation use increases. Areas outside of the four SRMAs mentioned above would continue to be managed as an ERMA (totaling 550,800 acres) and would not have recreation facilities, visitation standards, or recreationally focused management decisions. The ERMA allocation would thus be unlikely to impact mineral development in the short-term. However, recreation use would not be regulated to any great extent, thus eliminating the opportunity to direct increasing recreation use away from energy and mineral development areas in the long-term.

From Special Designations on Minerals Management

Designation of the Coffeepot Batamote and Vekol Valley Grassland ACECs (13,440 acres total) could place limitations on leasable and mineral materials exploration and production and would require plans of operations for all operations beyond casual use for locatable minerals.

From Travel Management on Minerals Management

Motor vehicle use would be limited to existing or designated roads and trails, except in approximately 91,800 acres of wilderness areas and 8,900 acres of the -Coffeepot Batamote ACEC that would remain closed to motorized travel. Approximately 1,670 miles of existing routes would remain open for motorized use and 15 miles would remain closed to motorized use. Maintaining all existing routes open for vehicle use would maintain current vehicle access for mineral exploration and development opportunities throughout the area.

From Vegetation Resources on Minerals Management

Restoration objectives for vegetation reestablishment and control of invasive species could result in the need for increased expenditures by mineral development companies or individuals in order to achieve the required standards.

From Visual Resources on Minerals Management

In general, VRM classifications could cause surface disturbance restrictions to be put in place to maintain the specified VRM class, or they could impose additional rehabilitation requirements to return an area to its VRM class after mineral development is completed. In areas of VRM Class I or II, discretionary minerals activities could be prohibited. VRM Classes I and II aim to retain the visual character of viewsheds and typically require more restrictions or rehabilitation. VRM Class III allows for changes to the visual character or viewshed and requires fewer restrictions or rehabilitation to maintain the VRM class. VRM Class IV rarely requires restrictions or rehabilitation to maintain the VRM class.

Under Alternative A, 116,300 acres would be allocated as VRM Class II, 279,600 acres would be allocated as VRM Class III and 442,500 acres would be allocated as VRM Class IV. In addition, 91,800 acres allocated to VRM Class I in the Lower Sonoran are within wilderness areas closed to mineral entry. VRM classification would have little impact to energy and mineral operations, since most acres are allocated as VRM Class III or IV.

From Wilderness Characteristics on Minerals Management

No lands with wilderness characteristics would be allocated as lands managed to protect wilderness characteristics, therefore impacts would be nonexistent.

From Wildlife and Special Status Species Management on Minerals Management

Specific management decisions for special status species and habitat resources that would affect mineral resources development include discretionary authority to restrict leasable and saleable mineral development to areas that would result in no net loss of desert tortoise habitat and locatable mineral development which could require mitigation or other compensation when tortoise habitat could not be avoided. Conflicts between desert tortoise habitat and mineral development would be widespread on the landscape due to the substantial overlap of desert tortoise habitat with locatable mineral and decorative rock saleable mineral potentials. Conservation measures associated with T & E species, particularly within the pronghorn habitat area in the Ajo Block, which has moderate mineral potential, could limit mineral resource development.

4.17.3.3 Sonoran Desert National Monument

No impacts were analyzed for actions related to the SDNM, as the Monument has been withdrawn from mineral entry.

4.17.4 ALTERNATIVE B

The various land use allocations and prescriptions proposed under Alternative B, including for wildlife, lands, recreation, cultural resources, VRM, and wilderness characteristics, would affect the BLM-administered mineral estate as shown in **Table 4-22,** Mineral Closures by Alternative for the Lower Sonoran Decision Area.

4.17.4.1 Both Decision Areas

No impacts from any of the program areas are identified for both Decision Areas in Alternative B.

4.17.4.2 Lower Sonoran

Impacts on the Federal Mineral Estate (including Split Estate)

Under Alternative B, 235,000 acres (22 percent) of BLM-administered mineral estate would remain withdrawn from the location of mining claims, and an additional 2,400 acres (less than one percent of BLM-administered mineral estate) would be recommended for withdrawal (**Table 4-22,** Mineral Closures by Alternative for the Lower Sonoran Decision Area). Nearly all of the additional lands that would be recommended for withdrawal have low potential for locatable minerals. As a result, the impact on claiming locatable minerals under this alternative is expected to be negligible.

Approximately 850,200 acres (78 percent) of BLM-administered mineral estate in the Lower Sonoran would be open to geothermal leasing, and 237,100 acres (22 percent) would be closed **Table 4-22,** Mineral Closures by Alternative for the Lower Sonoran Decision Area). This is a 2,100 acre (less than one percent of the BLM-administered mineral estate) increase compared to Alternative A, and none of the additional acres have high potential for geothermal leasing. As a result, the impact on geothermal resources under this alternative is expected to be negligible.

Of the 1,087,300 acres of BLM-administered mineral estate in the Lower Sonoran, 259,700 acres (24 percent) would be closed to the disposition of saleable materials (mineral material), precluding future mining activities in these areas. This is a 24,700 acre (2 percent) increase in lands closed to the disposition of saleable minerals compared to Alternative A. This closure would include 9,400 acres of areas with potential for crushed stone, decorative rock, boulders, and related products, and 15,300 acres of areas with potential of sand and gravel, aggregate, fill material, and related products, reducing the availability of these mineral materials by 2 and 3 percent, respectively (**Table 3-21**, Saleable Minerals Potential in the Lower Sonoran Decision Area and **Table 4-22**, Mineral Closures by Alternative for the Lower Sonoran Decision Area). Depending on the supply of other similar mineral materials in close proximity to the area and the market demand, the impact could range from negligible to moderate.

From Cultural and Heritage Resources on Minerals Management

Under Alternative B, a framework for proactive management of cultural resources would be established and would include management of sites at Sundad, Butterfield West, and Painted Rock public visitation. Increased public visitation could increase conflicts between mineral activities and cultural heritage tourism and could have a minor impact on mineral development. Designation of the sites would reduce lands available for development but only by a small amount.

From Lands & Realty on Minerals Management

The area available for mineral development *[BLM: specify the type of mineral development]* pursuant to BLM administration would be reduced by as much as 29,300 acres (4 percent of currently open lands *[BLM: specify what type of "open lands" – leasable, locatable or saleable]*) through disposal of public lands by various means. The lands to be disposed of include an existing mineral materials site operated by Arizona Pacific Materials II through mineral materials sales contracts.

Impacts from multiuse utility corridors would be the same as those described for the ten utility corridors designated under Alternative A.

Potential development of utility-scale renewable energy generating plants could interfere with or eliminate mineral exploration and development.

From Recreation Management on Minerals Management

Allocation of five SRMAs and five ERMAs covering 779,800 acres in the Lower Sonoran would have similar impacts on mineral development as those impacts described under Alternative A, except the impacts would be more widespread due to more acres falling within SRMA boundaries under Alternative B. Conflicts would likely occur in SRMAs and ERMAs near the urban interface and in areas managed for intensive recreation use, including Buckeye Hills East Trails, Ajo, and Arlington trails. These areas would be managed primarily for motorized recreation uses. Other urban interface SRMAs (such as Saddle Mountain and Buckeye Hills West) would be allocated for mixed motorized and nonmotorized uses. Increasing the amount of acres managed as SRMAs and ERMAs would increase the opportunity to direct recreation use away from areas of high mineral potential and mineral development.

From Special Designations on Minerals Management

Under Alternative B, the Coffeepot Batamote ACEC restrictions would be the same as those described under Alternative A. Impacts from the designation of the Agua Caliente Backcountry Byway are expected to be minimal unless viewshed management restrictions are implemented on surface disturbing activities. Viewshed management restrictions could restrict or eliminate minerals activities, especially discretionary activities.

From Travel Management on Minerals Management

Overall impacts from limiting motorized vehicle travel to designated routes in the Lower Sonoran would be similar to Alternative A. Travel would be restricted to the designated route system; however, with the appropriate land use authorization, permitted users could develop new roads to access facilities. Compared to Alternative A, there would be fewer miles open and more miles closed under this alternative (consisting primarily of duplicate routes). On a case-by-case basis, users with a valid authorization would be allowed to use administrative only or closed routes or to create new routes. Motorized access to the Coffeepot ACEC would be restricted to designated routes.

From Vegetation Resources on Minerals Management

Goals and objectives under Alternative B to maintain and restore ecological and biological resources and soil and water resources could place additional avoidance or reclamation requirements on mineral development. Specific restoration objectives exist for vegetation reestablishment and control of invasive species.

From Visual Resources on Minerals Management

General impacts from VRM would be similar to Alternative A, although VRM allocations would vary. Under Alternative B, fewer acres would be managed as VRM Class II (64,800 acres), more acres would be managed as VRM Class III (551,000), and fewer acres would be managed as VRM Class IV (222,600 acres) in comparison to Alternative A. Impacts would be similar to Alternative A since most acres remain in VRM Class III or IV; however, increasing total VRM Class II acres could increase restrictions on mineral sites by imposing more stringent design and siting requirements during development compared to Alternative A.

While reducing VRM Class IV areas could impact mining operations, the north side of the Gila Bend Mountains and the Buckeye Hills-Stanfield area, which have somewhat higher mineral potential than other parts of the Lower Sonoran, would remain VRM Class IV. This would allow mineral development in those areas without additional restrictions. The allocation of more acres as VRM Class II in the Gila Bend Mountains could increase mitigation requirements on mineral development; however, stipulations associated with desert tortoise habitat in the same area would likely be adequate to maintain VRM class without requiring additional stipulations.

From Wilderness Characteristics on Minerals Management

Impacts from management of lands with wilderness characteristics would be similar to those under Alternative A, as no lands managed to protect wilderness characteristics would be allocated.

From Wildlife and Special Status Species Management on Minerals Management

Similar to Alternative A, proposed mineral activities would be evaluated to ensure that they do not allow a net loss in desert tortoise habitat (Categories I, II, and III). Under Alternative B, the land use authorization process for projects involving any surface disturbing activities would involve mitigation measures, construction methods, and restoration and reclamation plans that minimize habitat fragmentation and impacts on wildlife movement corridors. This could cause additional expense, require special stipulations, or even eliminate discretionary minerals activities. An existing Maricopa County mineral materials site (Narramore Pit) operating under a free use permit, which is located within the Fred J. Weiler Green Belt Resource Conservation Area, would be required to cease operations and reclaim following completion of any existing valid permit.

4.17.4.3 Sonoran Desert National Monument

No impacts were analyzed for actions related to the SDNM, as the Monument has been withdrawn from mineral entry.

4.17.5 ALTERNATIVE C

The various land use allocations and prescriptions proposed under Alternative C, including for wildlife, lands, recreation, cultural resources, VRM, and wilderness characteristics, would affect the BLM-administered mineral estate as shown in **Table 4-22,** Mineral Closures by Alternative for the Lower Sonoran Decision Area.

4.17.5.1 Both Decision Areas

No impacts from any of the program areas are identified for both Decision Areas in Alternative C.

4.17.5.2 Lower Sonoran

Impacts on the Federal Mineral Estate (including Split Estate)

Under Alternative C, 235,000 acres (22 percent) of BLM-administered mineral estate would remain withdrawn from the location of mining claims, and an additional 2,300 acres (less than one percent of BLM-administered mineral estate) would be recommended for withdrawal (**Table 4-22,** Mineral Closures by Alternative for the Lower Sonoran Decision Area). Nearly all of the additional lands that would be recommended for withdrawal have low potential for locatable minerals. As a result, the impact on claiming locatable minerals under this alternative is expected to be negligible.

Approximately 743,300 acres (68 percent) of BLM-administered mineral estate in the Lower Sonoran would be open to geothermal leasing, and 344,000 acres (32 percent) would be closed **Table 4-22,** Mineral Closures by Alternative for the Lower Sonoran Decision Area). This is a 109,000 acre (46 percent) increase of lands closed to geothermal leasing compared to Alternative A, however, 93 percent of these lands fall within low or moderate potential for geothermal resources. As a result, the impact on geothermal resources under this alternative is expected to be minor.

Of the 1,087,300 acres of BLM-administered mineral estate in the Lower Sonoran, 428,300 acres (40 percent) would be closed to the disposition of saleable materials (mineral material), precluding future mining activities in these areas. This is a 193,300 acre (82 percent) increase compared to Alternative A. This closure would include 128,300 acres of areas with potential for crushed stone, decorative rock, boulders, and related products, and 65,000 acres of areas with potential of sand and gravel, aggregate, fill material, and related products, reducing the availability of these mineral materials by 32 and 15 percent, respectively (**Table 3-21**, Saleable Minerals Potential in the Lower Sonoran Decision Area and **Table 4-22**, Mineral Closures by Alternative for the Lower Sonoran Decision Area). Depending on the supply of other similar mineral materials in close proximity to the area and the market demand, the impact could range from negligible to moderate.

From Cultural and Heritage Resources on Minerals Management

Specific decisions for cultural resources would place an emphasis on protecting cultural resources in place, which could put additional stipulations and avoidance or mitigation requirements on mineral development.

Under Alternative C, two areas—Saddle Mountain and the Lower Gila Terraces & Historic Trails, encompassing 127,600 acres—would be designated as SCRMAs, placing an emphasis on protecting sensitive cultural resources. Both areas would be unavailable for mineral material disposals. Portions of the Lower Gila Terraces & Historic Trails SCRMA would be closed to leasable minerals actions while the rest of it, and all of the Saddle Mountain SCRMA, would remain open with a no surface occupancy stipulation that would effectively render impracticable most leasable minerals activity. Both areas would remain open to locatable minerals activity, but additional requirements and stipulations would be necessary to mitigate damage to other resources. This could cause additional delays and costs to any locatable minerals proposals.

From Lands & Realty on Minerals Management

The area available for mineral development *[BLM: specify the type of mineral development]* pursuant to BLM administration would be reduced by as much as 36,300 acres (5 percent of currently open lands *[BLM: specify what type of "open lands" – leasable, locatable or saleable]*) through disposal of public lands by various means. The public land to be disposed of includes an existing mineral materials site operated by Arizona Pacific Materials II through mineral materials sales contracts.

Nine multiuse utility corridors could interfere with or eliminate mineral exploration and development within their boundaries.

Potential development of utility-scale renewable energy generating plants could interfere with or eliminate mineral exploration and development.

From Recreation Management on Minerals Management

Impacts from implementing recreation management under Alternative C would be similar to those impacts described under Alternative B. In general, the RMAs under Alternative C would be aimed at more balanced recreation management, managing for both motorized and nonmotorized settings. Backcountry settings would be created with the intent to provide a more dispersed, undeveloped recreation experience. Conflicts between nonmotorized recreation users and mineral development may be greater compared to Alternative B in the SRMAs because nonmotorized users tend to look for a more undeveloped setting and natural experience. Conversely, nonmotorized users require fewer acres and would be more easily directed away from mineral development, thus decreasing conflicts.

From Special Designations on Minerals Management

Under Alternative C, impacts from the Coffeepot Batamote ACEC restrictions on minerals management would be similar to those impacts described under Alternative A except that the area would be increased to 63,300 acres. Impacts from designating the Anza National Historic Trail would similar to those impacts described under Alternative A. Impacts from the designation of the Agua Caliente Backcountry Byway are expected to be minimal unless viewshed management restrictions are implemented on surface disturbing activities. Viewshed management restrictions could restrict or eliminate minerals activities, especially discretionary ones.

From Travel Management on Minerals Management

Impacts from closing and limiting routes would be similar to those impacts described under Alternative B. Under Alternative C in the Lower Sonoran, 334 miles of the existing route system would be closed to motorized use—more than under Alternatives A or B. These and other limitations placed on route use under this alternative (e.g., routes limited seasonally or to administrative use) would restrict access to areas that could limit mineral exploration and development to the extent that mineral exploration is accomplished via driving across the public lands. General impacts from travel management in the Lower Sonoran would be similar to those described under Alternative B except that fewer routes would be open under this alternative, which would result in a greater likelihood that additional access would have to be created for mining sites.

From Vegetation Resources on Minerals Management

Impacts would be the same as those described in Alternative B for the Lower Sonoran.

From Visual Resources on Minerals Management

General impacts from VRM would be similar to Alternatives A and B. Under Alternative C, 91,800 acres would be managed as VRM Class I, 387,800 acres would be managed as VRM Class II, 385,600 acres would be managed as VRM Class III, and 65,000 acres would be managed as VRM Class IV. The allocation of substantially more acres to VRM Class II could increase the stipulation and mitigation requirements for mineral development, particularly in areas of Saddle Mountain and Gila Bend Mountains where mineral materials and geothermal leasable mineral development is more likely; however, stipulations associated with desert tortoise habitat would likely encompass any stipulations needed to protect visual resources. The changes in acreage managed under VRM Class III would have little practical effect on mineral development, similar to Alternative B.

From Wilderness Characteristics on Minerals Management

Alternative C would result in the allocation of 128,100 acres (19 percent of currently open lands of the Lower Sonoran as lands managed to protect wilderness characteristics. Costs to explore for or develop locatable mineral resources could become prohibitive and could reduce or eliminate development. The lands would be unavailable for all mineral materials and closed to leasable mineral activities.

From Wildlife and Special Status Species Management on Minerals Management

Four WHAs would be designated under Alternative C, totaling 425,900 acres, which could place additional stipulations and mitigation requirements on mineral development to maintain wildlife corridors and unfragmented and sensitive wildlife habitat.

4.17.5.3 Sonoran Desert National Monument

No impacts were analyzed for actions related to the SDNM, as the Monument has been withdrawn from mineral entry.

4.17.6 ALTERNATIVE D

The various land use allocations and prescriptions proposed under Alternative D, including for wildlife, lands, recreation, cultural resources, VRM, and wilderness characteristics, would affect the BLM-administered mineral estate as shown in **Table 4-22,** Mineral Closures by Alternative for the Lower Sonoran Decision Area.

4.17.6.1 Both Decision Areas

No impacts from any of the program areas are identified for both Decision Areas in Alternative D.

4.17.6.2 Lower Sonoran

Impacts on the Federal Mineral Estate (including Split Estate)

Under Alternative D, 235,000 acres (22 percent) of BLM-administered mineral estate would remain withdrawn from the location of mining claims, and an additional 394,900 acres (36 percent of BLM-administered mineral estate) would be recommended for withdrawal (**Table 4-22,** Mineral Closures by Alternative for the Lower Sonoran Decision Area). The additional lands that would be recommended for withdrawal would close all of the BLM-administered mineral estate with high potential for locatable minerals in the Lower Sonoran Decision Area. Most locatable minerals activity in the Planning Area occurs on a mix of private and Forest Service lands, however, if metal prices continue to increase, interest for staking claims on BLM-administered mineral estate could increase as well. As such, impacts on claiming locatable minerals under this alternative could range from minor to moderate.

Approximately 267,400 acres (25 percent) of BLM-administered mineral estate in the Lower Sonoran would be open to geothermal leasing, and 819,900 acres (75 percent) would be closed **Table 4-22,** Mineral Closures by Alternative for the Lower Sonoran Decision Area). This is a 584,900 acre (2.5 times) increase of lands closed to geothermal leasing compared to Alternative A, including nearly 40 percent of BLM-administered mineral estate with high potential for geothermal resources. As a result, the impact on geothermal resources under this alternative is expected to range from minor to moderate.

Of the 1,087,300 acres of BLM-administered mineral estate in the Lower Sonoran, 795,200 acres (73 percent) would be unavailable for the disposition of saleable materials (mineral material), precluding future mining activities in these areas. This is a 560,200 acre (2.4 times) increase of lands unavailable for the disposition of saleable minerals compared to Alternative A. This closure would include 283,400 acres of areas with potential for crushed stone, decorative rock, boulders, and related products, and 276,800 acres of areas with potential of sand and gravel, aggregate, fill material, and related products, reducing the availability of these mineral materials by 70 and 62 percent, respectively (**Table 3-21**, Saleable Minerals Potential in the Lower Sonoran Decision Area and **Table 4-22**, Mineral Closures by Alternative for the Lower Sonoran Decision Area). Depending on the supply of other similar mineral materials in close proximity to the area and the market demand, the impact could range from negligible to moderate.

From Cultural and Heritage Resources on Minerals Management

While no SCRMAs would be allocated under Alternative D, approximately 267,100 acres would be designated as ACECs that would place an emphasis on protecting sensitive cultural and biological resources. Portions of the ACECs would be closed to some or all minerals activities, and the remaining areas would be subject to varying levels of additional restrictions or mitigation above what is now in effect. The increased restrictions could effectively render minerals activities impractical or impossible. Some minerals activities currently exist in proposed ACECs and could need to be shut down and reclaimed following termination of valid existing rights.

From Lands & Realty on Minerals Management

The area available for mineral development *[BLM: specify the type of mineral development]* pursuant to BLM administration would be reduced by as much as 34,800 acres (5 percent of currently open lands *[BLM: specify what type of "open lands" – leasable, locatable or saleable]*) through disposal of public lands by various means. Public lands to be disposed of include parcels containing three active mineral materials operations: Red Mountain Mining, Arizona Pacific Materials II, and Treasure Chest Granite Pit.

Seven multiuse utility corridors could interfere with or eliminate mineral exploration and development within their boundaries.

Potential development of utility-scale renewable energy generating plants could interfere with or eliminate mineral exploration and development.

From Wildlife and Special Status Species Management on Minerals Management

Impacts from establishing one WHA would be similar to those under Alternative C but with fewer acres allocated, as many of the WHAs would be ACECs under Alternative D.

From Recreation Management on Minerals Management

Impacts on mineral development from implementation of recreation management under Alternative D would be similar to those impacts described under Alternatives B and C, except that extremely fewer acres would be managed as RMAs (57,700 acres, the least among the Alternatives in the Lower Sonoran). In general, the RMAs under Alternative D would be focused on providing more motorized, recreation settings, which could cause fewer impacts as described in Alternative C. The increased unallocated areas would eliminate the opportunity to manage and direct recreation use away from mineral developments, thus increasing the likelihood of conflict.

From Special Designations on Minerals Management

While no SCRMAs would be allocated under Alternative D, the same areas would be proposed as ACECs, placing a similar emphasis on protecting sensitive cultural and biological resources in these areas. ACECs could require additional stipulations and mitigation for mineral development and could restrict authorization of renewable mineral sites in a manner similar to Alternative C. Several active mineral materials operations exist in proposed ACECs and would need to be shut down and reclaimed following expiration of the current contract or permit. These include two sites used by the Maricopa

County Department of Transportation (Courthouse Pit & Narramore Pit), Kilauea Crushers' Estrella Pit, and the Bush Sand & Gravel site north of Ajo.

From Travel Management on Minerals Management

The impacts from closing and limiting routes would be similar to those impacts described under Alternatives B and C; however, the impacts would be greater under this alternative since this alternative proposes closing the most miles of routes. These and other limitations placed on route use under Alternative D (e.g., routes limited seasonally or to administrative use) would substantially restrict access to much of the Lower Sonoran and would limit mineral exploration more than the other alternatives to the extent that mineral exploration is accomplished by driving across the public lands.

From Vegetation Resources on Minerals Management

Impacts would be the same as those described in Alternative B for the Lower Sonoran.

From Visual Resources on Minerals Management

General impacts from VRM would be similar to Alternatives A, B, and C in the Lower Sonoran except for the difference in acreages, which are 91,800 acres managed as VRM Class I, 622,400 acres as VRM Class II, 192,000 acres as VRM Class III, and 24,000 acres as VRM Class IV.

From Wilderness Characteristics on Minerals Management

Impacts would be the same as those described under Alternative C for the Lower Sonoran, except that 250,000 acres of lands would be managed to protect wilderness characteristics under Alternative D (twice as many acres as proposed in Alternative C).

From Wildlife and Special Status Species Management on Minerals Management

Impacts from establishing one WHA would be similar to those under Alternative C but with fewer acres allocated, as many of the WHAs would be ACECs under Alternative D.

4.17.6.3 Sonoran Desert National Monument

No impacts were analyzed for actions related to the SDNM, as the Monument has been withdrawn from mineral entry.

4.17.7 ALTERNATIVE E (PROPOSED RMP)

The various land use allocations and prescriptions proposed under Alternative E, including for wildlife, lands, recreation, cultural resources, VRM, and wilderness characteristics, would affect the BLM-administered mineral estate as shown in **Table 4-22**, Mineral Closures by Alternative for the Lower Sonoran Decision Area.

4.17.7.1 Both Decision Areas

No impacts from any of the program areas are identified for both Decision Areas in Alternative E.

4.17.7.2 Lower Sonoran

Impacts on the Federal Mineral Estate (including Split Estate)

Under Alternative E, 235,000 acres (22 percent) of BLM-administered mineral estate would remain withdrawn from the location of mining claims, and an additional 2,300 acres (less than one percent of BLM-administered mineral estate) would be recommended for withdrawal (**Table 4-22,** Mineral Closures by Alternative for the Lower Sonoran Decision Area). Nearly all of the additional lands that would be recommended for withdrawal have low potential for locatable minerals so the impact on claiming locatable minerals under this alternative is expected to be negligible.

Approximately 796,300 acres (73 percent) of BLM-administered mineral estate in the Lower Sonoran would be open to geothermal leasing, and 291,000 acres (27 percent) would be closed **Table 4-22,** Mineral Closures by Alternative for the Lower Sonoran Decision Area). This is a 56,000 acre (24 percent) increase of lands closed to geothermal leasing compared to Alternative A; however, 91 percent of these lands have low potential for geothermal resources. The remaining 9 percent, however, have high potential for geothermal resources. As a result, the impact on geothermal resources under this alternative is expected to be minor.

Of the 1,087,300 acres of BLM-administered mineral estate in the Lower Sonoran, 444,500 acres (41 percent) would be closed to the disposition of saleable materials (mineral material), precluding future mining activities in these areas. This is a 209,500 acre (89 percent) increase of lands closed to the disposition of saleable minerals compared to Alternative A. This closure would include 120,100 acres of areas with potential for crushed stone, decorative rock, boulders, and related products, and 89,400 acres of areas with potential of sand and gravel, aggregate, fill material, and related products, reducing the availability of these mineral materials by 30 and 20 percent, respectively (**Table 3-21**, Saleable Minerals Potential in the Lower Sonoran Decision Area and **Table 4-22**, Mineral Closures by Alternative for the Lower Sonoran Decision Area). Depending on the supply of other similar mineral materials in close proximity to the area and the market demand, the impact could range from negligible to moderate.

From Cultural and Heritage Resources on Minerals Management

No SCRMAs would be designated under Alternative E, however, those areas identified in other alternatives would be proposed as ACECs in this alternative. Under Alternative E, 250,800 acres would be designated as ACECs, which would place emphasis on protecting sensitive cultural and biological resources. Portions of the ACECs would be closed to some or all minerals activities, and the remaining areas would be subject to varying levels of additional restrictions or mitigation above what is now in effect. The additional restrictions could effectively render minerals activities impracticable or impossible. Some minerals activities currently exist in proposed ACECs and could need to be shut down and reclaimed following termination of valid existing rights.

From Lands & Realty on Minerals Management

The area of public lands available for mineral development would be reduced by as much as 36,800 acres (5 percent of currently open lands *[BLM: specify what type of "open lands" – leasable, locatable or saleable]*)

through disposal of public lands by various means. These parcels include three existing mineral materials operations: Red Mountain Mining, Treasure Chest Granite Pit, and Arizona Pacific Materials II.

Eight multiuse utility corridors could interfere with or eliminate mineral exploration and development within their boundaries.

Potential development of utility-scale renewable energy generating plants could interfere with or eliminate mineral exploration and development.

From Recreation Management on Minerals Management

Impacts from recreation management on mineral development under Alternative E would be the same as under Alternative C due to similarities in both acreage and management intent.

From Special Designations on Minerals Management

Similar to Alternative D, no SCRMAs would be allocated under Alternative E, although those same areas would be proposed as ACECs but with reduced acreage to avoid areas with locatable mineral potential in the Gila Bend Mountains. The ACECs would place an emphasis on protecting sensitive cultural and biological resources and could require additional stipulations and mitigation for minerals development. In particular, lands within 500 feet of cliff faces with petroglyphs on the Gila River would be closed to saleable minerals. This would have little practical effect, as this restriction is currently in place through site-specific decisions. Two recently active mineral materials sites are located within proposed special designation areas: the Maricopa County Department of Transportation (MCDOT) previously operated mineral materials sites through Free Use Permits within a part of the Fred J. Weiler Resource Conservation Area (Narramore Pit) and within a portion of the proposed Saddle Mountain ACEC (Courthouse Pit). Permits for both sites have expired, but MCDOT has expressed an interest in operating the sites again. The site within the Resource Conservation Area would not be allowed to resume operation. Within the Saddle Mountain ACEC there are no significant resource conflicts, so the location would be available for mineral materials disposal to MCDOT through a new free-use permit provided that no new surface is disturbed.

From Travel Management on Minerals Management

The impacts of route closures and limitations would be similar to those impacts described under Alternative C due to similarities in the number of miles closed or restricted.

From Vegetation Resources on Minerals Management

Impacts would be the same as those described in Alternative B for the Lower Sonoran.

From Visual Resources on Minerals Management

General impacts from VRM would be similar to all other alternatives. Impacts from the distribution of VRM classes under Alternative E in the Lower Sonoran would fall between Alternatives B and C, with acreages as follows: 91,800 as VRM Class I, 71,900 as VRM Class II, 548,400 as VRM Class III, and 218,100 as VRM Class IV. Under Alterative E, substantially fewer acres would be managed under VRM Classes I and II than under Alternative D, with VRM Class I being limited to wilderness areas. Nearly as

many acres as under Alternative B would be managed under VRM Class III, and only a small amount of BLM-administered lands would be assigned to VRM Class IV. The increase in VRM Class III acreage would decrease the stipulation and mitigation requirements for mineral development compared to Alternatives C and D, but would be more protective than under Alternatives A and B. VRM Class II would be used selectively under Alternative E to protect particularly sensitive visual resources in Saddle Mountain, Coffeepot and Batamote Mountains, and parts of the Gila Bend Mountains.

From Wilderness Characteristics on Minerals Management

Impacts would be the same as those described under Alternative D for the Lower Sonoran except that fewer acres (91,200) would be allocated as lands managed to protect wilderness characteristics.

From Wildlife and Special Status Species Management on Minerals Management

Impacts from allocating one 255,700-acre WHA would be similar to those under Alternative C but would be greater because the WHA would cover more acres.

4.17.7.3 Sonoran Desert National Monument

No impacts were analyzed for actions related to the SDNM, as the Monument has been withdrawn from mineral entry.

4.18 IMPACTS ON SPECIAL DESIGNATIONS

Existing special designations in the Lower Sonoran reviewed in this section include wilderness areas, the Juan Bautista de Anza NHT, and the Coffeepot Botanical ACEC. Existing special designations reviewed within the SDNM include wilderness areas, the portion of the Juan Bautista de Anza NHT within the Monument, and the Vekol Valley Grassland ACEC. Proposed alternatives introduce several new special designations, including four new ACECs and two National Scenic Byways and a Backcountry Byway throughout the various action alternatives. Current management of the Juan Bautista de Anza NHT is consistent with a management plan developed by the NPS and completed in cooperation with the BLM and other agencies and organizations. The National Scenic and Historic Trail Policy Act and the BLM National Scenic and Historic Trails Strategy (2006) provide additional guidance.

The focus of the analysis that follows is on the resource values for which special designations were established. These values include biological, water and soil, cultural, and visual resources and wilderness characteristics. Resource management disciplines that would potentially impact these values include those pertaining to the specific values themselves (i.e. biological, water and soil, cultural, and visual resources and wilderness characteristics) and grazing, recreation, travel management, lands and realty, and mineral resources.

4.18.1 METHODS OF ANALYSIS

4.18.1.1 Indicators

Areas of Critical Environmental Concern

Opportunities for the maintenance, enhancement, or diminishment of resources of relevance and importance identified for management in the ACEC.

National Byways

For National Scenic Byways, the prime indicators are the vividness, intactness and unity of the landscape elements. For Backcountry byways, the recreation niche is an "off-the-beaten-path" motorized adventure on a Type III dirt road through remote landscape settings, providing solitude and scenery in natural saguaro cactus desert landscapes, and the quality of the routes' ghost town, wildlife, and interpretive/educational opportunities.

National Historic Trails

- Damage to the arrangement or structure of features
- Artifacts missing or rearranged
- Site or historic trail elements re-arranged
- Ground surface disturbed
- Subsurface cultural and historic deposits disturbed and/ or re-arranged
- Damage to physical environment of historic trail and/or associated cultural site
- Damage to historic sense of a particular period of time or feeling of historic trail or associated site's context
- Changes to the landscape settings, to the level that historic trail and associated site values are diminished.

Wilderness Areas

- The extent, location, distribution, and quality of naturalness and natural conditions in the wilderness. Naturalness is affected by surface disturbing activities and associated human uses and developments.
- The extent, location, distribution, and quality of opportunities for solitude and primitive, unconfined recreation within wilderness areas. Opportunities for primitive, unconfined recreation are affected by the presence of motorized activities and the availability, or non-availability, of landscapes free of surface disturbing activities and the sights and sounds of human uses and their developments.

4.18.1.2 Assumptions

The following assumptions regarding the future management of special designations are made:

Areas of Critical Environmental Concern

- Uses and activities occurring outside special designation allocations could influence ACECs, though such influences would generally be indirect.

- Uses and activities occurring outside ACECs allocations could influence ACECs, though such influences would generally be indirect.

All guidelines for the maintenance of the ACEC characteristics, as identified in this document, would be followed to the extent allowed by existing budget and available personnel.

National Byways

- Uses and activities occurring outside special designation allocations could influence Byway's, though such influences would generally be indirect.

- All guidelines for the maintenance of the Byway's characteristics, as identified in this document would be followed, to the extent allowed by existing budget and available personnel.

National Historic Trails

- Historic trails and associated sites are considered cultural resources.

- On the SDNM, the official Juan Bautista de Anza NHT corridor, the Butterfield Overland Stage Route, and the Mormon Battalion Trail are all named Objects of the Monument and all overlay one another physically.

- National Trail Management Area allocation shall include Federal Protection Components; high potential historic sites; high potential route segments; the designated route which contains evidence of history; the National Register eligible, nominated or listed properties; associated landscape settings; and have boundaries that are identifiable on the ground. Landscape settings include recreational, historic, cultural, scenic, natural, scientific, and other landscape level components. These NHT Management Area allocations shall have management prescriptions applied to them. Before the BLM may authorize any project with potential to affect cultural resources, law and regulation require that the agency conduct site-specific inventory, evaluate potentially impacted sites for National Register of Historic Places eligibility, and stipulate measures to reduce effects, as necessary. Impacts may be reduced by avoidance or mitigation measures, such as data collection or project redesign.

- Ground/surface disturbing activities can vary in nature and include mechanical/vehicular, livestock/wildlife, and human -caused. Ground-disturbing activities from mechanical/vehicular means are assumed to have the potential to impact cultural resources by damaging features, crushing/compacting subterranean features, rearranging features, pushing soils to remove or

excavate original surface, and disturbing the contextual arrangement of features and artifacts. Ground-disturbing activities from wildlife/livestock can occur when an animal burrows or wallows in soft soils and damages features. Other animal activities can disturb original subsurface cultural soil horizons, crush/compact surface artifacts, and rearrange the context of artifacts and features. Human ground disturbance can occur from fire contamination, trampling, digging, vandalism, and unauthorized collection.

- Most of the Planning Area has not been inventoried for cultural resources, and there is no predictive modeling or sensitivity mapping available to estimate or quantify resource density. There is potential for cultural resources on most of the Planning Area, but the presence and significance of resources and impacts cannot be quantified. Most of the length of the Anza NHT has not been inventoried for associated cultural resources.

- There is qualitative information that indicates areas where there is a higher probability that cultural resources would be present, relative to the whole Planning Area. These include river corridors, spring locations, historic trails, and high quality arable land in proximity to rivers. Highly disturbed or recently developed areas would be less likely to include intact cultural resources.

- Measures that withdraw land or restrict surface development to protect resources can provide direct and indirect protection of historic trail and associated cultural resources from disturbance and from incompatible and unauthorized activities.

- Natural processes, such as erosion or weathering, would degrade the integrity of many types of historic trail and cultural resources over time. Human visitation, recreation, OHV use, livestock grazing, fire and non-fire vegetation treatments, and other activities can increase the rate of deterioration through natural processes. While the effect of a few incidents may be negligible, the effect of repeated actions or visits over time could intensify impacts.

- Vandalism or unauthorized collecting can destroy historic trails and associated cultural resources in a single incident. Exposure or access to areas where these resources are present can increase the risk of vandalism or unauthorized collection of artifacts.

- Site monitoring, non-project-related inventories, interpretive development, site stabilization and other proactive management activities would continue.

- Uses and activities occurring outside NHT allocations could influence NHT, though such influences would generally be indirect.

- All guidelines for the maintenance of the NHT's characteristics, as identified in this document would be followed, to the extent allowed by existing budget and available personnel.

Wilderness Areas:

- Development of a proactive management framework, including goals, objectives and actions for ecological and biological, water and soil, cultural, and visual resources would generally benefit wilderness areas by maintaining or improving naturalness. Otherwise, all management of these resources would be compatible with the existing wilderness plans under all the alternatives.

- Uses and activities occurring outside wilderness areas could influence wilderness areas, though such influences would generally be indirect.

- All guidelines for the maintenance of the wilderness area's characteristics, as identified in this document would be followed, to the extent allowed by existing budget and available personnel.

4.18.1.3 Program Areas with No Impacts on Special Designations

There would be no impacts on special designations from actions proposed under the following program areas:

Areas of Critical Environmental Concern

- Air Quality Resources
- Cave Resources
- Cultural and Heritage Resources
- Paleontological Resources
- Hazardous Materials & Public Safety
- Wild Horse & Burro Management
- Wildland Fire Management

National Byways

- Air Quality Resources
- Cave Resources
- Cultural and Heritage Resources
- Minerals Management
- Paleontological Resources
- Wildlife and Special Status Species Management

- Public Safety and Hazardous Materials
- Soils Management
- Vegetation Resources
- Water Resources
- Wild Horse & Burro Management

National Historic Trails

- Cave Resources
- Paleontological Resources
- Wild Horse & Burro Management

Wilderness Areas:

- Air Quality Resources
- Cave Resources
- Minerals Management
- Paleontological Resources
- Wild Horse & Burro Management

4.18.1.4 Qualitative Intensity Scale

The intensities of impacts are the same as those described in **Table 4-1**, Qualitative Terms for the Intensity of Impacts, for the Intensity of Impacts.

4.18.2 COMMON TO ALL ALTERNATIVES

4.18.2.1 Both Decision Areas

Areas of Critical Environmental Concern

There are no unique impacts on ACECs in both decision areas.

From Wildland Fire Management on National Byways

Recognized visual values would be potentially diminished, degraded or lost all together over the long term by certain actions and outcomes associated with fire and fuels management. Such impacts, however, do not vary substantially by alternative. Fires remove the vegetation, which impacts the scenery, naturalness and ecosystem integrity of an area. Overall impacts range from minor to major.

From Public Safety and Hazardous Materials Management on National Historic Trails

Hazardous material clean-ups may directly affect NHT resources at a minor to moderate level due to ground-disturbing activities for the short term. Impacts are expected to range from minor to moderate.

From Soil Resources on National Historic Trails

Minimizing surface disturbance may protect the integrity of the NHT and associated landscapes and resources directly and indirectly over the long term at a minor level. Measures taken to control soil erosion may affect the NHT and associated landscapes directly and indirectly over the long term at a minor level in localized areas.

From Vegetation Resources on National Historic Trails

Vegetation restoration and manipulation may directly or indirectly benefit the NHT and its associated resources at a minor level in localized areas for the long term. Active vegetation management strategies may directly or indirectly affect the NHT at a minor level in localized areas for the short term due to the use of heavy equipment which disturbs or damages surface and subsurface features on sites.

Passive vegetation restoration projects may have a direct or indirect protective effect on cultural resources for the long term by helping to arrest erosion processes through the establishment of the natural stabilizing effects of plant roots. Impacts would be minor. Anza NHT resources located on the lands on which the Fred J. Weiler Green Belt had been designated enjoy additional protections due to the closure to mineral entry and other restrictions of this designation directly or indirectly at a minor level for the long term by either reducing or eliminating the ground disturbance from minerals prospecting, extraction, and associated vehicle damage.

From Water Resources on National Historic Trails

Minimizing groundwater development and exploration in sensitive areas could protect the trail indirectly at a minor level over the long term.

From Wildland Fire Management on National Historic Trails

Wildland fires and fire suppression activities may directly impact NHT sites and segments directly at minor, moderate, or major levels for short term and intensive duration. Use of minimum impact suppression tactics in wilderness and along National Trails may have the effect of reducing impacts on NHT sites and segments from heavy equipment use. Since NHT sites and segments can be avoided during fuels reduction activities, a minor level of indirect impact may be anticipated from the use of equipment and possible chemical application, in localized areas.

From Lands and Realty Management on Wilderness Areas

Acquiring non-federal mineral estate within wilderness areas would increase the potential for protecting naturalness, opportunities for solitude, and opportunities for primitive unconfined recreation in those areas. Impacts would be minor to major.

From Soil Resources on Wilderness Areas

Generally, development of a proactive management framework, including goals, objectives and actions for water would moderately benefit special designations by maintaining or improving natural and ecological conditions. Thus, management of these resources would be compatible with all wilderness areas. Maintaining and improving soil cover and productivity could promote to minor degree retention of natural conditions and plants by preventing erosion of soils. Scenic resources would be retained to the extent that native plant communities are protected from direct mortality or indirectly harmed by establishment of invasive plants within the greater plant community. Associated watershed and soil actions would also promote retention of natural conditions due to decreased erosion, maintenance of plant cover, a decrease in invasive species, and localized gain in plant and ecological community diversity.

From Public Safety and Hazardous Materials Management on Wilderness Areas

Hazardous materials and solid waste issues occur on occasion within the Decision Areas.

Containment and cleanup of these materials often involves the use of vehicles and equipment in surface disturbing activities. Wilderness areas could be impacted by the damage from vehicle movements and removal of contaminated soils. With appropriate restoration and mitigation, these impacts would typically be temporary and natural, scenic and ecological resource conditions could be restored; however, some impacts could cause long-term degradation of naturalness. Overall, these impacts would be considered negligible overall as hazardous materials and solid waste issues are usually uncommon in remote and unroaded areas.

Dispersed, indiscriminant, extremely intense, or continual recreational target shooting generates public safety and hazardous materials impacts wherever such activities crop up. Often, shooting is done without an effective backdrop or safety fan, endangering other users, damaging or killing vegetation, destroying or pock-marking rocks and denuding hillsides. Sharp metals, glass, and debris left behind can injure or trip visitors. Brass, targets, spent shells, Freon, paint and gas cans, glass, mirrors, windows, construction debris, clay targets, appliances, batteries, computers, target holders, scrap metal and the like are habitually left in the wake of target shooting activity. Hazardous materials spill from paint, Freon, or gas cans. Shot up vehicles leak all manner of hazardous fluids and proliferate hazardous materials residue. Appliances leak Freon and other refrigerants. Computers, screens, and televisions, all popular targets, result in a considerable residue of lead, toxic metals and other materials.

From Water Resources on Wilderness Areas

Development of a proactive management framework, including goals, objectives and actions for water would generally and moderately generally benefit special designations by maintaining or improving current resource conditions. As a consequence, management of these resources would be compatible with wilderness areas under all the alternatives.

From Wildland Fire Management on Wilderness Areas

Recognized resource values would be potentially diminished, degraded or lost all together over the long term by certain actions and outcomes associated with fire and fuels management. Such impacts, however, do not vary substantially by alternative. Fires remove the vegetation, which impacts the

scenery, naturalness and ecosystem integrity of an area. Associated soil may damage or destroy surface resources, harm artifacts, or alter natural appearing historical or scenic landscapes. Fire suppression activities impact wilderness areas due to the evidence of heavy earth-moving equipment and vehicles used to cut fire lines. Fire line scars can last for decades, even with reclamation. Use of fire retardants can stain rocks and soils for years, up to a decade. Additionally, fire suppression activities could result in diminished naturalness and opportunities for solitude over the short term in localized areas. Fires kill and remove native vegetation, allowing disturbed landscapes to be easily invaded by opportunistic nonnative invasive plants and fire-tolerant weeds like buffelgrass. This is a potentially severe and permanent impact if Sonoran Desert fires convert fire-intolerant native desert habitats currently represented by saguaros, creosote, palo verde, cactus, scrubs and native grasses nonnative fire tolerant grasslands. In summary, all the actions described can degrade or diminish naturalness, vegetation, habitat, scenery, ecological integrity and cultural resources over the long term and are considered major both in scope, scale and severity. On the other hand, effective fire suppression quickly employed by ground and air based firefighting organizations can suppress fires in special designation areas, limiting potential disturbances. Quick suppression actions would minimize or eliminate the potential adverse and major long-term effects of fire, including consequences on naturalness, scenery and ecosystems associated with large scale mechanized fire suppression, and the severe long-term potential for minor to major nonnative ecosystem conversion. Overall impacts would range from minor to major.

4.18.2.2 Lower Sonoran

No unique impacts are identified under for the Lower Sonoran.

4.18.2.3 Sonoran Desert National Monument

Areas of Critical Environmental Concern

No unique impacts.

National Byways

No allocations.

National Historic Trails

No unique impacts.

From Special Designations on Wilderness Areas

A small portion of the Juan Bautista de Anza NHT would overlap four miles along the southern boundary of the North Maricopa Mountains Wilderness Area. The sights and sounds of visitor use through the corridor, and associated infrastructure installed for visitor safety, interpretation, resource protection and visitor enjoyment could have minor impacts on naturalness, solitude and primitive recreation. These impacts would be transitory, but long term, and occasionally influence the outermost southeastern part (2,560 acres or 4 percent of wilderness acreage) of the wilderness area. Impacts are expected to be minor.

4.18.3 ALTERNATIVE A (NO ACTION)

Under Alternative A, special designations in the Decision Area would include six wilderness areas: the Juan Bautista de Anza NHT, the Coffeepot ACEC, and the Vekol Valley Grassland ACEC. Whereas the Action Alternatives respond to issues and concerns that arose during the planning process, the No-Action Alternative is based on existing RMPs. Special designations for Alternative A are identified on Map 2-16a.

4.18.3.1 Both Decision Areas

Areas of Critical Environmental Concern

No unique impacts.

National Byways

No national byways are designated under alternative A.

From Air Quality on National Historic Trails

Improvements to air quality may directly impact the settings of the Anza Trail and its associated historic landscapes with a potential for development for public interpretation at minor level, long term. Slowed speeds of vehicle traffic on dirt roads would reduce dust in the air, which could also reduce dust resettling on features, artifacts, and interpretive panels. Impacts are expected to be minor.

From Cultural and Heritage Resources on National Historic Trails

Research that is proposed under Alternative A (which may include excavation activities on cultural sites) may impact National Trails directly or indirectly, at a moderate level, for short term duration by the application of ground-disturbing activities such as excavation.

From Lands & Realty on National Historic Trails

Construction, installation, operation, and maintenance of major utilities in corridors may impact Anza NHT resources directly by affecting the trail attributes through ground disturbance and indirectly by affecting the settings and changing vehicle access patterns at a minor to major level of intensity for the short and / or long term.

The authorization of LUAs to construct, operate, and maintain roads, utilities, and other types of uses including but not limited to utility-scale renewable energy facilities may directly impact Anza NHT resources through associated ground disturbance and / or indirectly by changing vehicle access patterns at a minor to major level of intensity for the short or long term.

Land tenure adjustments including disposal or acquisition may affect directly Anza NHT resources either by removing historic sites and trail segments from the protections of federal ownership or by bringing them into the protection of federal ownership. Other types of land decisions or authorizations or

allocations may affect Anza NHT resources indirectly by affecting the settings and integrity due mostly to changes in vehicle and public uses.

From Livestock Grazing on National Historic Trails

Livestock grazing, as well as development, operation, and maintenance of range improvements, may impact NHT resources directly and indirectly at a minor to moderate level of intensity both in the short term and long term. Livestock may tend to gather in certain areas where water, soft soil, or shade is available. Anza NHT's resources may be affected directly by intense trampling of the surface soils at a minor to moderate level of intensity in localized areas for the short or long term; or indirectly by denuding the vegetation and allowing erosion to accelerate along trail segments.

From Cultural and Heritage Resources on Wilderness Areas

Implementation of Alternative A would not allocate any cultural resources to scientific, public, traditional, future, or discharged uses in wilderness areas. Management of cultural and heritage resources in wilderness areas would continue on a case-by-case basis as directed by policy. Future site development for public interpretive and educational purposes, excavation for scientific study, or other similar activities would have none to negligible short- and long-term effects on the naturalness of designated wilderness; however, these effects are not measurable in the absence of such allocations.

From Lands & Realty on Wilderness Areas

Implementation of Alternative A would leave the existing lands and realty programs in place but no impacts are anticipated. Moreover, no effects are expected from land disposals because parcels identified for disposal are not adjacent to wilderness areas. Impacts from lands and realty management are further and fully detailed in the Maricopa Wilderness Management Plan, Environmental Assessment and Decision Record (BLM, 1995) and Woolsey Peak Wilderness and Signal Mountain Wilderness Management Plan, Environmental Assessment, Finding of Not Significant Impact, and Decision Record (BLM, 2003).

From Recreation Management on Wilderness Areas

Implementation of Alternative A would leave existing recreation management programs in place. Future recreation standards and management prescriptions established for visitation, facility development, and other recreation-related considerations would be instructed to protect wilderness values. Per se, long-term loss, impairment or diminishment of wilderness values due to recreation management would be negligible and impact only localized areas.

Existing Recreation Opportunity Spectrum (ROS) management classes identified under Alternative A would protect wilderness values. Almost all wilderness area acreage is within semi-primitive nonmotorized and primitive ROS classes. Semi-primitive nonmotorized and primitive areas do not have motorized access and tend to support protection and maintenance of wilderness values. SRPs would continue to be authorized; however wilderness management prescriptions mandated by the in the Maricopa Wilderness Management Plan, Environmental Assessment and Decision Record (BLM, 1995) and Woolsey Peak Wilderness and Signal Mountain Wilderness Management Plan, Environmental Assessment, and Decision Record (BLM, 2003) would be satisfied. Accordingly, no impacts were identified and therefore, impacts would be negligible.

From Soil Resources on Wilderness Areas

Under Alternative A, there would be no development of a comprehensive and proactive watershed and soils management framework, including goals, objectives and actions for watersheds and soils that would benefit wilderness areas by protecting or improving natural and ecological conditions. Failure to maintain and improve soil cover and productivity could promote up to a moderate degree of loss or impairment of natural conditions and plants by tolerating or increasing soil erosion. Plant communities and ecological integrity could be absent to the extent that native plant communities would be subject to direct mortality or indirectly harmed by establishment of fire-tolerant invasive plants. Failure to implement watershed and soil actions required to promote retention of natural conditions would contribute to increased erosion, decline in plant cover, an increase in invasive species, and localized to landscape-level losses in the wilderness area's plant and ecological communities and related diversity.

From Special Designations on Wilderness Areas

Impacts from special designations under Alternative A would be negligible.

From Travel Management on Wilderness Areas

All motorized travel routes would remain available for use without consideration of potential impacts on wilderness areas and their associated indicators. Motorized routes with a predilection to contribute to or facilitate vehicle trespass or resource-based impacts (plant theft, wood cutting, fires, campsite clearing, target shooting, OHV staging, or parking) on the periphery of wilderness areas would remain open. In some cases these roads and primitive roads and their adjoining travel corridors may contribute to localized travel-based recreation impacts. Impacts could reach the minor to moderate intensity level on the wilderness values of naturalness, solitude and primitive recreation. The BLM would address these impacts on a case by case basis using wilderness management plans and current regulations. Potential impacts would be moderate in the Lower Sonoran. The three wilderness areas within the SDNM would have supplementary management oversight offered by the Monument's protective prescriptions, thus impacts overall would be minor.

From Vegetation Resources on Wilderness Areas

Major resource impacts could accumulate from the No Action alternative on both Decision Areas due to a lack of emphasis on vegetation resources. The use of native plants in restoration projects would not be required, and no area-wide program of surface disturbance restoration and protective measures to minimize the spread of noxious and other weed species would be implemented. This could result in long-term injury to the wilderness value of naturalness, including the potential of ecosystem conversion from the Sonoran Desert to a nonnative fire-adapted grassland. Woodcutting, wood collection, could continue within and next to wilderness areas. Impacts would range from minor to moderate.

From Wildlife and Special Status Species Management on Wilderness Areas

No WHAs would be allocated to protect core areas of wildlife habitat. The management of public uses, including recreation, specifically to protect wildlife and wildlife habitat, would continue to be managed on a case-by-case basis. Construction of facilities in wildlife movement corridors and sensitive habitats, not improving habitat connectivity, and not minimizing physical barriers to movement on public lands

adjacent to designated wilderness areas would impact wilderness areas by detracting from naturalness and opportunities to observe healthy wildlife populations.

Wildlife waters would continue to be developed and maintained on a case-by-case basis.

Construction activities would detract from naturalness, causing short-term impacts on wilderness values. The presence of new permanent structures located in areas of wilderness would pose long-term detractions to naturalness; however, to the extent natural populations of native wildlife are maintained, naturalness would be enhanced. Impacts would therefore be negligible. The use of native plants in restoration projects would not be required, and no area-wide program of surface disturbance restoration and protective measures to minimize the spread of noxious and other weed species would be implemented, which would result in long-term detractions from naturalness and ecosystem integrity. Reintroductions, transplants, and supplemental stockings of native wildlife would be conducted in collaboration with AGFD and/or the USFWS. Long-term contributions to naturalness in areas of wilderness would result if populations of native wildlife were maintained at natural levels.

Competitive and speed events authorized by SRPs on public lands adjacent to wilderness areas would be prohibited in Category I desert tortoise habitat and discouraged in Category II habitat. Long-term contributions to naturalness would result from maintenance of tortoise habitat. Management of water and soil resources aimed to maintain vegetative cover and soil stability would benefit naturalness in all alternatives.

4.18.3.2 Lower Sonoran

From Lands & Realty on Areas of Critical Environmental Concern

Maintenance of the existing 1-mile wide utility corridor through the Coffeepot Botanical ACEC for the existing El Paso Natural gas pipeline would continue to affect the botanical resource values of the ACEC under Alternative A. While the current pipeline occurs underground in valley areas of the ACEC and would minimally affect botanical resource values under Alternative A, additional development of the 1-mile wide utility corridor (above ground or underground) could locally affect botanical resource values where the utility corridor bisects the ACEC. The lack of an RMP decision to avoid placing new LUAs in special designations could result in localized impacts on botanical resource values of the ACEC, including the Acuña cactus.

Under Alternative A, the Coffeepot Botanical ACEC could be impacted by lack of RMP-level decisions regarding utility-scale renewable energy development. Impacts would be expected to range from minor to major.

From Livestock Grazing on Areas of Critical Environmental Concern

Under Alternative A, perennial/ephemeral grazing in the Coffeepot Botanical ACEC could have localized impacts on botanical resources by disturbing the ground surface or trampling vegetation, but these would be minimized through grazing management prescriptions. Impacts would be expected to range from negligible to minor.

From Minerals Management on Areas of Critical Environmental Concern

Under Alternative A, the Coffeepot Botanical ACEC could be impacted by lack of RMP-level decisions regarding minerals. Mining activities would be required to be mitigated as to not disturb individual plants and avoid known populations for the cactus, thereby reducing habitat fragmentation and allowing persistence of the species on a small scale. Impacts would be expected to range from negligible to moderate.

From Recreation Management on Areas of Critical Environmental Concern

Under Alternative A, dispersed vehicle-based camping and the use of dead and down wood for campfires could cause localized impacts on vegetation in the Coffeepot Botanical ACEC. Unauthorized motorized vehicle use, recreation target shooting, unrestricted nonmotorized and mechanized cross-country travel, and a lack of decisions regarding emerging recreation uses may affect botanical resource, wildlife, and special status species in localized areas within the ACEC. The majority of the ACEC would be allocated as part of the Ajo SRMA, with 8,500 acres in a semi-primitive motorized setting and 400 acres in a roaded-natural setting. These recreation opportunity settings may allow for recreational development and activities that can, for example, disturb the ground surface or trample vegetation, resulting in minor to moderate impacts on ACEC values.

From Soil Resources on Areas of Critical Environmental Concern

Alternative A would implement a variety of soil resources actions. The BLM would maintain and improve soil cover and productivity through erosion-prevention measures and land treatments. Also, the BLM would minimize soil disturbance and conserve soil resources on previously unimpacted sites. The soil protection actions would maintain surface conditions necessary for maintaining vegetation cover and litter cover and minimizing erosion, which would benefit ACEC values. However, these actions are not applicable to the entire Planning Area and, therefore, are not implemented on a broad scale. Impacts would be expected to be negligible.

From Special Designations on Areas of Critical Environmental Concern

Under Alternative A, the Coffeepot Botanical ACEC would continue to encompass approximately 8,900 acres for the protection of botanical resources with importance tied to the occurrence of the diverse plant community, particularly the Acuña cactus. Management prescriptions would include the implementation of grazing management practices that would ensure perpetuation of botanical diversity within the area, mitigation of mining practices that impact unique botanical habitat, and closure of routes for motorized vehicle access. Impacts would be expected to be negligible.

From Travel Management on Areas of Critical Environmental Concern

Although the Coffeepot Botanical ACEC is closed to OHV use, the routes have not been designated as closed, and motorized use would be allowed on existing routes within the ACEC, thereby continuing to potentially alter the ground surface in a manner that alters drainage and, therefore, availability of water for ACEC vegetation. Under Alternative A, decisions on motorized-vehicle use generally would leave the current OHV class designations and route system in place and route designations would be deferred

to a later implementation-planning and decision-making process. The route network under Alternative A would predominantly be located in the valley areas of the ACEC. Negligible impacts would be expected.

From Vegetation Resources on Areas of Critical Environmental Concern

Alternative A would implement a variety of vegetation resources actions. The BLM would issue woodcutting permits, maintain and improve habitat, and prohibit vegetation material removal excluding specific cases deemed appropriate and properly permitted. However, these actions are not applicable to the entire Planning Area and, therefore, are not implemented on a broad scale. The actions would protect ACEC values by protecting plants from being collected and would also threaten ACEC values by allowing activities that may trample vegetation or disturb ecological process. A mixture of negligible to minor impacts would be expected.

From Visual Resources on Areas of Critical Environmental Concern

Although the visual resource inventory completed as part of this RMP process characterized the Coffeepot Botanical ACEC and surrounding Sauceda Mountains area as Class II and III, the ACEC would continue to be managed under VRM Class II standards under Alternative A. This would allow for uses that cause limited changes to scenic quality from, for example, surface disturbances. Impacts would be expected to be negligible.

From Water Resources on Areas of Critical Environmental Concern

Water management policy under Alternative A would continue to protect the botanical resources of the Coffeepot Botanical ACEC by limiting groundwater development within the ACEC. A lack of other decisions regarding water prospecting under Alternative A could lead to localized impacts such as increased erosion, over-utilization of water resources, and degradation of ecological functions that could lead to modifications and degradation of botanical resources.

Impacts would be expected to range from negligible to major.

From Wilderness Characteristics on Areas of Critical Environmental Concern

There are no lands managed to protect wilderness characteristics.

From Wildlife and Special Status Species Management on Areas of Critical Environmental Concern

Continuing to manage the Category I desert tortoise habitat within the ACEC would enhance botanical resource values. Continued implementation of conservation measures for cactus-ferruginous pygmy-owl would also provide protection for the endangered lesser long-nosed bat and botanical resources within the ACEC.

Some protection of cactus habitat would be afforded by preventing OHV use in certain closure areas and prohibiting new land uses in desert tortoise habitat. Impacts from cultural would be moderate under current conditions.

National Byways

No allocations.

From Minerals Management on National Historic Trails

Mineral exploration and development may directly affect Anza NHT resources at a minor to major level with short term to long term duration through the application of ground-disturbing activities. Indirect impacts may also affect NHT resources at a minor to major level by changes in the vehicle route system and changes in drainage, leading to additional erosion in and around the mineral exploration and development.

From Recreation Management on National Historic Trails

Increased vehicle-based recreation may lead to an increase of off-road vehicle use which may affect NHT resources directly at a minor to major level by driving over trail and associated historic site features and mashing associated artifacts in localized areas. Camping in a dispersed manner may affect the integrity and associated landscape settings of the NHT resources directly by vehicle incursions, trampling, vegetation damage, and possible exposure to the threat of unauthorized collection of artifacts. Impacts could be minor to moderate.

NHT resources allocated to public use (high potential historic route segments and sites) may be affected at a minor to moderate level in localized areas due to increased agency presence, interpretive media, and educational values available on site. The construction, operation, and maintenance of new recreational developments may have an indirect effect on NHT resources for the long term in localized areas at a level of minor to moderate intensity due to the use of heavy, surface disturbing equipment used to install and maintain these facilities. Increased visitation brought about by recreational developments with amenities may affect NHT resources directly and indirectly at a minor level in localized areas due to increased trampling.

SRP vehicle events and large group events may impact NHT resources indirectly by creating new access route patterns, excess dust, creating ruts and berms that lead to erosion, and attracting large numbers of vehicles and visitors which may lead to increased vandalism and unauthorized collection. All of the impacts from SRPs are minor to moderate in level and vary from short term to long term in localized areas.

From Special Designations on National Historic Trails

The existing Juan Bautista de Anza NHT designation with its Comprehensive Management Plan (NPS) in the implementation phase may affect directly the NHT segments and sites associated with it for the long term due to its status as a nationally important resource. As visitation increases, trail resources may be impacted directly and indirectly by disturbance due to vehicle use, trampling by visitors, and unauthorized collection of artifacts. As interpretive media is developed for the high potential sites and segments of the trail, visitation would increase which may impact the trail resources directly by vehicle damage to NHT features. Impacts are expected to continue at minor to moderate levels.

From Travel Management on National Historic Trails

The use, operation, and maintenance of existing routes may directly impact NHT resources in a minor to major level for the long term by cutting, filling, and other ground-disturbing activities associated with the use and care of routes. The use, operation, and maintenance of existing routes may indirectly impact cultural resources in a minor to moderate level for the long term by allowing access into sensitive NHT and site areas or altering drainage patterns leading to inundation or erosion.

The development of new routes may directly impact NHT resources in a minor to major level for the long term by the use of ground-disturbing activities. The development of new routes may directly or indirectly affect NHT resources by removing vehicle use from sensitive areas for the long term at a minor to moderate level of intensity.

Designation of a few routes to a nonmotorized level of use may have a direct and indirect protective effect on NHT resources for the long term by prohibiting motor vehicle use, thereby reducing or eliminating the number of visitors in a localized area.

From Visual Resources on National Historic Trails

Decisions regarding management of visual resources may indirectly affect the settings of the Anza and its associated sites in localized areas for the long term at a minor to major level. Under this alternative, a mixture of management allocations is employed for different areas of the Lower Sonoran. The allocation of VRM Class IV (71 percent of the trail area) would allow visual intrusions and associated ground-disturbing activities associated with a variety of uses to dominate the landscape at a level which would damage or destroy National Trail resources as well as historic landscape integrity at a moderate to major level of intensity in localized areas for the long and short term.

The allocation of VRM Class III (25 percent of the trail area) would impact the integrity of NHT resources and historic landscape settings by allowing visual intrusions on the landscape and associated ground-disturbing activities associated with a variety of land uses at a level which would deteriorate the integrity of trail segments and settings.

From Wilderness Characteristics on National Historic Trails

No lands managed to protect wilderness characteristics would be allocated in Alterative A for the Lower Sonoran Decision Area.

From Wildlife and Special Status Species Management on National Historic Trails

Impacts proposed under Alternative A for the Lower Sonoran from Wildlife and Special Status Species would have a negligible impact on NHTs.

From Livestock Grazing on Wilderness Areas

Implementation of Alternative A would leave existing livestock grazing regimes in place, and could have minor and localized impacts on naturalness and outstanding opportunities for solitude and primitive, unconfined recreation. Taken as a whole however, current-grazing regimes would not detract from nor greatly alter current wilderness conditions in the Lower Sonoran over the life of the plan.

Localized impacts could occur with potential minor effects, including (1) livestock use adjustments with increased or fewer animals; (2) changes to grazing management systems; (3) potentially large ephemeral turnouts causing short-term impacts on naturalness and loss of solitude and primitive recreation opportunities; and (4) construction or abandonment of rangeland developments. Such actions would degrade or enhance naturalness and opportunities for solitude and primitive, unconfined recreation, depending on the proposed action and would be addressed on a case-by-case basis in compliance with NEPA. Impacts from grazing are further detailed in the Woolsey Peak Wilderness and Signal Mountain Wilderness Management Plan, Environmental Assessment, Finding of Not Significant Impact, and Decision Record (BLM, 2003).

From Visual Resources on Wilderness Areas

Under Alternative A, public lands adjacent to the Signal Mountain, Woolsey Peak and Sierra Estrella Wilderness Areas would retain existing VRM classes, which include VRM Class IV in the Lower Sonoran. Such VRM class allocations would allow for landscape altering activities that could be visible from adjacent wilderness areas, resulting in potentially minor to moderate long term visual detractions from naturalness and opportunities for solitude. Wilderness areas themselves are classified as VRM Class I, with the objective of preserving the existing character of the landscape. While this would not preclude many forms of management activity, the level of change to the characteristic landscape should remain low and must not attract attention. Impacts on naturalness and opportunities for solitude would thus be negligible to minor.

From Wilderness Characteristics on Wilderness Areas

No areas would be allocated as lands managed to protect wilderness characteristics under Alternative A. Two areas with wilderness characteristics are adjacent to the Woolsey Peak and Signal Mountain wildernesses. Not allocating these areas as lands managed to protect wilderness characteristics would result in minor harm to naturalness and opportunities for solitude and primitive, unconfined recreation within adjacent wilderness areas. In the Lower Sonoran Decision Area, impairment occur from land use authorizations, construction of facilities, recreation uses, mining and other uses on lands managed to protect wilderness characteristics.

Future site development for public interpretive and educational purposes, excavation for scientific study, or other similar activities would have negligible to no short or long-term effects on the naturalness of designated wilderness areas. Management of cultural and heritage resources in wilderness areas would continue on a case-by-case basis as directed and guided by approved wilderness management plans and policy.

4.18.3.3 Sonoran Desert National Monument

From Lands & Realty on Areas of Critical Environmental Concern

Under Alternative A, the Vekol valley ACEC could be impacted by lack of RMP-level decisions regarding LUA developments. Impacts such as altering ecosystem processes that support grasslands would be expected to range from minor to major.

From Livestock Grazing on Areas of Critical Environmental Concern

In accordance with the Monument proclamation, livestock grazing in the Vekol Valley ACEC was eliminated when permits expired. Impacts from livestock grazing on this ACEC are negligible.

Livestock grazing would also be controlled via the existing pasture fence. Negligible impacts would be expected.

From Minerals Management on Areas of Critical Environmental Concern

The withdrawal of the SDNM from all mineral entry in the Monument has a protective effect on the ACEC due to the elimination of surface disturbing activities associated with mineral exploration, development, and extraction. By limiting development, the opportunities for activities that could degrade ACEC values would also limited. Negligible to moderate impacts would be expected.

From Recreation Management on Areas of Critical Environmental Concern

The Valley ACEC area would not be located within an SRMA or ERMA as the ACEC is not recognized for its recreation value and recreation use of this area is discouraged due to problems with illegal immigration activities in this area.

From Soil Resources on Areas of Critical Environmental Concern

Under Alternative A, would implement a variety of soil resources actions. The BLM would maintain and improve soil cover and productivity through erosion-prevention measures and land treatments. The BLM would minimize soil disturbance and conserve soil resources on previously unimpacted sites. Also, repairing and maintaining the existing watershed dike system and associated watershed fence in upper Vekol Valley would potentially improve habitat resource values of the ACEC as well as the unique amphibian populations associated with the watershed dike system. The soil protection actions would maintain surface conditions necessary for maintaining vegetation cover and litter cover and minimizing erosion, which would benefit ACEC values. However, these actions are not applicable to the entire Planning Area and, therefore, are not implemented on a broad scale. Impacts would be expected to be negligible.

From Special Designations on Areas of Critical Environmental Concern

Alternative A would involve management practices to maintain and enhance the resource values for which the Vekol Valley ACEC was designated. Alternative A would also require the integration of management prescriptions outlined the proclamation, including the protection of Monument values. Since Monument values coincide with the ACEC resource values, specific protections provided by Monument designation duplicates the protective measures of the ACEC. Impacts would be expected to be negligible.

From Travel Management on Areas of Critical Environmental Concern

The ACEC has an existing decision of the previous RMP, to "close the Vekol Valley Grassland ACEC to OHV use," and remains in effect. Continuation of these policies under Alternative A would be protective of the resource values of the ACEC by limiting OHV disturbance of the grassland.

From Vegetation Resources on Areas of Critical Environmental Concern

Alternative A would implement a variety of vegetation resources actions. The BLM would issue woodcutting permits, maintain and improve habitat, and prohibit vegetation material removal excluding specific cases deemed appropriate and properly permitted. It would also prohibit unauthorized removal of living or dead native plant material in the SDNM. However, these actions are not applicable to the entire Planning Area and, therefore, are not implemented on a broad scale. The actions would protect ACEC values by protecting plants from being collected and would also threaten ACEC values by allowing activities that may trample vegetation or disturb ecological process. A mixture of negligible to minor impacts would be expected.

From Visual Resources on Areas of Critical Environmental Concern

Although the visual resource inventory completed as part of this RMP process characterized the Vekol Valley ACEC as Class III, the ACEC would continue to be managed under VRM Class IV standards under Alternative A. Under Alternative A, the Vekol Valley ACEC would be managed under Class III VRM standards, which would provide appropriate protection of the area's scenic resources but would not restrict activities that could affect the resource values for which the ACEC was designated This would continue to allow visual changes to the landscape that could involve ground-disturbing activities that could degrade ACEC values. Impacts would be expected to range from moderate to major.

From Water Resources on Areas of Critical Environmental Concern

All proposed new water uses and developments would be assessed to determine whether they would adversely affect springs, streams, tinajas, or seeps; decrease water availability at existing wells; or conflict with other resource management goals. This would continue to protect the botanical resources of the Coffeepot Botanical ACEC by protecting sources of water for plants.

Impacts would be negligible.

From Wilderness Characteristics on Areas of Critical Environmental Concern

There are no lands managed to protect wilderness characteristics.

From Wildlife and Special Status Species Management on Areas of Critical Environmental Concern

The continued implementation of existing wildlife and special status species management decisions under Alternative A would generally be protective of the resource values of the ACEC by preserving habitat. It would be unlikely that developing wildlife waters on a case-by-case basis under Alternative A would affect the resource values for which the ACEC was designated. cactus-ferruginous pygmy-owl habitat would not apply to the resource values of the ACEC as habitat for these species does not occur within the ACEC. Impacts would be expected to range from negligible to moderate under current conditions.

National Byways

No allocations.

From Minerals Management on National Historic Trails

The withdrawal of the SDNM from all mineral entry in the Monument has a protective effect on the Anza NHT at a minor to major level due to the elimination of surface disturbing activities associated with mineral exploration, development, and extraction.

From Recreation Management on National Historic Trails

Impacts would be the same as those described under Alternative A for the Lower Sonoran.

From Special Designations on National Historic Trails

Impacts would be the same as those described under Alternative A for the Lower Sonoran.

From Travel Management on National Historic Trails

The use, operation, and maintenance of existing routes may directly impact the Anza NHT resources and Monument objects in a minor to major level for the long term by cutting, filling, and other ground-disturbing activities associated with the use and care of routes. The use, operation, and maintenance of existing routes may indirectly impact NHT resources in a minor to moderate level for the long term by allowing access into sensitive trail segments and site areas or altering drainage patterns leading to inundation or erosion.

The development of new routes may directly impact the Anza NHT resources and Monument objects in a minor to major level for the long term by the use of ground-disturbing activities. The development of new routes may directly or indirectly affect NHT resources by removing vehicle use from sensitive areas for the long term at a minor to moderate level of intensity.

Designation of a few routes to a nonmotorized level of use may have a direct and indirect protective effect on the Anza NHT resources and Monument objects for the long term by prohibiting motor vehicle use, thereby reducing or eliminating the number of visitors in a localized area.

From Visual Resources on National Historic Trails

The Anza NHT corridor, as an object of the SDNM, runs through a mixture of management strategies from VRM Class II, Class III, and Class IV. Management of the NHT under Class IV (approximately 41 percent of the trail area in the Monument) would allow visual intrusions and associated ground-disturbing activities to dominate the landscape at a level which would damage or destroy trail and historic landscape integrity through loss of the very elements that the Anza NHT was designated to do. These activities and ground-disturbing projects would be completely incompatible with National Trail as well as Monument object protection related goals. The impacts would occur at a major level of intensity within this area.

Allocation of the Anza NHT corridor within the SDNM in a VRM Class III (approximately 21 percent of the trail area in the Monument) would impact the trail and its landscape settings by allowing visual intrusions and ground-disturbing activities at a level which would quickly deteriorate its integrity. Management at this level would allow activities and developments that are completely incompatible with a NHT, at a moderate to major level of intensity in localized areas for the long term.

The areas of the trail within the center areas of the SDNM would be managed at a VRM Class II (approximately 31 percent of the trail area in the Monument), which would have a far more beneficial effect on the essential characteristics and attributes of a NHT and the associated Monument objects. Management of activities and developments would be more restrictive in terms of visual intrusions and ground-disturbing activities on the historic landscape, leading to more protection of the NHT resources and Monument objects, at a minor to moderate level of intensity throughout the SDNM.

From Wilderness Characteristics on National Historic Trails

No lands managed to protect wilderness characteristics would be allocated on the Monument under Alterative A.

From Wildlife and Special Status Species Management on National Historic Trails

Impacts would be the same as those described under Alternative A for the Lower Sonoran.

From Livestock Grazing on Wilderness Areas

Implementation of Alternative A would leave the existing livestock grazing regime in place. This could have moderate landscape level impacts on naturalness and outstanding opportunities for solitude and primitive, unconfined recreation. This is a moderate impact because the livestock grazing forage utilization prescriptions for the North and South Maricopa Mountain Wilderness Areas, as set by the Maricopa Complex Wilderness Management Plan, Environmental Assessment and Decision Record (BLM, 1995) are not fully being met. Taken as a whole however, current-grazing regimes would not detract from nor greatly alter current wilderness conditions in the SDNM over the life of the plan.

On the other hand, Monument management prescriptions could add an additional level of protection to protecting wilderness values. Livestock grazing impacts are more fully detailed in the Maricopa Complex Wilderness Management Plan, Environmental Assessment and Decision Record (BLM, 1995).

Localized impacts could also occur with potential minor effects, including (1) livestock use adjustments with increased or fewer animals; (2) changes to grazing management systems; (3) potentially large ephemeral turnouts causing short-term impacts on naturalness, vegetation, and loss or impairment of solitude and primitive recreation opportunities; (4) failure to currently satisfy all rangeland health standards; and (5) construction or abandonment of rangeland developments. Such actions could degrade or enhance naturalness and opportunities for solitude and primitive, unconfined recreation, depending on the proposed action and would be addressed on a case-by-case basis in compliance with NEPA.

From Recreation Management on Wilderness Areas

A small portion of the Gila Trails SRMA would overlap four miles along the southern boundary of the North Maricopa Mountains Wilderness Area. Impacts would negligible.

From Visual Resources on Wilderness Areas

Under Alternative A, public lands adjacent to the North Maricopa Mountains, South Maricopa Mountains, and Table Top Wilderness Areas would retain existing VRM classes, which include VRM Class III in the SDNM. Such VRM class allocations might allow for minor to negligible landscape altering

activities that could be visible from adjacent wilderness areas, resulting in potentially minor long term visual detractions from naturalness and opportunities for solitude. However, it must be noted that Monument status offers considerable resource and landscape protection. wilderness areas themselves are classified as VRM Class I, with the objective of preserving the existing character of the landscape. Impacts on naturalness and opportunities for solitude would thus be negligible.

From Wilderness Characteristics on Wilderness Areas

No areas would be allocated as lands managed to protect wilderness characteristics under Alternative A. Two areas with wilderness characteristics are adjacent to the North and South Maricopa wildernesses in the SDNM. Not allocating these areas as lands managed to protect wilderness characteristics would have negligible to no impact on naturalness and opportunities for solitude and primitive, unconfined recreation in designated wilderness.

4.18.4 ALTERNATIVE B

Under Alternative B, special designations would include the six wilderness areas, the Juan Bautista de Anza NHT, Agua Caliente Scenic Byways in the Lower Sonoran, and the existing Coffeepot Botanical ACEC. In the SDNM, the Vekol Valley Grassland ACEC designations would be removed and the area would be managed in accordance with the terms of the SDNM proclamation. The Juan Bautista de Anza NHT would be managed in concert with the Lower Gila Historic Trail SRMA in the Lower Sonoran and would be consistent with the NPS management plan. Agua Caliente road in the Lower Sonoran would be designated as scenic byway and would be managed to protect the visual resource and natural character of the view shed. Special designations for Alternative B are identified on Map 2-16b.

4.18.4.1 Both Decision Areas

Areas of Critical Environmental Concern

No unique impacts.

National Byways

No unique impacts.

From Air Quality on National Historic Trails

Impacts would be the same as those described under Alternative A for both Decision Areas.

From Cultural and Heritage Resources on National Historic Trails

Impacts would be the same as those described under Alternative A, except, a greater number of sites would be allocated to public use. These allocations would lead to interpretive developments that may directly impact the NHT trails at a moderate level for the long term by altering access points, installation of facilities along the trail and onto areas adjacent to the site, and attracting additional visitation and possibly vehicle-based activities.

From Lands & Realty on National Historic Trails

Under Alternative B, the NHT would be allocated as LUA Exclusion Area and excluded from any potential utility-scale renewable energy development. Impacts from these allocations would have a moderate effect on the NHT, as there would be no surface disturbances from LUAs within the NHT's boundaries, thus assisting the execution of NHT goals and objectives. Lands within the NHT boundaries would also be retained. Impacts would be minor.

From Livestock Grazing on National Historic Trails

Impacts would be similar to those described under Alternative A for both Decision Areas, except that there would be 40 percent fewer livestock that would potentially impact the NHT. This would create negligible to minor impacts because of the decrease in potential surface disturbing activities from livestock movement that might harm the integrity of the NHT. Overall, impacts would be negligible to minor.

From Special Designations on Wilderness Areas

Impacts from special designations under Alternative B would be negligible.

From Wilderness Characteristics on Wilderness Areas

As under Alternative A, no lands managed to protect wilderness characteristics would be allocated. Impacts would thus be the same as those described under Alternative A.

4.18.4.2 Lower Sonoran

From Lands & Realty on Areas of Critical Environmental Concern

Impacts would be the same as those described under Alternative A for the Lower Sonoran. New utility, communication, transportation, and utility-scale renewable energy facilities would be avoided within the ACEC. Avoiding these types of infrastructure would benefit the natural processes associated with the ACEC values. Minor impacts would be expected.

From Livestock Grazing on Areas of Critical Environmental Concern

Under Alternative B, perennial/ephemeral grazing in the Coffeepot ACEC could have localized impacts on botanical resources by disturbing the ground surface or trampling vegetation, but these would be minimized through grazing management prescriptions. Also, all perennial/ephemeral and perennial allotments available to grazing would receive a reduction in the authorized grazing preference, thereby reducing the potential for disturbances from grazing to ACEC values. Impacts would be expected to range from negligible to minor.

From Minerals Management on Areas of Critical Environmental Concern

Impacts would be the same as those described under Alternative A for the Lower Sonoran.

From Recreation Management on Areas of Critical Environmental Concern

Impacts would be expected to be similar to Alternative A.

From Soil Resources on Areas of Critical Environmental Concern

The BLM would maintain or restore upland, channel, and riparian components of watersheds, and avoid disturbance of sensitive soil surfaces. The soil protection actions would maintain surface conditions necessary for maintaining vegetation cover and litter cover and minimizing erosion, which would benefit ACEC values. Additionally, this would occur across the entire Planning Area. Impacts would be expected to range from negligible to minor.

From Special Designations on Areas of Critical Environmental Concern

The Coffeepot Botanical ACEC designation of approximately 8,900 acres would be retained to protect the outstanding botanical diversity of the native and rare plant communities such as the Acuña cactus. Livestock facilities would not be developed where they would increase livestock use within an area of known or newly discovered populations of Acuña cactus. This would prevent livestock activities from trampling the cactus. Impacts would be expected to be minor.

From Travel Management on Areas of Critical Environmental Concern

Under Alternative B, OHVs would be limited to designated routes. This would potentially alter the ground surface in a manner that alters drainage and, therefore, availability of water for ACEC vegetation. Impacts would be expected to be negligible.

From Vegetation Resources on Areas of Critical Environmental Concern

Depending on the type of plant material, the collection of living or dead plant material may be either prohibited or allowed. This would protect ACEC values by protecting plants from being collected and would also threaten ACEC values by allowing activities that may trample vegetation or disturb ecological process. Additionally, this would occur across the entire Planning Area. A mixture of negligible to moderate impacts would be expected.

From Visual Resources on Areas of Critical Environmental Concern

The majority of the Coffeepot Botanical ACEC would be assigned to VRM Class II. The El Paso Natural Gas ROW/Gas Pipeline Road would be Class III. This designation of the viewsheds would be a less protective designation than under Alternative A because the whole area is VRM Class II under Alternative A. This would allow visual changes to the landscape that could involve ground-disturbing activities that could degrade ACEC values. Impacts would be expected to range from moderate to major.

From Water Resources on Areas of Critical Environmental Concern

Impacts would be the same as those described under Alternative A for the Lower Sonoran.

From Wilderness Characteristics on Areas of Critical Environmental Concern

There are no lands managed to protect wilderness characteristics.

From Wildlife and Special Status Species Management on Areas of Critical Environmental Concern

Under Alternative B, impacts would be similar to Alternative A.

From Lands & Realty on National Byways

Designation of the Aqua Caliente Road as a backcountry byway could limit or hinder land use authorizations if they detracted from or impaired the scenic, natural, recreational, visual, and cultural opportunities represented by this proposed 30-mile byway. The management goals presented by this byway could be in major and direct opposition to the long-term considerations of Maricopa County. The county, in various master regional transportation system documents, has plans that over the long term, would upgrade this road from maintained dirt to pavement. This action, in turn, would achieve safe higher speed travel, but eliminate the recreational backcountry byway exploratory opportunity aspects of the current road.

From Livestock Grazing on National Byways

The Agua Caliente Backcountry Byway traverses open range land, but a 40 percent decrease in livestock, as proposed under Alternative B, would decrease potential impacts from highway collisions with livestock. Impacts would likely decrease from minor to negligible.

From Recreation Management on National Byways

Recreation opportunities, benefits, and experiences would be moderately enhanced by the designation of the 30-mile Agua Fria back country byway. In turn, this would enhance the motoring experience of the byway's users. Impacts would be minor.

From Special Designations on National Byways

Special designations would have negligible impacts on the proposed Aqua Caliente Backcountry Byway.

From Travel Management on National Byways

The comprehensive travel and route management system implemented under Alternative B would be compatible and offer moderate protection to sustain the natural, scenic, visual, recreational and cultural sites and associated opportunities afforded by this proposed byway. Impacts would be negligible to minor.

From Visual Resources on National Byways

Minor to moderate impacts are anticipated on the proposed Agua Caliente Byway from Class III VRM prescriptions bestowed under this alternative. The protection offered by this VRM is less than optimal

for the preservation of the route's scenic, natural, and recreational benefits and outcomes. Over the long-term, some of these byway attributes could be moderately impaired.

From Minerals Management on National Historic Trails

Impacts would be the same as those described under Alternative A for the Lower Sonoran.

From Recreation Management on National Historic Trails

Under Alternative B, the majority of the NHT would be managed under the Lower Gila Historic Trails ERMA and Juan Batista de Anza RMZ. For the areas outside of this planned management area, the impacts would be the same as Alternative A for the Lower Sonoran.

In the Lower Gila Historic Trails ERMA, vehicle-based, front country route exploration is anticipated to be complementary and more protective to the historic trail segments that cross the unit than under Alternative A. It is anticipated that this activity would impact NHT resources on a minor level for a short duration, in localized areas due to vehicle incursions. Camping in a dispersed manner may affect the integrity of NHT resources directly by vehicle incursions, trampling, and indirectly by possible exposure to the threat of unauthorized collection of artifacts at a minor level of intensity over the long term, in localized areas.

From Special Designations on National Historic Trails

Impacts would be the same as those described under Alternative A for the Lower Sonoran, in addition, development of interpretive media and facilities would have a minor to moderate effect on NHT resources in localized areas.

Public use and management under a ERMA forms the framework of this alternative. As visitation increases, NHT resources may be impacted directly and indirectly by disturbance due to vehicle use and trampling by visitors. As additional interpretive media is developed for the trail, increasing visitation may impact the trail resources directly by vehicle damage to associated site features and trampling. As vehicle-based visitation is highly promoted under this alternative, effects to NHT resources are expected to be far greater in level than that expected under Alternative A.

From Travel Management on National Historic Trails

Impacts would be the same as those described under Alternative A for the Lower Sonoran, except, a considerable increase in the length of the road network may affect many more NHT resources directly by cutting through and near them. Impacts would still range from minor to moderate.

From Visual Resources on National Historic Trails

The allocation of at least 87 percent of the trail area to VRM Class III would impact the integrity of Anza National Trail resources and historic landscape settings only slightly less than under Alternative A by allowing visual intrusions on the landscape and associated ground-disturbing activities associated with a variety of land uses at a level which would deteriorate the integrity of trail segments and settings.

The remainder of the NHT corridor lies on lands allocated to the Class IV VRM level which would allow visual intrusions and associated ground-disturbing activities associated with a variety of uses to dominate the landscape at a level which would damage or destroy National Trail resources as well as historic landscape integrity at a moderate to major level of intensity in localized areas for the long and short term. Impacts from VRM would range from minor to moderate.

From Wilderness Characteristics on National Historic Trails

No lands managed to protect wilderness characteristics would be allocated under Alterative B for the Lower Sonoran.

From Wildlife and Special Status Species Management on National Historic Trails

Impacts would be the same as those described under Alternative A for the Lower Sonoran.

From Cultural and Heritage Resources on Wilderness Areas

Impacts would be the same as those described under Alternative A for the Lower Sonoran.

From Lands & Realty on Wilderness Areas

The number, width, and capacity of utility corridors adjacent to the Woolsey Peak and Signal Mountain Wildernesses would remain essentially unchanged from existing alignments, with impacts similar to Alternative A. A fully utilized and built-out utility corridor adjacent to the Sierra Estrella Wilderness would indirectly reduce naturalness and opportunities for solitude within the north half of the Sierra Estrella Wilderness to a moderate degree over the long term. Additional power lines, pipelines and associated support infrastructure sited in this corridor would be noticeable from half of this area, essentially for two reasons: (1) the wilderness has an open unscreened aspect to the southwest; and, (2) the utility corridor forms about five miles of the wilderness area boundary. Impacts would be minor.

From Livestock Grazing on Wilderness Areas

The potential for improved forage and vegetation conditions from modified grazing practices and a 40 percent reduction in AUMs could result in long-term vegetative and visual impacts on the landscape that would maintain or improve naturalness. Correspondingly, a 40 percent increase in forage currently allocated to livestock would become available to native wildlife. The sights of cattle trailing, cow waste, and trampled vegetation would be moderately reduced, enhancing wilderness values. Impacts from livestock infrastructure management would be similar as described under Alternative A. There would be no impact from water development installation over the long term as the current wilderness management plan prohibits new livestock developments in the Signal Mountain and Woolsey Peak Wilderness Areas.

From Recreation Management on Wilderness Areas

Implementation of Alternative B would contribute to naturalness and opportunities for solitude and primitive recreation to a greater degree than would Alternative A. Alternative B would allocate the Gila Bend Mountains ERMA, which includes all lands within the Signal Mountain and Woolsey Peak Wildernesses. Existing ROS management classes would be replaced by settings, with all designated

wilderness managed as backcountry. This setting would sustain setting characteristics that produce opportunities for remote primitive recreation experiences. Under Alternative B, long-term, contributions to naturalness and outstanding opportunities for solitude and primitive, unconfined recreation would result where restrictions to motorized travel occur adjacent to wilderness areas. Such impacts would occur to a greater degree than under Alternative A.

Contributions to naturalness and opportunities for solitude and primitive recreation would be further enhanced under Alternative B where public lands adjacent to wilderness areas would be managed as part of the backcountry setting. Impacts would be minor.

From Travel Management on Wilderness Areas

Implementation of Alternative B would contribute to naturalness and opportunities for solitude and primitive recreation to a moderate degree more than would Alternative A. Most existing motorized roads providing access or forming a wilderness boundary would remain available for use next to wilderness areas. However; unlike Alternative A, there would be careful consideration of potential impacts from motorized use of such roads on adjacent wilderness areas and their associated indicators. Motorized routes with a predilection to contribute to moderate levels of vehicle trespass or resource-based impacts (e.g., plant theft, wood cutting, fires, campsite clearing, target shooting, OHV staging, and parking) on the periphery of wilderness areas would remain open, but adverse uses would be mitigated through various management options available to the BLM for corrective action.

Contributions to naturalness and opportunities for solitude and primitive recreation would be augmented under Alternative B because roads and primitive roads adjacent to wilderness areas would eventually be managed as part of a designated comprehensive travel management network. Potentially moderate, but adverse effects, from motorized intrusions and associated recreation uses would be reduced or eliminated in some areas. Moreover, boundary roads and cherry stem roads would be managed as part of a designated and comprehensive travel management network. Consequently, adverse effects from motorized intrusions and associated recreation activities would be lessened or eliminated in many areas.

Over-the-long-term associated management actions would reduce travel and access based impacts on wilderness to minor or negligible levels.

From Vegetation Resources on Wilderness Areas

Under Alternative B, active restoration of surface disturbances would be emphasized, use of native species in all restoration projects would be required, and an integrated weed management program to control invasive species would be put into place. The use of native species and control of invasive species would limit the spread of nonnative vegetation and reduce the size and intensity of wildfires, which would otherwise destroy native vegetation of non-fire adapted areas of the Sonoran Desert, resulting in moderate and long-term contributions to the wilderness value of naturalness. A reduction in grazing activities and AUMs would generally mean smaller herds and could result in an increase in forage production.

From Visual Resources on Wilderness Areas

Impacts would be the same as those described under Alternative A, except that under Alternative B, public lands adjacent to the Woolsey Peak and Signal Mountain Wildernesses would be classified as VRM Class II, with the objective of retaining the existing character of the landscape. Such actions would play a minor part and indirectly contribute to naturalness of the two wilderness areas to a greater degree than would Alternative A. Public lands adjacent to the Sierra Estrella Wilderness would retain existing VRM classifications of Class III and Class IV, which would result in the same impacts as described under Alternative A.

From Wildlife and Special Status Species Management on Wilderness Areas

Overall, implementation of the wildlife-related ecological and biological resources measures of Alternative B would offer minor contributions to naturalness to a greater degree than would implementation of Alternative A by emphasizing connectivity of wildlife habitat, use of native vegetation in restoration efforts, and measures to maintain populations of native wildlife. In contrast, implementation of Alternative B would cause a minor and more substantial detraction from naturalness than would Alternative A due to the potential increased density of new wildlife water developments.

Under Alternative B, new wildlife waters would potentially be built in wilderness areas. Construction activities would detract from naturalness and opportunities for solitude, causing short-term impacts on wilderness values. In the long term, the presence of new permanent structures in wilderness areas would detract from naturalness. Moreover, long-term, impacts on naturalness could also result if abnormally abundant watering sources lead to unnatural wildlife population levels or behaviors. Impacts from wildlife waters would be minor.

Reintroductions, transplants, and supplemental stockings of native wildlife would be conducted in collaboration with AGFD; existing earthen livestock waters could be used as refugia for native wildlife where livestock grazing is no longer permitted; and the placement of fences would be restricted or mitigated to avoid adverse impacts on wildlife. Long-term contributions to naturalness in wilderness areas would result if such actions would maintain native wildlife populations at natural levels. Impacts would be negligible to minor.

4.18.4.3 Sonoran Desert National Monument

Areas of Critical Environmental Concern

No ACECs are allocated in this Alternative for the SDNM. The Monument's proclamation provides the necessary protection that an ACEC would provide.

National Byways

No national byways are designated under Alternative B in the Monument.

From Minerals Management on National Historic Trails

Impacts would be the same as those described under Alternative A for the Monument.

From Recreation Management on National Historic Trails

Under Alternative B, the NHT would be managed under the SDNM ERMA – Anza NHT RMZ. It is anticipated that the actions under this allocation would offer the same level of protection to the Anza NHT resources and Monument objects as Alternative A because the increased management would not be enough to counteract the sharp increase in public visitation.

In the SDNM ERMA – Anza NHT RMZ, the majority of the lands would be allocated to this level of management, as backcountry. In the backcountry, it is expected that camping in a dispersed manner and increased vehicular recreation may affect the integrity of Anza NHT resources and Monument objects directly by vehicle incursions, trampling, and possible exposure to the threat of unauthorized collection of artifacts at a minor level of intensity over the long term, in localized areas. Impacts are anticipated to be minor to moderate.

From Special Designations on National Historic Trails

Impacts would be the same as those described under Alternative B for the Lower Sonoran.

From Travel Management on National Historic Trails

Impacts would be the same as those described under Alternative A for the Monument, except a considerable increase in the length of the road network may affect many more of the Anza NHT resources directly by cutting through and near them. Impacts would range from minor to moderate.

From Visual Resources on National Historic Trails

Allocation of the Anza NHT corridor within the SDNM in a VRM Class III (approximately 93 percent of the trail area in the Monument) locale would impact the trail and its historic settings far more than under Alternative A by allowing visual intrusions on the landscape and associated ground-disturbing activities at a level which would quickly deteriorate its integrity. Management at this level would allow surface disturbing activities and intrusive developments that are completely incompatible visually with a NHT and may threaten the Monument objects, at a moderate to major level of intensity throughout the SDNM.

From Wilderness Characteristics on National Historic Trails

No lands managed to protect wilderness characteristics would be allocated under Alterative B for the Monument.

From Wildlife and Special Status Species Management on National Historic Trails

Improvements to existing wildlife water developments may affect the Anza NHT and associated resources as Monument objects directly at a minor to moderate level in localized areas in the short term as old developments are remodeled. These impacts would be direct due to the use of heavy equipment to excavate and replace old facilities and indirect due to changes in adjacent drainage patterns leading to erosion of cultural sites. Impacts would be minor to moderate.

From Cultural and Heritage Resources on Wilderness Areas

Impacts would be the same as those described in the Lower Sonoran for Alternative B.

From Lands & Realty on Wilderness Areas

The three one-mile wide corridors in the SDNM would not directly impact the naturalness or wilderness opportunities of the wilderness areas within the Monument. Installation of new facilities in the I-8 utility corridor south of the highway would have minor and indirect impacts on the South Maricopa Mountains Wilderness. Currently this corridor is occupied only by the highway with no underground or overhead facilities. The sight of new overhead facilities would extend northward one to two miles into the wilderness. However, this effect would have no greater influence than the sights and sounds of highway traffic currently experienced by wilderness visitors in areas along the highway.

Installation of new facilities in the Santa Rosa to Gila Bend utility corridor would have no visual effect on the South Maricopa Mountains Wilderness located to the south. The utility corridor is currently occupied by a highway, sets of railroad tracks, pipelines, optic lines and overhead transmission facilities. New installations would compliant with VRM prescriptions, nor add greatly to the level of visual commotion currently present in the landscape. Impacts would be negligible from this corridor.

From Livestock Grazing on Wilderness Areas

Impacts would be the same as those described under Alternative B for the Lower Sonoran, except that, in the SDNM, the portions of the Conley Allotment that are proposed to become unavailable to livestock fall within the South Maricopa Mountains Wilderness Area. Under Alternative B, fencing would be installed to prevent livestock from entering specific areas of the Wilderness Area. The proposed fence would detract from the naturalness of the area to a small degree but would enhance resources within the exclosure. Impacts would be minor.

From Recreation Management on Wilderness Areas

The SDNM wilderness areas would be included in the SDNM ERMA. Recreation allocations and prescriptions established by the ERMA are fully compatible with wilderness management and current wilderness management plans. Accordingly, negligible impacts on wilderness values are anticipated. As described under Alternative A, about 4 percent of the North Maricopa Mountains Wilderness would be subject to minor impacts from the sights and sounds of visitor management and resource protection infrastructure along Juan Batista de Anza NHT RMZ (Anza NHT and the Butterfield Overland Stage Trail). Elsewhere, few to no noticeable impacts from recreation use management on wilderness values would be anticipated.

From Travel Management on Wilderness Areas

Under Alternative B, minor, but long-term, contributions to naturalness and outstanding opportunities for solitude and primitive, unconfined recreation would result, mainly where motorized travel restrictions occur adjacent to wilderness areas. The first contribution would accrue from minor route closures. The second benefit would accrue from improved stewardship of travel management networks.

Beneficial impacts would emerge to a greater degree than under Alternative A. A few routes around the north part of the North Maricopa Mountains Wilderness and one spur route along the northern end of Table Top Wilderness would be closed under Alternative B. Such specific route closures would precipitate a localized reduction or elimination in the motorized trespass and recreation-related impacts on wilderness values as described under Alternative A.

Most existing motorized roads providing access or forming a wilderness boundary would remain available for use next to wilderness areas. However; unlike Alternative A, there would be careful consideration of potential impacts from motorized use of such roads on Monument objects and adjacent wilderness areas and their associated indicators. Motorized routes with a predilection to contribute to moderate levels of vehicle trespass or resource-based impacts (e.g., plant theft, wood cutting, fires, campsite clearing, target shooting, OHV staging, and parking) on the periphery of wilderness areas could remain open, but adverse uses would be thoroughly mitigated through various management options available to the BLM for corrective action.

Contributions to naturalness and opportunities for solitude and primitive recreation would be augmented under Alternative B because roads and primitive roads adjacent to wilderness areas would eventually be managed as part of a designated comprehensive travel management network. Potentially minor, but adverse effects, from motorized intrusions and associated recreation uses would be reduced or eliminated in some areas. Over-the-long-term associated management actions would reduce travel and access based impacts on wilderness to negligible levels.

From Vegetation Resources on Wilderness Areas

Under Alternative B, current vegetation communities would be maintained or enhanced over the long term. Active restoration of surface disturbances would be emphasized, use of native species in all restoration projects would be required, an integrated weed management program to control invasive species would be put into place, and grazing AUMs would be reduced 31 percent. The use of native species and control of invasive species would limit the spread of nonnative vegetation and reduce the size and intensity of wildfires, which would otherwise destroy native vegetation of non-fire adapted areas of the Sonoran Desert, resulting in long-term contributions to naturalness. The health and vigor of vegetative communities would be sustained. As compared to Alternative A, this alternative would have a moderate influence on the health and vigor of plants and vegetative communities in the two wilderness areas north of I-8, and a major influence on the Table Top Wilderness vegetation south of the highway. A reduction in grazing activities and AUMs would generally mean smaller herds and could result in an increase in forage production.

From Visual Resources on Wilderness Areas

In the SDNM, much of the lands surrounding wilderness areas would be allocated to VRM Class II, which would have minor and indirect contribute to naturalness in the adjoining wilderness areas.

From Wilderness Characteristics on Wilderness Areas

As under Alternative A, no lands managed to protect wilderness characteristics would be allocated. Impacts would thus be the same as those described under Alternative A.

From Wildlife and Special Status Species Management on Wilderness Areas

Overall, implementation of the wildlife-related ecological and biological resources measures of Alternative B would offer minor contributions to naturalness to a greater degree than would implementation of Alternative A by emphasizing connectivity of wildlife habitat, use of native vegetation in restoration efforts, and measures to maintain populations of native wildlife. In contrast, implementation of Alternative B could cause a more minor detraction from naturalness than would Alternative A through a potentially increased density of new wildlife water developments.

Under Alternative B, potentially new wildlife waters would be built in SDNM wilderness areas, and considered on a case-by-case basis. Construction activities would detract from naturalness and opportunities for solitude, causing short-term impacts on wilderness values. In the long term, the presence of new permanent structures in wilderness areas would detract from naturalness. Long-term, impacts on naturalness could also result if artificially abundant watering sources lead to unnatural wildlife population levels and behaviors. Impacts from wildlife waters would be minor. Reintroductions, transplants, and supplemental stockings of native wildlife would be conducted in collaboration with AGFD and/or USFWS; existing earthen livestock waters would be used as refugia for native wildlife where livestock grazing is no longer permitted; and the placement of LUAs, and fences would be restricted or mitigated to avoid adverse impacts on wildlife. Long-term contributions to naturalness in wilderness areas would result if such actions would maintain native wildlife populations at natural levels.

4.18.5 ALTERNATIVE C

Under Alternative C, the 8,900-acre Coffeepot Botanical ACEC would not be carried forward. Instead of the Coffeepot Botanical ACEC, an approximately 63,300-acre area would be designated as the Coffeepot Batamote ACEC to protect habitat for lesser long-nosed bat and Acuña cactus, the outstanding biological diversity of the native plant communities, desert bighorn sheep, and other diverse wildlife populations. This area would include the area of the former Coffeepot Botanical ACEC. In the SDNM, the Vekol Valley Grassland ACEC designations would be removed and the area would be managed in accordance with the terms of the SDNM proclamation.

The Aqua Caliente Backcountry Byway would be carried forward from Alternative B. Arizona State Route 238 would be established as a National Scenic Byway of 18 miles crossing east to west through the SDNM.

Alternative C special designations are identified on Map 2-16c.

4.18.5.1 Both Decision Areas

Areas of Critical Environmental Concern

No unique impacts.

National Byways

No unique impacts.

From Air Quality on National Historic Trails

Impacts would be the same as those described under Alternative A for the Lower Sonoran, except, any reductions in vehicle use on dirt roads may have an indirect, yet protective effect on Anza Trail resources at a minor level for the long term by reducing the amount of ambient dust in the area where interpretive facilities are planned or are located.

From Cultural and Heritage Resources on National Historic Trails

Under Alternative C, a SCRMA would be allocated in a way that incorporates the Anza Trail (Map 2–1c). The purpose of this SCRMA would be to focus management of cultural and National Trail resources for public use and scientific use. This allocation would have a protective effect on the Anza Trail due to the higher priority that would be placed on the area for inventorying and monitoring. This would be expected to be at a minor to moderate intensity for the long term.

From Lands & Realty on National Historic Trails

Impacts would be the same as those described under Alternative B for the Lower Sonoran.

From Livestock Grazing on National Historic Trails

Impacts would be the same as those described under Alternative A for both Decision Areas, just slightly decreased, as there would be less ephemeral grazing, thus decreasing the potential surface disturbing activities from livestock movement year-round that might harm the integrity of the NHT. Additionally, in the SDNM, some areas along the NHT, particularly around North Tank on the Conley Allotment, would be fenced off to livestock. This would help preserve the natural and historic features of the Anza NHT. Impacts would remain minor to moderate, as described in Alternative A, because livestock grazing would still be allowed during certain portions of the year.

4.18.5.2 Lower Sonoran

From Lands & Realty on Areas of Critical Environmental Concern

The ACEC contains 100 percent public lands and it is recommended to retain those lands within the ACEC as public ownership. This would preserve the consistency of resource management across the area.

New utility, communication, transportation, and utility-scale renewable energy facilities would be avoided within the ACEC. The El Paso Natural Gas Multiuse Utility corridor would be removed from the ACEC. Avoiding these types of infrastructure and removing the corridor would benefit the natural processes associated with the ACEC values.

These actions would result in moderate impacts on the ACEC.

From Livestock Grazing on Areas of Critical Environmental Concern

Under Alternative C, perennial grazing in the ACEC could have localized impacts on botanical resources by disturbing the ground surface or trampling vegetation. The Coffeepot Batamote ACEC incorporates

the Batamote Mountains and covers 63,300 acres, or more than half of the Childs Allotment. Grazing management would emphasize protection of the Acuña cactus and other botanical resources in the area through site-specific grazing management systems and appropriate NEPA analysis. Similar to Alternative A, impacts would be expected to range from negligible to moderate.

From Minerals Management on Areas of Critical Environmental Concern

The Coffeepot Batamote ACEC would be closed to leasable minerals and unavailable to mineral material disposals. These actions would retain or improve habitat and limit disturbance to wildlife and cultural resources by not allowing these types of minerals development. Minor impacts on ACEC values are expected to occur.

Impacts on resource values in the Coffeepot Botanical ACEC from mineral resource development would be the same as described for Alternative A, except that Alternative C would provide additional mitigation measures that could potentially provide a higher level of protection for resource values within the ACEC. Impacts would be expected to range from negligible to minor.

From Recreation Management on Areas of Critical Environmental Concern

Coffeepot Batamote ACEC would also be allocated as the Ajo ERMA. The entire ACEC would be allocated as backcountry, with passage corridors that would entail 100 feet on each side of the centerline of open motorized vehicle routes. Decisions to develop campgrounds/sites as needed to reduce impacts; limit developed staging areas to, front country, and passage settings; and encourage the use of existing sites for parking, staging, and camping areas would help reduce or avoid impacts on the ACEC-resources due to dispersed recreational use. Additional restrictions on camping limits; prescriptions for wood collection, campfires, and camp stoves; and managing recreational target shooting, nonmotorized uses, equestrian and stock-animal use, and emerging forms of recreation would also assist in reducing impacts from dispersed use. Impacts would be expected to range from negligible to moderate.

From Soil Resources on Areas of Critical Environmental Concern

Impacts on the ACECs would be the same as those described under Alternative B for the Lower Sonoran.

From Special Designations on Areas of Critical Environmental Concern

Under Alternative C the proposed Coffeepot Batamote ACEC would encompass 63,300 acres of public lands. This ACEC is being proposed to protect lesser long-nosed bat and cactus ferruginous pygmy-owl habitats, outstanding botanical diversity of the native plant communities, botanical resources unique to the area such as the Acuña cactus, desert bighorn sheep other diverse wildlife populations, and outstanding landscape and scenic features. The Coffeepot Batamote ACEC does contain an endangered plant species – the Acuña cacti –, foraging habitat for the endangered lesser long-nosed bat and habitat for bighorn sheep and the cactus ferruginous pygmy-owl. The cactus ferruginous pygmy-owl has been petitioned as a candidate and habitat is available for this species within the ACEC. The ACEC contains 100 percent public lands and it is recommended to retain those lands within the ACEC as public

ownership. Impacts from retaining the public lands within the ACEC would be negligible. Overall impacts from the special designation would be expected to range from negligible to minor.

From Travel Management on Areas of Critical Environmental Concern

Motorized travel in the Coffeepot Botanical ACEC under Alternative C would be limited to designated routes, with some existing routes being closed to motorized travel, including portions of the route to Coffeepot Well and a less than 1-mile duplicative route the Gas Pipeline Road. An additional less than 1-mile route segment extending northwest from Coffeepot Well would be designated as limited. Designation of routes would reduce the potential impacts on resource values from the illegal proliferation of roads and off-road use. Negligible to minor impacts on wildlife would be expected.

New routes within the ACEC would be prohibited within washes, unless during route designations conflicts with wildlife are mitigated and minimization criteria would be established. At the time of route designations, mitigation, adaptive management, and BMPs would be utilized to avoid harassment and long term displacement of wildlife. By utilizing these techniques, negligible to minor impacts on wildlife would be expected.

From Vegetation Resources on Areas of Critical Environmental Concern

Impacts on ACECs are similar to those described under Alternative B for the Lower Sonoran.

From Visual Resources on Areas of Critical Environmental Concern

Coffeepot Batamote ACEC would be assigned to VRM Class II. The southernmost portion of the ACEC would be assigned to Class III. This would provide protection that is equal to or greater than Alternative A, because this area is designated VRM Class II, III, and IV under Alternative A. This would allow for fewer visual changes to the landscape that could involve ground-disturbing activities, which could degrade ACEC values. Impacts would be expected to range from minor to negligible.

From Water Resources on Areas of Critical Environmental Concern

Under Alternative C, the protection of water flow and water use in localized areas would provide protection of the watershed function in and near the expanded Coffeepot Batamote ACEC, thereby protecting the botanical resource values of the ACEC. Impacts would be expected to range from negligible to minor.

From Wilderness Characteristics on Areas of Critical Environmental Concern

Coffeepot Batamote ACEC would be allocated as lands managed to protect wilderness characteristics, which would be protective of the resource values of the ACEC. Impacts would be minor.

From Wildlife and Special Status Species Management on Areas of Critical Environmental Concern

The proposed Coffeepot Batamote ACEC encompasses 63,300 acres of public lands under Alternative C. This ACEC is being proposed to protect lesser long-nosed bat and cactus ferruginous pygmy-owl habitats, outstanding botanical diversity of the native plant communities, botanical resources unique to

the area such as the Acuña cactus, desert bighorn sheep other diverse wildlife populations, and outstanding landscape and scenic features. The Coffeepot Batamote ACEC does contain an endangered plant species (Acuña cacti) and foraging habitat for the endangered lesser long-nosed bat. The cactus ferruginous pygmy-owl has been petitioned as a candidate and habitat is available for this species within the ACEC. Overall impacts on wildlife would be expected to range from negligible to minor.

From Lands & Realty on National Byways

Impacts are similar to those described under Alternative B for the Lower Sonoran.

From Livestock Grazing on National Byways

Impacts from livestock grazing on the Agua Caliente Backcountry Byway would be similar to those described under Alternative B for the Lower Sonoran, except that stocking rates would range from their current rates to their full permitted use to offset the loss of ephemeral authorizations. Nevertheless, impacts are expected to be negligible to minor.

From Recreation Management on National Byways

Impacts are similar to those described under Alternative B for the Lower Sonoran.

From Special Designations on National Byways

Impacts are similar to those described under Alternative B for the Lower Sonoran.

From Travel Management on National Byways

Impacts are similar to those described under Alternative B for the Lower Sonoran.

From Visual Resources on National Byways

Impacts are similar to those described under Alternative B for the Lower Sonoran.

From Minerals Management on National Historic Trails

Impacts would be the same as those described under Alternative A for the Lower Sonoran.

From Recreation Management on National Historic Trails

Impacts would be the same as those described under Alternative B for the Lower Sonoran.

From Special Designations on National Historic Trails

Impacts would be the same as those described under Alternative A for the Lower Sonoran, except, management of the NHT and its resources under a SCRMA allocation would institute an emphasis of increased scientific research and a focused approach that would have a protective effect on trail resources for the long term in a minor intensity and on a landscape level than Alternative A.

From Travel Management on National Historic Trails

Impacts would be the same as those described under Alternative A for the Lower Sonoran, except a slight reduction of the number of routes would occur. Fewer routes may have a beneficial effect on NHT resources as there may be fewer places where impacts would occur. Impacts would range from minor to moderate.

From Visual Resources on National Historic Trails

Under this alternative, about 85 percent of the National Trail area is managed at a VRM Class II, which would have a far more beneficial effect than Alternative A on the essential characteristics and attributes of historic landscapes and Anza NHT resources. Management of activities and developments would be more restrictive in terms of visual intrusions and ground-disturbing activities on the historic landscape, leading to more protection of the NHT resources, at a minor to moderate level of intensity throughout the Lower Sonoran. The remaining NHT area would be managed at a Class III VRM level which would impact the integrity of Anza National Trail resources and historic landscape settings by allowing visual intrusions on the landscape and associated ground-disturbing activities associated with a variety of land uses at a level which would deteriorate the integrity of trail segments and settings. Impacts under Alternative C would present negligible to minor impacts.

From Wilderness Characteristics on National Historic Trails

Impacts would be negligible, as no lands managed to protect wilderness characteristics would be allocated within or near the NHT boundaries.

From Wildlife and Special Status Species Management on National Historic Trails

Impacts would be the same as those described under Alternative A for the Lower Sonoran.

From Cultural and Heritage Resources on Wilderness Areas

Under Alternative C, future site development for public interpretive and educational purposes, excavation for scientific study, or other similar activities would have no short long-term effects on the naturalness of the Lower Sonoran's three wilderness areas. Cultural and heritage management activities would be guided by approved wilderness management plans. Implementation of Alternative C measures for cultural and heritage resources would likely contribute to naturalness to a greater degree in the three wilderness areas than would Alternatives A and B due to increased emphasis on resource protection and less emphasis on development for public visitation. The Gila River Terraces and Southern Historic Trail SCRMA would be allocated adjacent to the southern boundary of Woolsey Peak Wilderness, increasing protection of cultural and natural resources and providing opportunities for recreation and interpretation. Impacts would be negligible.

From Lands & Realty on Wilderness Areas

Impacts from Lands & Realty Management would result in impacts similar to Alternative A.

From Livestock Grazing on Wilderness Areas

Impacts would be the same as described under Alternative A, except no ephemeral grazing would occur. This re-classification would enhance naturalness in the long term as ephemeral forage would not be removed and would become available to wildlife. The sight, sound, smells and other impacts from large ephemeral turnouts on the SDNM would not occur, enhancing naturalness and maintaining opportunities for primitive recreation in a more natural appearing and untrammeled environment. Compared to Alternatives A and B, Alternative C would have both amplified and proactive contributions to naturalness, solitude and primitive recreation values. Impacts would be negligible to minor.

From Recreation Management on Wilderness Areas

Contributions to naturalness and opportunities for solitude due to the SRMA and ERMA allocations and backcountry settings within and adjacent to the Signal Mountain and Woolsey Peak Wildernesses would be similar to those described under Alternative B. Impacts on the Sierra Estrella Wilderness would be indistinguishable from Alternative A and B.

From Special Designations on Wilderness Areas

No special designations proposed under Alternative C would impact wilderness areas.

From Travel Management on Wilderness Areas

Impacts on wilderness areas are from Travel Management are similar to those described under Alternatives B, except that Alternative C could restrict motorized use on up to 30 percent of roads and primitive roads that would be otherwise open to motorized use under Alternative A, and up to 6 percent more route closures and restrictions than proposed under Alternative B. Thus, implementation of Alternative C could slightly contribute more to naturalness and opportunities for solitude and primitive recreation than would Alternative B. Like Alternative B, Alternative C would also employ a designated comprehensive travel management network and apply consideration of potential impacts from motorized use on adjacent wilderness areas and associated indicators.

Motorized routes with a predilection to contribute to moderate levels of vehicle trespass or resource-based impacts (e.g., plant theft, wood cutting, fires, campsite clearing, target shooting, OHV staging, and parking) on the periphery of wilderness areas might be closed or use limited. Adverse uses would be mitigated through various management options available for corrective action. Impacts would be negligible to minor.

From Vegetation Resources on Wilderness Areas

Under Alternative C, the range of vegetation management actions would result in long-term contributions to naturalness, more so than under Alternatives A and B. Both active and passive restoration of surface disturbances would be emphasized, use of native species in all restoration projects would be required, and an integrated weed management program to control invasive species would be put into place. The lack of ephemeral grazing would enhance forage for wildlife. Impacts would be negligible.

From Visual Resources on Wilderness Areas

Under Alternative C, lands adjacent to the Woolsey Peak and Signal Mountain Wildernesses would be classified as VRM Class II, with the objective of retaining the existing character of the landscape. Public lands adjacent to the Sierra Estrella Wilderness would also primarily be classified as VRM Class II, although a portion of adjacent public lands would be classified as VRM Class III. To the extent that landscape-altering activities would be visible from areas of designated wilderness, long-term detractions from naturalness and opportunities for solitude could occur. Overall, however, more protective visual resource prescription allocations under Alternative C would contribute to naturalness of designated wilderness to a greater degree than would Alternatives A and B, primarily in the vicinity of the Sierra Estrella Wilderness. Impacts would be negligible.

From Wilderness Characteristics on Wilderness Areas

Alternative C would allocate 128,100 acres of the Lower Sonoran to protect wilderness characteristics; however, these areas would not be in close proximity to existing designated wilderness areas, resulting in no impacts.

From Wildlife and Special Status Species Management on Wilderness Areas

Overall, implementation of the ecological and biological resources measures under Alternative C would provide a minor contribution to naturalness to a greater degree than would Alternatives A and B by protecting core areas of wildlife habitat, emphasizing connectivity of wildlife habitat, removing ineffective wildlife water developments, requiring use of native vegetation in restoration efforts, and implementing measures to maintain populations of native wildlife, especially sensitive species.

Under Alternative C, the Gila Bend WHA totaling 255,700 acres, which would be inclusive of the Woolsey Peak and Signal Mountain Wildernesses, would be allocated to protect native vegetation, expansive, and unfragmented wildlife habitat and movement corridors. Facilities that would concentrate recreation use, including motorized routes, nonmotorized trails, and trailheads, would not be constructed while dispersed undeveloped recreation opportunities would be emphasized.

Route systems that decrease wildlife habitat fragmentation, wildlife disturbance, and vegetation damage would be designated. Land use authorizations, mining sites, developments, facilities, and activities would be avoided or mitigated with particular attention to maintaining wildlife habitat and movement corridors.

Such measures implemented on public lands adjacent to the Woolsey Peak and Signal Mountain Wildernesses would contribute to naturalness and outstanding opportunities for solitude and primitive, unconfined recreation. Such impacts would not be realized under Alternative A or B as no WHAs would be allocated.

Under Alternative C, no new artificial wildlife waters would be constructed, and existing wildlife waters that are ineffective in achieving targeted wildlife management objectives would be removed. The removal of ineffective wildlife developments would enhance naturalness.

Conversely, impacts on naturalness would result if encroaching human activities restrict wildlife movements to and from existing water sources and populations decline in response. Overall,

implementation of Alternative C poses greater contributions to the naturalness of wilderness areas than does Alternative B, while there would be few discernible differences in impacts compared to Alternative A. Overall impacts would be negligible.

4.18.5.3 Sonoran Desert National Monument

Areas of Critical Environmental Concern

No ACECs are allocated in this Alternative for the SDNM. The Monument's proclamation provides the necessary protection that an ACEC would provide.

From Lands & Realty on National Byways

Only minor impacts are anticipated on the Arizona State Route 238 National Scenic byway from the installation of additional underground utilities within the Santa Rosa - Gila Bend utility corridor. The corridor is already impacted by roads, railroad tracks, power lines and underground cables. Additional installations would not be greatly noticeable except by the most perceptive visitor. Impacts would be negligible to minor.

From Livestock Grazing on National Byways

Highway 238 Scenic Byway traverses through the Monument. However, this highway is currently fenced on both sides, so impacts from livestock grazing would be negligible. Many of the current facilities related to livestock operations (corrals, windmills, etc.) provide scenic historic structures that enhance the cultural enjoyment of the highway.

From Recreation Management on National Byways

Impacts are anticipated to be negligible.

From Special Designations on National Byways

There would no impacts on Areas of Critical Environmental Concern, wilderness areas or the Anza NHT from Arizona State Route 238 being designated as a National Scenic Byway under Alternative C.

From Travel Management on National Byways

Impacts are anticipated to be negligible.

From Visual Resources on National Byways

Lands north of Arizona State Route 238 would be managed to a VRM Class II standard, thus ensuring additional protection to scenic, natural and recreational benefits and outcomes. Impacts would be negligible.

From Minerals Management on National Historic Trails

Impacts would be the same as those described under Alternative A for the Monument.

From Recreation Management on National Historic Trails

Impacts would be the same as those described under Alternative B for the Monument.

From Special Designations on National Historic Trails

Impacts would be the same as those described under Alternative C for the Lower Sonoran.

From Travel Management on National Historic Trails

Impacts would be the same as those described under Alternative A for the Monument, except for a slight reduction of the number of routes. The reduction of motorized routes may have a beneficial effect on the Anza NHT resources and Monument objects as there may be fewer places where impacts would occur. Impacts would range from minor to moderate.

From Visual Resources on National Historic Trails

The Anza NHT corridor is a Monument object running through both VRM Class III and Class II areas. Management of this high potential segment of the Anza NHT corridor in VRM Class III (approximately 52 percent of the trail area in the Monument) would impact NHT resources by allowing visual intrusions on the landscape and associated ground-disturbing activities at a level which would quickly deteriorate its integrity. Management at this level would allow activities and developments that are incompatible with a NHT, at a moderate to major level of intensity, over the long term.

The areas of the Anza NHT within the center areas of the SDNM, roughly 41 percent of the trail area in the Monument, would be managed at a VRM Class II, which would have a far more beneficial effect on the essential characteristics and attributes of a NHT. Management of activities and developments would be more restrictive in terms of visual intrusions and ground-disturbing activities on the historic landscape, leading to a more protection of the NHT resources and associated Monument objects, at a minor to moderate level of intensity. This management regime would be far more protective of the Anza NHT and its associated Monument objects than under Alternative A.

From Wilderness Characteristics on National Historic Trails

Impacts would be negligible, as no lands managed to protect wilderness characteristics would be allocated within or near the NHT boundaries.

From Wildlife and Special Status Species Management on National Historic Trails

Impacts would be the same as those described under Alternative A for the Monument.

From Cultural and Heritage Resources on Wilderness Areas

In the SDNM, a cultural SCRMA would be located along the Anza NHT bordering the North Maricopa Wilderness. Future site development for public interpretive and educational purposes, excavation for scientific study, or other similar activities could have minor indirect impacts on naturalness when or if such developments or excavations are observable from the adjoining wilderness.

Implementation of Alternative C measures for cultural and heritage resources across the SDNM's three wilderness areas would likely contribute to naturalness to a greater degree than would Alternatives A and B due to increased emphasis on resource protection and less emphasis on development or management for public visitation. Impacts would be negligible.

Lands & Realty on Wilderness Areas

Additional underground utility installations within the 0.5-mile wide corridors would not impact the naturalness or solitude of the Monument's wilderness areas. All potential utility installations would be underground; therefore, impacts would be negligible to minor.

From Livestock Grazing on Wilderness Areas

Impacts would be similar to those described under Alternative A, except no ephemeral grazing would occur except occasionally on the Arnold Allotment, which is designated as ephemeral only and would not be affected by the reclassification of allotments. This re-classification would enhance naturalness in the long term as ephemeral forage would not be removed and would become available to wildlife. Additionally, under Alternative C, 44,800 acres in the SDNM are proposed to be fenced to prohibit livestock grazing. Impacts from this fencing would be similar to those described under Alternative B for the SDNM, except to a much lesser degree because the fencing would incorporate existing fences and topographic features, such as rocky outcrops and cliffs. These fencing mitigations would decrease impacts on wilderness resources from minor (Alternative B) to negligible. The sight, sound, smells and other impacts from large ephemeral turnouts on the SDNM would not occur, enhancing naturalness and maintaining opportunities for primitive recreation in a more natural appearing and untrammeled environment. Compared to Alternatives A and B, Alternative C would have proactive contributions to naturalness, solitude and primitive recreation values. Impacts would be negligible to minor.

From Recreation Management on Wilderness Areas

Impacts are similar to Alternative B from management of the SDNM ERMA. Pedestrian and equestrian recreational access to the SDNM from public, state and private lands would be more restricted than under Alternative A and B, limited to established access points. Equestrian users would be required to remain on designated routes within 0.5 mile of these designated access points increasing the travel time and ease of access to the Monument's wilderness areas.

Conversely, the proposed access actions would potentially reduce impacts on wilderness areas adjacent to federal, state and private lands. Impacts would be minor.

From Special Designations on Wilderness Areas

There would be no impacts on wilderness areas from Arizona State Route 238 being designated as a National Scenic Byway under Alternative C. Any potential impacts would be negligible.

From Travel Management on Wilderness Areas

Implementation of Travel Management actions under Alternative C would have moderate, but indirect, contributions to naturalness and opportunities for solitude and primitive, unconfined recreation of

designated wilderness to a greater degree than would implementation of Alternatives A and B. Overall, impacts would be localized. Alternative C would restrict motorized use on about 211 miles of roads/primitive roads otherwise open to motorized use under Alternative A, and about 75 miles that would be open under Alternative B. Where these route restrictions to motorized travel correspond to the boundaries of designated wilderness, long-term retention or augmentation the wilderness values of naturalness and outstanding opportunities for solitude and primitive, unconfined recreation would result. Instances of motorized trespass and recreation-related camping and staging impacts would be reduced.

From Visual Resources on Wilderness Areas

Alternative C would offer major positive, but indirect, impacts on wilderness areas. All lands adjacent to existing wilderness in the SDNM would be allocated as VRM Class I or Class II. Management to preserve or retain the existing character of these adjacent landscapes would, to the greatest extent, offer supplemental protection for wilderness area's scenic and natural values.

From Wilderness Characteristics on Wilderness Areas

Areas adjacent to South Maricopa Mountains Wilderness Area (west of the Wilderness and north of I-8) would be allocated as lands managed to protect wilderness characteristics. This would result in restrictions to certain types of land use and development activities, which would indirectly contribute to the resource values of the adjacent wilderness area. Opportunities for solitude would be enhanced, areas open to hiking and hunting in a wild setting would be increased, and natural conditions would be retained over a larger area of Sonoran Desert outwash landscapes.

Major indirect positive impacts are expected.

From Wildlife and Special Status Species Management on Wilderness Areas

Impacts would be the same as those described under Alternative C for the Lower Sonoran, except that no WHAs would be designated within the SDNM. The Monument proclamation protects many of the natural resources proposed for protection in the WHAs, thus the impacts are similar.

Impacts would be negligible.

4.18.6 ALTERNATIVE D

Under Alternative D, special designations would include six wilderness areas. In the Lower Sonoran, an area of approximately 48,500 acres would be designated as the Saddle Mountain ACEC (to include the Palo Verde Hills) to protect geology, native vegetation and wildlife, including desert bighorn sheep, desert tortoise, and raptor species, cultural resources, and outstanding landscape and scenic features. Instead of the Coffeepot Botanical ACEC, an approximately 77,600-acre area would be designated as the Coffeepot Batamote ACEC to protect habitat for lesser long-nosed bat and Acuña cactus, the outstanding biological diversity of the native plant communities, desert bighorn sheep, and other diverse wildlife populations. This area would include the area of the former Coffeepot Botanical ACEC. An approximately 58,500-acre area would be designated as the Cuerda de Lena ACEC to protect the endangered Sonoran pronghorn as well as to protect habitat for other wildlife species including cactus ferruginous pygmy-owl and to protect cultural resources. An approximately 82,500-acre area would be

designated as the Lower Gila Terraces and Historic Trails ACEC to manage the Gila River and terraces, Butterfield Overland Stage Route, Mormon Battalion Trail, Painted Rock Petroglyph Site, and associated areas to protect cultural resources.

In the SDNM, the Vekol Valley Grassland ACEC designations would be removed and the area would be managed in accordance with the terms of the SDNM proclamation. The Juan Bautista de Anza NHT would be managed in concert with the Lower Gila River Terraces and Historic Trails ACEC and the management emphasis would be on protecting cultural resources while providing limited scientific research interpretive opportunities. Agua Caliente Road in the Lower Sonoran and SR-238 and I-8 in the SDNM would be allocated as national scenic or Backcountry Byways under Alternative D.

Special designations for Alternative D are identified on Map 2-16d.

4.18.6.1 Both Decision Areas

Areas of Critical Environmental Concern

No unique impacts.

National Byways

No unique impacts.

From Air Quality on National Historic Trails

Impacts would be the same as those described under Alternative C for both Decision Areas.

From Cultural and Heritage Resources on National Historic Trails

Activities proposed under Alternative D for the Lower Sonoran from cultural and heritage resources are limited in scope and nature, therefore, would have a negligible impact on NHTs.

From Lands & Realty on National Historic Trails

Impacts would be the same as those described under Alternative B for the Lower Sonoran.

From Livestock Grazing on National Historic Trails

Livestock grazing would be closed throughout both Decision Areas, resulting in negligible effects on the NHT, as there would be no surface disturbances from grazing within the NHT's boundaries, thus assisting the execution of NHT goals and objectives.

Wilderness Areas

No unique impacts.

4.18.6.2 Lower Sonoran

From Lands & Realty on Areas of Critical Environmental Concern

The El Paso Natural Gas (Ajo) utility corridor would be removed from this alternative and all LUAs would be excluded, including utility-scale renewable energy development, which would reduce habitat fragmentation from occurring within the Coffeepot Batamote ACEC. All public lands within the ACEC would be retained. Moderate impacts would be expected.

Within the Cuerda de Lena ACEC all LUAs would be prohibited, as the ACEC is allocated as a LUA Exclusion Area. This would prohibit land-disturbing activities from occurring that could threaten ACEC values. Impacts would be moderate.

Within the Lower Gila River Terraces and Historic Trails ACEC all LUAs (including utility-scale renewable energy development) would be prohibited, as the ACEC is allocated as a LUA Exclusion. All federal lands would also be retained, thus assisting the management objectives for allocating this ACEC. Impacts would be moderate to wildlife, cultural, and historic trail resources.

Lands that are not currently under public ownership would be acquired and public lands would be retained within the Saddle Mountain ACEC. This would have minor impacts on wildlife due to the fact that there is a very small amount of state and private lands within the ACEC. LUAs would be excluded in the ACEC, utility-scale renewable energy development would be prohibited, and the Palo Verde to Devers multiuse utility corridor would be removed. These actions would present positive moderate impacts on the management of this ACEC. Major linear LUAs can still be authorized in the El Paso Natural Gas corridor, which is retained in this alternative and would also be a continuation of existing management actions.

From Livestock Grazing on Areas of Critical Environmental Concern

Coffeepot Batamote, Cuerda de Lena, Lower Gila River Terraces and Historic Trails, and Saddle Mountain ACECs would be closed to livestock grazing to protect the outstanding botanical resources. Closing the ACEC to grazing would allow vegetation to reach desired plant communities and reduce competition between wildlife and cattle for food, water, and space resources. Fencing and facilities (i.e. corrals, etc.) related to the grazing operation would be removed on a case-by-case basis. Through removal of these facilities, wildlife could move unencumbered with the ACEC; however, if water sources are removed, wildlife may vacate areas that have traditionally held water for livestock. This action of water removals could be detrimental to wildlife in the local area. These activities would also have a protective effect on any cultural resources by preventing livestock activities that could damage any cultural resources from occurring. Impacts on ACEC values would be expected to range from negligible to major.

From Minerals Management on Areas of Critical Environmental Concern

Coffeepot Batamote, Cuerda de Lena, Lower Gila River Terraces and Historic Trails, and Saddle Mountain ACECs would be withdrawn to locatable minerals; however, valid existing rights would be allowed to continue. Where appropriate, surface disturbance would be minimized through plans of operation, adaptive management, and BMPs. The ACECs would also be closed to leasable minerals and

unavailable to mineral material disposals. These actions would retain or improve habitat and limit disturbance to wildlife and cultural resources by not allowing minerals development. Moderate impacts on ACEC values are expected to occur.

From Recreation Management on Areas of Critical Environmental Concern

The Coffeepot Batamote ACEC would be allocated within the Ajo Desert RMZ ERMA. The ACEC is mostly backcountry and a small portion of front country in the western part. The SRMA would be managed for remote self-directed and unstructured opportunities to discover the areas resources and scenic landscapes, thereby protecting the natural resource values of the ACEC as well. Management of recreation use in the ERMA generally would not provide structured recreation opportunities except where needed to compliment other management objectives. Impacts would be expected to range from negligible to minor.

Camping within the Cuerda de Lena ACEC would be limited to dispersed and undeveloped sites. By limiting camping in this manner, negligible to minor impacts on wildlife are expected to occur. Limiting other forms of recreation would be expected to have the same impact as camping. Overall impacts on wildlife and threatened and endangered species within the ACEC would be expected to range from negligible to minor.

Within the Lower Gila River Terraces and Historic Trails ACEC, recreation would be encouraged and managed to levels appropriate to protect the ACEC's cultural resources and habitat for wildlife. ERMAs and settings would be established to simultaneously enhance visitor settings and protect the integrity of the ACEC's resources and habitats. Impacts would be expected to range from negligible to minor.

Recreational routes would be prohibited in washes within the Saddle Mountain ACEC where conflicts with wildlife would likely occur. Mitigation, adaptive management, and BMPs would be utilized to avoid harassment and long term displacement of wildlife associated with recreational routes. This would have minor impacts on wildlife in the area. Areas within the ACEC could be closed or access limited to motorized vehicles where conflicts with wildlife could not be mitigated. Adaptive management and BMPs would be utilized to avoid harassment and long term displacement of wildlife. Minor impacts on wildlife are expected. Nonmotorized trails could be constructed within the ACEC as long as mitigation, adaptive management, and BMPs are utilized to avoid harassment and long term displacement of wildlife. There would be minor impacts wildlife from the construction on nonmotorized trails with mitigation. Motorized recreational speed events, such as endurance motocross racing, would be prohibited within the ACEC. These speed events have the potential harm, harass, or cause mortality to wildlife in the area. By prohibiting these types of recreational activities, negligible to minor impacts on wildlife are expected to occur.

From Soil Resources on Areas of Critical Environmental Concern

Impacts on the ACECs would be the same as those described under Alternative B for the Lower Sonoran.

From Special Designations on Areas of Critical Environmental Concern

Under Alternative D, an area of approximately 7,600 acres of public lands would be designated as the Coffeepot Batamote ACEC to protect habitat and populations of the endangered Acuña cactus. All public lands within the ACEC would be retained. New LUAs, including utility-scale renewable energy development, would be excluded from the ACEC to reduce habitat fragmentation within the ACEC. Utilities would be required to be installed underground within the existing multi-use utility corridor to retain the unencumbered viewshed and reduce the amount of further fragmentation exterior the existing utility corridors. LUAs would be excluded from the remaining area to retain habitat connectivity and natural settings associated with the ACEC. Overall impacts on wildlife and threatened and endangered species are expected to range from negligible to minor which would be an improvement as compared to Alternative A.

The proposed Cuerda de Lena ACEC encompasses approximately 58,500 acres of public lands. This ACEC is proposed to protect habitat for the endangered Sonoran pronghorn as well as protect habitat for other wildlife species, including the cactus ferruginous pygmy-owl. A vast majority of the ACEC is public land with approximately 70 acres of private land and approximately 640 acres of state land. It is recommended that lands not in public ownership be acquired to further protect habitat for the Sonoran pronghorn as funding and opportunities arise. Overall impacts wildlife and threatened and endangered species within the ACEC would be expected to range from negligible to minor, which would be an improvement as compared to Alternative A.

Under Alternative D, the proposed Lower Gila River Terraces and Historic Trails ACEC would encompass approximately 82,500 acres of public lands. The intent of the ACEC would be to protect cultural and historic trails and increase habitat availability by limiting surface disturbing activities within its boundaries. Route designation and the criteria used for minimization would decrease impacts on wildlife and cultural resources by allowing IDTs to evaluate and reduce the amount of roads, trails, and routes that would be in conflict with wildlife management goals and objectives. Overall impacts on wildlife and cultural and historic trail resources would be expected to be negligible to minor, which would be an improvement as compared to Alternative A to this area. The development of interpretive sites along the Anza Trail may have a minor to moderate impact the ACEC and its wildlife and cultural resources due to the expected increase in human visitation.

Under Alternative D, the proposed Saddle Mountain ACEC would encompass approximately 48,500 acres. The intent of the ACEC would be to increase habitat availability by limiting surface disturbing activities within its boundaries, with a focus on bighorn sheep habitat conservation. Route designation and the criteria used for minimization would decrease impacts on wildlife by allowing IDTs to evaluate and reduce the amount of roads, trails, and routes that would be in conflict with wildlife management goals and objectives. Overall impacts on wildlife would be expected to be negligible to minor, which would be an improvement as compared to Alternative A to this area.

From Travel Management on Areas of Critical Environmental Concern

A portion of the Coffeepot Batamote ACEC would be designated closed to motorized use, and motorized use within the remaining portion of the ACEC would be limited to designated routes. Certain routes would be designated as closed to motorized use. These include the segments of routes within the braided wash northwest and southeast of Coffeepot Well, as well as duplicative and spur routes within

the former ACEC area. Within the expanded ACEC area, most of the route closures would be either duplicative or the spur routes in the western portion of the ACEC between Ajo and the Batamote Mountains. Routes that would be designated as closed include routes that are in Ten Mile and Sikort Chuapo, and Darby Arroyo washes or their tributaries. The route network located east of the Batamote Mountains that is interconnected with the BGR East road network would also be designated as closed. A better-established route from the Gas Pipeline Road to the southeastern foothills of Batamote Mountains would remain designated as open. Certain routes within the ACEC would be designated as administrative use only. Impacts would be expected to range from negligible to moderate.

Cuerda de Lena ACEC would either be closed or limited to designated routes, depending on location within the ACEC. It is proposed that the Cuerda de Lena ACEC be closed to public entry from March 15th through July 15th in accordance to the Sonoran pronghorn recovery team recommendations. This closure to entry to the public allows the pronghorn females to birth uninterrupted, allows new born pronghorn the opportunity to wean without distractions, and allows male pronghorn the ability to seek females for procreation undisturbed. By closing the area to public entry during this timeframe, few impacts on the Sonoran pronghorn are expected. This closure would also assist the lesser long-nosed bat in foraging without human disturbance from the general public and allow the cactus ferruginous pygmy-owl to breed, hunt, and brood uninterrupted. Closing areas would prevent OHV activities from damaging ACEC values. Overall impacts would be expected to be negligible to moderate.

Impacts are expected to be negligible on the Lower Gila Terraces and Historic Trails ACEC and the Saddle Mountain ACEC. OHV use within the ACECs would either be closed or limited to designated routes, depending on location within the ACEC. Closing areas would prevent OHV activities from damaging ACEC values. The reduction of the number of routes under this alternative would have a protective effect on the cultural and historic trail resources. This is expected to be negligible to moderate.

From Vegetation Resources on Areas of Critical Environmental Concern

Impacts on ACECs are similar to those described under Alternative B for the Lower Sonoran.

From Visual Resources on Areas of Critical Environmental Concern

Under this alternative, the Batamote ACEC would be expanded south past HWY 85 and encompass approximately 77,600 acres. The majority of the Coffeepot Botanical ACEC would be assigned to VRM Class II. The highway and the southernmost portion would be assigned as Class III. Associated restrictions on development/use would protect the scenic and natural landscape values of the ACEC, as well as protect the other resource values of the ACEC. Impacts would be expected to range from negligible to minor.

The Cuerda de Lena ACEC encompasses approximately 8,500 acres. The majority of the ACEC would be assigned as VRM Class II. The area along HWY 85 would be assigned as Class III. The proposed ACEC was designed to protect habitat for the endangered Sonoran pronghorn. VRM restrictions would enhance habitat for the pronghorn by reducing visual obstructions in areas utilized by the pronghorn within Class II VRM areas. Impacts would be expected to range from negligible to minor.

Lower Gila Terraces and Historic Trails ACEC in its entirety encompasses approximately 82,500 acres. Under this Alternative, VRM Class II and III classifications would be assigned. A majority of the ACEC contains VRM Class II and some Class III to a lesser degree. This would be a more protective designation than under Alternative A. The proposed VRM classifications would assist in protecting habitat along the Fred J. Weiler Green belt to assist in the management of migratory birds as well as terrestrial and aquatic species. Impacts are expected to range from negligible to minor.

These class II designations would indirectly affect cultural and historic resources by eliminating the scope and visual impact of development in the ACEC. Expected impacts on cultural resources are minor to moderate.

The Saddle Mountain ACEC encompasses approximately 48,500 acres. The majority of the ACEC is proposed as VRM Class II and VRM Class III along two pipelines within the ACEC. This would be a more protective designation than under Alternative A. The Class II assignment would reduce the amount of visual obstructions within the ACEC and could benefit wildlife by reducing areas of avoidance created by visual obstructions. Impacts would be expected to range from negligible to minor.

From Water Resources on Areas of Critical Environmental Concern

Impacts would be the same as those described under Alternative C for the Lower Sonoran. Impacts are expected to range from negligible to minor Historic Trails ACEC and Saddle Mountain ACEC.

From Wilderness Characteristics on Areas of Critical Environmental Concern

The majority of the Coffeepot Batamote-Sauceda ONA ACEC would be allocated as lands managed to protect wilderness characteristics. These lands would be managed to minimize surface-disturbing activities. Impacts are expected be minor.

A portion of the Cuerda de Lena ACEC would be allocated as lands managed to protect wilderness characteristics. These lands would be managed to minimize surface-disturbing activities. Impacts are expected to be minor.

The majority of the Cuerda de Lena ACEC would be allocated as lands managed to protect wilderness characteristics. These lands would be closed to mineral entry and location under Alternative D, protecting them from surface disturbing activities. Impacts are expected to range from negligible to minor.

A small portion of the Lower Gila Terraces and Historic Trails ACEC would be allocated as lands managed to protect wilderness characteristics. These lands would be managed to minimize surface-disturbing activities. Impacts are expected to be minor.

The Saddle Mountain ACEC would be allocated as lands managed to protect wilderness characteristics. These lands would be managed to minimize surface-disturbing activities. Impacts are expected to be minor.

From Wildlife and Special Status Species Management on Areas of Critical Environmental Concern

Overall impacts would be expected to range from negligible to major. Impacts on the Coffeepot Batamote ACEC would be the same as those described under Alternative C for the Lower Sonoran.

It is proposed that the Cuerda de Lena ACEC be closed to public entry from March 15th through July 15th in accordance to the Sonoran pronghorn recovery teams' recommendations. By closing the area to public entry during this time frame, negligible impacts on the Sonoran pronghorn are expected. This closure to entry to the public allows the pronghorn females to birth uninterrupted, allows new born pronghorn the opportunity to wean without distractions and allows male pronghorn the ability to seek females for procreation undisturbed. This closure would also assist the lesser long-nosed bat in foraging without human disturbance from the general public and allow the cactus ferruginous pygmy-owl to breed, hunt, and brood uninterrupted. Overall impacts would be expected to range from negligible to minor. on special status species in the Lower Gila River Terraces and Historic Trails and Saddle Mountain ACECs would be negligible.

National Byways

No national byways have been allocated under this alternative in the Lower Sonoran.

From Minerals Management on National Historic Trails

Under this alternative, an ACEC allocation would include all of the non- SDNM areas and would carry with it certain restrictions. These restrictions of no saleables and No Surface Occupancy under the leasable program would have a far more protective effect than under Alternative A, at a minor to major level both directly and indirectly due to the reduction or elimination of surface disturbing activities associated with mineral exploration, development, and extraction for the long term.

From Recreation Management on National Historic Trails

Impacts would be the same as those described under Alternative B for the Lower Sonoran.

From Special Designations on National Historic Trails

The existing Juan Bautista de Anza National Historic Trail designation with its Comprehensive Management Plan (NPS) in the implementation phase may affect directly the Trail segments and sites associated with it for the long term due to its status as a nationally important resource. Management of the National Historic Trail and its resources under an ACEC would have a farther reaching protective direct and indirect effect on trail resources at a minor to major level of intensity over the long term throughout the area than under Alternative A due to a very limited approach to the development of interpretive facilities and no surface disturbing installations of them.

From Travel Management on National Historic Trails

Impacts would be the same as those described under Alternative A, except for a much larger reduction in the number of routes. Fewer routes may have a beneficial effect on National Historic Trail resources as there may be fewer places where impacts would occur.

From Visual Resources on National Historic Trails

Impacts would be the same as those described under Alternative C for the Lower Sonoran.

From Wilderness Characteristics on National Historic Trails

Impacts would be the same as those described under Alternative C for the Lower Sonoran.

From Wildlife and Special Status Species Management on National Historic Trails

Impacts would be similar to Alternative A, except for additional restrictions outside of the Fred J. Weiler Greenbelt, but under the allocation of the Gila Bend Mountains Wildlife Habitat Area. These restrictions in the WHA of avoidance for saleable minerals and a No Surface Occupancy restriction for leasables would have a protective effect on the National Historic Trail resources at a minor to moderate level for the long term by either reducing or eliminating the ground disturbance from minerals prospecting, extraction, and associated vehicle damage.

From Cultural and Heritage Resources on Wilderness Areas

Implementation of Alternative D measures for cultural and heritage resources would likely contribute to naturalness to a greater degree than would Alternatives A, B, and C due to increased emphasis on resource protection and less emphasis on development for public visitation. Under Alternative D for cultural resource management, site allocation and management for resource protection would be emphasized. Sites currently available for public interpretation would be maintained, but additional sites would not be allocated to public use. No SCRMAs would be allocated in the Lower Sonoran. Impacts are still anticipated to be negligible.

From Lands & Realty Actions on Wilderness Areas

The entire Monument would be allocated as a LUA Exclusion area and no multiuse utility corridors would be allocated. The absence of multiuse utility corridors and new installations along the western boundary of the Sierra Estrella Wilderness would indirectly increase naturalness and opportunities for solitude within the north half of the Sierra Estrella Wilderness to a moderate degree over the long term. No additional power lines, pipelines and associated support infrastructure would be constructed within sight of this wilderness; thus current conditions would be maintained. Impacts would be negligible.

From Livestock Grazing on Wilderness Areas

Under Alternative D, all livestock grazing allotments would be closed to grazing when current permits expire. This action would result in moderate and long-term enhancements to naturalness as all forage allocated to livestock would become available to native wildlife. Moreover, vegetation trampling, barren sites surrounding waters, along fence lines and in staging areas, trailing, and vegetative breakage/damage would also be eliminated, along with the sight of abundant livestock waste. Such actions would result in increased contributions to naturalness and solitude when compared to Alternatives A, B, and C. Range developments for livestock would be removed, posing long-term detractions from naturalness as water sources used by native wildlife would no longer be available. Opportunities to view wildlife could

undergo major impairment or loss. On-the other-hand, removal of artificial waters developed by humans would, over the long-term, enhance the naturalness of the wilderness areas.

From Recreation Management on Wilderness Areas

Impacts would be similar to those described under Alternative A and B for the Lower Sonoran.

From Special Designations on Wilderness Areas

Impacts would be similar to those described under Alternative A for the Lower Sonoran.

From Travel Management on Wilderness Areas

Impacts would be similar to those described under the analysis for Alternative C for the Lower Sonoran.

From Vegetation Resources on Wilderness Areas

Moderate impacts on vegetative resources are anticipated under Alternative D. The curtailment of grazing would allow natural ecological processes to occur and be emphasized within the Signal Mountain and Woolsey Peak Wilderness Areas. Both ephemeral and annual grazing forage would be maintained for use only by wildlife. Passive restoration of surface disturbances would be emphasized under Alternative D, except where active restoration is required to stabilize sites. Use of native species in all active restoration projects would be required, and an integrated weed management program to control invasive species would be put into place. Moderate long-term contributions to naturalness would result from the use of native species and control of invasive species as limiting the spread of nonnative vegetation would reduce the size and intensity of wildfires, which in turn destroy native vegetation. Impacts in terms of contributions to naturalness due to these vegetation management actions would be similar to those under Alternative C, and greater than under Alternatives A and B.

From Visual Resources on Wilderness Areas

Wilderness areas would be slightly more protected from offsite visual impacts under Alternative D than in preceding alternatives. Public lands adjacent to the Woolsey Peak and Signal Mountain Wildernesses would be classified as VRM Class II. This classification would offer the wilderness areas more protection from indirect visual impacts. Public lands adjacent to the Sierra Estrella Wilderness would also primarily be classified as VRM Class II, although a portion of adjacent public lands along a major utility corridor would remain managed as VRM Class III. Public lands managed to Class III present a negligible to minor potential for off-site visual effects on the Sierra Estrella Wilderness.

From Wilderness Characteristics on Wilderness Areas

Allocated lands managed to protect wilderness characteristics in the Lower Sonoran would be next to the northwestern boundaries of the Woolsey Peak and Signal Mountain wildernesses, and near the southeastern boundary of the Woolsey Peak Wilderness. Minor protective contributions and enhancements to naturalness and opportunities for solitude and primitive, unconfined recreation would occur in those portions of wilderness areas adjacent to or near allocated lands managed to protect wilderness characteristics. Visitors would be afforded a much larger landscape where naturalness could

be appreciated and additional opportunities for outstanding solitude and primitive, unconfined recreation realized. Impacts would be negligible.

From Wildlife and Special Status Species Management on Wilderness Areas

In the Lower Sonoran, the Gila Bend WHA (255,700-acres), which would be inclusive of the Woolsey Peak and Signal Mountain Wildernesses, would be allocated to protect native vegetation and expansive, unfragmented wildlife habitat and movement corridors. The management decisions and impacts would be similar to those described in Alternative C, with the impacts potentially reaching the moderate level.

Under Alternative D, no new artificial wildlife waters would be constructed and existing wildlife waters would be removed. This would have two impacts. First, wilderness Areas may appear more natural overtime due to the removal of human installed wildlife infrastructure. Second, and on-the-other-hand, removal of waters may cause substantial population declines to bighorn sheep and other native wildlife populations in wilderness areas. These populations are reliant to such water sources. Removal would result in impacts on naturalness and a loss of outstanding wildlife viewing opportunities. Such actions under Alternative D would pose substantially greater minor to moderate detractions to naturalness from the removal of all wildlife water catchments compared to Alternatives A and C. In contrast to Alternative B, under which the density of wildlife water catchments would be increased, no net increase or decrease to naturalness would be discernible between the alternatives as both could lead to unnatural wildlife population levels.

Overall impacts would be negligible.

4.18.6.3 Sonoran Desert National Monument

Areas of Critical Environmental Concern

No ACECs are allocated in this Alternative for the SDNM. The Monument's proclamation provides the necessary protection that an ACEC would provide.

From Lands & Realty on National Byways

Impacts from Lands & Realty Management actions on the designation of Arizona State Route 238 and I-8 as National Scenic Byways would be negligible as the utility corridor is not brought forward for consideration in Alternative D. Conditions would remain as they are currently with no additional impacts. This action would have minor to moderate effects on the retention of scenic, natural, vistas and recreational opportunities along these byways.

From Livestock Grazing on National Byways

Impacts would be similar to those discussed under Alternative C except that no cattle would be permitted within the allotments. Related infrastructure would be removed on a case-by-case basis except for fencing along the right of way of Highway 238. This could impact the cultural value of the historic wells and corrals in the area. Impacts would be negligible to minor.

From Recreation Management on National Byways

Impacts on special designations from the designation of I-8 as a National Scenic Byway would be minor by affording some landscape and scenery management emphasis along the 10 miles of the South Maricopa Mountains Wilderness boundary next to the highway. Currently, except for the highway itself, the surrounding Sonoran Desert landscapes are exceedingly natural with wilderness to the north and uninterrupted vistas to the south. The impacts from Special Designations on the designation of Arizona State Route 238 as a National Scenic Byway would be negligible, as described under Alternative C.

From Special Designations on National Byways

Impacts on special designations from the designation of I-8 as a National Scenic Byway would be minor by affording some landscape and scenery management emphasis along the 10 miles of the South Maricopa Mountains Wilderness boundary next to the highway. Currently, except for the highway itself, the surrounding Sonoran Desert landscapes are exceedingly natural with wilderness to the north and uninterrupted vistas to the south. The impacts from Special Designations on the designation of Arizona State Route 238 as a National Scenic Byway would be negligible, as described under Alternative C.

From Travel Management on National Byways

Impacts are anticipated to be negligible.

From Visual Resources on National Byways

Impacts from VRM management actions on the designation of Arizona State Route 238 and I-8 as National Scenic Byways would be moderate as the surrounding lands would be managed under Class I visual prescriptions. The current conditions of naturalness, scenery, vistas, would be maintained on both sides of the South Maricopa Mountains Wilderness.

From Minerals Management on National Historic Trails

Impacts would be the same as those described under Alternative A for the Monument.

From Recreation Management on National Historic Trails

Impacts would be the same as those described under Alternative B for the Monument.

From Special Designations on National Historic Trails

Impacts would be the same as those described under Alternative D for the Lower Sonoran, except, no ACECs exists within the Monument that would provide the protection to NHT resources, therefore, similar management prescriptions for the NHT exist to provide similar protective direct and indirect effects on trail resources at a minor to major level of intensity over the long term.

From Travel on National Historic Trails

Impacts would be the same as those described under Alternative A for the Monument, except for a much larger reduction in the number of routes. Fewer routes may have a beneficial effect on the Anza

NHT resources and Monument objects as there may be fewer places where impacts would occur. Impacts would range from minor to moderate.

From Visual Resources on National Historic Trails

Under this alternative, allocation of the Anza NHT corridor and the associated Monument objects would lie in a narrow VRM Class II (approximately 67 percent of the trail area in the Monument) Management zone, surrounded on both sides by a management zone of VRM Class I (approximately 33 percent of the trail area in the Monument). Management of the narrow NHT corridor under a VRM Class II in the immediate, "foreground" landscape and VRM Class I in the remainder of the surrounding "middleground" to "background" landscape would have a far more beneficial effect than under Alternative A on the essential characteristics and attributes of a NHT. Management of activities and developments would be more restrictive in terms of visual intrusions and ground-disturbing activities on the historic landscape, leading to a more protection of the NHT resources and associated Monument objects, at a minor to moderate level of intensity.

This alternative would offer the highest level of protection from incompatible developments and visual intrusion upon this historic landscape. Intensity of these effects would be felt at a minor level within the SDNM over the long term.

From Wilderness Characteristics on National Historic Trails

Under this alternative, portions of allocated lands managed to protect wilderness characteristics would lie within the central boundaries of the NHT within the Monument. Prescriptions for avoiding the placement of new trails, restoration of disturbed areas, and minimizing the intrusions of new and existing developments within allocated lands managed to protect wilderness characteristics would offer an increased level of protection over Alternative A for a high potential segment of the Anza NHT, as a Monument object, and its associated resources. Impacts would be minor.

From Wildlife and Special Status Species Management on National Historic Trails

Impacts would be the same as those described under Alternative C for the Monument, except that there would be some additional restrictions on the use of heavy equipment which may minimize the level of direct effect on the Anza NHT and associated resources during construction or maintenance. Impacts would be minor.

From Cultural and Heritage Resources on Wilderness Areas

Impacts would be the same as those described under Alternative D for the Lower Sonoran.

From Lands & Realty on Wilderness Areas

No utility corridors would be designated in the SDNM and new utility installations would not be constructed along Arizona State Route 238 or I-8. Visual and scenic conditions would remain as they currently are. Potential visual impacts described under Alternatives B and C would not occur. Overall, this action would offer a slight visually protective influence on the South Maricopa Mountains Wilderness in the north and a moderate visual protective effect on the wilderness area's south side.

From Livestock Grazing on Wilderness Areas

Impacts would be the same as those described under Alternative D for the Lower Sonoran.

From Recreation Management on Wilderness Areas

Under Alternative D, recreation management and establishment of an ERMA would contribute to naturalness and opportunities for solitude and primitive, unconfined recreation to a greater degree than any other alternative, because the largest part of lands adjacent to the wilderness areas would be managed for nonmotorized recreational opportunities consistent with wilderness.

Impacts would be negligible to minor.

From Special Designations on Wilderness Areas

There are no impacts on wilderness areas from Arizona State Route 238 being designated as a National Scenic Byway under Alternative C. I-8 being designated as a National Scenic Byway would have moderate impacts on naturalness and solitude within the South Maricopa Mountains Wilderness. A protective management emphasis would be placed for preservation of scenic, cultural, historic and recreation values along this highway contributing to a unique travel experience through the Monument's Sonoran Desert landscapes, and maintain scenic and natural views, both within and outside the wilderness.

From Travel Management on Wilderness Areas

Under Alternative D, 11 motorized routes providing access to the wilderness areas, six motorized routes representing 17 miles of wilderness boundary, and two cherrystem roads representing 10-miles of wilderness boundary would be designated as closed to motorized vehicle use. This action would contribute to a moderate degree to naturalness and solitude in adjacent wilderness areas than would Alternatives A, B and C. Motorized trespass and indirect recreation and resource impacts would no longer occur along roads unavailable for public use.

From Vegetation Resources on Wilderness Areas

Impacts are the same as described under Alternative D for the Lower Sonoran.

From Visual Resources on Wilderness Areas

Compared to preceding alternatives, all lands adjacent to existing wilderness areas would be managed as VRM Class I. This classification would better preserve the existing natural character of landscapes next to wilderness, contributing an additional minor level of protection from off-site and indirect visual impacts on the wilderness. This effect, in turn, would protect the scenic and naturalness values of the wilderness areas.

From Wilderness Characteristics on Wilderness Areas

Three of the areas allocated as lands managed to protect wilderness characteristics in the SDNM would adjacent or near to the North and South Maricopa Wildernesses. Minor protective contributions and

enhancements to naturalness and opportunities for solitude and primitive, unconfined recreation would occur in those portions of wilderness areas adjacent to or near allocated lands managed to protect wilderness characteristics. Visitors would be afforded a much larger landscape where naturalness could be appreciated and additional opportunities for outstanding solitude and primitive, unconfined recreation realized. Indirectly, solitude and primitive recreation opportunities could be moderately enhanced as visitors seeking a wilderness-type experience would have more landscapes offering and protecting such opportunities than presented under Alternatives A, B, C and E.

From Wildlife and Special Status Species Management on Wilderness Areas

Impacts would be the same as those described under Alternative D for the Lower Sonoran, except that no WHAs would be designated within the SDNM.

4.18.7 ALTERNATIVE E (PROPOSED RMP)

Under Alternative E, special designations would include the Coffeepot Botanical ACEC (8,900 acres), Cuerda de Lena ACEC (58,500 acres), Lower Gila Terraces and Historic Trails ACEC (82,500 acres), and Saddle Mountain ACEC (48,500 acres). In the SDNM, the Vekol Valley Grassland ACEC designations would be removed and the area would be managed in accordance with the terms of the SDNM proclamation. Special designations for Alternative E are identified on Map 2-16e.

4.18.7.1 Both Decision Areas

Areas of Critical Environmental Concern

No unique impacts.

National Byways

No unique impacts.

From Air Quality Resources on National Historic Trails

Impacts would be the same as those described under Alternative C for both Decision Areas.

From Cultural and Heritage Resources on National Historic Trails

Impacts would be the same as those described under Alternative C for both Decision Areas.

From Lands & Realty on National Historic Trails

Impacts would be the same as those described under Alternative B for the Lower Sonoran.

From Livestock Grazing on National Historic Trails

Impacts could be the same as those described under Alternative A for both Decision Areas. Additionally, those parts of the Anza Trail corridor that fall within the proposed 44,800 acre cattle exclosure would realize positive impacts like those described under Alternative C.

Wilderness Areas

No unique impacts.

4.18.7.2 Lower Sonoran

From Lands & Realty on Areas of Critical Environmental Concern

The Coffeepot Botanical, Cuerda de Lena, and Lower Gila Terraces and Historic Trails ACECs would become an exclusion area for all LUAs, including utility-scale renewable energy development sites, thereby limiting surface disturbances that could affect ACEC values. Lands would also be retained, which would maintain consistent management of ACEC values across the area. Moderate impacts would be expected.

Impacts would be the same as those described under Alternative D for the Saddle Mountain ACEC, except conditions might slightly lessen as the Palo Verde to Devers multiuse utility corridor is still present under this alternative. Impacts would range from minor to moderate.

From Livestock Grazing on Areas of Critical Environmental Concern

Impacts on the Coffeepot Botanical ACEC would be the same as those described under Alternative A for the Coffeepot Batamote ACEC in the Lower Sonoran.

Under Alternative E, part of Cuerda de Lena ACEC within the Cameron Allotment would continue to be closed to grazing, and part of it would be available for perennial/ephemeral grazing. Parts of Lower Gila Terraces and Historic Trails ACEC and Saddle Mountain ACEC would be available for perennial, perennial/ephemeral, or ephemeral grazing.

Under Alternative E, the Saddle Mountain ACEC would be created. Livestock grazing within the Saddle Mountain ACEC would be managed to ensure the resource values are maintained and protected. Managing livestock grazing in this manner would allow the enhancement of habitat for wildlife species within the ACEC and reduce competition for resources needed by wildlife.

Perennial, perennial/ephemeral, or ephemeral grazing in the ACECs could have localized impacts on botanical resources by disturbing the ground surface or trampling vegetation, but these would be minimized through grazing management prescriptions. Livestock activities could also damage cultural resources in an ACEC. Livestock grazing would be managed to ensure the resource values of an ACEC are maintained and protected. Overall impacts from Alternative E would be expected to range from negligible to moderate.

From Minerals Management on Areas of Critical Environmental Concern

The Cuerda de Lena, Lower Gila River Terraces and Historic Trails, and Saddle Mountain ACECs would be closed to leasable minerals and unavailable to mineral material disposals. Where appropriate, surface disturbance would be minimized through plans of operation, adaptive management, and BMPs. Closing ACECs to minerals would retain habitat characteristics for wildlife species in the ACECs, reduce the amount of habitat fragmentation, and retain natural settings and cultural resources. Valid existing rights

would be respected; however, potential surface disturbance would be minimized through plans of operations, where appropriate. Impacts would be minor.

From Recreation Management on Areas of Critical Environmental Concern

Recreation management decisions would provide protection of resource values of the Coffeepot Batamote-Sauceda ONA ACEC in much the same way as described under Alternative D, with some elements of Alternative C. The proposed ACEC, however, would be within the Ajo ERMA. With the exception of motorized routes that would be within the passage setting, nearly the entire ACEC would be within the backcountry (62,500 acres, with only 500 acres in front country RMZ). Impacts from requiring equestrian and stock animal users with SRPs to use certified weed-free feed and encouraging others to provide weed-free feed for their animals would be the same as under Alternative C, which would slightly less protective of resource values in the ACEC than under Alternative D. Impacts from allowing paintball activities in certain areas that would likely be outside of ACECs would be the same as under Alternative C. Geocache sites would be prohibited in cultural resource sites of the ACECs, protecting cultural resource values of an ACEC. Impacts would be expected to range from negligible to minor. All camping (vehicle-based and primitive) would be limited to designated sites within an ACEC from February 1 to September 15 to protect pygmy-owls during the breeding, nesting, and dispersal season. Designating camping areas within an ACEC would allow the general public to utilize an ACEC while providing protections to the owl during life cycle requirements.

From Soil Resources on Areas of Critical Environmental Concern

Impacts on the ACECs would be the same as those described under Alternative B for the Lower Sonoran.

From Special Designations on Areas of Critical Environmental Concern

Impacts on the Coffeepot Botanical ACEC would be similar to Alternative B. Additionally, existing range improvements would remain in place unless the improvement is no longer needed for livestock operations or wildlife water distribution. Existing range improvements are not anticipated to result in new impacts on cacti. Negligible to minor impacts are anticipated.

Alternative E is similar to Alternative D. However, under Alternative E, the Cuerda de Lena ACEC would be closed to mineral material disposals. By closing the area to mineral material disposals, habitat would remain connected and available for wildlife use. Valid existing rights would be respected; however surface disturbance would be minimized through plans of operation where appropriate. Using plans of operations on existing rights foot prints of operations could be decreased in the ACEC to allow for habitat availability for all wildlife species. Impacts from Alternative E would be greater than D; however, overall impacts from the special designation would be expected to range from negligible to minor, which would be an improvement as compared to Alternative A.

The development of interpretive sites along the Anza NHT may have a minor to moderate impacts on the Lower Gila Terraces and Historic Trails ACEC. An increase in human visitation could provide greater opportunities for damaging cultural resources.

Impacts would be the same as those described under Alternative D for the Lower Gila Terraces and Historic Trails ACEC in the Lower Sonoran, except, under Alternative E, mineral material disposals would not be allowed within 500 feet of cliff faces to protect raptor nesting areas and important cultural sites. Impacts from Alternative E would be the same as Alternative D, which would be an improvement as compared to Alternative A. Overall impacts from the special designation would be expected to range from negligible to minor, which would be an improvement as compared to Alternative A for this area.

Impacts would be the same as those described under Alternative D for the Saddle Mountain ACEC, except livestock grazing would be managed to ensure the resource values of the ACEC are maintained and protected. Managing livestock grazing in this manner would allow the persistence of habitat for wildlife species within the ACEC and reduce competition for resources needed by wildlife. Overall impacts from Alternative E would be expected to range from negligible to minor, which would be an improvement as compared to Alternative A for this area.

From Travel Management on Areas of Critical Environmental Concern

OHV use within the Coffeepot Botanical and Saddle Mountain ACECs would either be closed or limited to designated routes, depending on location within the ACEC. Closing areas would prevent OHV activities from damaging ACEC values, resulting in moderate impacts.

OHV use within the Cuerda de Lena and Lower Gila Terraces and Historic Trails ACECs would be limited to designated routes. OHV activities could potentially alter ACEC values. Impacts would be expected to be negligible.

From Vegetation Resources on Areas of Critical Environmental Concern

Impacts on ACECs are similar to those described under Alternative B for the Lower Sonoran.

From Visual Resources on Areas of Critical Environmental Concern

Impacts on the Coffeepot Botanical ACEC are similar to those described under Alternative A for the Lower Sonoran.

The Cuerda de Lena ACEC would be assigned as VRM Class III. This would be a more protective designation than under Alternative A. The proposed ACEC was designed to protect habitat for the endangered Sonoran pronghorn. VRM restrictions could enhance habitat for the pronghorn by reducing visual obstructions in areas utilized by the pronghorn within Class III VRM areas. VRM Class III restrictions are not as stringent as Class II, allowing potential visual obstructions that may cause avoidance areas by the pronghorn. Impacts would be expected to range from negligible to moderate.

The Lower Gila Terraces and Historic Trails ACEC in its entirety encompass approximately 144,500 acres. Under this Alternative, VRM Class II and III classifications would be assigned for most of the ACEC. A majority of the ACEC contains VRM Class III and some Class II to a lesser degree. This would be a more protective designation than under Alternative A. The proposed VRM classifications would assist in protecting habitat along the Fred J. Weiler Green belt to assist in the management of migratory birds as well as terrestrial and aquatic species. Impacts are expected to range from negligible to moderate.

The allocation of VRM Class III would indirectly impact the integrity of historic trails, cultural resources, and historic landscape settings by allowing visual intrusions on the landscape. This would deteriorate the integrity of these heritage resources at a minor to moderate level of intensity.

The majority of the Saddle Mountain ACEC is proposed as Class III and IV. A small portion in the northwest would be VRM Class II. The VRM Class II assignment would reduce the amount of visual obstructions within the ACEC and could benefit wildlife by reducing areas of avoidance created by visual obstructions. The VRM Class III and VI designations would allow for more obstruction within the ACEC and could potentially create large avoidance areas for some wildlife species. Impacts would be expected to range from negligible to moderate.

From Water Resources on Areas of Critical Environmental Concern

Impacts would be the same as those described under Alternative C for the Coffeepot Botanical ACEC, Terraces and Historic Trails, and Saddle Mountain ACECs.

From Wilderness Characteristics on Areas of Critical Environmental Concern

Coffeepot Botanical ACEC lands would be allocated as lands managed to protect wilderness characteristics, which would be protective of the resource values of the ACEC. Impacts would be minor.

No lands managed to protect wilderness characteristics would be allocated in the Cuerda de Lena and Lower Gila Terraces and Historic Trails ACECs.

A small portion of the Saddle Mountain ACEC would be allocated as lands managed to protect wilderness characteristics, which would be protective of the resource values of the ACEC. Impacts would be minor.

From Wildlife and Special Status Species Management on Areas of Critical Environmental Concern

Although seasonal closures to avoid potential effects to cactus ferruginous pygmy-owl would be implemented under Alternative E in a slightly different manner than under Alternative C, both would be equally protective of the owl. Unlike Alternative C but similar to Alternative D, there would be no additional protection potential afforded though a natural resource allocation overlapping the Coffeepot Botanical ACEC.

Alternative E is similar to Alternative D except: under Alternative E: the Cuerda de Lena ACEC would be closed to mineral material disposals. By closing the area to mineral material disposals habitat would remain connected and available for wildlife use. Valid existing rights would be respected; however surface disturbance would be minimized through plans of operation where appropriate. Using plans of operations on existing rights foot prints of operations could be decreased in the ACEC to allow for habitat availability for all wildlife species. Impacts from Alternative E would be greater than D; however, overall impacts would be expected to range from negligible to minor.

Impacts from special status species would be negligible on the Lower Gila Terraces and Historic Trails ACEC and the Saddle Mountain ACEC.

From Lands & Realty on National Byway

Impacts would be the same as those described under Alternative C for the Lower Sonoran.

From Livestock Grazing on National Byway

Impacts from livestock grazing on the Agua Caliente Backcountry Byway would be the same as those described under Alternative B for the Lower Sonoran except that livestock numbers would remain at current levels. Impacts would be minor.

From Recreation Management on National Byway

Impacts would be the same as those described under Alternative C for the Lower Sonoran.

From Special Designations on National Byway

Impacts would be the same as those described under Alternative C for the Lower Sonoran.

From Travel Management on National Byway

Impacts would be the same as those described under Alternative C for the Lower Sonoran.

From Visual Resources on National Byway

Impacts would be the same as those described under Alternative C for the Lower Sonoran.

From Minerals Management on National Historic Trails

Impacts would be the same as those described under Alternative D for the Lower Sonoran.

From Recreation Management on National Historic Trails

Impacts would be the same as those described under Alternative B for the Lower Sonoran.

From Special Designations on National Historic Trails

Impacts would be the same as those described under Alternative D for the Lower Sonoran, except that some interpretive facilities would be developed. As additional interpretive media is developed for the trail, increasing visitation may impact the trail resources directly in a minor level by vehicle encroachment, and trampling. Affects would be far less than that expected under Alternative A due primarily to restrictions in place under the ACEC allocation.

From Travel Management on National Historic Trails

Impacts would be the same as those described under Alternative C for the Lower Sonoran.

From Visual Resources on National Historic Trails

Impacts would be the same as those described under Alternative D for the Lower Sonoran.

From Wilderness Characteristics on National Historic Trails

Impacts would be negligible, as no lands managed to protect wilderness characteristics would be allocated within or near the NHT boundaries.

From Wildlife and Special Status Species Management on National Historic Trails

Impacts would be the same as those described under Alternative D for the Lower Sonoran, except that the restrictions would overlap with NHT only in far fewer areas. Impacts are anticipated to be moderate.

From Cultural and Heritage Resources on Wilderness Areas

Impacts would be similar to those described under Alternative D for the Monument. Although the Gila River Terraces and Lower Gila Historic Trail SCRMA would not be allocated under Alternative D or E, the area would become an ACEC, providing similar protections. Similarly, although no SCRMA would be allocated the SDNM, the cultural resources would receive similar protection as under Alternative D.

From Livestock Grazing on Wilderness Areas

Impacts would be the same as those described under Alternative A for the Lower Sonoran.

From Recreation Management on Wilderness Areas

Impacts would be the same as those described under Alternative C for the Lower Sonoran.

From Special Designations on Wilderness Areas

Impacts would be the same as those described under Alternative C for the Lower Sonoran.

From Travel Management on Wilderness Areas

Impacts would be the same as those described under Alternative C for the Lower Sonoran.

From Vegetation Resources on Wilderness Areas

Decisions requiring use of native vegetation in restoration efforts, and measures to maintain populations of native sensitive species, would result in Alternative E's biological and ecological decisions contributing to naturalness to a minor, but slightly greater degree, than those offered under Alternatives A, B or C.

From Wilderness Characteristics on Wilderness Areas

The designation of 91,200 acres of the Lower Sonoran as lands managed to protect wilderness characteristics would have no impacts on wilderness areas; these areas are not in close proximity to designated wilderness.

From Wildlife and Special Status Species Management on Wilderness Areas

Management of the Gila Bend WHA in the Lower Sonoran would have impacts similar to those described for Alternatives C and D. This, in addition to decisions protecting core areas of wildlife habitat, emphasizing connectivity of wildlife habitat, removing ineffective wildlife water developments, requiring use of native vegetation in restoration efforts, and measures to maintain populations of native wildlife, especially sensitive species, would result in Alternative E's biological and ecological decisions contributing to naturalness and associated wilderness values to a greater degree than those under Alternatives A and B, and nearly equal to those of Alternatives C and D. Wildlife waters would be developed and maintained on a case-by-case basis and would have impacts similar to those described under Alternative A. Impacts would be negligible.

4.18.7.3 Sonoran Desert National Monument

Areas of Critical Environmental Concern

No ACECs are allocated in this Alternative for the SDNM. The Monument's proclamation provides the necessary protection that an ACEC would provide.

From Lands & Realty on National Byways

Impacts would be the same as those described under Alternative C in the Monument, except, impacts from lands and realty Management actions on the designation of Arizona State Route 238 and I-8 as a National Scenic Byway would range up to moderate due to visual impacts from the potential installation of underground utility installations and upgrades of the Interstate ROW. Such installations south of I-8 could have moderate impacts on the scenic, natural, vistas and recreational opportunities along this byway. Currently, except for the highway itself, the surrounding classic Sonoran Desert landscapes are exceedingly natural with wilderness to the north and uninterrupted vistas to the south.

From Livestock Grazing on National Byways

Alternative E proposes making Interstate 8 the "I-8 Scenic Byway." Because the interstate is already fenced, and no livestock grazing is permitted south of I-8, no impacts are expected from this proposal. Furthermore, impacts from livestock grazing on the Highway 238 Scenic Byway would be the same as those described under Alternative C. Impacts would be negligible to minor.

From Recreation Management on National Byways

Impacts would be the same as those described under Alternative C in the Monument, except, management actions on the designation of I-8 as a National Scenic Byway would be negligible.

From Special Designations on National Byways

Impacts would be the same as those described under Alternative C in the Monument, except, impacts on Special Designations from the designation of I-8 as a National Scenic Byway would be minor by affording some landscape and scenery management emphasis along 10 miles of the South Maricopa Mountains Wilderness next to the highway. Currently, except for the highway itself, the surrounding classic Sonoran Desert landscapes are exceedingly natural with wilderness to the north and

uninterrupted vistas to the south. The impacts from Special Designations on the designation of Arizona State Route 238 as a National Scenic Byway would be negligible, as described under Alternative C.

From Travel Management on National Byways

Impacts would be the same as those described under Alternative D in the Monument.

From Visual Resources on National Byways

Impacts from VRM management actions on the designation of Arizona State Route 238 would be the same as described under Alternative C, except impacts from VRM management on the designation of I-8 as National Scenic Byways would be potentially more adverse than Alternative D. Under Alternative D, the lands south of I-8 would be managed as VRM Class I areas; no noticeable visual disturbances would be allowed. Under Alternative E, the area would be managed under Class III prescriptions as a utility corridor. Impacts produced by installation of underground utilities for up to 0.5 mile south of the highway could moderately impair scenic vistas southward over the short-term. Mitigation, soil banking, narrow or restricted LUA widths, and large-scale plant restoration efforts would be needed to bring the impacts down to a minor intensity if the utility corridor was fully occupied by underground installations.

From Minerals Management on National Historic Trails

Impacts would be the same as those described under Alternative A for the Monument.

From Recreation Management on National Historic Trails

Impacts would be the same as those described under Alternative B for the Monument.

From Special Designations on National Historic Trails

Impacts would be the same as those described under Alternative D for the Monument, except that some interpretive facilities would be developed. As additional interpretive media is developed for the trail, increasing visitation may impact the trail resources and Monument objects directly in a minor to moderate level by vehicle encroachment, and trampling. Affects would be far less than that expected under Alternative A due primarily to restrictions in place.

From Travel Management on National Historic Trails

Impacts would be the same as those described under Alternative C for the Monument.

From Visual Resources on National Historic Trails

Impacts would be the same as those described under Alternative C for the Monument, except that VRM Class II management would be extended over about 31 percent of the Anza NHT in the Monument and its associated landscape and resources. This would have a protective effect on the Anza NHT to a minor to moderate level of intensity.

From Wilderness Characteristics on National Historic Trails

Impacts would be negligible, as no lands managed to protect wilderness characteristics would be allocated within or near the NHT boundaries.

From Wildlife and Special Status Species Management on National Historic Trails

Impacts would be the same as those described under Alternative A for the Monument.

From Cultural and Heritage Resources on Wilderness Areas

Impacts would be the same as those described under Alternative D for the Monument.

From Livestock Grazing on Wilderness Areas

Impacts would be the same as those described under Alternative C for the Monument except that perennial/ephemeral grazing would be permitted. Impacts would be negligible to minor.

From Recreation Management on Wilderness Areas

Impacts would be the same as those described under Alternative C for the Monument.

From Special Designations on Wilderness Areas

Impacts would be the same as those described under Alternative D for the Monument.

From Travel Management on Wilderness Areas

Potential impacts on wilderness areas from Travel Management under Alternative E would be slightly less than those described under Alternative D. Six miles of boundary road would be closed instead of the about 11-miles closed under Alternative D. Moreover, public use on five other wilderness access roads would be curtailed, as opposed to a total of 11 roads where access is cut under Alternative D. Overall, Alternative E provides more protection to wilderness values than Alternative A, B and C, and less protection than afforded by Alternative D.

From Vegetation Resources on Wilderness Areas

Impacts would be the same as those described under Alternative E for the Monument.

From Wilderness Characteristics on Wilderness Areas

Allocations to lands managed to protect wilderness characteristics under Alternative E would have no direct impacts on wilderness areas, with, by and large, impacts similar to Alternative C. Proposed wilderness character allocations are several miles south of I-8. Indirectly, solitude and primitive recreation opportunities could be slightly enhanced as visitors seeking a wilderness-type experience would have more landscapes offering and protecting such opportunities than presented under Alternatives A and B, and less than offered under Alternatives C and D.

From Wildlife and Special Status Species Management on Wilderness Areas

Impacts would be the same as those described under Alternative E for the Monument, except that no WHAs would be designated within the SDNM, as the Monument proclamation protects many of the natural resources intended for protection in the WHAs.

4.19 IMPACTS ON RECREATION MANAGEMENT

Impacts from alternate strategies for management of recreation and visitor services ultimately are about trade-offs in the potential outcomes experienced by visitors. Outcomes range from individual benefits (such as developing outdoor skills and abilities, greater self-reliance, and improved physical fitness) to group and community benefits (such as greater appreciation of cultural heritage, less juvenile delinquency, and enhanced lifestyle) and are produced by visitor experiences during recreation activities. The BLM provides settings in response to demand for recreation experiences and the benefits such experiences generate. Trade-offs in potential outcomes may be inferred from a) differences in opportunities and experiences anticipated to result from alternate management strategies; b) the objectives established to achieve those management strategies; and c) from the varying setting characters designed to provide the physical, social, and administrative environment in which recreation opportunities are offered and outcomes produced.

Impacts on recreation resources from alternate strategies for management of other resources, such as livestock grazing, designation of multiuse utility corridors, and wildlife habitat management, also affect visitor outcomes by influencing the settings in which recreation occurs. Setting character may range from the most primitive and undisturbed natural landscape where encounters with other visitors are rare (backcountry) to areas of highly developed sites that include paved access and parking, visitor centers, and other amenities, and where encounters with other visitors are commonplace (community interface). A description of prescribed setting character is provided in **Appendix Q**, Recreation Settings and Descriptions, and **Appendix R**, Special and Extensive Recreation Management Area Worksheets.

In the Lower Sonoran, more opportunities for beneficial outcomes would be produced through implementation of the action alternatives (B, C, D, and E) for the management of other resources as well as recreation resources – particularly for benefits such as increased individual and community awareness of cultural heritage resources, enjoyment of natural landscapes, enjoying exploration and risk-taking, and appreciating easy access to recreation opportunities. Under these alternatives, allocations for management of other resources would be complemented by management of the recreation resource as SRMAs and ERMAs.

Implementation of management actions for recreation resource under Alternatives B, C, or E would produce outcomes in slightly varying degrees based on relative proportions of front country and backcountry settings. Sharply contrasting opportunities for beneficial outcomes would be produced by implementation of Alternatives B, C, and E versus implementation of Alternative D. Alternatives B, C, and E would produce more opportunities for beneficial outcomes derived from development and interpretation of cultural heritage resources than would Alternative D, which would produce proportionately more opportunities derived from remote, undeveloped, backcountry experiences.

In the SDNM, Alternatives B, C, and E would allocate the SDNM to an ERMA managed to produce benefits for visitors derived from the objects and resources for which the Monument was established.

Alternative D would not allocate the SDNM to produce recreation outcomes. Setting character would ensure that access, facilities, and educational offerings would be minimal and support primitive recreation experiences derived from remote, largely pristine public lands throughout the SDNM Decision Area.

4.19.1 TARGET SHOOTING

Target shooting impacts were analyzed throughout the entire Monument. Locations for allowing or disallowing target shooting have been based on the findings from the target shooting analysis in **Appendix G**, Sonoran Desert National Monument Recreational Target Shooting Analysis.

4.19.2 METHODS OF ANALYSIS

Impact analysis and conclusions are based on IDT knowledge of the Planning Area and review of literature. Impacts on recreation resources and travel management activities are discussed separately unless otherwise specified. Both effects are quantified where possible, and, in the absence of quantitative data, qualitative effects are presented based on professional judgment.

4.19.2.1 Indicators

- Changes to the essential recreation opportunities and recreation setting characteristics (RSCs).
- Impediments to defined recreation activities and the associated qualities and conditions.
- Management actions that result in long-term elimination or reduction of basic recreation and visitor services and resource stewardship needs.
- Change in the availability, or area of availability, of types of recreation opportunities, particularly motorized and nonmotorized opportunities.

4.19.2.2 Assumptions

The following assumptions regarding the future management of recreation management are made.

- Over the planning period, demand for and use of recreational opportunities would increase on public lands. Motorized recreation would likely experience the greatest increase.
- The incidence of resource damage and conflicts among recreationists involved in mechanized, motorized, and nonmotorized activities would increase with increasing use of public lands.
- Following completion of these RMPs, comprehensive travel management plans would be prepared for the Decision Areas and would include public involvement, NEPA analysis, and the designation of routes in limited areas.

- Alternative A impact analysis applies the management terminology from the older Recreation Management Manual. Impact analysis in Alternatives B through E applies the terminology from the current Recreation Manual.

4.19.2.3 Program Areas with No Impacts on Recreation Management

There would be no impacts on recreation management from actions proposed under the following program areas:

- Vegetation Resources,
- Wild Horse & Burro Management

4.19.2.4 Qualitative Intensity Scale

The intensities of impacts are the same as those described in **Table 4-1**, Qualitative Terms for the Intensity of Impacts.

4.19.3 COMMON TO ALL ALTERNATIVES

4.19.3.1 Both Decision Areas

From Air Quality on Recreation Management

Management of air resources could have a major impact on recreation opportunities, settings, use levels, and management. Management of air resources could restrict recreation uses and activities in localized areas and impact recreation opportunities, settings, use levels, and management. This would result from the emission of fugitive dust from unpaved roads that affect attainment of Maricopa County air quality standards. Mitigation, restriction, or closure to recreation entry and travel could be used to correct fugitive dust violations, especially where public land recreation uses are adjacent to communities and residences, resulting in moderate to major impacts on recreation benefits and outcomes.

From Cave Resources on Recreation Management

Decisions to protect unique or significant cave and cave resources (if such resources are found) may increase opportunities for users to visit and learn about these resources. Certain localized areas could have specific restrictions intended to protect such resources that could restrict or displace certain uses. Overall impacts would be negligible over the long term.

From Lands & Realty on Recreation Management

Under all alternatives, there is a potential for conflict between the purpose of individual land use authorizations and the specific objectives of SRMAs and ERMAs. In the Lower Sonoran, utility-scale development of renewable energy projects would occur on a case-by-case basis and has the potential to displace recreational uses from up to 150,000 acres of public lands over the life of the plan (due to approximately 15 energy projects at 10,000 acres each).

From Minerals Management on Recreation Management

Most of the Lower Sonoran (except designated wilderness areas) would remain open for locatable and saleable mineral resource development. In ERMAs, mining could impact the BLM's ability to support and sustain the principal recreation activities and the associated qualities and conditions of the ERMA as a result of surface disturbance. Recreational settings could change corresponding to the scale of mining landscape modifications; however, site-specific mitigation measures identified during NEPA analysis would reduce long-term impacts on the natural landscape and restore recreational settings and related opportunities when the mining activity is completed. In SRMAs, leasable and mineral material disposal activities would need to comply with prescribed setting prescriptions; therefore, there would be little or no impact to recreation resources from those activities.

There would be no impacts from mineral management in the SDNM because the Monument is withdrawn from mineral entry.

From Paleontological Resources on Recreation Management

Decisions to protect unique or important paleontological and geological resources would increase opportunities for users to visit and learn about these resources. On the other hand, localized areas could have specific restrictions imposed that are intended to protect these resources that could restrict or displace certain uses. Impacts on paleontological and geological resources management are expected to be negligible over the long term.

From Hazardous Materials & Public Safety on Recreation Management

Recreation visits to public lands, especially dispersed uses, would continue to entail risk from natural and human hazards, including unmaintained vehicle routes, infrequent patrol, exposure to criminal activity, exposure to unsafe practices by other recreation users (particularly related to target shooting and OHV use), poisonous plants and animals, flash floods, and cliffs and mining shafts. Some visitors may realize enhanced benefits, such as a sense of challenge or exhilaration in exploring remote areas, from situations of relative risk; however, others with less inclination to enjoy risky adventures would experience fewer benefits as public lands would discourage visitation by these individuals. Impacts on public safety and access are expected to be minor, depending on the number of incidents during the long term.

For example, under all alternatives, visitors to the Sentinel Plain area may encounter unexploded ordnance (UXO) or other hazardous military hardware due to proximity to active US Air Force training areas. To provide for increased public awareness and safety, all entry into the area requires a mandatory permit, viewing of a safety video, a signed hold harmless agreement, and receipt of other user safety information. For some users, obtaining the permit could be viewed as cumbersome and detract from the experience. For others, the impact may be that they decide to recreate elsewhere. Impacts on public safety and access are expected to be minor, depending on the number of incidents during the long term.

Trash, litter, and hazardous materials could impact and displace recreation visitors from an area. Management decisions in all alternatives to mitigate such areas could help to restore recreation settings and provide renewed public access. If mitigation is warranted, including closing areas to entry, localized recreation opportunities could be lost. Impacts on recreation are expected to be minor depending on the number of incidents during the long term.

From Soil Resources on Recreation Management

Decisions related to avoiding and mitigating surface-disturbing activities to protect soil and water resources could restrict recreation uses and activities in localized areas. In the short term, major surface disturbances to soils could moderately impact the recreational experience; however, in the long term, impacts are expected to be negligible to minor.

From Special Designations on Recreation Management

Outstanding opportunities and natural settings for users to experience primitive, unconfined recreation and solitude would be maintained on 91,750 acres within the Sierra Estrella, Signal Mountain, and Woolsey Peak designated wilderness areas in the Lower Sonoran and on 157,700 acres within the Table Top, South Maricopa Mountains, and North Maricopa Mountains Wilderness Areas in the SDNM. In all alternatives, opportunities for nonmotorized recreational experiences would exist while motorized vehicle recreation experiences would not be allowed. These areas would continue to be managed under their existing wilderness plans. Impacts on opportunities for beneficial outcomes are expected to be negligible as no changes to these federal designations are foreseen.

From Travel Management on Recreation Management

The seasonal Sonoran pronghorn closure near the Gunsight Wash and Cuerda de Lena areas would only have minor impacts because other public lands nearby are available for dispersed recreation activities. Recreation opportunities in the Ajo block would be temporarily diminished through closing routes within washes from April 15th to August 31st to address forage, shelter, and thermal cover protection provided by washes as a component of wildlife habitat.

From Visual Resources on Recreation Management

Impacts from allocating designated wilderness to VRM Class I would be negligible. These areas are allocated to the backcountry setting and the degree of development for facilitated recreation opportunities would be low to none.

From Wildland Fire Management on Recreation Management

Managing for full suppression of all fires, in accordance with applicable conservation measures, would help maintain existing recreational settings, as would implementation of programs to reduce unwanted ignitions and emphasize wildfire prevention. Closures of localized areas during fire suppression activities and seasonally required special fire restrictions could limit recreational opportunities and uses in the short term. When such restrictions or closures are ordered, recreation opportunities are displaced or diminished, including public access, the use of vehicles and engines, campfires, and smoking. Impacts would be minor over the long term; however, depending on the number of acres that are affected, this intensity could change.

From Wildlife and Special Status Species Management on Recreation Management

The Cuerda de Lena area would be closed to public entry seasonally to protect Sonoran pronghorn habitat. Minor reductions to opportunities for beneficial outcomes would ensue. Seasonal closures

enacted due to conflicts with wildlife in wildlife movement corridors would reduce opportunities for beneficial outcomes. Depending upon the season and area, such impacts on recreation could be major (for example, if a seasonal closure occurred during the cool weather, high visitation period from October to April).

Recreation opportunities in the Ajo block would be temporarily diminished through closing routes within washes from April 15 to August 31 to address forage, shelter, and thermal cover protection provided by washes as a component of wildlife habitat.

4.19.4 ALTERNATIVE A (NO ACTION)

4.19.4.1 Lower Sonoran

From Cultural and Heritage Resources on Recreation Management

Allocation of individual cultural sites to the public use category on a case-by-case basis would increase, to a minor extent, the potential for increased visitation and education opportunities at specific sites. This would increase the likelihood of achieving benefits from experiences relating to the study or observation of cultural resources.

From Livestock Grazing on Recreation Management

Under Alternative A, grazing management could reduce opportunities for appreciation of natural landscapes to a minor degree due to trailing, bovine waste, and trampled vegetation at areas of livestock concentration, and from potential surface disturbances due to construction of new rangeland improvements such as fences cattle guards, and gates. Large numbers of cattle present in years of ephemeral use could potentially cause such impacts on opportunities for appreciation of natural landscapes to be moderate in intensity.

Conversely, grazing management provides opportunities for visitors to see and learn about diverse uses of the public lands and may enhance opportunities for appreciation of cultural heritage and public lands management to a minor degree.

From Recreation Management on Recreation Management

Under Alternative A, recreation resources would be actively managed in four SRMAs: Saddle Mountain, Gila Trail, Sentinel Plain Lava Flow, and Ajo. The remainder of the public lands in the Lower Sonoran Decision Area would be encompassed within ERMAs and managed in a custodial fashion. The four SRMAs would continue to be managed with current levels of motorized and nonmotorized access. Competitive speed events would remain authorized, based on site-specific conditions and concerns. Overall, with implementation of Alternative A, no change to the baseline recreation resource would occur and the impact to recreation would be negligible.

From Special Designations on Recreation Management

The Coffeepot Botanical ACEC and three wilderness areas (Woolsey Peak, Signal Mountain, and Estrella) would continue to provide major nonmotorized recreation benefits from appreciation of natural landscapes.

From Travel Management on Recreation Management

Under Alternative A, the existing travel system of 1,670 miles of routes open for motorized use in the Lower Sonoran would maintain existing motorized recreation opportunities throughout the Decision Area. More routes would be made available for public use under Alternative A than all other alternatives. As motorized recreational demand and uses increase, the frequency of conflicts between motorized and nonmotorized recreational users would likely increase to a moderate degree over the life of the RMP.

From Visual Resources on Recreation Management

Under Alternative A, approximately 78 percent of the Decision Area would be managed to Class III or Class IV VRM objectives. These standards allow for noticeable changes to the existing visual character of the landscape, potentially leading to visible surface disturbances and a gradual decline in scenic and natural qualities. Impacts on recreation, particularly experiences and benefits from appreciation of natural landscapes, would be minor to moderate depending on the area.

From Wilderness Characteristics on Recreation Management

No lands would be allocated as lands managed to protect wilderness characteristics under Alternative A. Approximately 250,000 acres of the Decision Area identified to have wilderness character would possibly lose all or part of that character over the life of the plan. Such loss would have moderate impacts on recreation from loss of opportunities for appreciation of natural landscapes.

4.19.4.2 Sonoran Desert National Monument

From Cultural and Heritage Resources on Recreation Management

Current management guidance does not include allocations, allowable uses, and management actions at the land-use plan level for cultural resources that interact with recreation allocations to produce targeted visitor outcomes. Allocation of cultural sites is handled administratively on a case-by-case basis, and only the area of the Anza NHT has been allocated as a SRMA (a portion of the Gila Trails SRMA). Under Alternative A, recreation opportunities derived from cultural resources would be produced on approximately 143,900 acres, or 30 percent, of the SDNM coinciding with the Gila Trails SRMA, yielding minor production of recreation benefits such as increased individual and community awareness of cultural heritage resources. Recreation benefits would not be produced from cultural resources on the remaining 70 percent of the SDNM as this area would not be managed as a SRMA and recreation resources would continue to be managed custodially in response to conflicts with cultural resources.

From Livestock Grazing on Recreation Management

Current management guidance allocates all or part of six livestock grazing allotments from public lands of the SDNM. Five of these allotments are "perennial-ephemeral," meaning a base herd is authorized for year-long grazing and in seasons of particularly high forage production, additional livestock grazing may be authorized. The sixth allotment is ephemeral grazing only. In the area of the Gila Trails SRMA, where recreation benefits would be actively managed and produced, livestock grazing during normal years would be expected to have negligible to minor impacts on such benefits as enjoyment of natural landscapes, appreciation of environmental benefits, and appreciation of cultural heritage resources. During years of above average annual precipitation, increased livestock grazing would have moderate impacts on such recreation-derived beneficial outcomes as the effects of grazing would be evident over a larger area, but still concentrated in specific areas. On approximately 342,500 acres, or 70 percent, of the SDNM where recreation activities would be managed custodially, impacts on the production of recreation benefits from livestock grazing would be minor.

From Recreation Management on Recreation Management

Implementation of Alternative A would carry forward current management guidance that allocates approximately 143,900 acres, or 29 percent of the SDNM to the "Gila Trails SRMA" with goals to provide facilities and maintenance, protect resource values, and provide visitor safety. In the area of the Anza NHT, facilities for visitation such as improved access, day-use and overnight activities, and education and interpretation of the natural and cultural values of the SDNM would be provided. The goals and objectives of the SRMA, and subsequent production of recreation benefits, would not be updated to provide active recreation management reflecting Proclamation 7397. On the remaining 70 percent of the SDNM, recreation resources would be managed custodially in response to conflicts arising from management issues other than recreation, and targeted benefits from recreation resources would not be actively produced. A moderate impact to recreation resources would occur from unresolved conflicts between users.

Under Alternative A, the impacts of recreational target shooting would be dispersed throughout the Monument; however, target shooting would continue in areas that are known to be unsuitable for this activity. Conflicts between shooters and non-shooters would also likely increase to a moderate degree as target shooting activities occurred over larger areas of the Monument. The lack of target shooting restrictions within the Monument would provide recreationists more opportunity for target shooting, therefore impacts on recreation would be minor.

From Travel Management on Recreation Management

Under current management guidance, 161,200 acres (or 33 percent of the SDNM) would remain closed to motor vehicles and unavailable for designation of vehicle routes. This would cause a minor impact to opportunities for attaining beneficial outcomes such as enjoying exploration and easy access to natural landscapes.

Under Alternative A, opportunities for attaining beneficial outcomes such as enjoying exploration, risk-taking, and easy access to natural landscapes would be reduced at a moderate to major degree. Of 632 miles of routes available for motorized use, approximately 568 miles, or 90 percent, would remain open for such use; however, a system of designated travel routes would not be placed into effect. This may

lead to substantial closures of routes from misuse and over-use as impacts on resources of the SDNM become unmanageable.

From Visual Resources on Recreation Management

Proclamation 7397 precludes management of the Monument such that major changes to the visual character of the landscape would occur; however, moderate change where direct and indirect impacts on the objects of the SDNM would be localized and not widespread would be acceptable. Under Alternative A, the total of VRM Classes III and IV (236,100 acres, or 49 percent) could be managed as VRM Class III, which allows for moderate change to the landscape. Benefit opportunities produced from active management of recreation resources, such as appreciation of natural landscapes, would potentially be reduced to a minor degree in the area of the Gila Trail SRMA because portions of the SRMA would be managed to VRM Class III standards. In that part of the SRMA managed to VRM Class II standards, and over the remainder of the SDNM, benefit opportunities derived from recreation resources would be impacted to a negligible degree, either because the higher standards of VRM Class II and Class I would preclude substantial impacts from management of visual resources, or because recreation resources would be managed custodially.

4.19.5 ALTERNATIVE B

4.19.5.1 Lower Sonoran

From Cultural and Heritage Resources on Recreation Management

Under Alternative B, major opportunities for beneficial outcomes, such as opportunities for individual and community awareness and appreciation of cultural heritage resources, would be realized in comparison to Alternative A. These beneficial outcomes would result from emphasis on the allocation of cultural sites for public use and maximizing the community interface and front country settings. These settings allow intense visitation and interpretive development, and allocation of sites to the public use category could lead to increased visitation and education opportunities. Development at three cultural public use sites (Butterfield West Site, Painted Rock Petroglyph Site, and Sundad) would produce opportunities for a variety of recreational experiences relating to the study or observation of cultural resources and heritage tourism. Access would be improved and sites would be stabilized and managed for future recreational opportunities.

From Livestock Grazing on Recreation Management

In comparison to Alternative A, livestock grazing would be perennial-ephemeral with fewer AUMs available annually. With fewer livestock seasonally, fewer impacts on recreation experience outcomes would be anticipated. Minor opportunities for beneficial outcomes, such as enjoyment of natural landscapes and appreciation of environmental benefits, would be realized.

From Recreation Management on Recreation Management

Alternative B emphasizes a targeted set of outcomes and desired recreation setting characteristics in five SRMAs. The widest range of diverse recreation opportunities, particularly related to motorized and

intensive recreation uses, would be provided under Alternative B. Relative to the other alternatives, fewer locations for primitive recreational experiences would be provided.

Alternative B includes many group use opportunities, a focus on developing cultural sites for heritage tourism, and developing interpretative sites for public education and appreciation. Under Alternative B, approximately 95,200 acres in the Lower Sonoran would be part of five designated SRMAs, acknowledging each area's unique value, importance, and distinctiveness. This equates to approximately 10 percent of public lands in the Lower Sonoran targeted for recreation management.

Through the allocation of RMAs with recreation outcomes, uses would be directed to appropriate areas, capable of supporting the use and would direct recreation development and management in an efficient manner. Management prescriptions such as route designations, visitor information and signing, visitor services development, user education, application of Tread Lightly practices, and active restoration efforts would help to maintain recreation settings and opportunities. Some visitors would discern more regulated and structured recreation environments than they have previously encountered on public lands and could perceive these circumstances negatively.

While many of the RMAs under Alternative B emphasize trail-based and motorized activities, about 45 percent of the public lands in the Lower Sonoran would be allocated to nonmotorized recreation opportunities in the backcountry setting where motorized use would be in the passage zone that provides motorized access to the backcountry. Other allocations include 34 percent in the front country setting and 9 percent in the community interface setting.

There would be five ERMAs in the Lower Sonoran decision area, each with its own specific management consideration in order to address recreation use, demand, or recreation program investments. Recreational settings could change over the long term in ERMAs due to increasing use, urban growth, and damage to natural resources, and increased vandalism. In general, opportunities for and use levels of OHV travel, vehicle-based camping, hunting, hiking, equestrian use, picnicking, cultural/historic study, photography, sightseeing, nature study, wildlife observation, and miscellaneous motorized-dependent activities would be maintained or increased under Alternative B. In contrast, backpacking, primitive camping, wilderness-dependent recreation, target shooting, sky watching/astronomy, mountain bicycling, and other nonmotorized opportunities and use levels would be the same as under Alternative A or could slightly decline over the long term due to a decrease of appropriate settings, other land use restrictions, and more overall human activity. Impacts would be negligible to minor.

From Special Designations on Recreation Management

Impacts on opportunities for beneficial outcomes, such as appreciation of cultural heritage resources, would be similar to those identified under of Alternative A because the Anza NHT would continue to be managed coincidentally with the Lower Gila Trails SRMA. Designation of a Backcountry Byway would result in increased benefits such as viewing natural scenery and appreciating the natural environment.

On the remainder of the Decision Area, production of beneficial outcomes (such as appreciation of cultural heritage resources) would also be similar to Alternative A; however, beneficial outcomes such as appreciation of naturalness, solitude, and primitive, unconfined types of recreation would be greater as 91,750 acres of wilderness would be managed coincidentally with SRMAs to produce these outcomes.

From Travel Management on Recreation Management

Moderate production of beneficial opportunities and outcomes, such as enjoying exploration, risk-taking, and easy access to natural landscapes, would result from travel management actions under Alternative B. Fewer miles of routes would remain open for motorized use compared to Alternative A (1,241 miles, or 74 percent of available routes, versus 1670 miles, or 99 percent); however, beneficial outcomes would be directly produced through management of approximately 70 percent of the Decision Area as SRMAs.

Alternative B offers a substantial and dedicated variety of both structured and unstructured trail-based and motorized opportunities. Managing 100 percent of the Decision Area as limited to designated routes would maintain opportunities for motorized recreation as in Alternative A. On the other hand, Alternative B would reduce the public use route network by 429 miles for a total of 1,241 miles, of which 180 miles would be subject to seasonal closures due to Sonoran pronghorn and cactus ferruginous pygmy-owl related restrictions, which would reduce overall motorized recreation opportunities. Alternative B also emphasizes the opportunities and identifies potential locations for additional road development focused on increased motorized recreational access and opportunities. Accordingly, as compared to Alternative A, where less structured management is planned, the quality of the motorized opportunities could be improved and these uses and opportunities would more likely be sustained by effective management over the life of the Lower Sonoran RMP.

Over the long-term, active travel management practices and route designations have the opportunity to improve recreation resources and opportunities compared to Alternative A. This would be due to full implementation of route designations, complete route numbering, increased visitor information and signing, increased user education and outreach, the opportunity for new route development to increase the diversity and quality of the motorized recreation experience, application of Tread Lightly practices, and active restoration efforts. Designated and numbered routes could help maintain recreation settings, lessen impacts on other recreation uses, and reduce damage to natural resources.

In other aspects, short-term impacts on recreation settings and opportunities from travel management would be comparable to those described under Alternative A. While Alternative B would continue to allow for nonmotorized, non-mechanized cross-country travel, these activities could be restricted if repetitive use results in permanent route scars. In such localized places, natural landscape recreation settings could be maintained by restricting cross-country travel to designated access points, but doing so would constrain the opportunities to start from anywhere. Otherwise, cross-country nonmotorized travel impacts would be the same as identified under Alternative A in the Lower Sonoran Decision Area.

From Visual Resources on Recreation Management

Beneficial opportunities and outcomes, such as appreciation of natural landscapes, would be greater than under Alternative A because recreation and non-recreation facilities and developments would be designed and mitigated to a higher standard of visual quality, principally classes II and III (66 percent of the Lower Sonoran Decision Area under Alternative B versus 43 percent under Alternative A).

Some management actions that would be established under Alternative B could contribute to preserving and/or restoring the scenic landscape and naturalness of the recreation settings. For example, Alternative B would provide for restoring routes closed to motorized access or for converting them for nonmotorized trails, protecting historic landscapes in their natural condition, and mitigating

developments visible from the Agua Caliente and Painted Rock Dam roads by exceeding or maintaining VRM objectives. Visual impacts minimized in the short term (5 years) and VRM objectives that are met in the long term could improve the scenic quality for recreation.

From Wilderness Characteristics on Recreation Management

Alternative B does not identify any lands to be allocated as lands managed to protect wilderness characteristics, so impacts would be the same as described under Alternative A. Lands managed to protect wilderness characteristics and primitive recreation opportunities could be maintained in backcountry RMZs, but their maintenance or continuation over the life of the RMP could not be assured.

4.19.5.2 Sonoran Desert National Monument

From Cultural and Heritage Resources on Recreation Management

Under Alternative B, the opportunities for beneficial outcomes would be moderately greater than identified under Alternative A. Selected sites would be allocated to public and scientific uses, and the SDNM would be managed as an ERMA to produce recreation benefits that derive from the objects and resources for which the Monument was designated.

From Livestock Grazing on Recreation Management

Livestock grazing would be perennial-ephemeral, with reduced availability of animal unit months. With fewer seasonal livestock numbers, fewer impacts on other resources such as recreation would be anticipated but are not quantifiable. Under Alternative B, 8,500 acres on the SDNM is proposed to become unavailable for livestock use through fenced exclosures. These exclosures could impact recreation use and enjoyment. The strategic placement of gates and cattleguards would help mitigate these impacts. In comparison to Alternative A, negligible to minor impacts on beneficial outcomes, such as enjoyment of natural landscapes and appreciation of environmental benefits, would be expected.

From Recreation Management on Recreation Management

Designating the entire SDNM as an ERMA would support and sustain the principal recreation activities (e.g., camping, hiking, educational opportunities, and scenic driving) and the associated qualities and conditions of the SDNM. Supporting management actions and allowable use decisions would facilitate the visitors' ability to participate in outdoor recreation activities and protect the associated qualities and conditions. Production of such recreation-related benefits such as appreciation of cultural heritage resources and natural landscapes would be higher from a moderate to a major degree, relative to Alternative A.

Recreational target shooting would be confined to areas of the SDNM where Monument objects are not prevalent (approximately 96,411 acres), as described in **Appendix G**, Sonoran Desert National Monument Recreational Analysis. This may result in the displacement of this activity from approximately one-half of known recreational target shooting sites in the SDNM (**Appendix G**, Sonoran Desert National Monument Recreational Analysis, **Map G-8**). Displacement of this activity to other areas within the SDNM where recreational target shooting would be allowed would cause negligible impacts on

objects of the Monument; however, in the absence of suitable terrain to provide adequate backstops and safety fans such activity may be unsafe, both to target shooters and other visiting public. Displacement of this activity to adjacent public lands outside of the SDNM may lead to minor to moderate impacts on natural resources such as vegetation, rock outcrops, etc. as described in **Appendix G**, Sonoran Desert National Monument Recreational Target Shooting Analysis, for the SDNM. Additionally, the larger area of public lands adjacent to the SDNM may allow for wider dispersal of target shooting that is displaced from the SDNM, causing individuals wishing to engage in this activity on public lands to travel farther distances than currently.

From Travel Management on Recreation Management

Under Alternative B, 157,700 acres (or 32 percent) of the SDNM would be closed to motor vehicles. The slight difference in area closed to motor vehicles from Alternative A poses negligible impacts on opportunities for recreation benefits.

Beneficial opportunities and outcomes derived from motorized activities, such as enjoying exploration, risk-taking, and easy access to natural landscapes, would be moderately greater than identified under Alternative A. Although fewer miles of routes would remain open for motorized use (531 miles, or 83 percent of available routes, versus 632 miles, or 100 percent under A), management of the SDNM as an ERMA would support and motorized recreation activities. Motorized travel to trailheads, campsites, interpreted cultural sites, or general sightseeing would be designed and managed through a system of designated travel routes to emphasize enjoyment of natural landscapes and appreciation of cultural resources.

From Visual Resources on Recreation Management

Opportunities for beneficial outcomes, such as appreciation of natural landscapes, would be greater than identified under Alternative A as recreation and non-recreation facilities and developments would be designed and mitigated to a higher standard of visual quality, principally Class II (45 percent of SDNM Decision Area under Alternative B versus 19 percent under Alternative A).

From Wilderness Characteristics on Recreation Management

Alternative B does not identify any lands to be allocated as lands managed to protect wilderness characteristics, so impacts would be the same as described under Alternative A. Lands managed to protect wilderness characteristics and primitive recreation opportunities could be maintained in backcountry RMZs, but their maintenance or continuation over the life of the RMP could not be assured.

4.19.6 ALTERNATIVE C

4.19.6.1 Both Decision Areas

From Wildlife and Special Status Species on Recreation Management

Primitive roads in washes would be closed from April 15th to August 31st to address the forage, shelter, and thermal cover protection provided by washes as a component of wildlife habitat. Effects on travel

management would be minor and short term due to the availability of motorized access by at least one route to most popular places. Seasonal closure periods in washes would also be during the lower visitation times of the year. Therefore, the effects on visitors, including hunters, would be minor.

From Travel Management on Recreation Management

Primitive roads in washes would be closed from April 15th to August 31st to address the forage, shelter, and thermal cover protection provided by washes as a component of wildlife habitat. Effects on travel management would be minor and short term due to the availability of motorized access by at least one route to most popular places. Seasonal closure periods in washes would also be during the lower visitation times of the year. Therefore, the effects on visitors, including hunters, would be minor.

4.19.6.2 Lower Sonoran

From Cultural and Heritage Resources on Recreation Management

Under Alternative C, moderate increases in opportunities for beneficial outcomes, such as opportunities for individual and community awareness and appreciation of cultural heritage resources, would result across the Lower Sonoran. Within allocated cultural resource management areas, greater opportunities for individual and community awareness and appreciation of cultural heritage resources would result. Allocation of the Gila River Terraces and Southern Historic Trail Special Cultural Resource Management Area (82,500 acres) and Saddle Mountain Special Cultural Resource Management Area (48,500 acres) would increase beneficial outcomes produced from public and scientific use of cultural resources on 14 percent of the Decision Area, coinciding with the Lower Gila Historic Trails and Saddle Mountain SRMAs.

Moderate increases in opportunities for beneficial outcomes on the remaining 86 percent of the Lower Sonoran would be realized as some cultural sites would be allocated to public use, rather than only to scientific use; however, opportunities for individual and community awareness and appreciation of cultural heritage resources would be less than those resulting from Alternative B as allocation to public use would not be emphasized.

From Livestock Grazing on Recreation Management

Potential impacts on recreation resources from grazing are comparable to those described under Alternative A, with minor exceptions. During ephemeral years, however large numbers of livestock would likely interfere with some recreational opportunities for short periods. Under Alternative C, allotments would be reclassified as perennial or ephemeral, with no supplemental ephemeral allocations for base herds (i.e. no perennial/ephemeral allotments would be designated). This would have negligible effects on recreation.

From Recreation Management on Recreation Management

Alternative C would allocate 85,400 acres (9 percent) of the Lower Sonoran to four SRMAs, where recreation would be managed to protect and enhance a targeted set of activities, experiences, benefits, and desired recreation setting characteristics.

In relation to Alternative B, recreation opportunities would shift from an emphasis on motorized recreation to a greater emphasis on nonmotorized recreation opportunities. The settings for facilitated motorized recreation opportunities would be less. The backcountry setting would be 28,100 acres (11 percent) greater than in Alternative B, and 557,200 acres (60 percent) of the Lower Sonoran would be managed as three individual ERMAs. These ERMAs would be managed to support and sustain the principal recreation activities and the associated qualities and conditions of the ERMA. Management of ERMA areas would be commensurate with the management of other resources and resource uses.

From Special Designations on Recreation Management

The Coffeepot Botanical ACEC would be enlarged from 8,900 acres to 63,300 acres, and the Agua Caliente Road would be designated a Backcountry Byway. Both designations would provide for greater protection of natural areas and enhance opportunities for beneficial outcomes that are derived from natural landscapes. Opportunities for beneficial outcomes in the Ajo and Gila Bend Mountains SRMAs, such as greater sensitivity to and awareness of outdoor aesthetics, community awareness, and appreciation of cultural and natural heritage, increased awareness and protection of natural resources, and increased desirability as a place to live would be greater under this alternative than Alternatives A and B.

From Travel Management on Recreation Management

Under Alternative C, 1,141 miles (68 percent) of available routes would be open to motorized use, in contrast to 1,241 miles (74 percent) in Alternative B and 1,670 miles (99 percent) in Alternative A. Opportunities for beneficial outcomes such as enjoying exploration, risk-taking, and easy access to natural landscapes, would be similar to Alternative B and moderately less than for Alternative A.

Alternative C continues to allow opportunities for nonmotorized, non-mechanized cross-country travel. Such travel, however, must be consistent with RMA prescriptions and may be restricted if repetitive use leads to permanent routes. The application of designated access management in the Lower Sonoran Decision Area under Alternative C coupled with fewer access points could affect recreational use by reducing the level of cross-country travel opportunities that are available under Alternatives A and B. Limiting nonmotorized and non-mechanized access from private and state lands onto public lands to designated access points would affect recreational use by reducing opportunities for exploration and trail-based recreation.

From Visual Resources on Recreation Management

Opportunities for beneficial outcomes, such as appreciation of natural landscapes, would be much greater under Alternative C than Alternatives A and B as recreation and non-recreation facilities and developments would be designed and mitigated to a much higher standard of visual quality, principally Class II (42 percent of Lower Sonoran, versus 13 percent in A and 7 percent in B).

From Wilderness Characteristics on Recreation Management

Alternative C would result in the allocation of 128,100 acres, or 14 percent, of the Lower Sonoran as lands managed to protect wilderness characteristics managed coincidentally with recreation resources as backcountry settings. Impacts on opportunities for beneficial outcomes would be negligible.

4.19.6.3 Sonoran Desert National Monument

From Cultural and Heritage Resources on Recreation Management

Opportunities for beneficial outcomes, such as individual and community appreciation of cultural heritage resources, would be moderately greater in Alternative C than in Alternative A. Allocation of the Sonoran Desert Historic Trails SCRMA (16,200 acres) would increase, to a minor degree, the beneficial outcomes derived from public and scientific uses of cultural resources on the 3 percent of the SDNM that is within this management area.

Opportunities for beneficial outcomes on the remaining 97 percent of the SDNM would be similar to Alternatives A and B as allocation of cultural sites to public and scientific uses would be similar.

From Livestock Grazing on Recreation Management

Livestock grazing would be perennial only, with no supplemental ephemeral permits authorized. However, available AUMs would be the same as for the existing management situation. Consequently, opportunities for beneficial outcomes (such as viewing untrammeled natural landscapes) in the SDNM would be similar to Alternative A, and impacts on the production of recreation benefits from livestock grazing would be minor.

Approximately 44,800 acres would be exclosed to prevent livestock use on portions of the Monument. Fences for this exclosure could impact recreational use and enjoyment. Strategic gates and cattleguards would help mitigate these impacts.

From Recreation Management on Recreation Management

Managing 486,400 acres as the SDNM ERMA would facilitate recreational enjoyment of the area by supporting and sustaining camping, hiking, educational opportunities, and scenic driving. Consequently, the production of opportunities for such recreation-related benefits as appreciation of cultural heritage resources and natural landscapes would be moderately higher relative to Alternative A, and similar to Alternative B.

Recreational target shooting would be confined to areas identified as moderately or highly suitable for such activity as described in **Appendix G**, Sonoran Desert National Monument Recreational Target Shooting Analysis, totaling approximately 1,136 acres. These are areas where Monument objects are not prevalent and terrain for adequate backstops would be expected to occur. Recreational target shooting would continue on 4 to 6 of the known recreational target shooting sites on the SDNM and be displaced from the remainder. Although the concentration of all target shooting activity currently occurring on the SDNM at these sites would be unlikely, such a concentration would be a potentially unacceptable public safety situation, and would be unmanageable under current BLM policy with regard to recreational target shooting. Displacement of this activity to adjacent public lands outside of the SDNM may lead to minor to moderate impacts on natural resources such as vegetation, rock outcrops, etc. as described in **Appendix G**, Sonoran Desert National Monument Recreational Target Shooting Analysis for the SDNM. Additionally, the larger area of public lands adjacent to the SDNM may allow for wider dispersal of target shooting that is displaced from the SDNM, causing individuals wishing to engage in this activity on public lands to travel farther distances than currently.

From Travel Management on Recreation Management

Under Alternative C, roads available for public use would be 185 miles less than Alternative A and 140 miles less than Alternative B. This represents a moderate reduction in opportunities for beneficial outcomes from motorized access, such as enjoying exploration, risk-taking, and easy access to natural landscapes. Overall impacts would be similar to Alternative B.

From Visual Resources on Recreation Management

Under Alternative C, opportunities for attainment of beneficial outcomes, such as appreciation of natural landscapes, would be greater than for implementation of Alternatives A and B because recreation and non-recreation facilities and developments would be designed and mitigated to a higher standard of visual quality, principally Class II (55 percent of SDNM, versus 19 percent in A and 45 percent in B).

From Wilderness Characteristics on Recreation Management

Alternative C would result in the allocation of 112,200 acres, or 23 percent, of the SDNM as lands managed to protect wilderness characteristics managed coincidentally with recreation resources as backcountry settings. Impacts on opportunities for beneficial outcomes would be negligible.

4.19.7 ALTERNATIVE D

4.19.7.1 Lower Sonoran

From Cultural and Heritage Resources on Recreation Management

Under Alternative D, there would be negligible opportunities for beneficial outcomes as allocation of cultural sites to conservation for future use, not public use, would be emphasized. Also, approximately 59 percent of the Lower Sonoran would be managed as an ERMA and cultural sites allocated to public uses would be developed and interpreted to reduce impacts on cultural resources, which may lead to minor opportunities for recreation-related benefits.

From Livestock Grazing on Recreation Management

Under Alternative D, the naturalness component of all recreational settings would be enhanced compared with Alternatives A, B, and C because all livestock grazing allotments would be closed to such use. Fences would eventually be removed after permits expire, leaving miles of unfenced roads and trails open for recreational use. Opportunities for beneficial outcomes, such as appreciation of natural landscapes, would be enhanced to a minor degree.

From Recreation Management on Recreation Management

Alternative D would allocate the least acres to SRMAs (35,400 acres, or 4 percent of the Lower Sonoran). The Buckeye Hills East, Lower Gila Historic Trails, and Painted Rock Campground SRMAs would be managed to protect and enhance each SRMA's targeted set of activities, experiences, benefits, and desired recreation setting characteristics. Recreation activities in the 22,100-acre Buckeye Hills

West ERMA would be managed commensurate with the management of other resources and resource uses. The remainder of the Decision Area would not be designated as an RMA, meaning lands would be managed to meet basic recreation and resource stewardship needs, where recreation is not emphasized. Without recreation as a management focus, activities and beneficial outcomes would not be supported and visitors' experiences could be diminished in comparison to other action alternatives. The difference in opportunities for these types of beneficial outcomes between Alternative D and Alternative A would be negligible.

From Travel Management on Recreation Management

Under Alternative D, the least mileage of routes would be open for motorized use (799 miles, or 47 percent of available routes). Opportunities for beneficial outcomes that derive from motorized activities, such as enjoying exploration by vehicle and easy access to natural landscapes, would be moderately less than in Alternatives B and C, and less to a major degree in comparison with Alternative A. Opportunities for beneficial outcomes that derive from nonmotorized activities, such as touring by hiking, bicycling, and horseback riding, would be enhanced to a minor degree in relation to Alternatives B and C, and to a moderate degree relative to Alternative A.

From Special Designations on Recreation Management

Under Alternative D, 263,700 acres (28 percent) of the Lower Sonoran would be allocated as ACECs to protect unique vegetation, natural landscapes, endangered wildlife, and sensitive cultural sites. Opportunities for beneficial outcomes that are derived from appreciation of such resources would be enhanced to a moderate degree relative to Alternatives A, B, and C.

From Visual Resources on Recreation Management

Under Alternative D, the major portion of the Lower Sonoran would be managed to the objectives of VRM Class II (622,400 acres, or 67 percent). Opportunities for beneficial outcomes that derive from appreciation of landscape views and undisturbed nature would be moderately greater in comparison with Alternative C, and greater to a major degree in relation to Alternatives A and B.

From Wilderness Characteristics on Recreation Management

Alternative D would result in the allocation of 250,000 acres, or 27 percent, of the Lower Sonoran as lands managed to protect wilderness characteristics managed coincidentally with recreation resources as backcountry settings. Impacts on opportunities for beneficial outcomes would be negligible.

4.19.7.2 Sonoran Desert National Monument

From Cultural and Heritage Resources on Recreation Management

Under Alternative D, the Sonoran Desert Historic Trails SCRMA would not be designated and allocation of cultural sites for public use would not be emphasized. Opportunities for beneficial outcomes (such as individual and community appreciation of cultural heritage resources) would be moderately less than Alternative C (where the Sonoran Desert Historic Trails SCRMA would be designated), less to a major degree relative to Alternative B (where allocation of cultural sites to public

uses would be emphasized), and similar to Alternative A (where the Sonoran Desert Historic Trails SCRMA would not be allocated and allocation of cultural sites to public uses would not be emphasized).

From Livestock Grazing on Recreation Management

Under Alternative D, the naturalness component of all recreational settings would be enhanced compared with Alternatives A, B, and C because all livestock grazing allotments would be closed to such use. Opportunities for beneficial outcomes, such as appreciation of natural landscapes, would be enhanced to a minor degree.

From Recreation Management on Recreation Management

Under Alternative D, the SDNM would be managed as Undesignated Lands for purposes of recreation management. While recreation use and demand would be supported through specific management consideration, developed visitor facilities would not be provided as emphasis would be placed on undeveloped, dispersed recreation opportunities and activities. Opportunities for beneficial outcomes such as appreciation of natural landscapes, solitude, and primitive, unconfined recreation would be greatest relative to Alternatives A, B, and C. Visitors' ability to participate in recreation activities and derive beneficial outcomes from them would be preserved through management of developed and interpreted sites, such as appreciation of cultural heritage resources and easy access to natural areas through motorized travel. However, this management consideration would be the least offered in comparison to Alternatives A, B, and C.

Individuals currently using the SDNM for the purposes of recreational target shooting would be displaced to other venues for this activity. This displacement may increase use of nearby managed target shooting facilities, or of adjacent public lands where this activity is not restricted. On adjacent public lands, the types of impacts on natural resources such as vegetation, rock outcrops, wildlife, etc. described in **Appendix G**, Sonoran Desert National Monument Recreational Target Shooting Analysis, for recreational target shooting on the SDNM would be expected to occur as recreational target shooting is displaced from the SDNM to general public lands. Although the BLM cannot predict the number of new such sites that might arise on public lands as a result of such displacement, due to the larger area of adjacent public lands such sites may be dispersed over a greater geographic area. Thus, recreational target shooters may be required to travel a greater distance to reach appropriate target shooting sites on public lands.

From Travel Management on Recreation Management

Under Alternative D, 310,700 acres (or 64 percent) of the SDNM would be closed to motor vehicles. The impact to opportunities for beneficial outcomes such as enjoying exploration by vehicle and easy access to natural landscapes would be moderately less than in Alternatives A, B, and C.

Under Alternative D, the least mileage of routes would be open for motorized use (261 miles, or 41 percent of available routes). Opportunities for beneficial outcomes that derive from motorized activities, such as enjoying exploration by vehicle and easy access to natural landscapes, would be moderately less than in Alternatives B and C, and less to a major degree in comparison with Alternative A. Opportunities for beneficial outcomes that derive from nonmotorized activities, such as touring by

hiking, bicycling, or horseback, would be enhanced to a minor degree in relation to Alternatives B and C, and to a moderate degree relative to Alternative A.

From Visual Resources on Recreation Management

Under Alternative D, all of the SDNM would be managed to the objectives of VRM Classes I and II. The major portion of the SDNM would be managed to the objectives of VRM Class I (457,900 acres, or 94 percent). Opportunities for beneficial outcomes that derive from appreciation of landscape views and undisturbed nature would be highest in comparison to Alternatives A, B, and C.

From Wilderness Characteristics on Recreation Management

Alternative D would result in the allocation of 154,800 acres, or 32 percent, of the SDNM as lands managed to protect wilderness characteristics managed coincidentally with recreation resources as backcountry settings. Impacts on opportunities for beneficial outcomes would be negligible.

4.19.8 ALTERNATIVE E (PROPOSED RMP)

4.19.8.1 Both Decision Areas

From Wildlife and Special Status Species on Recreation Management

Primitive roads in washes would be closed from April 15th to August 31st to address the forage, shelter, and thermal cover protection provided by washes as a component of wildlife habitat. Effects on travel management would be minor and short term due to the availability of motorized access by at least one route to most popular places. Seasonal closure periods in washes would also be during the lower visitation times of the year. Therefore, the effects on visitors, including hunters, would be minor.

From Travel Management on Recreation Management

Primitive roads in washes would be closed from April 15th to August 31st to address the forage, shelter, and thermal cover protection provided by washes as a component of wildlife habitat. Effects on travel management would be minor and short term due to the availability of motorized access by at least one route to most popular places. Seasonal closure periods in washes would also be during the lower visitation times of the year. Therefore, the effects on visitors, including hunters, would be minor.

4.19.8.2 Lower Sonoran

From Cultural and Heritage Resources on Recreation Management

Under Alternative E, impacts on production of opportunities for beneficial outcomes, such as individual and community appreciation of cultural heritage resources, would be enhanced to a minor degree relative to Alternatives A and D, as more cultural sites would be allocated to public use. Production of opportunities for beneficial outcomes, such as individual and community appreciation of cultural heritage resources, would be similar to Alternative B (as allocation of cultural sites to public use would be emphasized); and less than Alternative C (as the Sonoran Desert Historic Trails and Saddle Mountain SCRMAs would not be allocated).

From Livestock Grazing on Recreation Management

Potential impacts on recreation resources from grazing administration would be similar to Alternative A.

From Recreation Management on Recreation Management

Alternative E would allocate 37,900 acres (4 percent) of the Lower Sonoran to three SRMAs. The BLM's ability to protect and enhance a targeted set of activities, experiences and benefits, and desired recreation setting characteristics in these areas would be preserved through making recreation the predominant land use planning focus. Impacts on the production of beneficial outcomes would be similar to Alternative C, except the Saddle Mountain area would be managed as an ERMA, meaning recreation would receive specific management attention but to a lesser degree than if the area was managed as an SRMA. Impacts on recreation would be greater relative to Alternatives A and D because more areas would be managed to enhance recreation experiences and outcomes.

From Special Designations on Recreation Management

Impacts from special designations would be similar to Alternative D.

From Travel Management on Recreation Management

Impacts from travel management would be similar to Alternative C.

From Visual Resources on Recreation Management

Impacts from visual resources would be similar to Alternative B.

From Wilderness Characteristics on Recreation Management

Alternative D would result in the allocation of 91,200 acres, or 10 percent, of the Lower Sonoran as lands managed to protect wilderness characteristics managed coincidentally with recreation resources as backcountry settings. Impacts on opportunities for beneficial outcomes would be negligible.

4.19.8.3 Sonoran Desert National Monument

From Cultural and Heritage Resources on Recreation Management

Impacts from cultural and heritage would be similar to Alternatives B and C.

From Livestock Grazing on Recreation Management

Impacts from livestock grazing would be similar to Alternative A in that perennial, perennial/ ephemeral, and ephemeral grazing would be authorized. Area closures and associated impacts would be similar to those described in Alternative C except that the SDNM portion of the Conley Allotment would be closed to livestock, thus eliminating impacts from livestock on recreation resources in the closure area..

From Recreation Management on Recreation Management

Impacts from recreation management would be similar to Alternative C. Since dispersed recreational target shooting throughout the Monument would continue, the impacts of target shooting under Alternative E would be the same as those described for Alternative A. However, if Management and Administrative Actions designed to change the conduct of recreational target shooters has the desired effect, impacts from recreational target shooting should be greatly decreased. If that were to happen, impacts would be negligible to minor.

From Travel Management on Recreation Management

Impacts from travel management would be similar to Alternatives B and C.

Impacts from SDNM Route Designations would be similar to Alternative C.

From Visual Resources on Recreation Management

Impacts from visual resources would be similar to Alternative C.

From Wilderness Characteristics on Recreation Management

Alternative D would result in the allocation of 107,800 acres, or 22 percent, of the SDNM as lands managed to protect wilderness characteristics, managed coincidentally with recreation resources as backcountry settings. Impacts on opportunities for beneficial outcomes would be negligible.

4.20 IMPACTS ON TRAVEL MANAGEMENT

Travel management focuses on the BLM's route system of roads, primitive roads and trails, and the associated signs, maps, and management presence, including maintenance and law enforcement. Issues that affect management of the route system are legal public access to BLM-administered public lands, compliance with the route designations, effects of the route area footprint, and direct and indirect effects of using routes, serving allowable uses in a sustainable manner, and managing traffic and resource conditions near routes. Routes will be specifically designated through this plan for SDNM, and effects on the resources and objects are discussed in this section. Lower Sonoran routes will be designated in subsequent planning, but the area designations will be established in this plan. Lower Sonoran routes have been reviewed by the BLM, and conceptual route models have been constructed to create estimates of how many miles are likely to remain open. The models also identify areas of special concern for analysis in this plan. The effects of Lower Sonoran resource allocations and decisions on the travel system are discussed in this section.

A systematic data-gathering process, referred to as a route evaluation process, was employed to create the initial route system alternatives for both SDNM and Lower Sonoran Decision Areas. Effective recreation management, including the use of vehicles, requires engineering, education, enforcement, and evaluation and monitoring. The four designation criteria outlined in 43 CFR 8342.1 (and noted below) were the basis for considering the designation of all routes at the time of evaluation; next, the routes were analyzed with the "evaluation-tree" questions (see **Appendix S**, Route Evaluation Methodology and Impact Analysis for explanation of the "evaluation tree"). Additional criteria, including the

management philosophy for each alternative, were also applied to aid in developing route systems for each alternative.

The authorized officer shall designate public lands as open, limited, or closed to off-road vehicles. All designations shall be based on the protection of the resources of the public lands, the promotion of the safety of all the users of public lands, and the minimization of conflicts among various uses of the public lands and in accordance with the following criteria:

- Criterion (a)—Areas and trails shall be located to minimize damage to soil, watershed, vegetation, air, or other resources of the public lands and to prevent impairment of wilderness suitability.

- Criterion (b)—Areas and trails shall be located to minimize harassment of wildlife or significant disruption of wildlife habitats. Special attention will be given to protect endangered or threatened species and their habitats.

- Criterion (c)—Areas and trails shall be located to minimize conflicts between off-road vehicle use and other existing or proposed recreation on the same or neighboring public lands and to ensure the compatibility of such uses with existing conditions in populated areas, taking into account noise and other factors.

- Criterion (d)—Areas and trails shall not be located in officially designated wilderness areas or primitive areas. Areas and trails shall be located in natural areas only if the authorized officer determines that off-road vehicle use in such locations will not adversely affect their natural, esthetic, scenic, or other values for which such areas are established (43 CFR 8342.1).

Each program has goals and objectives, ranging from broad to very specific. The route designations are one tool to help achieve the goals. RMP action alternatives generally range from more use under Alternative B to more restrictive and conservation oriented under Alternative D. The associated route network derived for each alternative attempts to mirror the intent of these alternatives while addressing specific issues, such as priority species and land health standards. The BLM analyzed each route (road, primitive road, and trail) individually on its own merit and within the context of a greater regional context. Please refer to **Appendix S**, Route Evaluation Methodology and Impact Analysis, for a detailed discussion of the analytical procedure.

Meetings with several resource specialists (including a wildlife biologist, archaeologist, geologist, lands specialist, law enforcement officer, and recreation planner) and AGFD representative wereconvened to analyze the various proposed route networks. Data were presented on detailed, accurate, up-to-date physical resource maps. A computer-generated GIS map was available to display "live" electronic data, including the best available information and latest photogrammetry, to the ID team. Discussions were documented using a software and database package. The software package uses an evaluation-tree process to gather information and guide the review team to create route system alternatives.

Table 4-23, Equivalency of the Statutory Authority Related to Route Evaluation Questions, shows the statutory authority compared to the questions asked during the route evaluation process.

Table 4-23
Equivalency of the Statutory Authority Related to Route Evaluation Questions

Authority (Section/Criteria)	Question from Route Evaluation Tree	Question Letter in Tree
FLPMA (PL 94-579)		
Title V, Sec 501 (a) The Secretary, with respect to public lands… are authorized to grant, issue or renew rights-of-way over, on, or through such lands.	Is the route an officially recognized right-of-way or an officially recognized county or state route?	A
Title VII, Sec 701 (a) Nothing in this Act or in any amendment made by this Act shall be construed as terminating any valid lease, permit, patent, right-of-way, or authorization existing on the date of approval of this Act.	Does the route provide commercial, private property, or administrative access?	C
43 CFR 8342.1		
(a) Areas and trails shall be located to minimize damage to soil, watershed, vegetation, air, or other resources of the public lands, and to prevent impairment of wilderness suitability.	Can the commercial, private property, and public uses of this route be adequately met by another route (or routes) that minimizes impacts on sensitive resources identified above or that minimizes cumulative effects on various other resources?	X, Y, Z, AA, BB, CC, DD, EE, FF, GG, HH, II, JJ, KK, LL
(b) Areas and trails shall be located to minimize harassment of wildlife or significant disruption of wildlife habitats. Special attention will be given to protect endangered or threatened species and their habitats.	Might the continued use of this route impact State or Federal special status species or their habitat, or cultural, or any other specially protected resources or objects identified by agency planning documents, plan amendments, or any other special area designations (e.g., National Monuments)?	B, F, G
	Can the impacts on the above sensitive resources be avoided, minimized, or mitigated?	D, E, H, I, J, K
(c) Areas and trails shall be located to minimize conflicts between off-road vehicle use and other existing or proposed recreational uses of the same or neighboring public lands, and to ensure the compatibility of such uses with existing conditions in populated areas, taking into account noise and other factors.	Does this route contribute to recreational opportunities, route network connectivity, public safety, or other public access opportunities enumerated in agency laws?	L, M, N, O, P, Q, R, S, T, U, V, W
(d) Areas and trails shall not be located in officially designated wilderness areas or primitive areas. Areas and trails shall be located in natural areas only if the authorized officer determines that off-road vehicle use in such locations will not adversely affect their natural, esthetic, scenic, or other values for which such areas are established.	Might the continued use of this route impact State or Federal special status species or their habitat, or cultural, or any other specially protected resources or objects identified by agency planning documents, plan amendments, or any other special area designations (e.g., National Monuments)?	B, F, G

Table 4-23
Equivalency of the Statutory Authority Related to Route Evaluation Questions

Authority (Section/Criteria)	Question from Route Evaluation Tree	Question Letter in Tree
	Can the impacts on the above sensitive resources be avoided, minimized, or mitigated?	D, E, H, I, J, K

Designation criterion (a) above considers impacts on soil, watershed, vegetation, air, and "other resources." The BLM's analysis of each route/region carefully considers each of these factors and records them in a database. The process also involves creating a report for each numbered route detailing the factors, conditions, and methods for possible mitigation if necessary. The question in the evaluation-tree process seeks to draw out answers from staff regarding not only information on designation criterion (a) but also cumulative effects. The staff is free to identify issues not specifically called out in criterion (a), as well.

One example of the type of analysis conducted during interdisciplinary reviews involves routes that are in areas where soil types do not support vehicle traffic. After identification of the route and the poor soils, which tend to be silty, these routes could be considered for seasonal closure or mitigation, possibly via soil treatment, to minimize impacts on soil and air resources as required in Criterion (a). Routes in more stable soils would have less impact on vegetation or air quality and would not require engineering or specific limits. Analysis like this is considered on a route-by-route basis, as well as on a landscape or network basis. An example of the analysis for soils and air quality on an area-wide basis would be the PM_{10} nonattainment area that affects approximately 3,500 acres at the north end of the SDNM. Not only were individual routes identified when they were inside the boundary, an area-wide approach to managing routes inside the area was considered and discussed in the area overview. This type of broad, yet specific analysis was intended to meet the statutory requirements placed on the BLM.

Designation criterion (b) above considers impacts on wildlife habitats, with emphasis on protecting T & E species. The BLM's analysis of each route/region details the type of species/habitat that a proposed or existing route may traverse. Mitigating factors for a road proposed as "open" may include seasonal closure or rerouting. Habitat fragmentation is an important analytical feature in the context of route/region analysis. One example of how this criterion was applied would include sand washes south of I-8. The range of alternatives includes two different seasonal closures under Alternatives C and E and complete closure under Alternative D. This would provide protection to important habitats during hot weather when wildlife is most vulnerable.

Designation criterion (c) above considers conflicts between motorized users and other recreational pursuits. The BLM attempts to document and consider all of the known recreational uses of a given route/region. An interdisciplinary area overview discussion occurs before the route-by-route evaluations in an attempt to identify the area's issues and potential for conflicts. The existing condition versus the proposed recreation experiences are also considered during this overview discussion. An example of how the BLM creates recreation zones to minimize conflict includes motorized use being designated for a certain region through the benefits-based management approach, while equestrian use would be emphasized in a different area. This analysis would tie into the various recreational benefits for which the BLM manages.

Designation criterion (d) above considers congressional/departmental designations. Officially designated wilderness areas, by law, are off-limits to motorized and mechanized use. Furthermore, staff has analyzed the effects of allowing motorized use on lands managed to protect wilderness characteristics or ACECs. In these areas, motorized use is de-emphasized, while pedestrian, equestrian, and nonmotorized pursuits are emphasized. Route evaluation criteria for natural areas, generally understood by the BLM to include allocated lands managed to protect wilderness characteristics, includes closing most or all of the vehicle routes within these areas. Alternatives considered might include a few open routes to allow passage through the area, but management prescriptions would prevent adversely affecting the area. One example is the sand wash routes on the north side of the Sand Tank Mountains. They would be closed when lands managed to protect wilderness characteristics are allocated under Alternative D.

A summary of the approach to creating the SDNM route designation proposals, including route modeling for Lower Sonoran, is as follows:

- **Alternative A (No Action)**—Leave the route system in its current state, except where inventoried routes must be closed to comply with law. Emphasize education and enforcement to maintain resource conditions. Restore habitat and the human environment as necessary, expecting that this approach may be more expensive and difficult than other management regimes over the long term.

- **Alternative B**—Leave most routes in their current state but emphasize loop trails where doing so would disperse recreationists, while eliminating off-route travel, thereby minimizing effects on resources. There are no allocated lands managed to protect wilderness characteristics under this alternative. Close routes where no uses can be identified.

- **Alternative C**—Attempt to find a balance between routes that are closed and open using resource allocations. Developing and hardening select high-use recreation sites would mitigate the loss of dispersed recreation opportunities and protect resources. Many undeveloped sites and primitive roads would remain open to support experiences historically found on public lands.

- **Alternative D**—Emphasize engineering of recreation and public use sites to maximize resource protection. Reduce dispersed vehicle use and peripheral activities to reduce route density and protect resources. This management approach emphasizes engineering and education to manage the route system. Improvement and hardening of recreation sites where visitors would be concentrated would make sites more easily accessible by two-wheel drive vehicles. Management costs would be increased in developed areas and decreased in dispersed areas.

- **Alternative E (Proposed RMP)**—This alternative takes the best of all the action alternatives to create a balanced route system that serves recreation, administrative, and permitted uses. This alternative looks much like Alternative C in its attempt to balance visitation of the Monument with protection of the settings and objects. The main differences are a shorter seasonal closure on washes south of I-8, approximately 10 percent fewer primitive roads open than Alternative C, and the restriction of the area to licensed drivers only. This system of routes is guided by the resource allocations in the preferred alternative.

Only routes in the SDNM would be designated within this RMP. The route evaluation process, shown in **Appendix S**, Route Evaluation Methodology and Impact Analysis, identifies specific resources, objects, and concerns. By seeking out potential mitigations during this process, the four designation criteria are being addressed. Specifics of how the designation criteria are met are outlined in each resource area's impact analysis. A second analysis has been completed to assess the route system's effect on Monument objects. The method involved in identifying areas within the SDNM is based on unique assemblages of Monument objects, significant public use or interest, and areas with management challenges. A rationale was developed to assess the intensity and duration of impacts on Monument objects. Standard operating procedures were considered for their effect on managing the uses associated with designated routes. This additional step helped staff finalize route systems for each plan alternative that considers the various resource allocations in the alternatives.

4.20.1 METHODS OF ANALYSIS

4.20.1.1 Indicators

Indicators of impacts on travel management can be determined qualitatively or quantitatively. The indicators below explain the nature of the impacts and units of measure to compare among alternatives.

Air Quality: Possible closures due to opacity limits exceedance (opacity limit is 20 percent). The indicator is how many miles of routes are open inside PM_{10} boundaries that would be subject to closure when opacity limits are exceeded.

Caves Resources: Managing for safety around caves could require reducing the number of routes adjacent to caves to reduce the possibility of incidents and conserve resources. The indicator is the number of truncated routes within 0.1 mile of a cave site.

Cultural and Heritage Resources: Managing routes to prevent damage to cultural resources could necessitate rerouting, mitigation, or the treatment or closure of routes. Management could affect the creation of new routes. The indicator is the number of routes expected to be closed due to managing for cultural resources. A second indicator is the number of new routes (in miles) not constructed or that require mitigation.

Lands and Realty: Routes may be truncated, disconnected, or closed as a result of authorizing power lines, pipelines, solar power plants, highways, or other actions. The indicator is the miles of open routes within utility corridors that could be closed or limited.

Livestock Grazing: New roads or primitive roads may be required to serve new grazing improvements. The RFD scenarios for grazing vary by alternative and indicate how many new improvements may be constructed. The indicator is how many miles of road or primitive road that could be constructed to serve new improvements.

Minerals Management: Routes to new mines and gravel pits may be truncated or disconnected as a result of developing new sites. The RFD scenarios for minerals development vary by alternative and indicate how many new mines/pits may be opened. The indicator of how this affects travel management is the number of miles of routes expected to be rerouted, mitigated, or closed.

Wildlife and Special Status Species Management: Managing for wildlife habitat and movement corridors could cause routes to be closed, limited, or mitigated. New routes may be limited in their placement and the number of new routes restricted. Routes affecting the habitat of Sonoran pronghorn, Sonoran desert tortoise, Acuña cactus, cactus ferruginous pygmy-owl, and lesser long-nosed bat could be closed, limited, or mitigated. The indicator is the number of miles of routes closed, limited, or mitigated as a result of managing for special status species. An additional indicator is the number of new routes limited in physical placement or prohibited as a result of corridors or habitat areas.

Hazardous Materials and Public Safety: Areas may be limited by permit or closed temporarily to remediate hazards. Effects on the travel system would be based on specific decisions that limit use. The indicator is the number of miles of routes in permit areas where use would be monitored or otherwise restricted.

Recreation Management: Decisions about recreation settings, such as backcountry and front country, would direct route designations. Routes may be opened, closed, limited, or proposed to meet the recreation setting decisions. The indicator is the number of new miles proposed in SRMAs. An additional indicator is the number of miles opened, closed, or limited by shifts in recreation setting allocations.

Special Designations: The stated purposes for designated wilderness areas, ACECs, national trails, and Backcountry Byways would have an effect on the route designations. Changes are expected to the route system as special designation areas are allocated or change in size. Wilderness areas are closed to vehicles and mechanized travel by law. The indicator is the number of miles of routes open, closed, or limited as a result of decisions for special designation areas.

Travel Management: The management approach and assumptions for each alternative would guide the route designations in the SDNM and set the stage for future route designations in the Lower Sonoran Decision Area. Legal access points and enforceability would be altered by the management philosophy and resource allocations in each alternative. The indicator is the number of miles of routes open, closed, or limited in the SDNM.

Vegetation Resources: Managing for vegetation, especially in washes, could require routes to be closed or limited by season or to administrative use. The indicator is the number of miles of routes closed, limited, or mitigated due to vegetation concerns.

Visual Resources: The creation of new roads, primitive roads, or trails may require mitigation to lessen their visibility. The indicator is the number of miles of new routes subject to increased costs as a result of decisions for VRM.

Soil Resources: Managing for soil retention and productivity could result in closure or limitation of some routes. Managing for watershed protection could result in closure or limitation by time of year, travel mode, or administrative use for some routes. One indicator is the number of miles of routes where erosion results in closure, limitation, mitigation, or closure; another indicator is the number of miles of routes closed, limited, or mitigated to protect watershed quality.

Wilderness Characteristics: Routes may be closed or limited to administrative use inside areas allocated as lands managed to protect wilderness characteristics. The indicator is the number of miles

closed for protection of wilderness characteristics. This indicator also can be calculated as a percentage of total route miles.

4.20.1.2 Assumptions

The following assumptions regarding travel management were made:

- Use levels would not decrease. Use type may shift, but use would increase over time, likely keeping pace with population growth in the state.
- Developing higher standard roads would favor general recreation and deter OHV use because, where passenger car use increases, off-highway vehicle users may feel out of place, causing them to seek other locations to ride.
- Improving the condition of access roads would concentrate uses, especially when combined with a reduction of primitive roads.
- Limiting access to the SDNM to licensed drivers would reduce resource impacts by barring less mature visitors from using vehicles there. The assumption is that irresponsible use, rather than specific vehicle types, is the major cause for impacts.
- Limiting SDNM access to licensed drivers and banning OHVs would create the highest level of protection for the SDNM, while allowing vehicular access to remote settings. This is because of the relatively low off-highway performance of most street-licensed vehicles and the maturity of the licensed drivers combined.
- Legal access from Interstate 8 can be secured.
- Limiting access to the SDNM to points where entry signs are present would improve compliance with rules.
- Barriers to wildlife movement develop when intensity of use reaches a threshold. Density of routes is less important than high use levels of routes and areas.
- Infrequent human visitation of wildlife waters does not deter wildlife from using them.
- Wilderness visitation is expected to increase at the same rate as population.
- Improvement of Vekol Valley Road south of I-8, which would include large culverts, could also improve wash conditions and wildlife movement by reducing mortality and making vehicle driving in washes more difficult.

Program Areas with No Impacts on Travel Management

There would be no impacts on travel management from actions proposed under the following program areas:

- Paleontological resources

- Water resources
- Wild horse and burro management
- Wildland fire management

Qualitative Intensity Scale

When referring to the intensity of an action, the terms negligible, minor, moderate, and major are used. There is a common definition of the way these terms are used in Chapter 4, Environmental Consequences, yet some additional detail on these terms is given below:

- Negligible: Actions that cause an insignificant change to accessing desired locations or experiencing Monument objects and sites would be considered negligible. Protection of Monument objects would affect only a few routes, and effects on access would be unnoticeable to most people.
- Minor: Actions that affect the travel system in only one area, such as a specific route closure or affecting between 2 percent and 10 percent of total routes, would be considered minor. A specific travel mode or experience may be affected heavily in one area, but not in the entire Planning Area. Protection of Monument objects would affect a few routes in a specific location, and access would not be eliminated to an area of 1,000 to 2,999 acres.
- Moderate: Actions that are widespread, that affect routes for a specific geographic area of less than 33 percent of the Planning Area or specific issue, or that affect 10 to 24 percent of the routes would be considered moderate. Protection of a specific Monument object would affect routes at only a few locations but could affect access to a significantly larger area. Access may be eliminated to a geographic area of 3,000 to 10,000 acres or more.
- Major: Direct effects would affect 25 percent or more of the routes, experiences, or destinations over more than 33 percent of the Planning Area. Protection of a specific Monument object would affect an area of 10,000 acres or more or 200 miles of routes.

4.20.2 COMMON TO ALL ALTERNATIVES

No unique impacts are described for alternatives common to both Decision Areas.

4.20.3 ALTERNATIVE A (NO ACTION)

4.20.3.1 Both Decision Areas

No unique impacts are described for alternatives common to both Decision Areas.

4.20.3.2 Lower Sonoran

From Air Quality on Travel Management

While Alternative A does not provide specific air quality decisions, existing air quality rules and regulations apply. Under this alternative, 270 miles of the existing 1,688 miles of routes are inside the Buckeye Hills East, Rainbow Valley, and Ajo PM_{10} nonattainment areas. The most heavily used area, known as the Buckeye Hills East, contains primitive roads as well as motorized and nonmotorized trails within a short distance of residential areas. There are no immediate effects, yet future restrictions could be implemented to curb PM_{10} and fugitive dust emissions, possibly limiting or closing access on these routes. Such closures would be expected to have a moderate effect on motorized travel. Nonmotorized access likely would be allowed inside PM_{10} nonattainment areas where the trail conditions or use levels allow passing the soil stability and visible emissions requirements of Maricopa County and would have a negligible to minor effect.

From Cave Resources on Travel Management

Impacts are anticipated to be negligible.

From Cultural and Heritage Resources on Travel Management

No decisions currently exist. Current rules and regulations that protect cultural resources include vehicle driving limitations where existing roads and trails are available for use. When designating routes in areas with known resources, routes could be rerouted or closed to minimize effects on resources. Specific management actions, including modifying, limiting, or closing routes to motor vehicles and mechanized vehicles would have a negligible to minor effect on travel because some limitations could occur. Nonmotorized travel modes would be allowed in a cross-country manner if deemed to not affect the resources for which the route was closed. Such management actions would have a negligible effect on travel by nonmotorized means.

From Lands and Realty on Travel Management

The continued issuance of LUAs could either reduce connectivity of existing routes or improve connectivity where new roads are established on nonexclusive-use LUAs. Because the number and scale of new LUAs is not known until the time of application, no assessment of their impacts can be made.

From Livestock Grazing on Travel Management

The construction of new range facilities could add roads to the existing system. Such new developments are estimated to be up to one mile per year, a 0.05 percent increase of overall LSFO mileage yearly, as identified in the RFD scenarios for grazing. This would have a negligible effect on the route system overall, but impacts may increase to moderate on localized recreation route networks if new routes are prohibited near range improvements.

From Minerals Management on Travel Management

The addition of new gravel pits or saleable minerals mine sites could reduce existing route connectivity or mileage, where placement of the mine cuts off access or eliminates existing public access points.

However, because new development likely would not total more than one or two new pits per year, eliminating no more than one mile of existing primitive road and one access point to public land per mine, the impacts of new development are expected to be minor. Establishment of three to five new locatable mineral mines a year would have similar effects, as mine access needs and footprints would be similar.

From Public Safety and Hazardous Materials on Travel Management

Lands conveyed from the BGR, including the Sentinel Plains SRMA, require a free access permit to be obtained from the BLM or Air Force locations in Gila Bend, Phoenix, or Yuma. This permit requirement has the effect of deterring some visitors from using this area. Managing the existing routes in the Sentinel Plains as a permit area has a negligible effect on travel due to the low number of visitors using the area.

From Recreation Management on Travel Management

Designating routes within the existing Saddle Mountain, Gila Trails, Sentinel Plain Lava Flow, and Ajo SRMAs would affect approximately 700 miles out of 1,675 miles of routes. Currently, no activity level plan has designated routes or recreation sites. Site-specific planning is required to determine the number and mileage of open and closed routes, therefore no assessment of the impact on various travel modes can be made at this time.

From Soil Resources on Travel Management

Travel on all Lower Sonoran lands would be limited to the 1,688 miles of existing roads and trails and to previously disturbed areas, which would have a negligible effect on travel. Where erodible soils exist, roads could be modified by adding earthen drainage structures or road base material or instituting a total closure. No determination on the location of improvements or closures would be made until resource degradation becomes apparent. This could have a moderate effect on the route system, either upgrading or eliminating access to large areas in erodible soils.

From Special Designations on Travel Management

Maintaining the Coffeepot ACEC would continue to close 14 miles of routes to public use, producing a minor effect on travel in the Ajo area. A gas pipeline maintenance road would remain open to administrative use. No Backcountry Byways are currently allocated. There would be no change in route status as a result of designated wilderness management because routes were closed by the previously implemented wilderness management plans.

From Travel Management on Travel Management

Continuing the current OHV area allocation of existing roads and trails on 808,100 acres would result in a moderate effect because an increase in new routes over the lifetime of the plan could be expected. This expectation is based on staff observations of route proliferation. Unauthorized route creation is not allowed, yet it occurs. Continuing the OHV area allocation of limited to designated routes (21,400 acres) would require routes to be designated within these areas, having a minor effect on travel by restricting use to only the designated open routes. There would be no time commitment on when the routes would be designated. Continuing the OHV closed allocation on 100,600 acres in designated

wilderness and the camping closure area around Painted Rock campground would continue to ban motorized and mechanized vehicles from these areas, producing a moderate effect on the travel system and the reduced connectivity of routes and areas for motor and mechanized vehicle travel.

Law enforcement's ability to reduce travel off designated roads and trails would be hampered due to continued vagueness on the ground about what constitutes an existing route. Issuing a map that delineates existing roads and trails would have a negligible effect on the travel system. In areas with a denser route network, the establishment of new unauthorized routes could confuse the public and result in the continued use of newly created routes; this could produce a moderate effect on travel due to the possibility of area closures for resource protection.

A lack of legal access points would continue the occasional loss of access across lands not in the BLM's jurisdiction, having a moderate to a major effect. As lands adjacent to public lands develop, long-standing access points could be eliminated or changed, excluding public access. Continued maintenance deferral on roads and trails also could cause minor changes in use patterns as routes conditions become impassable. This could cause route proliferation where visitors create new routes to access or reestablish previously accessible locations or areas.

From Vegetation Resources on Travel Management

Vehicle travel would be limited to existing roads and trails in the Fred J. Weiler Green Belt area, which would affect few routes. There are few routes inside the green belt, so this limitation would have a minor effect on the travel system.

From Visual Resources on Travel Management

Currently, VRM Class III allocations cover most of the area where vehicle routes exist, and no ground disturbance, including route maintenance, is planned. Therefore there would no effect on the travel system from VRM. Indirect effects of managing under Class III include the ease of authorizing land uses that could interrupt the travel system, causing truncation or disconnection of routes.

From Wilderness Characteristics on Travel Management

No areas would be allocated as lands managed to protect wilderness characteristics under this alternative.

From Wildlife and Special Status Species Management on Travel Management

No decisions currently exist. Continuing the "no net loss" policy for desert tortoise habitat would have a moderate effect on future route development regardless of use type. A spring seasonal closure for Sonoran pronghorn (from March 15 to July 15) to all public entry would cause the route system inside the closure area to be unavailable during this time, producing a moderate effect on all travel within this area. Managing for Sonoran pronghorn would continue the seasonal closure for breeding in Ajo, which closes 181 miles out of 425 miles of routes in the Ajo area to all public use, would produce a moderate effect on travel. An estimated 40 percent of the routes would be off-limits during this time. Increasing visitation in adjacent areas would be likely, producing a moderate effect on the condition and

experiences found on those routes due to an increase in visitor contacts and loss of vegetation along open routes.

Currently there are no decisions to reintroduce Sonoran pronghorn under Section 10J of the Endangered Species Act on BLM-administered lands outside the Ajo area, thus there would be no impacts.

4.20.3.3 Sonoran Desert National Monument

From Air Quality on Travel Management

Five miles of primitive roads are inside the PM_{10} nonattainment area. While the current plan provides no decisions, existing air quality rules and regulations do apply. There are no immediate effects; future restrictions could be implemented to curb PM_{10} and fugitive dust. Closing all five miles of primitive roads would have a minor effect on the travel system due to the relatively short length of each primitive road segment.

From Cave Resources on Travel Management

Impacts are anticipated to be negligible.

From Cultural and Heritage Resources on Travel Management

The continued planning and development of the Anza NHT RMZ could restrict motor vehicle access on approximately 88 miles of roads and primitive roads inside the RMZ. Current rules and regulations direct the protection of cultural resources, including vehicle driving limitations where only existing roads and trails are available for use. These 88 miles of road constitute 14 percent of the total routes in the SDNM. Closure of routes would have a negligible to moderate effect on travel in the RMZ, depending on each visitor's desired travel mode.

From Lands and Realty on Travel Management

Any lands and realty actions would have a minor effect due to the limited number of LUAs permitted in SDNM.

From Livestock Grazing on Travel Management

With the elimination of grazing south of I-8, some routes to range improvement projects could be closed. Most other routes south of I-8 remain open, so impacts from any of the road closures is negligible. Impacts north of I-8 would be similar to those described in for Alternative A, LSFO.

From Minerals Management on Travel Management

Continuing ADOT's permits to mine and store gravel at two sites south of I-8 requires maintaining access from I-8 at two unimproved exits from the eastbound lane between the Butterfield Trail exit and the Freeman Road exit. Gates providing access to the sites would need to remain in place. Continued public use of these gates might constitute a safety hazard because they could require evasive action for highway travelers to avoid vehicles entering or exiting from the breakdown lane. The loss of public

access at these gates would have a moderate effect on access to SDNM south of I-8. Public access has been allowed historically, and the gates could be locked at any time.

Currently there are no decisions to reintroduce Sonoran pronghorn under Section 10J of the Endangered Species Act, thus there would be no impacts.

From Hazardous Materials and Public Safety on Travel Management

The Area A permit requirement has a negligible effect on the route system because the permit is easy to obtain (it is available in multiple locations) and only affects a visitor's ability to use the area around Sand Tank Mountains and Javelina Mountain.

From Recreation Management on Travel Management

The designation of the SDNM, combined with the Gila Trails SRMA would have the effect of emphasizing the Anza NHT, which could result in designating a majority of the trail's length on BLM-administered lands as a nonmotorized route. Motorized use would be curtailed except for Butterfield Pass, which would continue to be available for both motor vehicle use and nonmotorized vehicle use. This would have a minor impact on travel management.

From Soil Resources on Travel Management

Continuing to allow travel on existing routes and in previously disturbed areas would result in the loss of soil on even lightly used routes. The continued loss of soil would require impromptu stabilization, reconstruction, or closure of routes and areas. Soil loss, a factor in not achieving land health standards, likely would result in a small number of route closures, having a minor effect on the travel system.

From Special Designations on Travel Management

Managing the Anza NHT would have a minor effect on the network by placing restrictions on motor vehicle use as the management plan for the trail is implemented. All sections of the Anza NHT east of Gap Well would remain available for vehicle use. Continuing to manage the Vekol Valley Grassland ACEC would continue the closure of five miles of primitive roads, having a minor effect on travel since the area affected is relatively small in context of the Monument.

From Travel Management on Travel Management

Continuing the current OHV designation of existing roads and trails, as required by the Monument proclamation, could result in an increase in new routes being established over the lifetime of the plan, even though proliferation is prohibited. Currently, 632 miles of existing roads, primitive roads, and trails exists. Continuing the temporary closure around the Anza NHT would eliminate impacts from driving off roads in the immediate area, but over time, it is expected that use levels would increase in other areas of the Monument. Additional use in other areas of the Monument could affect Monument objects, raising the intensity of use, assuming use level does not decrease overall in SDNM. Continuation of this designation would have a negligible effect on travel since most people would continue to use the area with few restrictions.

Law enforcement success in reducing driving off roads and trails would be hampered due to continued vagueness on the ground about what constitutes an existing route. Issuing a map showing the existing roads and trails would likely be sufficient to enforce the rule in areas where route densities are low and the navigation is simple enough to determine a location. Illegal activities, such as smuggling, that create new roads would further confuse the public and would lead to use of these unauthorized roads. In areas with more dense routes, the establishment of new routes could confuse the public attempting to find the existing roads and could result in the continued use of newly created routes. Some people would simply use any road not posted with a closed sign, regardless of a map, in turn raising the difficulty for the BLM to maintain sufficient signs. Currently, an average of four route markers per mile is required to sign a low-density route network. Each new road intersection would require at least one to two new signs to direct visitors to stay on the existing route while a newly created route is reclaimed over several years.

There are no requirements for vehicle drivers, including those of OHVs, to be licensed or otherwise trained, except in Area A where the BLM has carried forward a requirement from the USAF requiring licensed vehicles and drivers inside this relinquished area. This has had the effect of damaging an area adjacent to the Anza NHT through cross-country driving, which resulted in issuance of a temporary closure order for 88 miles of primitive roads in June of 2008.

A lack of acquired legal access points would continue the occasional loss of access across lands not under the BLM's jurisdiction. As lands adjacent to public lands develop, long-standing access points could be eliminated or changed to local resident access-only by excluding public access. The continued deferral of roads and trails maintenance would cause changes in use patterns as route conditions change to the degree that routes are impassable. This could have the effect of unauthorized route proliferation where new routes are established for access to previously accessible locations or areas. The closure of unauthorized routes would have no effect on the legal existing travel network but could moderately affect public perception of the available routes due to an increase in "route closed" signs, thus having the indirect minor effect of diminished law enforcement success in maintaining compliance in high use areas.

Although routes would not be designated under the No Action Alternative, 15 miles of primitive roads and roads would remain closed in the Vekol Valley Grasslands ACEC. Remaining open would be 617 miles of road, primitive roads, and trails, totaling 98 percent of the routes in SDNM.

From Vegetation Resources on Travel Management

The designation of upland routes would be emphasized, while allowing necessary use of access routes in washes. Primitive roads in washes comprise 63 miles of the 971 miles of intermittent flow washes in SDNM. Allowing these routes to remain open at their current width would have no effect on the use of the route system since there would be no loss of access.

From Visual Resources on Travel Management

Impacts are anticipated to be negligible.

From Wilderness Characteristics on Travel Management

No areas would be allocated as lands managed to protect wilderness characteristics under Alternative A.

From Wildlife and Special Status Species Management on Travel Management

No decisions currently exist. Continuing a "no net loss" policy for desert tortoise habitat would have a moderate effect on future route development regardless of use type. At the time of route designation, management for cactus ferruginous pygmy-owl could result in seasonal restrictions on primitive roads in 63 miles of sand washes in the SDNM. This is anticipated to have a minor to moderate effect on travel. Managing for bighorn sheep habitat and movement would have a moderate effect on the development of new routes for any use due to the need to avoid creating movement barriers.

4.20.4 ALTERNATIVE B

4.20.4.1 Both Decision Areas

A decision to allow reintroduction of Sonoran pronghorn under Section 10J of the Endangered Species Act would have a negligible effect on the travel system since survey routes may need to use designated routes, adding a minor amount of traffic to some primitive roads.

4.20.4.2 Lower Sonoran

From Air Quality on Travel Management

Implementing a decision to comply with National Ambient Air Quality Standards (NAAQS), the State Implementation Plan (SIP), and State law on air quality would raise the cost or need for management on Lower Sonoran areas inside the PM_{10} boundary (247,700 acres). It also would raise the cost or need for management in areas annexed by cities or towns, referred to as Area A, which would be affected by a State law requiring them to manage for dust (ARS Title 500). Areas in municipal jurisdictions within Area A, such as Buckeye Hills East and Rainbow Valley, are required under State law to halt all vehicle driving off paved or stabilized surfaces on high pollution advisory days. These closures would have a minor effect on travel since the closures occur mostly on weekdays. If entire areas were closed as a result of poor compliance with the temporary high pollution advisory days, then the impact would be moderate to major since entire areas would be off-limits for vehicle driving and vehicle staging for all uses.

Route designations could reflect reduced open miles of routes in areas with higher silt content or in areas where stabilization or hardening would be cost prohibitive under available funding. These closures could have a minor to moderate effect on travel in these areas since motorized travel would be eliminated or greatly reduced and restricted.

Nonmotorized travel would be largely unaffected unless staging areas develop, causing a need to close and rehabilitate or develop unpaved parking lots. Unstabilized trails might be closed permanently, or at least temporarily, until soils naturally stabilize and to implement a plan to address dust. If this occurs, nonmotorized travel requiring staging areas would be moderately affected in a similar manner as motorized travel.

From Cave Resources on Travel Management

A decision to close all caves to public entry unless specifically authorized would direct the route designation to end existing routes at least 0.1 mile before a cave to protect the cave and human safety

from damage, thus increasing the distance that cave seekers would need to walk. Four caves are known, which would lead to 0.4 mile of primitive roads being closed. This would have a negligible effect on the route system since the closed mileage could be about .03 percent of reasonable foreseeable route network.

From Cultural and Heritage Resources on Travel Management

A decision to allocate three historic sites—the Anza NHT, Painted Rock Petroglyph site and Sundad—to public use would have a minor effect of leaving roads, primitive roads, or trails open to access areas, which would be interpreted. Routes on the historic sites would be closed where doing so would protect the site's values. In at least one case, the route would end 0.1 mile before the site to avoid parking on the site.

From Lands and Realty on Travel Management

The allocation of 10 multiuse corridors could have the minor effect of potentially reducing connectivity when designating routes. Adding linear authorizations, such as transportation infrastructure, and large area sites, such as utility-scale renewable energy sites and paved access roads, could have the cumulative effect of reducing the connectivity of the travel network regionally. Since the addition of sites would be incremental, connectivity would likely be reduced slowly, over decades. Such access would be difficult to reestablish and would likely be foregone.

From Livestock Grazing on Travel Management

The reduction of AUMs could have a net zero effect on the creation of new range facilities and their associated primitive roads. Since the development of new facilities is approved on a case-by-case basis with reduced AUMs, the effect would be expected to be minor, as described under Alternative A.

From Minerals Management on Travel Management

Effects would be the same as Alternative A, except that additional acreage would be closed to mineral entry under Alternative B, which would reduce the number of places where mines could be located and have an effect of maintaining connectivity of the route system.

From Hazardous Materials and Public Safety on Travel Management

Impacts would be the same as those described under Alternative A for the Lower Sonoran.

From Recreation Management on Travel Management

Managing five SRMAs would have the effect of designating the most miles as open for roads, primitive roads, or trails of any of the action alternatives. Alternative B of Section 4.1.6, Reasonably Foreseeable Development Scenarios for Travel Management, would leave the most miles of routes open (1,241 miles). Approximately 49 new miles of routes, or 2.9 percent of the Decision Area, could be created to improve vehicle circulation on loop routes in the Arlington Trails ERMA, Painted Rock SRMA, Ajo ERMA, and Buckeye Hills East Trails SRMA. Approximately 351 miles (21 percent of the Decision Area) of routes would be closed or limited to administrative use only. Alternative B would allow access by vehicle to most of the places that are currently available and would add new routes that allow loop trail

riding by OHV recreationists. Direct effects on the travel system would come from improving circulation and connectivity in front country RMAs and implementing small reductions in the number vehicle routes in RMAs managed for backcountry experiences, which are primarily nonmotorized. This adjustment of vehicle access would be expected to have minor effects on both motorized and nonmotorized travelers by shifting where vehicles could be driven.

From Soil Resources on Travel Management

Managing for Land Health Standards on a designated route network would have a moderate effect of requiring all open routes to be reviewed and repaired, if necessary, to limit erosion and sedimentation of nearby washes. All open roads, primitive roads, and trails, 1,688 miles total, would need to be reviewed. It is expected that 25 to 50 percent of the primitive roads would need water control features, such as drain dips, installed at a cost of up to $5,000 per mile, and would need to be maintained at least every 10 years at a cost possibly less than $5,000 per mile. Currently, no maintenance is conducted on primitive roads under Alternative A.

From Special Designations on Travel Management

Coffeepot ACEC could close up to 14 miles of primitive roads to public use, while allowing administrative use on a gas pipeline maintenance road and a range improvement. Allocating 21 miles of Agua Caliente Road as a Backcountry Byway, a county road, would receive increased signs and special management through mapping and information kiosks; visitation might increase due to the allocation. The lowest estimate for usage increase would be that it would increase at the same rate that Maricopa County population increases since the market for the byway is expected to be the Phoenix metro area and visitors to Phoenix. County maintenance would continue with no noticeable change in maintenance. This allocation would have a negligible effect on the travel system. This allocation does not exist under the No Action Alternative. The Anza NHT's continued designation would have the effect of designating access roads to interpretive sites along the trail. An estimated three sites would need up to 10 miles of primitive roads designated for access.

From Travel Management on Travel Management

A management decision to allocate OHV areas as limited to designated routes (828,400 acres) would have the effect of requiring route designations to be completed and limiting all vehicles and bicycles to the designated route system. Maintaining the existing designated wilderness areas and camping closure as OHV closed areas (101,800 acres) would continue the ban on driving motorized and mechanized vehicles in these areas. Allocating 40 acres in the Ajo area as an open area where cross-country travel would be permitted would allow an existing primitive road used for motocross to remain and would reduce management needs in this area.

The management philosophy used in this alternative is for the most vehicle access to many popular locations, along with access to very remote locations that receive little use. Allowing for dispersal of recreationists would help avoid overuse. This alternative's conceptual route network mileage seeks to respond to recreation settings defined under Alternative B and all other resource allocations management actions. About 1,316 miles of road, primitive roads, and trails could be designated and be open to all vehicles, which includes up to 141 miles of seasonally closed primitive roads. Some of these roads would be in washes, but a majority would be in the Sonoran pronghorn seasonal closure area

south of Ajo. Vehicle access would be designated on most existing routes and could add up to 49 miles of new primitive roads or trails in the SRMAs. Nonmotorized trails could total around 22 miles, four of which are existing in the Estrella Mountains wilderness. The balance would likely be converted from motorized trails in community interface areas in the Buckeye Hills East SRMA. Motorized route connectivity would be emphasized in the Arlington, Painted Rocks and Buckeye Hills SRMAs. Under Alternative A, the Buckeye Hills East area is the highest use for OHVs, including off-highway motorcycles, where approximately 20 miles of single-track trails exist.

Managing 40 acres near Ajo as open to cross-country use would provide a unique opportunity for ATV and motorcycle enthusiasts.

Implementing OHV area allocations of "limited to designated routes" could result in an increase in new routes over the first five years of the plan, even though route proliferation is not allowed (even with the caveat that until such time route designations are completed, travel is restricted to existing roads and trails). Over the long term, vehicle management would be tenable under the designated routes-only OHV area allocation. Law enforcement success in reducing use off of existing roads and trails should be increased. Issuing a map showing the existing roads and trails combined with route marking signs would be sufficient to enforce the designated routes in all areas. Congested route areas would be manageable where the BLM presence occurs regularly and new routes are rehabilitated quickly. Seeking legal access on designated routes across non-BLM jurisdictions would eliminate the loss of public access. Where non-BLM land is a chokepoint for access and access cannot be acquired, routes may be closed, resulting in the loss of public access. The actions of creating a travel system, map, and signs and improved enforcement would have a minor effect on the route system by limiting visitors to the designated system, while making vehicle travel more sustainable due to increased management, leading to continued access for all visitors and the minimization of effects on natural and cultural resources.

From Vegetation Resources on Travel Management

Impacts would be the same as under Alternative A, except that fewer primitive roads in washes would likely be designated for use under Alternative B to increase protection. This would have a minor effect on travel since most upland primitive roads would remain available for use.

From Visual Resources on Travel Management

A decision to minimize visual impacts would have a minor effect of raising the construction cost of new roads, primitive roads, or trails in Class VRM II areas. Cost increases could be 20 percent to move from VRM Class III to Class II based on current technologies, such as restoration of natural colors of rock and soil. Up to 49 miles of new trails, primitive roads or roads could be constructed, which would be subject to increased costs. Alternative A management sets VRM Class III over large portions of the field office, thus there would be a lower requirement for visual mitigation under Alternative A.

From Wilderness Characteristics on Travel Management

No areas would be allocated as lands managed to protect wilderness characteristics under this alternative.

From Wildlife and Special Status Species Management on Travel Management

Designating wildlife movement corridors (332,300 acres) would have a minor to moderate effect by limiting where new routes could be constructed. This alternative would have the least effect on transportation and access concerns within the LSFO of any of the action alternatives.

Routes would not be constructed on ridgelines used by bighorn sheep or in or along washes, especially where cactus ferruginous pygmy-owls are known to exist. Route path selection options would be reduced, requiring additional planning or increased expense to achieve satisfactory recreation outcomes. A seasonal closure (March 15 to July 15), south of Ajo, would eliminate travel opportunities by any travel mode on 181 miles of roads and primitive roads during this period. Approximately 10 percent of the roads and primitive roads could be closed permanently to disperse and minimize the effects of concentration of camping to Pronghorn. Up to five miles of new primitive roads inside movement corridors are expected to be needed within the Arlington and Painted Rocks SRMAs.

Up to 30 percent of primitive roads could be closed to minimize effects on priority species, such as Sonoran pronghorn, Sonoran desert tortoise, and bighorn sheep. This level of closure would have a moderate effect on the route system since main connecting routes would be closed. Primitive roads in sand washes could be closed, reducing the overall impact of vegetation loss due to crushing or strata changes. Seasonally near Ajo, Sikort Chuapo Wash and Cuerda de Lena Wash could be closed from February 1 to September 15 for cactus ferruginous pygmy-owl breeding, nesting, and dispersal. The final decision to close routes will be made during follow-on route designations. Currently, no restrictions exist for driving in sand washes that are part of primitive roads.

4.20.4.3 Sonoran Desert National Monument

From Air Quality on Travel Management

Implementing a decision to comply with NAAQS the SIP and State law on air quality would raise engineering and management costs on five miles of routes and barren areas inside the PM_{10} boundary (3,452 acres). It would also raise the costs in areas annexed by cities or towns, referred to as Area A, which would be affected by a State law requiring them to manage for dust (ARS Title 500). Stabilization costs of up to $10,000 per mile per year, totaling $50,000, would be required on any route within this area not meeting Maricopa County dust rules. The decision to comply with air quality rules would raise costs to manage dust and could lead to route closure if compliance could not be achieved. This would be a minor effect on the route system regionally; locally, the effect would be moderate due to the loss of access near a residential area.

From Cave Resources on Travel Management

Impacts are anticipated to be negligible.

From Cultural and Heritage Resources on Travel Management

The Anza NHT would be designated for both motor vehicle and nonmotorized use within SDNM. Only a 2.75-mile segment west of Gap Well would be designated as nonmotorized use only. The eastern 13.5 miles would be combined motorized/nonmotorized use. Big Horn Station, south of I-8, would be

accessed by a maintenance intensity level 3 road (conceived to be up to eight miles long) . This would have a moderate effect on access to the area by making visitation of the site and areas south slightly more difficult, yet safer, by requiring the use of the Freeman Road exit and driving four miles west on a moderately improved dirt road. The highway gate currently in place would be locked and would remain locked for administrative use only.

From Lands and Realty on Travel Management

The development of minor linear and nonlinear LUAs on and along existing roads or primitive roads would have a minor to moderate short-term effect by interrupting public use during construction and site rehabilitation.

From Livestock Grazing on Travel Management

The elimination of grazing south of I-8 would cause all routes, with the exception of one primitive road to a well site just south of I-8, to be unnecessary for grazing operations. The continuation of grazing north of I-8 would require the continued use of approximately 130 miles of designated roads and primitive roads to range improvements. All of these routes would be open to public use, thus there would be no effect on public travel, as compared with the No Action Alternative, for the area north of I-8, where these same routes would also be available for use.

From Minerals Management on Travel Management

Impacts would be the same as those described under Alternative A for the Monument.

From Hazardous Materials and Public Safety on Travel Management

Impacts would be the same as those described under Alternative A for the Monument.

From Recreation Management on Travel Management

The creation of camp areas north of SR 238 would require road improvements on the roads to the Butterfield and Estrella recreation areas, which skirt the North Maricopa Mountains, to protect desert soils and improve passenger car access and air quality. As high-visitation areas, they would require road engineering and improvement to maintain the capacity, which would lead to increased funding needs and management attention.

Within the SDNM ERMA, 32.6 miles (5 percent of the Decision Area) of routes would be designated as roads, requiring additional improvement, construction, and disturbance. Approximately 569.9 miles (89 percent) of routes would be designated as primitive roads where maintenance would be performed only to protect soil and water from degradation and to maintain the desired low level of access. Of this, 494.4 miles would be open to all vehicles and 3.9 miles would be limited to vehicles 50 feet long or less. The 3.9 miles of primitive road would be open only to licensed vehicles and drivers possessing a BGR access permit.

Approximately 69.5 miles of primitive roads would be closed to all uses and rehabilitated; 37 miles of trails would be designated for nonmotorized uses, 34.3 miles of which would be in designated wilderness and thus available only to horse and hiking use; one mile of trail would be closed and rehabilitated on

the far eastern end of the Anza NHT, which could prevent trespassing on private land and uncontrolled access; and the remaining 2.7 miles would be outside of wilderness along the Anza Trail corridor, on the western side of the SDNM, and managed as nonmotorized use only. All of these adjustments to the route system would have a minor effect, compared to the No Action Alternative, due to most routes being managed for the current uses and beginning management that would support the achievement of recreation objectives.

From Soil Resources on Travel Management

Approximately 57 of 147 total miles of routes in Gila Bend, Denure, or Carrizo soil types would be closed, creating a moderate impact on travel. The proposed closed primitive roads are primarily located west of Mobile and near Vekol Wash. Impacts on visitors and the route system in this alternative would be minimized by allowing for dispersal users on more miles of routes than Alternative C or D, which would reduce the number of vehicle trips on erodible soils. standard operating procedures, including the creation of earthen drainage structures on designated primitive roads with erodible soils, would be implemented. This would limit the effects of these primitive road closures and would prevent the need for more closures, thus keeping the impacts to a moderate effect.

From Special Designations on Travel Management

Impacts are anticipated to be negligible.

From Travel Management on Travel Management

Allocating 328,700 acres as limited to designated routes OHV allocation would require route designations and would restrict vehicles to the designated route system. Allocating 157,700 acres as closed to OHV use would ban motorized and mechanized vehicles in designated wilderness areas. Compared to the No Action Alternative, OHV closed areas, approximately 161,200 acres under Alternative A, would be reduced by 3,500 acres by discontinuing the Vekol Valley ACEC and changing this area to "limited to designated routes." The OHV allocations would have a moderate effect on the travel system and its use. This is because current restrictions of limited to existing roads and trails can be vague and offer visitors the most latitude in choosing their route of travel; "limited to designated routes" would be very definitive, and penalties would be higher for noncompliance.

The decision to designate routes in SDNM would have a major effect on how visitors access and use the Monument resources. Implementation of the route system, including the use of maps and signs stating "use designated routes only," would raise awareness of the use of vehicles and bicycles and improve compliance. Reopening a temporary closure area north of SR 238 would make approximately 11 percent more area accessible to recreationists. Defining the routes in the current temporary closure area could make future closure of the area unnecessary, leading to improved recreation opportunities, vegetation, and soil conditions.

Manageability and legal uses of the route system would be improved over Alternative A. The average number of routes open per square mile would be reduced by 50 percent from Alternative A. Average route density, a general indicator of land health, would be reduced from 0.7 to 0.4 route miles per square mile, a 43 percent change from Alternative A. This would lead to reduced management costs and improved success in maintaining natural and cultural resource condition through better compliance and

regular maintenance. Miles of routes open for vehicle use in route proliferation concern areas would be reduced from 231 miles under Alternative A to 125 miles under Alternative B, which would lead to more vegetative cover and stabilized soils and in turn would minimize damage to soils, vegetation, and wildlife. Alternative B's approach to managing recreation impacts by dispersing travelers and minimizing repetitive disturbance of wildlife allows the most route mileage for vehicle access. In addition:

- A requirement for all drivers in the SDNM area to be licensed by the State of Arizona would have a moderate effect on the route system by potentially reducing cross-country driving in popular areas such as Gap Well, which is in creosote-bursage flats. This would improve the manageability of the proposed route system by reducing the need for enforcement and engineering.

- Safety would see minor improvements over Alternative A by the closure of two of five primitive roads identified with public safety concerns due to poor route condition.

- A decision to acquire legal access on all Monument access points would have a moderate effect on access. The number of access points would be reduced by the route designations for this alternative from 110 under Alternative A, the No Action Alternative, to 89 under Alternative B, a 19.1 percent decrease.

- As compared with Alternative A, in which only 15 miles of primitive roads, or 1 percent of the routes in the SDNM, are closed, this alternative would have a minor effect on travel since 11 percent of the routes would be closed.

From Vegetation Resources on Travel Management

A decision to emphasize the designation of routes in upland areas rather than washes would affect 63 miles of roads, primitive roads, and trails that were inventoried as being in washes. Approximately 0.6 mile of road, representing 100 percent of the roads in washes, would remain open, while 47 percent of the primitive roads and 0.8 mile (100 percent) of trails in washes would be closed under this alternative. This would minimize effects on vegetation occurring in washes and would have a moderate effect on travel. This is because the area where primitive roads occur most in washes is near the Sand Tank Mountains and there are few upland primitive roads to redirect traffic from the wash primitive roads. It should be noted that the reason for route closures in washes may not be solely based on one Monument object or resource, but rather several occurring in the same location.

A decision to rehabilitate impacts from disturbances within five years would raise the cost and complexity, and likely the success rate, of projects, which would have a minor effect on the route system since projects would likely not be foregone, just made more difficult. Specific projects like building the proposed road near Big Horn Station and rehabilitating closed or unauthorized routes would require fencing and seeding with native seed and vegetation. Drip irrigation systems may need to be temporarily installed. Currently, there is no time requirement to rehabilitate areas, resulting in long-lasting visual impacts.

From Visual Resources on Travel Management

The decision to protect mountain vistas would have a minor effect on the newly proposed Big Horn Station access road by requiring that the road be placed in an inconspicuous location as viewed from I-8. This would likely raise the cost of construction and reclamation. Furthermore, fugitive dust from driving the proposed level 3 road would need to be managed through dust suppressants or low-dust surfacing to maintain unobstructed vistas. Cost to apply dust suppression could be $10,000 to $20,000 per year. Under the No Action Alternative, no dust suppression is conducted, which could result in the need to close routes.

Managing for Land Health Standards on a designated route network would have a moderate effect by requiring all open routes to be repaired to limit erosion and soil movement. All open roads, primitive roads, and trails would need to be reviewed. It is expected that 25 to 50 percent of the primitive roads would need water control features, such as drain dips, installed at a cost of up to $5,000 per mile.

From Wilderness Characteristics on Travel Management

No areas would be allocated as lands managed to protect wilderness characteristics under Alternative B.

From Wildlife and Special Status Species Management on Travel Management

Approximately 33 miles of primitive roads in sand washes south of I-8 would be open to vehicle driving. A decision to limit average route density to three miles per square mile in wildlife movement corridors would be attained through route designation. The average route density in this alternative would be 1.2 miles of roads, primitive roads, or trails per square mile. The closures, in part caused by the management of priority species, represent 15 percent of the total existing routes, having a moderate effect on the travel system. A decision limiting driving speeds to 45 mph on new roads would require additional engineering, design, and enforcement, having a minor effect on the use of the travel system.

4.20.5 ALTERNATIVE C

4.20.5.1 Both Decision Areas

A decision to reintroduce Sonoran pronghorn under Section 10J of the Endangered Species Act would have the same effect as Alternative B.

From Wildlife and Special Status Species on Travel Management

Primitive roads in washes would be closed from April 15 to August 31 to address the forage, shelter, and thermal cover protection provided by washes as a component of wildlife habitat. Effects on travel management would be minor and short term due to the availability of motorized access by at least one route to the most popular places. Seasonal closure periods in washes would also be during the lower visitation times of the year. Therefore, the effects on visitors, including hunters, would be minor.

4.20.5.2 Lower Sonoran

From Cave Resources on Travel Management

Effects would be similar to Alternative B, except fewer primitive roads in the Painted Rocks Mountains area would likely be designated as open for reasons other than access to caves. All roads would still end 0.1 mile before known caves.

From Cultural and Heritage Resources on Travel Management

Same as Alternative B, except primitive roads and trails would be designated as open to minimize effects on resources near routes. The allocation of the Gila River Terraces/Sonoran Desert Historic Trails and Saddle Mountain SCRMAs could have the effect of closing about 7 percent of the routes (119 miles) within the boundaries of these areas. Approximately 26 percent of the routes could be closed inside SCRMAs for a combination of reasons including efforts to minimize such effects as data loss as a result of driving through sites and damage to sites from campsites in which casual collection may occur. A loop road around Saddle Mountain could be made partially nonmotorized to reduce the proximity of visitors using vehicles near cultural sites, an indirect impact where proximity to a rock art site allows more visitors to degrade or vandalize the site. A primitive road to a campsite on the north face of Saddle Mountain would be converted to a nonmotorized trail to increase the distance from known cultural sites, thus minimizing the indirect effects on cultural resources. Under the No Action Alternative, no closures would be implemented unless a route was discovered to be affecting a cultural resource.

From Lands and Realty on Travel Management

The allocation of nine multiuse corridors could have a minor to moderate effect by potentially reducing route connectivity for recreational use. Under the No Action Alternative, existing roads and trails are not considered an asset and can be closed during authorization of LUAs.

From Livestock Grazing on Travel Management

Impacts would be the same as those described for Alternative B for the Lower Sonoran.

From Minerals Management on Travel Management

Impacts would be similar to Alternative A, except fewer expected developments would cut connecting routes or eliminate access to fewer areas. This would result in less negative impact on the route system.

From Hazardous Materials and Public Safety on Travel Management

Impacts would be the same as those described under Alternative B for the Lower Sonoran.

From Recreation Management on Travel Management

The allocation of four SRMAs, compared to the No Action Alternative, would have a minor effect on the travel system. Motorized-vehicle use would not be directed to the Arlington or Painted Rocks Mountain areas as under Alternative B. There would be no vehicular-recreation focus SRMAs to aid in managing for increasing OHV use. Recreation sites in ERMAs would be established by popularity of use,

possibly including new unauthorized routes adjacent to popular camp areas in a similar manner as the No Action Alternative. New routes to facilitate loop trails for both motorized and nonmotorized travel would still be considered in front county recreation settings, yet only half as many miles, 24 would likely be needed to facilitate improving traffic circulation away from main roads. A shift in urban interface and front country setting acres to backcountry and passage zone, for a net increase in backcountry recreation setting acres of 37,500, would reduce the amount of area where new recreation roads, primitive roads, and motorized trails could be constructed. This zoning does not exist under the No Action Alternative, and all routes are available for use, regardless of desired visitor experiences identified under no action.

From Soil Resources on Travel Management

A small amount of mileage of primitive roads could be closed to minimize effects on loamy soils. Route closure, and thus reduction of impacts such as erosion and destabilization leading to vegetation loss, would occur mainly in the Buckeye Hills and Rainbow Valley areas north of the SDNM. Conversion of primitive roads to narrower and less dust-producing trails for nonmotorized use would likely occur, especially near residential areas. Most single-track trails used by motorcycles today would be converted to hiking and equestrian use or closed in the East RMZ of the Buckeye Hills SRMA. This action would lead to moderate impacts on the travel system for motorcycle riders. Currently, under the No Action Alternative, no routes are closed, and visitors are simply required to stay on existing roads and trails.

From Special Designations on Travel Management

The Coffeepot Batamote ACEC could close 14 miles of primitive roads to public use, while allowing public use on a gas-pipeline maintenance road. Under the No Action Alternative, all 14 miles of routes would be closed. Agua Caliente road Backcountry Byway impacts would be the same as under Alternative B.

From Travel Management on Travel Management

Alternative C's allocation of approximately 828,360 acres of OHV areas as limited to designated routes would have the effect of requiring route designations to be completed and limiting all vehicles and bicycles to the designated route system. Maintaining approximately 101,800 acres of existing designated wilderness areas and camping closures as OHV closed areas would continue the ban on driving motorized and mechanized vehicles in these areas.

A 40-acre area north of Ajo, where motocross takes place, would be managed as a designated route area under Alternative C, instead of an existing route area, as it currently is under Alternative A. This change would be expected to have a minor effect on management of the route system due to the increased management responsibility associated with keeping the two-mile track in the current alignment and reducing its effects on other resources. New layouts or simple realignments would require a travel management plan change. Under the No Action Alternative, vehicle travel would be allowed on all existing roads and trails, and there would be no change to this motocross experience route. More route miles would be subject to the prescriptions of an enlarged Coffeepot Batamote ACEC. It would be expected to have a minor effect on the route system due to a prohibition on creating new routes and the closure of some spur routes to campsites.

Alternative C's management approach seeks to balance use with protection and thus would avoid overuse by planning for more concentration of uses that Alternative A or B. The conceptual route network mileage (RFD scenario) follows recreation settings defined under Alternative C and all other resource allocations management actions where more area is allocated to backcountry than under Alternative B. Vehicle access would be designated as open on most existing routes in front country and could add up to 25 miles of new primitive roads or trails in SRMAs or areas where a new route would benefit public access or replace lost access as a result of private land blockage. The backcountry area increases by 75,900 acres over Alternative B. This would have a moderate effect on the route system since areas would more delineated for nonmotorized recreation, and routes could be closed in areas to achieve desired recreation settings like backcountry. On allocated lands managed to protect wilderness characteristics, most routes would be closed within the boundary, having a moderate impact on the travel system. Between Yellow Medicine Butte and Face Mountain, only a main through-route would remain to connect Agua Caliente Road with areas south of the railroad near the Gila Bend Mountains. Approximately 33 to 50 percent of the routes within these areas field office-wide could be closed to vehicle use. The emphasis in closure would be on routes that are not needed for through access, such as vehicle camping spur or redundant or looping primitive roads and trails.

A decision to acquire legal access on the designated route system would curtail the loss of public access where designated routes cross land not under BLM management, assuming all access points could be successfully negotiated for access. Reduced mileage, as compared to Alternative B and shown in the RFD scenario for travel in the Lower Sonoran, would reduce the number of access agreements or easements needed to secure legal access. Reducing the number of access points would reduce cost and the BLM workload but would increase the importance of acquiring the access on fewer routes. The decision to manage a route system would have a major effect on value of a travel system and lead to increased maintenance of roads and trails, which is expected to decrease OHV drivers' propensity to create unauthorized routes around areas with poor route conditions.

Issuance of an approved travel management map would have the same effect as Alternative B and is expected to raise the effectiveness of on-the-ground navigation by the public and improve law enforcement success in reducing off-route use and the associated resource damage.

From Vegetation Resources on Travel Management

Impacts would be expected to be the same as under Alternative B except that fewer routes in washes would be designated for motor vehicle use. Primitive roads in washes in the Gila Bend and Painted Rock mountains, many coinciding with lands managed to protect wilderness characteristics allocated under Alternative C, would total approximately 50 miles and could be closed. An additional 26 miles throughout the Decision Area could be closed. A total of 114 miles of primitive roads, or 7 percent of the total routes in Lower Sonoran, have been inventoried in desert washes. BLM regulations require vegetation to be maintained in washes; a total of approximately 76 miles of routes could be closed.

From Visual Resources on Travel Management

Effects would be the similar to Alternative B, except that more acres would be allocated to VRM Class II. Up to 25 miles of new primitive roads or roads could be constructed within SRMAs, which would be subject to increased costs to comply with VRM Class II. Under the No Action Alternative, in which most

of the Decision Area is designated VRM Class III, the extra expenses would not be incurred, and visual impacts could be long lasting.

From Wilderness Characteristics on Travel Management

The allocation of lands managed to protect wilderness characteristics could have the effect of closing up to 28 miles, or 34 percent, of the routes inside the Decision Area to motorized vehicles, having a moderate effect due to a loss of connectivity of the route system. About seven miles, or 15 percent, of existing trails open to only ATVs or motorcycles could be converted to nonmotorized trail as a direct result of allocating lands managed to protect wilderness characteristics. Building new roads, primitive roads, and motorized trails would be avoided, which would have the effect of maintaining the area generally in its current state or slightly less roaded. Wilderness characteristic areas total 128,100 acres under Alternative C. Under the No Action Alternative, no lands managed to protect wilderness characteristics are allocated, thus the impacts discussed here would not be present.

From Wildlife and Special Status Species Management on Travel Management

Designating approximately 332,300 acres as wildlife movement corridors would have a moderate effect by limiting where new routes could be constructed and where doing so would have a negative effect on wildlife movement. Approximately 53 additional miles of primitive roads and trails could be closed, compared to Alternative A, having the effect of reducing route connectivity in areas outside of SRMAs. Routes would not be constructed on ridgelines used by bighorn sheep or in well-vegetated washes, especially where cactus ferruginous pygmy-owls are known to exist, specifically in the Ajo area. Limiting the location of new routes could raise construction costs and reduce trail location possibilities. New primitive roads and trails, totaling two miles, may not be constructed or result in fewer miles being constructed. Such routes would facilitate trail riding on primitive roads or trails. Fewer new primitive road or trail miles would be constructed field office-wide to minimize effects within movement corridors, leading to fewer loop route opportunities for vehicle-based recreation.

Within the Sonoran pronghorn seasonal closure area, up to 39 percent (approximately 72 miles) of the routes could be closed. The approach of containing recreationists to few roads and areas would decrease the available mileage for driving, more than under Alternatives A or B. Under the No Action Alternative, the only restriction on the use of all the existing routes would be the seasonal entry closure (March to July).

4.20.5.3 Sonoran Desert National Monument

From Air Quality on Travel Management

Effects would be similar to Alternative B, with the exception that 2 miles of 4.9 miles of primitive roads would be open to access camping areas south of the gas pipeline road.

From Cave Resources on Travel Management

Impacts are anticipated to be negligible.

From Cultural and Heritage Resources on Travel Management

A shift from motorized use to nonmotorized use on the Anza NHT would limit the potential of cultural resources being trampled by vehicles along 17.1 miles of the trail. Butterfield Pass would be accessible by motor vehicle from the east to the existing information kiosk (3.9 miles) and from the west to a point near Happy Camp (1.1 miles). The middle portion, 1.6 miles in Area 2, would be accessible only by nonmotorized means or by motorized vehicle for administrative or permitted purposes.

Approximately 10.5 miles of the trail east and west of the mountain pass area would be limited to nonmotorized travel modes. This would be expected to have a minor effect on travel because most of the vehicle trips would occur on the Butterfield Pass area, where similar the experiences are available in the No Action Alternative.

From Lands and Realty on Travel Management

Impacts are anticipated to be negligible.

From Livestock Grazing on Travel Management

Impacts would be the same as those described under Alternative B for the Monument.

From Minerals Management on Travel Management

Impacts would be the same as those described under Alternative A for the Monument.

From Hazardous Materials and Public Safety on Travel Management

Impacts would be the same as those described under Alternative B for the Monument.

From Recreation Management on Travel Management

The creation of camp areas north of SR 238 would have the same impacts as Alternative B, with the exception that fewer dispersed camping primitive roads would be available. This would require additional route and area monitoring and periodic maintenance or rehabilitation due to increased visitation to available camp areas.

Within the SDNM ERMA, 24.6 miles of routes would be designated as roads with similar effects as Alternative B, and 569.9 miles, or 89 percent, of routes would be designated as primitive roads where maintenance would be performed to protect soil and water resources from degradation and maintain the desired level of access. Of these 569.9 miles, 358.1 miles would be open to all vehicles, 3.9 miles of primitive roads would be open to vehicles 50 inches wide or less, and the area south of Javelina Mountain would be closed to vehicles to protect wildlife and provide primitive recreation. Though it represents a 100 percent closure of the primitive roads limited to ATV width, these closures under Alternative B would have a minor effect on the travel system as a whole.

Approximately 358.1 miles of primitive roads (43 percent) would be designated open to all vehicles under Alternative C, which is a major reduction from Alternative A. Trail asset designation would be the same as Alternative B. Compared with the No Action Alternative, route designations under Alternative

C would represent a moderate change due to the marking of routes and a noticeable loss of vehicular access to remote areas.

From Soil Resources on Travel Management

Approximately 203 miles, or 42 percent, of roads and primitive roads in poor soils, out of the 350 miles total, would remain open, creating a moderate impact on travel since many popular areas would still be accessible by at least one route. Management of the route system would likely be more effective in poor soil areas, commonly associated with creosote-bursage vegetation community areas, by closing 53 percent of the routes. These areas were also identified by staff as "route proliferation concern areas," specifically north of SR 238 and along Vekol Valley Road.

These routes would remain open under the No Action Alternative. The management approach to restrict use to fewer routes than Alternatives A or B seeks to create a balance with human uses and natural resources, leading to sustainability and Monument object protection. The percentage of the Decision Area affected by the route footprint in poor soil areas would be reduced from 0.16 percent under Alternative A to 0.11 percent under Alternative C. Impacts on route system sustainability would be further minimized by implementing mitigation measures, such as creating earthen drainage structures on erodible soil sections of remaining open routes.

From Special Designations on Travel Management

Designation of the Anza NHT would have effects similar to Alternative B, with the exception of shifting approximately 10 of 17 miles of the trail in the SDNM to nonmotorized use. The popular portion of the trail, including Desert Station, Happy Camp, and Butterfield Pass, would be designated as a primitive road where vehicles are permitted only by SRP. Most use would become nonmotorized, a moderate change in use from the No Action Alternative, where vehicles are allowed on all portions of the Butterfield/Anza Trail.

From Transportation and Travel Management on Travel Management

Allocating 328,700 acres as OHV limited to designated routes and 157,700 acres to OHV closed would have the same effect as Alternative B.

Designating routes would have similar effects as Alternative B with respect to making travel management sustainable. Routes would not be designated under the No Action Alternative. Designation of 24.6 miles of roads is the same as Alternatives B, and Alternative C and would have the same effects. Designation of trails is the same as Alternative B and would have the same effects. Designation of primitive roads would represent a major change from Alternative A, where 322.1 miles (57 percent) of the existing primitive roads would be closed. Additionally, 35.3 miles (6 percent) would be closed to public use with limited administrative access allowed. The closure of 60 percent of the primitive roads to the public would concentrate visitors on fewer roads and primitive roads. This would lead to a transfer of recreation opportunities from vehicles to dispersed nonmotorized opportunities. Under this alternative, the fewest miles of primitive roads would be available for public use or BLM administration of authorized activities. Some activities may require cross-country vehicle access, which would need to be approved on a case-by-case basis and might require rehabilitation.

A driver's licensing requirement would have the same effect as described under Alternative B. Law enforcement success in reducing driving off existing roads and trails would be greatly improved and simplified by this alternative's reduced open mileage. Map and sign plan implementation would have the same effects as Alternative B. The implementation of 17.1 miles of administrative use-only primitive roads, a large increase from Alternative B, where none exist, would increase the need for monitoring gates and inaccessible areas behind them. Expenses for managing the route system would be less than the other action alternatives over the long term due to fewer route miles and signs to maintain. Expenses for implementation of the travel system would be increased over Alternatives A, B, and C due to the need to effectively reclaim primitive roads and parking areas.

From Vegetation Resources on Travel Management

Effects would be similar to Alternative A, except that fewer routes would remain open for vehicle use. Conserving vegetation in washes would have the effect of closing 34 miles of primitive roads in washes and limiting 16.5 miles of washes south of I-8 to seasonal vehicle use (February 1to September 15), which would have a moderate effect on travel.

From Visual Resources on Travel Management

Impacts would be similar to Alternative B, except that the new Big Horn Station access road would not be constructed, and none of the issues surrounding the construction would be an issue south of I-8. This new route would not be constructed under the No Action Alternative.

From Wilderness Characteristics on Travel Management

Approximately 35.3 miles, or 78 percent, of the primitive roads inside the boundary would be closed and rehabilitated in the Sand Tank Mountains area; 9.2 miles, or 21 percent, of primitive roads would remain open; and 0.7 mile of primitive road in a wash would be closed seasonally (February 1 to September 15). This route system minimizes conflict with the sights and sounds of vehicles and improves solitude and unconfined recreation. No lands managed to protect wilderness characteristics are allocated under the No Action Alternative; thus none of the mileage reductions described would occur, as compared to Alternative A or B.

From Wildlife and Special Status Species Management on Travel Management

Managing for priority species would have a moderate effect on the travel system, affecting 63.4 miles in washes, approximately 10 percent of the Monument's inventoried routes. Approximately 17 miles, or 27 percent, of primitive roads in sand washes south of I-8 would be limited to seasonal use where public driving would be disallowed from February 1 to September 15. This closure would protect cactus ferruginous pygmy-owl breeding areas, as well as thermal cover areas during hot weather. Approximately 34 miles of primitive roads in washes, or 55 percent of the total in the Decision Area, would be closed to all uses and would not be managed as an asset; 5 miles, or 8 percent, of the primitive roads in washes would be left open year-round for vehicular traffic; and 11 percent would remain available for administrative uses. Between I-8 and the north side of the Sand Tank Mountains, when seasonal restrictions are in effect, access would be limited to hiking or equestrian modes because no other roads or primitive roads are present. This would be expected to have a major effect on the travel system and most people's ability to access this area. Administrative use by law enforcement or AGFD

would be foregone on these same washes, having a major effect on the use of the system south of I-8 for these uses. The allocation of 334,800 acres, or 69 percent of the Monument, to wildlife movement corridors would affect the ability to construct new roads or primitive roads in these areas by prohibiting or limiting the placement to minimize effects on movement. Because no new routes are planned under Alternative C, the effects would be negligible.

4.20.6 ALTERNATIVE D

4.20.6.1 Both Decision Areas

A decision to reintroduce Sonoran pronghorn under Section 10J of the Endangered Species Act would have the same effect as Alternative B.

From Livestock Grazing on Travel Management

Under Alternative D, all allotments would become unavailable for livestock grazing as permits expire. This could enhance the travel experience because gates would no longer have to be closed to prevent cattle from escaping pasture enclosures. Moreover, conflicts between livestock and travellers would be dramatically reduced on federal lands. However, because livestock management would be eliminated, roads that are typically maintained by the permittees would likely no longer be maintained, thus making travel more difficult and dangerous for travellers.

4.20.6.2 Lower Sonoran

From Air Quality on Travel Management

Effects would be the same as Alternative B, with exception that approximately 137 of 270 miles, or 51 percent, of the routes inside PM_{10} areas could be closed due to PM_{10} dust issues or other management issues. This total of 137 miles represents 8 percent of the total routes in the Decision Area. Closing these routes would be expected to have minor effects on access.

From Cave Resources on Travel Management

Effects would be the same as Alternative B, except that fewer primitive roads would remain open in Sentinel Plain, partly to mitigate the hazard associated with this resource. Reducing vehicular access routes that go to cave resources would be expected to decrease visitation and consequently the opportunity to become trapped or injured.

From Cultural and Heritage Resources on Travel Management

Effects would be similar to Alternative C, except that SCRMAs identified under Alternative C would be managed as ACECs under this alternative. Therefore, effects on the route system are discussed in **Section 4.18,** Impacts on Special Designations.

From Lands and Realty on Travel Management

Impacts are anticipated to be negligible.

From Minerals Management on Travel Management

Impacts would be the same as Alternative A, except that fewer open routes would increase the importance of preventing the loss of access to designated routes.

From Hazardous Materials and Public Safety on Travel Management

Impacts would be the same as those described under Alternative A for the Lower Sonoran.

From Recreation Management on Travel Management

The allocation of two SRMAs would have a moderate effect on the travel system due to a lack of direction to create loop trail systems and maintain the routes for specific identified uses. Motorized vehicle use would be encouraged only in the Buckeye Hills East Trails SRMA, and the bulk of recreation vehicle traffic would be directed to areas not developed to handle increasing use. The route system may become overused and require temporary or permanent closure as a result to stop route proliferation and minimize resource degradation. Recreation sites in ERMAs would continue as under the No Action Alternative, exhibiting denuded areas and, possibly, new unauthorized routes adjacent to popular camp areas. This would require additional annual rehabilitation. New routes would be considered on a case-by-case basis but generally would not be planned to improve recreation opportunities. A reduction of urban interface and front country acreage from Alternatives A, B, and C and in increase in backcountry and passage zone acres would reduce the amount of area where specific recreation management, such as OHV and mountain bike loop trail systems, would take place. The absence of the Ajo ERMA, replaced by an ACEC, would have the effect of avoiding recreation development, thus the route system would be minimized under this management approach. This high level of backcountry allocation combined with other allocations would have a major effect since the route system would be reduced in mileage by 40 to 50 percent across the field office area, and new routes to connect loops would not be developed, as under Alternatives B and C.

From Soil Resources on Travel Management

Approximately 137 miles, or 51 percent, of primitive roads could be closed to minimize effects on soils, mainly in the Buckeye Hills and Rainbow Valley areas north of the SDNM. Compared with the No Action Alternative, under which no routes would be closed in these areas, the proposed closure under Alternative D would have a moderate impact on the travel system.

From Special Designations on Travel Management

Five ACECs totaling 263,700 acres could have the effect of closing 279 miles, or 61 percent, of the 454 miles of routes inside the ACECs. Approximately 37 miles, or 8 percent, could be designated for seasonal use. Effects on the route system would likely be major due to losses in connectivity of routes where breaking routes to deter traffic would benefit the resources of the ACEC. The Agua Caliente Road Backcountry Byway would not be present under this alternative; therefore the effects would be the same as the No Action Alternative, where there is no backcountry byway.

From Travel Management on Travel Management

A management decision to allocate 551,900 acres of OHV areas as "limited to designated routes" would have the effect of requiring route designations to be completed and limiting all vehicles and bicycles to the designated route system. With the exception of 21,400 acres, the No Action Alternative would not require route designation. Maintaining the existing designated wilderness areas and camping closure as OHV closed areas (378,300 acres) would continue the ban on driving motorized and mechanized vehicles in these areas. An existing primitive road used for motocross experiences in Ajo (2 miles) would be closed and rehabilitated having a negligible effect on the route system overall, yet represents a 100 percent closure to the mileage available for such experiences since it would be foregone. Recreation opportunity would be altered.

The effects of creating travel management areas would have the same effect as Alternatives B and C. No such areas exist under the No Action Alternative.

This alternative's philosophy would direct a "concentration of use" of recreationists, thus reducing use in areas outside of hardened recreation sites and minimizing the effects on resources. This style of management is popular in city parks and other high use settings. This alternative's conceptual route network mileage seeks to respond to recreation settings defined in this alternative. Vehicle access would be designated on approximately 50 percent of the existing routes and would not add new miles of new primitive roads or trails. In SRMAs or areas where a new route would benefit public access or replace lost access, a no-net-gain route replacement would be considered. This 50 percent reduction over Alternative A route mileage would have a major effect on visitors' ability to disperse. Effects on visiting popular sites or areas are expected to be minor, even with large areas inaccessible by vehicle since redundant routes would be targeted for closure. This would have an additional effect of reducing route driving choices, which directly relates to recreation experiences, thus having a major effect on OHV users seeking less traveled routes. Allocated lands managed to protect wilderness characteristics throughout the field office area would be only accessible on main through routes or by nonmotorized cross-country modes.

Between Yellow Medicine Butte and Face Mountain, it is conceived that no routes would connect Agua Caliente Road with areas south of the railroad near the Gila Bend Mountains having a major effect on access to this large area due to not being able to drive off of main roads or higher use primitive roads. Under the No Action Alternatives, all routes inside this area would be closed or limited to administrative use, mostly accessing wildlife waters. OHV closed designations coinciding with wilderness characteristic areas would have the effect of closing all routes inside these areas and also deterring the creation of new motor vehicle routes for public use.

Vegetation and rehabilitation requirements would remain the same as Alternative B, which would have a moderate effect on the route system since routes closed through route designation would need to be rehabilitated and the loss of route choices would be very noticeable to area users. Some primitive roads and trails in high rock-content soils may take 10 years or more to recover, even with active reclamation techniques. Achieving a timeframe of five years would require additional resources, such as drip irrigation, specialized barriers, and hand cultivation.

A decision to acquire legal access on the designated route system would curtail the loss of public access where designated routes cross land not under BLM management. Reduced mileage as compared to

Alternatives A, B, and C, as shown in the RFD scenario for travel in Lower Sonoran, would reduce the number of access agreements or easements needed to secure legal access. Reducing the number of access points would reduce cost and the BLM workload but also would increase the importance of acquiring the access on fewer routes. If the route system is reduced by 50 percent from Alternative A, the number of access points could be approximately half that of the current condition, thus having the effect of increasing the importance of acquiring the remaining access points. Reducing the number of access points to the BLM route system by up to 50 percent would have a major effect on the network by making access points farther apart and disallowed in some areas altogether. Furthermore, construction of only one mile of new route would be allowed, probably to service new range improvements would reduce the possibility of creating bypass routes around private or other jurisdiction lands for access.

Issuance of an approved travel management map would have the same effect as Alternative B and is expected to raise the effectiveness of on-the-ground navigation by the public and improve law enforcement success in reducing off-route use and the associated resource damage. No comparable map exists under the No Action Alternative management.

From Vegetation Resources on Travel Management

Impacts are anticipated to be the same as described for Alternative B except that fewer routes in washes would be designated for motor vehicle use. A decision to emphasize the designation of routes in upland areas rather than washes would affect 183 miles of primitive roads, which were inventoried as being in washes. Approximately 163 miles of primitive roads could be closed under this alternative. Approximately four miles of primitive road in washes could be designated as limited to administrative use in the northern part of the Gila Bend Mountains, which would reduce public travel through washes to wildlife waters and range improvements, thus reducing the frequency of disturbance to wildlife.

From Visual Resources on Travel Management

Effects would be the same as Alternative B, except that more acres would be allocated to VRM Class II, which raises the requirement for mitigation of ground disturbance. No new roads or primitive roads would be constructed, leading to less connectivity of the route system.

From Wilderness Characteristics on Travel Management

Approximately 270 miles of existing routes traverse areas that would be allocated as lands managed to protect wilderness characteristics. Allocating lands managed to protect wilderness characteristics could close up to 95 percent of the routes inside these areas to motorized vehicles. Approximately 56 percent (151 miles) of the primitive roads could remain open as "cherry-stemmed" routes and would consist of through-routes, mainly with no campsite spur roads. Public access by vehicle to wildlife waters would be maintained, except near Face Mountain where access would be administrative. The building of new roads and primitive roads and motorized trails would be prohibited by the decision to allocate the OHV area designation as closed coincident with lands managed to protect wilderness characteristics.

From Wildlife and Special Status Species Management on Travel Management

WHAs identified under Alternative C would be managed as ACECs under this alternative. Eight movement corridors would remain, and the effects would be the same as under Alternatives B and C. Designating wildlife movement corridors would have the same effect as Alternatives B and C because they would be the same corridors. Compared to the No Action Alternative, WHAs would place restrictions on new route creation and management. Routes would not be constructed on ridgelines used by bighorn sheep or in well-vegetated washes, especially where cactus ferruginous pygmy-owls are known to exist, such as in the Ajo area. Approximately 163 miles (89 percent) of the primitive roads in washes could be closed. Limiting the location of new routes could raise construction costs and reduce trail location possibilities. Two miles of new primitive roads and trails might not be constructed. Such routes would facilitate trail riding on loop trails. Fewer new primitive road or trail miles would be constructed in the Decision Area, which would minimize effects within movement corridors.

Within Sonoran pronghorn seasonal closure area, up to 122 of 175 miles of the routes, or 70 percent of the total routes, could be closed. The approach of containing recreationists to few roads and areas would minimize effects on pronghorn by increasing unroaded habitat areas under this alternative.

4.20.6.3 Sonoran Desert National Monument

From Air Quality on Travel Management

Impacts are anticipated to be minor, with 3.4 miles of primitive road being closed to all uses inside the PM_{10} area.

From Cave Resources on Travel Management

Impacts are anticipated to be negligible.

From Cultural and Heritage Resources on Travel Management

A shift from motorized use to nonmotorized use on the Anza NHT would affect 17.1 miles of the trail, which would be designated as a primitive road limited to nonmotorized use. Butterfield Pass would be inaccessible to the public by motor vehicle. Administrative motor vehicle use from Gap Well to approximately Desert Station would be permitted. Areas to the east and west of Butterfield Pass, totaling 10.5 miles, would be managed for nonmotorized use. Vehicles on the Anza NHT would be prohibited. Compared to the No Action Alternative, the decision to restrict the trail to nonmotorized use represents a 100 percent closure to motor vehicles on the Butterfield/Anza Trail and would have a moderate impact on visitors wishing to drive on the historic trail, specifically at Butterfield Pass. For visitors seeking nonmotorized opportunities, this represents a moderate effect due to achieving desired recreation experiences. Overall, the loss of vehicle access to this trail corridor represents a closure of 3 percent of the total vehicle accessible routes in SDNM, which would be a minor effect on the travel system overall.

From Lands and Realty on Travel Management

Impacts are anticipated to be negligible.

From Minerals Management on Travel Management

Impacts would be the same as those described under Alternative A for the Monument.

From Hazardous Materials and Public Safety on Travel Management

Impacts would be the same as those described under Alternative B for the Monument.

From Recreation Management on Travel Management

The allocation of the SDNM ERMA would have a major effect on the route system. Combined with allocations for natural resources, the greatest total of routes would be closed under this alternative. As compared to the No Action Alternative, where none of these allocations occur and few routes are closed, route closures would increase by about 56 percent in the backcountry areas, which total 82 percent of the Monument. Passage zones totaling 2 percent of the Monument would provide some relief by allowing selected routes to remain open. The allocation of front country settings and the potential creation of camp areas north of SR 238 would have the same impacts as Alternative B, with the fewest dispersed camping primitive roads available. This would require the highest route and area monitoring and periodic maintenance or rehabilitation due to high visitation to available camp areas.

Within the SDNM ERMA, 25 miles of routes would be designated as roads with similar effects as Alternative B. Approximately 219 miles, or 39 percent, of routes would be designated as primitive roads where only maintenance would be performed to protect soil and water resources from degradation and maintain the desired level of access, and 35 miles of primitive roads would be limited to administrative use only. Trail asset designation would be the same as under Alternative B.

From Soil Resources on Travel Management

Approximately 149 miles (43 percent) of routes of the 350 miles located in poor soil areas would remain open, creating a moderate impact on vehicular travel. Most popular areas would still be accessible by at least one route. Route choices to most locations would be limited to a single route and would likely increase the maintenance needs on the remaining open routes. Hardening of the road base would likely be required for roads and primitive roads receiving 50 to 100 average daily traffic counts or more. None of these routes would be closed under the No Action Alternative, yet the requirement to stabilize them would remain.

Effects on travel would be major as compared to the No Action Alternative by closing 60 percent of the routes, or 144 of 231 miles, in areas identified by staff as "route proliferation concern areas," specifically north of SR 238 and along Vekol Valley Road. The management approach to greatly restrict use to the fewest routes feasible seeks to minimize the human footprint to hardened managed areas. This approach requires balancing the development of anticipated high-use recreation sites with the possibility for creating new wildlife avoidance zones and movement barriers. Having the fewest available routes in poor soils could improve Monument objects and resources that rely on soil condition, thereby allowing the soil to become productive where vehicle routes were previously. The amount of area affected by the route footprint in poor soil areas would be reduced from 0.16 percent under Alternative A to 0.10 percent under this alternative. Impacts would further be minimized by implementing standard mitigation measures, such as creating earthen drainage structures on erodible sections of open routes.

From Special Designations on Travel Management

Designation of the Anza NHT would have effects similar to Alternative B, with the exception of shifting the entire 17 miles of the trail in SDNM to nonmotorized use. The popular portion of the trail, including Desert Station, Happy Camp, and Butterfield Pass, would be designated as a primitive road where vehicles would be allowed. Mitigations would need to be applied to prevent the impacts from OHV use that caused a temporary closure in this area. As compared to the No Action Alternative, where vehicle use would be allowed on all portions of the trail, this alternative has a major effect on travel by motor vehicle by eliminating it on the trail and allowing only nonmotorized traffic on the trail. Access to popular areas along the trail by motor vehicle would remain available.

From Travel Management on Travel Management

Allocating 175,700 acres as limited to designated routes and allocating 310,700 acres to OHV closed area would have a major effect on the travel system, by closing areas greater than 10,000 acres to vehicular use. Conversely, large areas for nonmotorized access are dramatically increased in size, having a major effect on this travel mode as well. As compared to the No Action Alternative, where 161,200 acres are closed, this alternative closes much more area to vehicular access.

Designating routes would have similar effects as Alternative B, with respect to making travel management sustainable and reducing vehicle and bicycle driving opportunity. Designation of 24.7 miles of roads would be the same as under Alternatives B and C and would have the same effects. Designation of trails is the same as Alternative B and would have the same effects. Designation of primitive roads would represent a major change from Alternative A, in which 303 miles (54 percent) of the existing primitive roads would be closed. Additionally, 35 miles (6 percent) would be closed to public use, with limited administrative access allowed. The closure of 60 percent of the primitive roads to the public would concentrate visitors on fewer roads and primitive roads. In turn, this would lead to a transfer of recreation opportunities between visitors relying of vehicles and those seeking dispersed nonmotorized opportunities. Under this alternative, the fewest miles of primitive roads would be available for public use and administration of authorized activities. Some activities may require cross-country vehicle access,, which would need to be approved on a case-by-case basis and might require rehabilitation.

A licensing requirement for all drivers on SDNM, coupled with a ban on OHVs under 1,800 pounds, would have a moderate effect on the travel system. One would be the result of fewer vehicles with knobby tread tires adding wear and tear on roads and primitive roads, causing the need for additional maintenance. Access to remote areas would remain available, but only to full-size licensed vehicles. Conversely, more mature drivers, demonstrated by a minimum age of 16 years and able to pass the State vehicle licensing test, combined with smooth tire vehicles used in a relatively low speed manner, would reduce maintenance needs on many roads and primitive roads and areas adjacent to them. OHV users riding dual sport motorcycles with the State OHV decal would be particularly affected since they legally use paved highways, similar to full-size vehicles, before accessing primitive roads, but they would be barred from using any road or primitive road on the SDNM. However, the effects of cross-country use by full-size vehicles would remain unchanged wherever it occurs. There is no data available to suggest if full-size vehicle traffic would increase to replace lost access formerly gained by using OHVs.

Law enforcement success in reducing driving off roads and trails would be greatly improved and simplified by this alternative's reduced open mileage. Map and sign plan implementation would have the

same effects as Alternatives B and C. The implementation of 35 miles of administrative use-only primitive roads, a 100 percent increase from Alternative C, would increase the need for monitoring gates and the inaccessible areas behind them. Expenses for managing the route system would be less than the other action alternatives over the long term due to fewer route miles and signs to maintain. Expenses for implementation of the travel system would be increased over Alternatives A, B, or C, due to the need to effectively reclaim primitive roads and parking areas.

There are 44 access points to SDNM under this alternative, a 60 percent reduction from Alternative A. Acquiring legal access to a greatly reduced mileage system could reduce acquisition costs and staff workload. Similar to Alternatives B and C, with limited access points, each point becomes much more critical to secure.

From Vegetation Resources on Travel Management

Impacts would be the same as Alternative A, except the fewest routes would remain open for vehicle use. Conserving vegetation in washes would have the effect of closing 59 of 63 miles of primitive roads in washes. No seasonal limits would be enacted. This would have a moderate effect on the travel system, mostly south of I-8.

From Visual Resources on Travel Management

Impacts would be the same as those described under Alternative C for the Monument.

From Wilderness Characteristics on Travel Management

Approximately 125 miles (91 percent) of the primitive roads inside the boundary would be closed and rehabilitated in the Sand Tank Mountains area. Approximately two miles, representing 100 percent of the trails outside wilderness, would be closed, two miles (2 percent) of primitive roads would remain open, and seven miles of primitive road would be available only for administrative use. Allocation of lands managed to protect wilderness characteristics creates the maximum amount of solitude and unconfined recreation of all the alternatives through the closure of existing primitive roads and trails, having a major effect by greatly restricting vehicular access to areas around the Sand Tank Mountains, Javelina Mountain, and Margie's Peak.

From Wildlife and Special Status Species Management on Travel Management

Managing for priority species would have a moderate effect on the travel system by affecting 64 miles, or 10 percent, of the Monument's inventoried routes. Approximately 59 miles, representing 92 percent of the primitive roads in washes, would be closed to all uses and would not be managed as an asset. Approximately one mile, or 1 percent, of the primitive roads in washes, would be left open year-round for vehicular traffic. Between I-8 and the south border of the SDNM near the Sand Tank Mountains and White Hills, decisions to maximize habitat in washes would limit access to hiking and horseback riding because no other open roads or primitive roads would be present. Closing these primitive roads in washes would be expected to have a moderate effect on travel in the SDNM.

The allocation of large areas, 334,800 acres, consisting 69 percent of the Monument, for wildlife movement corridors would affect the ability to construct new roads or primitive roads in these areas, although no new routes are currently proposed in this alternative.

4.20.7 ALTERNATIVE E (PROPOSED RMP)

4.20.7.1 Both Decision Areas

A decision to reintroduce Sonoran pronghorn under Section 10J of the Endangered Species Act would have the same effect as Alternative B.

From Wildlife and Special Status Species on Travel Management

Primitive roads in washes would be closed from April 15 to August 31 to address the forage, shelter, and thermal cover protection provided by washes as a component of wildlife habitat. Effects on travel management would be minor and short term due to the availability of motorized access by at least one route to most popular places. Seasonal closure periods in washes would also be during the lower visitation times of the year. Therefore, the effects on visitors, including hunters, would be minor.

4.20.7.2 Lower Sonoran

From Air Quality on Travel Management

Effects would be the same as Alternative C, except that 1 percent more routes would be expected to remain open for motor vehicle use as a result of implementing a combination of decisions from other resource areas intended to mitigate for environmental effects.

From Cave Resources on Travel Management

Impacts would be the same as those described under Alternative B for the Lower Sonoran.

From Cultural and Heritage Resources on Travel Management

Effects would be the same as Alternative D, in which Gila River Terraces and Saddle Mountain would be managed as ACECs.

From Lands and Realty on Travel Management

Impacts are anticipated to be negligible.

From Livestock Grazing on Travel Management

Impacts would be the same as those described under Alternative A for the Lower Sonoran. Effects would be from the creation of new range improvements and associated routes needed to serve the activity.

From Minerals Management on Travel Management

The impacts would be the same as Alternative B. Effects would be from the creation of new mines and the conversion of roads or primitive roads into haul roads not suitable for recreation or the truncation of recreation routes without rerouting.

From Hazardous Materials and Public Safety on Travel Management

Impacts would be the same as those described under Alternative A for the Lower Sonoran.

From Recreation Management on Travel Management

Allocation of three SRMAs would have effects similar to Alternative C, except the Saddle Mountain area would be managed as an ERMA, not a SRMA. New primitive roads or trails could be constructed in the Arlington, Buckeye Hills, and Ajo areas, totaling up to 35 miles. Within SRMAs, approximately 72 percent of the existing routes would remain open as roads or primitive roads, 19 percent could be closed and rehabilitated, 4 percent could be designated as motorized trails, and 19 miles (2 percent) could be converted from primitive roads to nonmotorized trails. This latter would be specifically in the Saddle Mountain area, where the "loop road" around the prominent Saddle Mountain could become nonmotorized to implement backcountry setting on around the mountain. North of Ajo, up to two miles of primitive roads could be constructed to improve primitive road connectivity.

From Soil Resources on Travel Management

Impacts would be the same as those described under Alternative C for the Lower Sonoran.

From Special Designations on Travel Management

Effects would be similar to B for routes inside Coffeepot and Cuerda de Lena ACECs and similar to Alternative C for the Gila River and Saddle Mountain. The creation of new motorized routes would be disallowed in all the ACECs, unless a route is needed to minimize damage or stop degradation of the purposes for the ACEC.

From Travel Management on Travel Management

A management decision to allocate 788,160 acres of OHV areas as limited to designated routes would have effects similar to Alternatives B, C, and D by limiting all vehicles and bicycles to the designated route system. Maintaining 142,000 acres of designated wilderness and allocated lands managed to protect wilderness characteristics as closed to OHVs would continue the ban on driving motorized and mechanized vehicles in these areas. There would be no areas managed as "open" for cross-country OHV use, and demand for a cross-country experience would not be addressed, meaning some visitors may be tempted to create their own cross-country areas. The effects of creating travel management areas would have the same effect as Alternatives B, C, and D.

Implementing SRMAs, thus allowing for a "dispersal of use" of recreationists on a variety of route types would have effects similar to Alternatives C and D. This alternative's conceptual route network mileage seeks to respond to recreation settings, which are a combination of Alternatives C and D recreation allocations. Vehicle access would be generally allowed on about 78 percent of existing and new routes,

similar to Alternative C. SRMA allocations would direct the construction of up to 35 miles of new primitive roads or trails. Such routes would benefit public access or replace lost access as a result of private land blockage. This would have a minor effect on visitors' ability to disperse in backcountry areas where access would be reduced.

Effects on visiting popular sites or areas are expected to be minor. Effects on motorized use in the Buckeye Hills East SRMA would be major, where approximately 56 percent of the primitive roads and trails could be closed to use or converted to nonmotorized use.

Issuance of an approved travel management map would have the same effect as Alternative B. The creation of seven travel management areas would have no effect on the outcome of route designations yet creates a Planning Area for route designation and a way to group regional issues. Effects of securing public access would be similar to Alternative C, with comparable route mileages and number of access points. Effects on the travel system would be long term, making the trail system robust and sustainable.

From Vegetation Resources on Travel Management

Effects would be similar to Alternative C, except that no washes would be seasonally closed. Primitive roads in washes would be designated either as open or closed to simplify management and make the route system more understandable.

From Visual Resources on Travel Management

Effects would be the same as Alternative B, except that fewer primitive roads are likely to be constructed (due to factors other than VRM). Up to 35 miles of new primitive roads likely would be needed to complete loop routes inside mostly VRM Class III areas, where mitigations to visual resources would likely not be required, having no effect or negligible effects on the travel system.

From Wilderness Characteristics on Travel Management

Wilderness characteristics in the Batamote Mountains and Saddle Mountain would have a minor effect on the travel system. There are no routes inside the Saddle Mountain area. The Batamote Mountains have one route connecting the gas pipeline road to BGR Area B, plus some primitive short-spur roads of 1/8-mile leading to campsites. About half of these would likely remain open. This is anticipated to have a negligible effect on the travel system. Only 16 miles of primitive roads would be located within these two areas, eight of which would likely remain open. As compared with the No Action Alternative, in which no areas would be allocated lands managed to protect wilderness characteristics, Alternative E would have negligible effect on accessing areas on existing routes by vehicle. Closure of new routes to OHV travel would prevent new primitive roads or vehicle trails from being created, having the effect of limiting the route system to what would be designated from the available existing routes. Effects are expected to be negligible because most people would not notice a loss of access near lands managed to protect wilderness characteristics.

From Wildlife and Special Status Species Management on Travel Management

Effects would be similar to Alternative D, with a notable exception due to the addition of SRMAs adjacent to WHAs. The combination of wildlife movement areas, wildlife habitat areas, and SRMAs

would affect the creation of new routes in the Arlington and Ajo SRMAs; this means that the locations would be limited to areas outside WHAs and the indirect effects on the WHA for habitat fragmentation and movement of wildlife would need to be considered. Such restrictions would likely limit new routes to only one or two per area. Also, the route would not run the length of the movement corridor, which would reduce the value to a recreational trail system such that it would likely be a moderate to major impact on achieving the potential of the recreation objectives. Neither movement areas nor wildlife habitat areas exist under the No Action Alternative.

Similar to Alternative B, the OHV designation of 40 acres near Ajo as "open" would likely not effect desert tortoise habitat, since high motorized use occurs in this area.

4.20.7.3 Sonoran Desert National Monument

From Air Resources on Travel Management

Management of air quality would have the effect of closing three of the five miles of routes inside the PM_{10} nonattainment boundary. The primitive roads that would be affected are typically used for target shooting, camping, and parking for hunters. Other primitive roads in the area would remain available for use, and this management prescription would have a minor effect on access and the travel system.

From Cave Resources on Travel Management

Impacts are anticipated to be negligible.

From Cultural and Heritage Resources on Travel Management

Impacts would be the same as those described under Alternative C for the Monument. Butterfield Pass would be accessible to motor vehicles.

From Lands and Realty on Travel Management

Impacts would be the same as those described under Alternative A for the Monument.

From Livestock Grazing on Travel Management

Impacts would be the same as those described under Alternative B for the SDNM, except that there would be an overall reduction in the number of livestock that travellers could encounter, and more lands across the monument would be closed to livestock, including the entire Conley Allotment. Impacts from closed areas would be similar as described under Alternative D.

From Minerals Management on Travel Management

Impacts are anticipated to be negligible.

From Hazardous Materials and Public Safety

Impacts would be the same as those described under Alternative B for the Monument.

From Recreation Management on Travel Management

Effects would be similar to Alternative C. Primitive roads would be available to serve designated campsites, and the number would remain fixed. This would minimize the maintenance and rehabilitation needs along the designated routes and thus minimize effects on resources. This management approach would require additional route and area monitoring and periodic maintenance or rehabilitation due to increased visitation to available camp areas.

Within the SDNM ERMA, 28.9 miles of routes would be designated as roads with similar effects as Alternative B. A new road would be constructed to connect the Freeman Road exit with Big Horn Station to the west. Approximately 330 miles of routes would be designated as primitive roads where minimal maintenance would be performed, primarily to protect soil and water resources from degradation and secondarily to maintain the desired level of access. Trail asset designation would be the same as Alternative B.

From Special Designations on Travel Management

Impacts would be the same as those described under Alternative C for the Monument.

From Travel Management on Travel Management

Impacts would be the same as those described under Alternative C for the Monument; effects of the proposed route designations would be similar to Alternative C. The management philosophy would be the same as Alternative C that is, seeking to find a balance between protection and enjoyment of the Monument, and has the same implications for management. Primitive road closures are the main difference in route designations between Alternatives C and E. Alternative E proposes to close 43.4 miles more, mostly to places that would be difficult to manage or where mitigating the impacts would be difficult.

The decision to construct a new road under Alternative B from the Freeman Road exit to Big Horn Station south of I-8 would have the same impacts as described under Alternative B. This would have a major effect on travel by eliminating the need to exit I-8 at fence gates and further reduce the need to create deceleration lanes on the south side of I-8 for safe entry/exit. Such lanes may be required on the north side of I-8 to access the South Maricopa Wilderness. Alternative E opens the southernmost segment of Vekol Valley Road, which is closed in the No Action Alternative and would be limited to administrative use under Alternative C. Access south of I-8 near the SR-84 interchange near an old gravel pit and accessing the north end of Table Top Wilderness is closed, eliminating the need to regularly monitor this area and reducing the number of access agreements necessary to cross private land. A primitive road is closed for the same reason north of Vekol Ranch on the eastern edge of the South Maricopa Mountains Wilderness. One primitive road west of Mobile and north of the South Maricopa Mountains Wilderness has been closed for redundancy and to reduce maintenance needs in this area.

The effects of a licensing requirement for using vehicles on SDNM would be the same as Alternative B. The number of access points would be 72, a 37 percent reduction from Alternative A. This would have the effect of reducing the number of areas for affecting Monument objects and reduce the need for entry signs, maintenance, and enforcement over the No Action Alternative.

From Vegetation Resources on Travel Management

Impacts would be the same as under Alternative A, except fewer routes would remain open for vehicle use. The intensity of effects would fall between Alternatives C and D.

From Visual Resources Management on Travel Management

Effects would be the same as Alternative B, including a 4.2-mile access road south of I-8, from Freeman Road exit to Big Horn Station, which would be constructed.

From Soil Resources on Travel Management

Approximately 221 miles (64 percent) of 350 miles located in poor soils areas would remain open, creating a moderate impact on travel. Effects are similar to Alternative C. Many popular areas would still be accessible by at least one route, and more contact with other visitors may occur. This would have a minor effect on the travel system since some visitors may choose to congregate in areas of their preference, increasing traffic and thus the maintenance needs on associated routes. Impacts on soils would be minimized from the current condition (Alternative A) by closing 46 percent of the routes, or 106 of 231 miles, in areas identified by staff as "route proliferation concern areas," specifically north of SR-238 and along Vekol Valley Road. Public access north of SR238 would be limited to North Tank and Gap Well to minimize soil disturbance and dumping/camping impacts. The management approach would be as described under Alternative C, which attempts to find a balance between dispersal and concentration of visitors. The amount of area affected by the route system footprint in poor soil areas would be reduced from 0.16 percent under Alternative A to 0.13 percent of the total poor soils area under Alternative E. Impacts on resources would further be minimized by implementing standard mitigation measures, such as creating earthen drainage structures on erodible sections of open routes, all of which would have a minor effect on the management of the route system.

From Wilderness Characteristics on Travel Management

Realigning the boundaries using primitive roads to define the areas would have minor effects on the route system, especially when compared with Alternatives C or D. With boundaries of the lands managed to protect wilderness characteristics available for travel and open at least seasonally in washes, effects on the travel system would be minor. Seasonal restrictions would increase the effects on the travel system, but they are not a result of wilderness characteristics. Rather, they are a result of managing for diverse wildlife populations

From Wildlife and Special Status Species Management on Travel Management

Effects would be the same as Alternative C.

4.21 IMPACTS ON HAZARDOUS MATERIALS & PUBLIC SAFETY

The impacts of management decisions on the occurrence of or risks associated with hazardous materials and wastes, solid wastes, and public health and safety are discussed in this section. Risks associated with hazardous materials, wastes, and public health and safety are directly proportionate to the types and frequency of resource use within the Decision Areas. Typically, the presence of hazardous materials and

wastes may be related to vehicular travel and the use of fuels and other hazardous substances associated with vehicles. These types of spills and releases usually occur as a result of a vehicular accident, either from the vehicle itself or from hazardous materials and/or wastes that the vehicle might be transporting. Spills and releases of hazardous substances may also occur during recreational activities, such as recreational shooting, or during other uses of public lands, including livestock grazing, utility line installation and maintenance, and mining. Similarly, threats to public health and safety are related to the use of motor vehicles (including ATVs and motorcycles), recreational target shooting, abandoned mines and prospects, the proximity of military operations at the BGR, the presence of UXO (especially in the Sand Tank Mountains Area of the SDNM), livestock operations, activities related to smuggling and undocumented aliens (UDAs), wildfires, and natural hazards.

4.21.1 METHODS OF ANALYSIS

4.21.1.1 Indicators

Potential of public injury related to:

- Vehicle use
- Recreational activities (specifically target shooting)
- Spills or releases of hazardous substances
- Utility installations
- Abandoned mines and prospects
- The proximity of military operations at the BGR
- The presence of UXO
- Livestock operations
- Activities related to smuggling and undocumented aliens (UDAs)
- Wildfires
- Natural hazards

4.21.1.2 Assumptions

The following assumptions regarding the future of public safety and hazardous materials management are made:

- It is assumed that a certain degree of safety risk is inherent in any human activity. Proper safety precautions mitigate the risk of accident or injury, but circumstances beyond normal expectations can always arise.

- The natural hazards that typically occur in the desert environment include rugged terrain, seasonally extreme temperatures, intense sunlight, lack of drinking water, flash floods, and the presence of venomous or otherwise dangerous wildlife. These risks would be present under all alternatives at whatever particular level of activity is undertaken or type of activity is performed.

- In all areas where construction or maintenance of motorized routes, fences, campgrounds, nonmotorized trails, trailheads, LUAs, wildlife under/overpasses, or any other activity could occur, there is the potential for an inadvertent spill or release of hazardous materials or wastes. It is assumed that use of appropriate protocols during construction activities would occur, thereby lessening that risk.

- The use and application of mechanical, chemical, biological means, along with prescribed fires, to control noxious weeds carries the inherent risk for spills and releases of hazardous chemicals. It is assumed that any materials used would be applied according to and in coordination with appropriate federal, state, county, municipal, and tribal agencies, as well as in accordance with all manufacturers' directions. It is also assumed that any resulting effect would be localized.

4.21.1.3 Program Areas with no Impacts on Hazardous Materials & Public Safety

No impacts on Hazardous Materials & Public Safety are anticipated for management actions relating to:

- Air Quality
- Cave Resources
- Cultural and Heritage Resources
- Paleontological Resources
- Wildlife and Special Status Species
- Special Designations
- Visual Resources
- Vegetation Resources
- Water Resources
- Soil Resources
- Wild Horse & Burro Management
- Wilderness Characteristics

4.21.1.4 Qualitative Intensity Scale

The intensities of impacts are the same as those described in **Table 4-1**, Qualitative Terms for the Intensity of Impacts.

4.21.2 IMPACTS COMMON TO ALL ALTERNATIVES

4.21.2.1 Both Decision Areas

From Wildland Fire Management on Hazardous Materials & Public Safety

The risks associated with exposure to wildfires are similar under all alternatives because wildfires could occur in any location or circumstance given the needed components. Wildfires have the potential to endanger persons or property; however, the plant cover in the Decision Areas is generally too sparse to carry wildfire effectively or to generate fires with sufficient heat to be self-propagating. Accordingly, as the impact of wildland fire management would be common to all alternatives, it would not be discussed individually in the following analysis. Impacts could range from negligible to major.

4.21.2.2 Lower Sonoran

No unique impacts are identified for the Lower Sonoran that are common to all alternatives.

4.21.2.3 Sonoran Desert National Monument

No unique impacts are identified for the SDNM that are common to all alternatives.

4.21.3 ALTERNATIVE A (NO ACTION)

4.21.3.1 Both Decision Areas

From Minerals Management on Hazardous Materials & Public Safety

Under Alternative A, there is no formal inventory of known and suspected historic and abandoned mining claims. As a result, sites in the Planning Area are closed and remediated as they are discovered or if the sites present an immediate safety concern. Impacts from the lack of an inventory could result in minor to major impacts as the potential for public injury on these unknown sites would still exist.

In addition, all caves, mines, wells, abandoned structures, or other confined spaces would be closed to public entry unless a particular site is signed as open for such entry, or entry is authorized under a special use permit, which would further protect public health and safety.

From Special Designations on Hazardous Materials & Public Safety

Management actions related to special designations (specifically within the five designated wilderness areas and the Vekol Valley Grasslands and Coffeepot Batamote ACECs) call for limited surface disturbing activities and development within their boundaries. As a result, these areas are remote and, in

some cases, difficult to access. In remote areas like these, medical assistance could be delayed in the event of injury due to recreational activities. Impacts would be negligible to minor.

From Travel Management on Hazardous Materials & Public Safety

Since recreational activities are most often conducted in areas that can be accessed by motor vehicle via designated routes, the opportunity for access to more remote areas via designated routes would potentially cause interaction with smugglers and UDAs. Under Alternative A the greatest number of open vehicle route miles of any of the alternatives exists, making access more available and unauthorized entry less noticeable to law enforcement. No TMA closures, including seasonal closures, are identified under Alternative A. As a result, the opportunity to access remote and low-lying areas for illegal activity is greater than under the other alternatives.

4.21.3.2 Lower Sonoran

From Lands & Realty on Hazardous Materials & Public Safety

In the Lower Sonoran, ten utility corridors corresponding to the existing LUAs would continue to be designated under Alternative A, including corridors for natural gas pipelines, utility lines, pipelines, and electrical transmission lines. LUAs would also be approved on a case-by-case basis throughout the Lower Sonoran Decision Area. Therefore, new authorizations and maintenance on existing LUAs such as utility lines would occur more within this alternative than any other proposed alternative. As a result, the potential for accidents related to utility construction and maintenance would increase as more surface disturbance activities take place. Impacts would be minor.

Impacts from land tenure decisions would be negligible.

From Livestock Grazing on Hazardous Materials & Public Safety

Alternative A presents the greatest amount of AUMs (17,541) of all the action alternatives. Therefore, the potential for public safety risks, such as encounters with agitated livestock or visitor mishaps at range improvements such as stock ponds, fences, or wells, would be the greatest under Alternative A. Impacts on public safety are anticipated to be minor.

From Hazardous Materials & Public Safety on Hazardous Materials & Public Safety

Under Alternative A, the BLM would maintain the existing inventory of abandoned mine sites and hazardous waste sites and would update this inventory as sites are discovered and reported. Use of a response-only approach to public safety at the mine sites would limit the ability of the BLM to proactively prevent endangerment of public health and safety. Known abandoned mines would continue to be characterized and prioritized for containment and/or cleanup responses based on available funding. These activities would be conducted to determine the potential for the presence of high levels of heavy metals in waste rock or tailings as well as ground or surface water quality degradation. Maintenance of this inventory would be helpful at these known sites, but the existence of other undocumented sites poses some risk of hazardous and solid waste dumping in the abandoned mine shafts. Impacts from a response-oriented inventory would present moderate impacts.

Requiring the public to obtain permits to enter the Sentinel Plain area south of I-8 would decrease public injury from military activities associated with the BGR. Impacts would be moderate.

From Recreation Management on Hazardous Materials & Public Safety

By providing the most miles of open routes for travel, Alterative A would provide the greatest opportunity for motorists to experience safety risks related to vehicle accidents with individuals recreating (off-road target shooting, hiking, or camping) on public lands, livestock grazing activities, and utility development. Impacts would be minor to moderate.

Under Alternative A, lands designated as SRMAs would comprise about 41 percent of the total acreage in the Lower Sonoran, while ERMAs would comprise the remaining lands. Since recreation use in ERMAs is unstructured and recreation management actions are limited to those of a custodial nature (managing visitor health and safety conflicts, user conflicts, and challenges to resource stewardship objectives), littering and wildcat dumping would more likely occur in ERMAs compared to SRMAs. Impacts would be minor.

The Sentinel Plain Lava Flow SRMA would be managed under Alternative A to facilitate compatible recreational use while protecting public safety in the vicinity of the BGR. The SRMA was relinquished from the BGR in 2001 and is contaminated with scattered UXOs. The area is also vulnerable to additional, although unintended, UXO contamination from aircraft delivered ordnance training activities that occur on the adjacent BGR. Existing management decisions direct the BLM and the Air Force to consider means of cleaning up existing UXOs and preventing additional UXO contamination. Visitors are exposed to a safety risk. The current lack of an entry permit required for this SRMA under Alternative A would leave visitors uninformed concerning the potential presence of UXO hazards. Impacts would be minor to moderate.

A number of recreational target shooting areas are located in the Lower Sonoran. Most target shooting areas are located near established travel routes. Travel management under Alternative A provides for the greatest number of open travel route miles, providing the greatest opportunity for off-road target shooting, although target shooting would be allowed only outside of developed areas. Alternative A does not address the risk of lead contamination in soils from bullets and the buildup of shooting debris and lacks specific management prescriptions for recreational target shooting, which could increase the risk of injury. The lack of directives regarding cleanup of trash or spent shells under Alternative A combined with the highly-disbursed nature of recreational target shooting could result in the buildup of solid waste in a number of locations in the Lower Sonoran. Under Alternative A, concern would continue regarding recreational target shooting activities conducted at popular sites where shooting is officially unsupervised, random, and, at times, concentrated. There would also be continued concern over the safety of specific shooting locations and practices and the use of automatic weapons. Impacts would be moderate.

From Travel Management on Hazardous Materials & Public Safety

Current travel management decisions would remain in place under Alternative A. As such, the potential exists for spills and releases of hazardous materials in the event of a vehicular accident. Under Alternative A, approximately 12 percent of the Lower Sonoran (primarily wilderness areas and the Coffeepot Botanical ACEC) would be closed to motorized travel. All motorized vehicles would be

limited to existing and/or designated roads and vehicle routes. Hazardous materials spills that could occur as a result of an automobile accident could contaminate the soil and/or water. Under Alternative A, 1670 miles of routes would be open for public use in the Lower Sonoran. This larger number of route miles would allow for the greatest disbursement of traffic throughout the Decision Areas among the alternatives, potentially reducing the likelihood of vehicular accidents. While vehicular accidents could occur anywhere along these routes, accidents are more likely to occur in some specific locations. Based on projected population growth and the increase in demand for public lands, more congestion on the roadways would likely occur in the future. Also, under Alternative A, no seasonal limitations on routes have been identified, leaving washes and other thermally sensitive areas available to public vehicular use.

In the event of flooding, the potential exists for a vehicle to be stranded, risking the safety of its occupants and possibly resulting in an inadvertent spill or release of a hazardous substance into the floodwaters and onto public lands or into the groundwater through infiltration.

4.21.3.3 Sonoran Desert National Monument

From Lands & Realty on Hazardous Materials & Public Safety

In the SDNM, three utility corridors corresponding to the existing LUAs would continue to be designated under Alternative A. LUAs would also be approved on a case-by-case basis throughout the Decision Area, as long as they do not negatively impact the Monument objects. Therefore, the potential for new authorizations and maintenance on existing LUAs such as utility lines is higher within this alternative than any other proposed alternative. As a result, the potential for accidents related to utility construction and maintenance would increase as more surface disturbance activities take place. Impacts would be minor.

Impacts from land tenure decisions would be negligible.

From Livestock Grazing on Hazardous Materials & Public Safety

While allotments south of I-8 would be closed once current permits expire in the Monument, Alternative A would still allow the greatest amount of AUMs (8,703) within the Monument compared to all of the action alternatives. Therefore, the potential for public safety risks, such as encounters with agitated livestock or visitor mishaps at range improvements such as stock ponds, fences, or wells would be the greatest under Alternative A. Impacts on public safety are anticipated to be minor.

From Hazardous Materials & Public Safety on Hazardous Materials & Public Safety

Impacts would be the same as those under Alternative A for the Lower Sonoran, except the Sand Tank Mountains, formerly known as "Area A," south of I-8, would be restricted to entry by permit only in an effort to decrease public injury from military activities associated with the BGR. Impacts would be moderate.

From Recreation Management on Hazardous Materials & Public Safety

Impacts would be the same as those discussed under Alternative A for the Lower Sonoran, except lands designated as SRMAs would comprise about 30 percent of the total acreage in the SDNM, while ERMAs would comprise the remaining lands. Since recreation use in ERMAs is unstructured and recreation management actions are limited to those of a custodial nature (managing visitor health and safety conflicts, user conflicts, and challenges to resource stewardship objectives), the occurrence of littering and wildcat dumping would more likely occur in ERMAs compared to SRMAs. Impacts would be moderate.

In the SDNM, all visitors would need to obtain a permit prior to entering the Sand Tank Mountains to protect public safety, which would decrease the risks associated with UXOs in the area. This would result in the decrease of potential public injury in this area. Impacts would be minor.

A number of recreational target shooting areas are located in the SDNM. Most target shooting areas are located near established travel routes. Travel management under Alternative A provides for the greatest number of open travel route miles, allowing for the greatest opportunity for off-road target shooting, although target shooting would be allowed only outside of developed areas. Alternative A does not address the risk of lead contamination in soils from bullets and the buildup of shooting debris and lacks specific management prescriptions for recreational target shooting, which could increase the risk of injury. The lack of directives regarding cleanup of trash or spent shells under Alternative A combined with the highly disbursed nature of recreational target shooting could result in the buildup of solid waste in a number of locations in the Decision Area. Under Alternative A, concern would continue regarding recreational target shooting activities conducted at popular sites where shooting is officially unsupervised, random, and, at times, concentrated. There would also be continued concern over the safety of specific shooting locations and practices and the use of automatic weapons. Impacts are expected to be moderate.

From Travel Management on Hazardous Materials & Public Safety

Current travel management decisions would remain in place under Alternative A. As such, the potential for spills and releases of hazardous materials in the event of a vehicular accident exists. Under Alternative A, all motorized vehicles would be limited to existing and/or designated roads and vehicle routes.

Hazardous materials spills that could occur as a result of an automobile accident could contaminate the soil and/or water. The larger number of route miles opened in Alternative A would allow for the greatest disbursement of traffic throughout the Decision Area of all the alternatives, potentially reducing the likelihood of vehicular accidents. While vehicular accidents could occur anywhere along these routes, accidents are more likely to occur in some specific locations. Based on projected population growth and the increase in demand for public lands, more congestion on the roadways would likely occur in the future. Also, under Alternative A, no seasonal limitations on routes have been identified, leaving washes and other thermally sensitive areas available to public vehicular use. In the event of flooding, the potential exists for a vehicle to be stranded, risking the safety of its occupants and possibly resulting in an inadvertent spill or release of a hazardous substance into the floodwaters and onto public lands or into the groundwater through infiltration.

4.21.4 ALTERNATIVE B

4.21.4.1 Both Decision Areas

From Minerals Management on Hazardous Materials & Public Safety

Impacts would be the same as those described under Alternative A for both Decision Areas, except that under Alternative B, an inventory of known and suspected historic and active mining claims would be established and updated annually and response or remedial actions would be developed based upon the determined risks. Management of hazardous materials would be more proactive than under Alternative A, thereby decreasing the risks to public health and safety. In addition, all caves, mines, wells, abandoned structures, or other confined spaces would be closed to public entry unless a particular site is signed as open for such entry or entry is authorized under a special use permit, which would further protect public health and safety.

From Special Designations on Hazardous Materials & Public Safety

Impacts would be the same as those described under Alternative A for both Decision Areas.

4.21.4.2 Lower Sonoran

From Lands & Realty on Hazardous Materials & Public Safety

Impacts would be the same as those described under Alternative A for the Lower Sonoran. However, the impacts on public safety from LUA construction would be slightly reduced, as 329,300 acres would be allocated as LUA avoidance areas and 118,400 acres would be allocated as LUA exclusion areas. Impacts would be minor.

From Livestock Grazing on Hazardous Materials & Public Safety

Impacts would be the same as those described under Alternative A for the Lower Sonoran. However, the impacts on public safety from human-livestock interaction would be minimized, as there would be approximately 40 percent fewer AUMs than in Alternative A. Impacts would be minor to negligible.

From Hazardous Materials & Public Safety on Hazardous Materials & Public Safety

Alternative B calls for establishing an inventory of all known abandoned mine sites and hazardous waste areas within the Lower Sonoran and the closure of these sites to the public. Alternative B also calls for establishment of priorities for remediation of physical safety hazards, posting of signs, and closure of areas to public access where public safety is an issue. These management actions could substantially decrease the risk of human injury and death from vehicle use, uncontrolled recreational activities (specifically target shooting), spills or releases of hazardous substances, utility installations, abandoned mines and prospects, the presence of UXO, livestock operations, activities related to smuggling and undocumented aliens (UDAs), wildfires, and natural hazards. Positive impacts from these actions would be moderate to major, as injuries would decrease substantially over the life of the plan.

Similar to Alternative A, Alternative B would require the public to obtain permits to enter the Sentinel Plain area south of I-8, which would decrease public injury from military activities associated with the BGR. Impacts would be moderate.

From Recreation Management on Hazardous Materials & Public Safety

Impacts would be the same as those described under Alternative A for the Lower Sonoran, except lands designated as SRMAs under Alternative B would comprise about 10 percent of the total acreage in the Decision Area (four times more than under Alternative A), while ERMAs would comprise about 60 percent of the Decision Area. This would result in reduced opportunity for littering and illegal dumping under Alternative B due to the larger number of acres allocated to the more intensively-managed SRMAs. Portions of the Lower Gila Historic Trails ERMA and the Saddle Mountain SRMA would be allocated to the backcountry setting and would include areas that would be unavailable for motorized travel, thus decreasing the risk of vehicular traffic accidents. A 40-acre area within the Ajo ERMA would be designated as a limited motorized and mechanized vehicle use area where vehicle types are limited to those that are 50 inches wide or less (i.e., ATVs or motorcycles). Qualified vehicles participating in these activities have an increased chance for accident or injury in the area due to rough terrain and unforeseen obstacles. However, due to the restrictions on this activity, risk would be limited to the allocated areas . Along with the Ajo ERMA, the Buckeye Hills East Trails and Painted Rock SRMAs would emphasize motorized and intensive use recreational opportunities, presenting additional risk for accident or injury, but these impacts would be expected to be relatively localized. Other RMAs would be established under Alternative B to provide for nonmotorized day use activities. While the risk of accident or injury exists with any recreational activity, the lack of motorized activities would decrease the opportunity for serious injury or hazardous spills.

The Sentinel Plain area would be restricted to entry by permit only to protect the public from the presence of possible munitions and UXOs. An entry permit and the associated instructions for accessing the area would provide visitors with information concerning the potential presence of UXO hazards, which should reduce risk of accident or injury.

As most target shooting areas are located near established travel routes, having slightly fewer miles of routes available under Alternative B for off-road target shooting would reduce the opportunity for shooters to leave shooting debris and materials behind. Under Alternative B, recreational target shooting would be managed to provide for removal of all brass, targets, target litter, and other materials from public lands at the close of each shooting visit. In addition, the use of targets and target materials that do not add litter is required under this alternative. However, disbursed recreational target shooting would most likely increase with the availability of more lands managed for recreational use, increasing the potential for injury from inappropriate use or the use of automatic weapons. Both recreational shooters as well as recreational visitors within the range of fire would be at risk.

From Travel Management on Hazardous Materials & Public Safety

Under Alternative B, outside of designated wilderness, vehicles would be limited to routes designated as open or available for nonmotorized, mechanized vehicle use. Under this alternative, approximately 11 percent of the public lands in the Lower Sonoran would be closed to public travel (compared to about 12 percent under Alternative A), leaving an additional 806,960 acres available for travel along designated routes. This increased availability for route usage would slightly increase over Alternative A (by 28

percent or almost 806,960 acres), proportionately increasing the risk of injury or hazardous spills from an automobile accident. Alternative B would provide slightly less opportunity than Alternative A for recreational activities that could pose a safety risk, such as off-road target shooting, hiking, and camping.

Vehicle access routes from highways onto public lands that cross highways, railroads, or other LUA barriers may elevate the potential of a vehicular accident, potentially resulting in the release of hazardous substances and injury. Legal public access routes to public lands for motorized and nonmotorized travel would be developed under Alternative B, reducing the risk of accidents in these areas compared to Alternative A.

Access to locations where illegal drug production might occur would be slightly less available than under Alternative A, but unauthorized entry would be slightly more noticeable to law enforcement officers. Travel management area closures are identified for the Painted Rocks camping area and for the pronghorn seasonal closure area under Alternative B, which would somewhat restrict the opportunity to access remote and low-lying areas for illegal activity in comparison to Alternative A, slightly decreasing the risk to visitor safety from personal encounters or from hazardous materials.

4.21.4.3 Sonoran Desert National Monument

From Lands & Realty on Hazardous Materials & Public Safety

Impacts would be the same as those described for Alternative A in the SDNM; however, the entire Monument would be allocated as a LUA avoidance area, which would cause the same decrease in risk to public safety related to the construction of LUAs as under Alternative A. The LUA avoidance area allocation would allow for LUA development within the Monument while ensuring that all Monument objects would be protected. Impacts would be minor.

From Livestock Grazing on Hazardous Materials & Public Safety

Impacts would be the same as those described under Alternative A for the SDNM. However, the impacts on public safety from human-livestock interaction would be slightly reduced, as there would be approximately 40 percent fewer AUMs than in Alternative A. Impacts would be minor to negligible. Impacts in the 8,500 acres fenced of as an exclosure would be negligible.

From Hazardous Materials & Public Safety on Hazardous Materials & Public Safety

Impacts would be the same as those described in Alternative B for the Lower Sonoran. However, similar to Alternative A, the Sand Tank Mountains, formerly known as "Area A," south of I-8, is restricted to entry by permit only, in an effort to decrease public injury from military activities associated with the BGR. Impacts would be moderate.

From Recreation Management on Hazardous Materials & Public Safety

Under Alternative B, the entire SDNM would be allocated as one SRMA with about 76 percent of the lands managed within the backcountry RMZ, where motorized travel is not permitted. This would reduce motorized travel, thereby reducing the likelihood of hazardous materials spills from accidents in comparison with Alternative A. The allocation of more acres to the backcountry RMZ and fewer acres

to the front country RMZ under Alternative B would concentrate visitor use to the latter, potentially increasing the number of accidents involving motorized vehicles. The front country RMZ would also experience more concentrated levels of litter and debris than the backcountry RMZ, requiring a greater cleanup effort.

In the SDNM, impacts from obtaining a permit prior to entering the Sand Tank Mountains would be the same as under Alternative A.

In the SDNM, dispersed recreational target shooting would most likely increase in all areas except developed recreational sites. Under Alternative B, recreational target shooting would be managed to provide for removal of all brass, targets, target litter, and other materials from public lands at the close of each shooting visit. In addition, the use of targets and target materials that do not add litter is required under this alternative. However, disbursed recreational target shooting would most likely increase with the availability of more lands managed for recreational use, increasing the potential for injury from inappropriate use or the use of automatic weapons. Both recreational shooters as well as recreational visitors within the range of fire would be at risk.

From Travel Management on Hazardous Materials & Public Safety

Sixty-eight percent of the SDNM would remain open to travel on designated routes, and impacts would be similar to those under Alternative A. The increased travel restrictions under Alternative B would reduce the area where vehicular accidents could occur in the Decision Area. At the same time, the reduced miles of routes would result in slightly more concentrated traffic on the remaining open routes, which would slightly increase the possibility for traffic accidents. Alternative B would provide slightly less opportunity than Alternative A for recreational activities that could pose a safety risk, such as off-road target shooting, hiking, and camping.

Vehicle access routes from highways onto public lands that cross highways, railroads, or other LUA barriers may elevate the potential of a vehicular accident, potentially resulting in the release of hazardous substances and injury. Legal public access routes to public lands for motorized and nonmotorized travel would be developed under Alternative B, reducing the risk of accidents in these areas compared to Alternative A.

Access to locations where illegal drug production might occur would be slightly less available than under Alternative A, but unauthorized entry would be slightly more noticeable to law enforcement officers. Travel management area closures for the pronghorn seasonal closure area under Alternative B would somewhat restrict the opportunity to access remote and low-lying areas for illegal activity in comparison to Alternative A, slightly decreasing the risk to visitor safety from personal encounters or from hazardous materials.

4.21.5 ALTERNATIVE C

4.21.5.1 Both Decision Areas

From Minerals Management on Hazardous Materials & Public Safety

Impacts would be the same as those discussed under Alternative B for both Decision Areas.

From Special Designations on Hazardous Materials & Public Safety

Impacts would be the same as those discussed under Alternative B for both Decision Areas, except more acres would be allocated to ACECs, which would slightly increase the potential for a delay in safety responses in these remote areas. Impacts would be negligible to minor.

4.21.5.2 Lower Sonoran

From Lands & Realty on Hazardous Materials & Public Safety

Impacts would be the same as those described under Alternatives A and B for the Lower Sonoran; however, the impacts on public safety from LUA construction would be slightly reduced, as Alternative C would remove a section of the El Paso Natural Gas corridor that travels from Gila Bend to the Tohono O'odham Indian Reservation. Of this section of the El Paso Natural Gas corridor, 402,400 acres would be allocated as LUA avoidance areas and 247,000 acres would be allocated as LUA exclusion areas. Impacts would be minor.

From Livestock Grazing on Hazardous Materials & Public Safety

Impacts would be the same as those described under Alternative A for the Lower Sonoran.

From Hazardous Materials & Public Safety on Hazardous Materials & Public Safety

Impacts would be the same as those described under Alternative B for the Lower Sonoran.

From Recreation Management on Hazardous Materials & Public Safety

Impacts would be the same as those discussed under Alternative A for the Lower Sonoran, except lands designated as SRMAs under Alternative C would comprise about 9 percent of the Lower Sonoran, while ERMAs would comprise only about 60 percent of the lands. This would result in reduced opportunity for littering and illegal dumping when compared to Alternative A due to the larger number of acres more intensively managed under the SRMA designation. Impacts from the Ajo ERMA (including the 40-acre OHV area) and Buckeye Hills East Trails SRMA would be the same as described under Alternative B. The acreage allocated for the Painted Rock SRMA under Alternative C would represent over twice the acreage as would occur under Alternative B, further decreasing the risk of accident or injury due to rough terrain and unforeseen obstacles compared to Alternative A.

As most target shooting areas are located near established travel routes, the slight reduction in miles of routes under Alternative C would further reduce the opportunity for shooters to leave shooting debris and materials behind as well as reducing the risk of injury to the recreational shooter and other visitors passing through the area. Impacts from requiring the removal of all brass, targets, target litter, and other materials from public lands at the close of each shooting visit and the use of targets and target materials that do not add litter would be the same as under Alternative B.

From Travel Management on Hazardous Materials & Public Safety

Impacts from lands closed to OHV travel would be the same as under Alternative B in the Lower Sonoran, except that, under Alternative C, there would be a reduction in miles of routes open to the

public in the Lower Sonoran compared to Alternative A, which would reduce the area where vehicular accidents could occur. In addition, seasonally closing some routes that are located in washes would reduce the risk of stranded or abandoned automobiles in flooded washes that could release hazardous materials or wastes compared to Alternative A. At the same time, reducing the miles of routes open to the public would concentrate traffic on the remaining open routes, increasing the possibility for traffic accidents to occur due to congestion. Based on the projected population growth and the increase in demand for public lands, more congestion on the roadways would likely continue to occur in the future. As Alternative C provides for fewer open travel route miles than Alternative A, there would be a reduced opportunity for recreational activities that could pose a safety risk. These would include off road target shooting, hiking, camping, or any recreational activity that would provide exposure to accident or injury.

Compared to Alternative A, fewer miles of routes available for travel under Alternative C would create less opportunity for visitors to travel to remote areas and encounter smugglers and UDAs, thus reducing safety risks associated with such encounters. Although designating fewer miles of open routes within the Lower Sonoran under Alternative C would create fewer opportunities for illegal and solid waste dumping along established roadways compared to Alternative A, anticipated increases in population and use of public land would tend to increase the incidences of dumping and littering. Heavily traveled routes used by UDAs would remain areas of substantial litter accumulation.

4.21.5.3 Sonoran Desert National Monument

From Lands & Realty on Hazardous Materials & Public Safety

Impacts would be the same as those described for Alternative B in the SDNM; however, only two half-mile-wide multiuse corridors would be allocated in the Monument. Management under Alternative B would slightly reduce impacts on public safety from LUA construction and maintenance because the potential area for larger utility lines would be decreased. Impacts would be minor.

From Livestock Grazing on Hazardous Materials & Public Safety

Impacts would be the same as those described under Alternative A for the SDNM; however, the impacts on public safety from human-livestock interaction would be slightly reduced. There would be the same amount of AUMs as under Alternative A, but all grazing would be perennial, thus minimizing the time herds are in the allotments. Impacts would be minor.

From Hazardous Materials & Public Safety on Hazardous Materials & Public Safety

Impacts would be the same as those described under Alternative B for the SDNM.

From Recreation Management on Hazardous Materials & Public Safety

Impacts would be the same as those discussed under Alternative A for the SDNM, except about 89 percent of the SDNM would be managed within the backcountry setting, which would further reduce motorized travel in comparison to Alternative A, thereby further reducing the total area exposed to hazardous materials spills from accidents and the associated risks to public health and safety. On the other hand, concentrating visitor use in the front setting RMZ would increase the potential for vehicle

accidents and associated injury in this area. Litter and debris would also likely increase in the front country setting due to concentrated use, which would require a greater cleanup effort. In the SDNM, impacts from requiring a permit to be obtained prior to entering the Sand Tank Mountains would be the same as under Alternative A.

Because most target shooting areas are located near established travel routes, the slight reduction in miles of routes under Alternative C would further reduce the opportunity for shooters to leave shooting debris and materials behind and reduce the risk of injury to the recreational shooter and other visitors passing through the area. Impacts from requiring the removal of all brass, targets, target litter, and other materials from public lands at the close of each shooting visit and the use of targets and target materials that do not add litter would be the same as under Alternative B. Impacts from limits placed on recreational target shooting in the SDNM would be similar to Alternative B with the exception that fully automatic weapons would be prohibited, eliminating the risk of such use to public health and safety.

From Travel Management on Hazardous Materials & Public Safety

Impacts from lands closed to OHV travel would be the same as under Alternative B in the SDNM. Under Alternative C, there would be a 13 percent reduction in miles of routes open in the SDNM, which would reduce the area where vehicular accidents could occur. In addition, seasonally closing some routes that are located in washes would further reduce the risk of stranded or abandoned automobiles in flooded washes that could release hazardous materials or wastes compared to Alternative A. At the same time, reducing the miles of routes open to the public would concentrate traffic on the remaining open routes, increasing the possibility for traffic accidents to occur due to congestion. Based on the projected population growth and the increase in demand for public lands, more congestion on the roadways would likely continue to occur in the future. As Alternative C provides for fewer open travel route miles than Alternative A, there would be a reduced opportunity for recreational activities that could pose a safety risk. These would include off road target shooting, hiking, camping, or any recreational activity that would provide exposure to accident or injury. Compared to Alternative A, fewer miles of routes available for travel under Alternative C would create less opportunity for visitors to travel to remote areas and encounter smugglers and UDAs, thus reducing safety risks associated with such encounters.

Although designating fewer miles of open routes within the SDNM under Alternative C would create fewer opportunities for illegal and solid waste dumping along established roadways compared to Alternative A, anticipated increases in population and use of public land would increase the incidences of dumping and littering. Heavily traveled routes used by UDAs would remain areas of substantial litter accumulation.

4.21.6 ALTERNATIVE D

4.21.6.1 Both Decision Areas

From Livestock Grazing on Hazardous Materials & Public Safety

Eliminating livestock grazing in both Decision Areas under Alternative D would eliminate the potential for injury from interaction with stock animals. Additionally, much of the fencing would be removed throughout the Decision Areas, decreasing risks caused by fences. Impacts would therefore be negligible.

From Minerals Management on Hazardous Materials & Public Safety

Impacts would be the same as those discussed under Alternative B for both Decision Areas.

From Special Designations on Hazardous Materials & Public Safety

Impacts would be the same as those discussed under Alternative B for both Decision Areas, except more acres would be allocated to ACECs, which would slightly increase the potential for a delay in safety responses in these remote areas. Impacts would be negligible to minor.

4.21.6.2 Lower Sonoran

From Lands & Realty on Hazardous Materials & Public Safety

Impacts would be the same as those described under Alternative C for the Lower Sonoran, however, the impacts on public safety from LUA construction would be minimized under Alternative D, as a section of the El Paso Natural Gas corridor that travels from Gila Bend to the Tohono O'odham Indian Reservation would be removed along with the Palo Verde to Devers and Gila Bend to Santa Rosa multiuse utility corridors. Alternative D would also have the most acres allocated as a LUA Exclusion Area (560,800 acres) and 246,100 acres would be allocated as a LUA avoidance area. Impacts would be negligible to minor.

From Public Safety Management on Hazardous Materials & Public Safety

Impacts would be the same as those described under Alternative B for the Lower Sonoran.

From Recreation Management on Hazardous Materials & Public Safety

While the percentage of the Lower Sonoran that would be managed as SRMAs would be similar to that under Alternative A, impacts from hazardous materials and risks to public safety would decrease under Alternative D because fewer routes would be designated as open for vehicular travel. Alternative D emphasizes a more diverse, less intensely managed visitor experience, which would reduce the risk of motorized vehicle-related accidents.

As most target shooting areas are located near established travel routes, providing the least miles of routes open to the public under Alternative D would reduce the opportunity for shooters to leave shooting debris and materials behind and would reduce the risk of injury to shooters and other recreationists. Impacts from requiring the removal of all brass, targets, target litter, and other materials from public lands at the close of each shooting visit and the use of targets and target materials that do not add litter would be the same as under Alternatives B and C.

From Travel Management on Hazardous Materials & Public Safety

Under Alternative D, almost four times the mileage of routes in the Lower Sonoran would be closed to vehicular travel compared to Alternatives B and C, which would greatly reduce the number of automobile accidents. Alternative D also proposes the fewest miles of routes open to motorized use, further reducing the potential for automobile accidents. At the same time, fewer open route miles would allow for increased concentration of traffic on the remaining open routes, increasing the

possibility for traffic accidents due to congestion. Based on projected population growth and the increase in demand for public lands, more congestion on the roadways would likely continue to occur in the future. By providing for the fewest miles of routes open to the public, Alternative D would reduce more than any alternative the opportunities for recreational activities that could pose a safety risk, including off road target shooting, hiking, camping, or any recreational activity that would provide exposure to accident or injury.

Alternative D would provide the fewest miles of routes available for travel among the alternatives, which would create the least opportunity for visitors to travel to remote areas and encounter smugglers and UDAs, thus reducing safety risks from such encounters.

Although designation of the fewest miles of open routes within the Decision Areas under Alternative D would create the fewest opportunities among the alternatives for illegal waste dumping along established roadways, anticipated increases in population and use of public lands would increase the incidences of dumping and littering. Heavily traveled routes used by UDAs would remain areas of substantial litter accumulation.

4.21.6.3 Sonoran Desert National Monument

From Lands & Realty on Hazardous Materials & Public Safety

Public safety impacts would be eliminated under Alternative D for the SDNM because there would be no future LUAs authorized within the Monument. The entire Monument would be a LUA Exclusion Area, and no multiuse utility corridors would be designated. Impacts would be negligible to minor.

From Hazardous Materials & Public Safety on Hazardous Materials & Public Safety

Impacts would be the same as those discussed under Alternative B for the SDNM.

From Recreation Management on Hazardous Materials & Public Safety

Impacts would be the same as those discussed under Alternative A for the SDNM, with 89 percent of the lands being managed within the backcountry setting. This would reduce motorized travel use more than any other alternative, thereby further reducing the risk of automobile accidents and associated injury and hazardous material spills. On the other hand, the allocation of the lands in SDNM to the backcountry setting would further concentrate the visitor use in the front country setting, increasing the risk of accidents and hazardous spills. The front country setting would also likely experience more litter and debris, requiring a greater cleanup effort. Impacts from requiring a permit to be obtained prior to entering the Sand Tank Mountains would be the same as under Alternative A. In the SDNM, all forms of recreational target shooting would be prohibited, which would eliminate all target shooting-related risks throughout the Monument.

From Travel Management on Hazardous Materials & Public Safety

Under Alternative D, almost two times the length of routes of the SDNM would be closed to vehicular travel compared to Alternatives B and C, which would greatly reduce the number of automobile accidents. Alternative D also proposes the fewest miles of routes open to the motorized use, further

reducing the potential for automobile accidents. At the same time, fewer open route miles would allow for more concentration of traffic on the remaining open routes, increasing the possibility for traffic accidents due to congestion. Based on projected population growth and the increase in demand for public lands, more congestion on the roadways would likely continue to occur in the future. By providing for the fewest miles of routes open to the public, Alternative D would reduce more than any other alternative opportunities for recreational activities that could pose a safety risk, including off road target shooting, hiking, camping, or any recreational activity that would provide exposure to accident or injury.

Alternative D would provide the fewest miles of routes available for travel among the alternatives, which would create the least opportunity for visitors to travel to remote areas and encounter smugglers and UDAs, thus reducing safety risks from such encounters.

Although designation the fewest miles of open routes within the Decision Areas under Alternative D would create the fewest opportunities among the alternatives for illegal waste dumping along established roadways, anticipated increases in population and use of public lands would increase the incidences of dumping and littering. Heavily traveled routes used by UDAs would remain areas of substantial litter accumulation.

4.21.7 ALTERNATIVE E (PREFERRED ALTERNATIVE)

4.21.7.1 Both Decision Areas

From Minerals Management on Hazardous Materials & Public Safety

Impacts would be the same as those discussed under Alternative B for both Decision Areas.

From Special Designations on Hazardous Materials & Public Safety

Impacts would be the same as those discussed under Alternative B for both Decision Areas, except more acres would be allocated to ACECs, which would slightly increase the potential for a delay in safety responses in these remote areas. Impacts would be negligible to minor.

4.21.7.2 Lower Sonoran

From Lands & Realty on Hazardous Materials & Public Safety

Impacts would be the same as those described under Alternatives A and B for the Lower Sonoran, however, the impacts on public safety from LUA construction would be slightly reduced, as Alternative E would remove a section of the El Paso Natural Gas corridor that travels from Gila Bend to the Tohono O'odham Indian Reservation (similar to Alternative C), and 372,400 acres would be allocated as LUA avoidance areas and 255,700 acres as LUA exclusion areas. Impacts would be minor.

From Livestock Grazing on Hazardous Materials & Public Safety

Impacts from encounters with agitated livestock or visitor mishaps at range improvements would be the same as under Alternative A for the Lower Sonoran.

From Hazardous Materials & Public Safety on Hazardous Materials & Public Safety

Impacts would be the same as those described under Alternative B for the Lower Sonoran.

From Recreation Management on Hazardous Materials & Public Safety

Impacts would be the same as those discussed under Alternative A for the Lower Sonoran, except lands designated as SRMAs under Alternative E would comprise about 4 percent of the total acreage, while ERMAs comprise about 66 percent of the lands. Overall impacts would be similar to Alternative C due to a similar percentage of the Decision Area being allocated to SRMAs and ERMAs and similar management strategies existing for these recreation management areas. Impacts from recreational target shooting in the Lower Sonoran would be similar to those under Alternative C.

From Travel Management on Hazardous Materials & Public Safety

Impacts from travel management decisions relating to acres closed to motorized travel and miles of routes designated as closed to public use would be most similar to Alternative C. Alternative E would allow more opportunities for recreational activities that could pose a safety risk compared to Alternative D, but less opportunity compared to Alternatives A and B.

Based on the total miles of route open to the public within the Lower Sonoran, the opportunities for illegal waste dumping along established roadways would be similar to those under Alternative C. As under all alternatives, anticipated increases in population and use of public land would tend to increase the incidences of dumping and littering. Heavily traveled routes used by UDAs would remain areas of substantial litter accumulation.

Impacts from encounters with smugglers and UDAs would be similar to those described under Alternative C.

4.21.7.3 Sonoran Desert National Monument

From Lands & Realty on Hazardous Materials & Public Safety

Impacts would be the same as those discussed under Alternative D in the SDNM.

From Livestock Grazing on Hazardous Materials & Public Safety

Impacts would be the same as those discussed under Alternative C for the SDNM.

From Hazardous Materials & Public Safety

Impacts would be the same as those discussed in Alternative B for the SDNM.

From Recreation Management on Hazardous Materials & Public Safety

Impacts would be the same as those discussed under Alternative A for the SDNM, except under Alternatives A, B, C, and D, the SDNM SRMA would be designated under Alternative E. Recreational management strategy for this SRMA would be same as that identified under Alternative C, resulting in

similar impacts. Impacts from allocating roughly 87 percent of the SDNM under Alternative E to the backcountry setting would also be similar to those under Alternative C. Impacts from requiring visitors to obtain a permit prior to entering the Sand Tank Mountains would be the same as those discussed under Alternative A.

Since dispersed recreational target shooting throughout the Monument would continue, the impacts of target shooting under Alternative E would be the same as those described for Alternative A. However, if Management and Administrative Actions designed to change the conduct of recreational target shooters has the desired effect, impacts from recreational target shooting should be greatly decreased. If that were to happen, impacts would be negligible to minor.

From Travel Management on Hazardous Materials & Public Safety

Impacts from travel management decisions relating to acres closed to motorized travel and miles of routes designated closed to public use would be most similar to Alternative C. Alternative E would allow more opportunity for recreational activities that could pose a safety risk compared to Alternative D but less opportunity compared to Alternatives A and B. Based on the total miles of route open to the public within the SDNM, the opportunities for illegal waste dumping along established roadways would be similar to those under Alternative C. As under all alternatives, anticipated increases in population and use of public land would increase the incidences of dumping and littering. Heavily traveled routes used by UDAs would remain areas of substantial litter accumulation.

Impacts from encounters with smugglers and UDAs would be similar to those discussed under Alternative C.

4.22 IMPACTS ON SOCIOECONOMICS

This section assesses economic and social effects of the Planning Area alternatives. Many public land uses generate revenue and are discussed in this section. Other uses that do not generate revenue but are just as vital to the public are also discussed. Communities within Maricopa, Pima, and Pinal Counties are closely associated with public lands and thus constitute the study area for socioeconomic values for the RMP. The resource management decisions expected to have the greatest impacts on socioeconomics in the study area include those relating to the management of energy and minerals, grazing, recreation, and lands and realty. Other resource management disciplines expected to have some impact on socioeconomic conditions that vary by alternative include management of biological and ecological resources; cultural resources; visual resources; wilderness characteristics; travel management; and special designations.

4.22.1 METHODS OF ANALYSIS

4.22.1.1 Indicators

When analyzing impacts on social and economic resources, quantitative analysis is provided when available and appropriate. Qualitative analysis is provided in the absence of sufficient quantitate data. The following impact indicators are used:

- Employment and income at the personal, household, business, or community level

- Access as measured by miles of open/closed routes and acres of special designations
- The values of sense-of-place and sense-of-well-being are important methods of evaluating impacts on social values.

4.22.1.2 Assumptions

The following assumptions regarding socioeconomics are made:

- Visitor use is expected to increase as populations increases. Increased visitation would have economic impacts on communities in the study area that serve as stopping points for services near public lands.
- All alternatives for management of SDNM support the objectives of Presidential Proclamation 7397 and consequently contribute to the protection of social values in the Monument.
- Since the SDNM proclamation honors prior existing rights, private inholdings would be developed, decreasing the amount of open space available within SDNM.
- Management actions that influence employment, the demand for goods and services, business growth, and visitation within this broad study area would affect socioeconomics. Impacts would most greatly be felt in small rural communities that economically and socially rely, at least partially, on resources uses within the Decision Areas, including vegetation products, lands and realty, livestock grazing, minerals, recreation, and travel.
- Any action that enhances the quality of recreation experience or creates additional facilities or improved access would potentially increase visitation. Increased visitation would stimulate increased expenditures for goods and services in the local and regional economies. This in turn would tend to encourage additional business activity and population growth.
- Hunting management and the number and types of habitat improvement projects aimed at improving health and vitality of game animals would affect local economies in terms of influencing the number and types of hunters coming to the Decision Areas and the number and success of professional outfitters
- Actions that increase renewable energy and mining activities would tend to stimulate the local and regional economies, both through increased employment and demand for goods and services for the mining operation itself. Duration of this effect would depend upon the magnitude of energy production and mineral deposits and market demand for the products. Conversely, actions eliminating current renewable energy and mining activities or discouraging or precluding new renewable energy and mining activities would tend to decrease or at least limit local and regional economic benefits.
- Changes in allowable grazing level could influence ranchers within the Decision Areas, which, in turn, could affect local communities dependent upon ranching operations in terms of tax revenue from livestock sales and the purchase of equipment and feed. In SDNM, the

proclamations termination of livestock grazing permits south of I-8 in 2008-09 would likely result in an economic and social cost to the permittees.

- Land disposals that ultimately lead to the development for residential use or commercial and light industrial development would have an economic impact in terms of employment and earnings, as well as increased tax base for the area. According to the proclamation, all public lands in SDNM would be retained, except exchange may be considered to further the protective purposes of the Monument. The continuation of policy to retain federal land (surface and subsurface estate) would preclude economic activity that could potentially be associated with land development activity on disposed lands. The BLM would receive no revenue from land disposal in the Monument. All SDNM lands would remain a part of the Monument in perpetuity.

- This would protect the Monument and sustain it as permanent open space for the growing area that surrounds it.

4.22.1.3 Program Areas with No Impacts on Socioeconomics

No impacts on socioeconomics are anticipated for management actions relating to:

- Cave Resources
- Paleontological Resources
- Wild Horse & Burro Management

4.22.1.4 Qualitative Intensity Scale

The intensities of impacts are the same as those described in **Table 4-1**, Qualitative Terms for the Intensity of Impacts.

4.22.2 COMMON TO ALL ALTERNATIVES

4.22.2.1 Both Decision Areas

From Air Quality, Hazardous Materials & Public Safety, Water Resources, Soil Resources, and Wildland Fire Management on Socioeconomics

Actions to manage air quality, public safety, water resources, and watersheds and soils would contribute to the overall social well-being of the public but would vary little by alternative. Wildland Fire management would continue to have positive socioeconomic impacts related to the protection of life and property, fire ecology, aesthetics, and the employment and expenditures related to these programs.

4.22.2.2 Lower Sonoran

No unique impacts are identified for the Lower Sonoran under Common to All Alternatives.

4.22.2.3 Sonoran Desert National Monument

From Lands & Realty on Socioeconomics

The proclamation guidance against commercial utility-scale renewable energy sites on SDNM renders the BLM unable to plan for the development of utility-scale renewable energy within SDNM at a time when such energy is becoming more economical, and is increasingly addressed in community planning. Closure of the Monument to utility-scale renewable energy development is expected to have negligible to minor impacts on utility-related revenue sources due to lack of area suitable for development.

From Minerals Management on Socioeconomics

The SDNM is withdrawn from new mineral entry under all alternatives. The withdrawal was established in the proclamation that established the Monument. This withdrawal would likely reduce revenues from mineral development in the SDNM and surrounding planning area.

In those few parcels (25,800 acres) within SDNM where the surface is owned by the United States and the subsurface is owned by a non-federal entity, minerals development may still occur. Depending upon the extent and intensity of mineral development, economic gains would be realized commensurate with the scale of the activity. However, it is expected that social impacts would be negligible and localized in scale as any proposal to develop valid existing rights would be subject to site-specific, case-by-case review of mine plans of operation, to ensure that undue and unnecessary degradation of resources does not occur. The BLM, as the owner/manager of the surface, would work with operators to mitigate impacts on affected Monument objects, such as requesting project design features and/or best management practices to reduce impacts, which would result in increased costs for the developer.

From Travel Management on Socioeconomics

Impacts of individual route designations within the SDNM are expected to have similar impacts across all alternatives. Under all action alternatives, route designations are designed to minimize conflicts among users, while promoting safety and protection of resources. Primary impacts on socioeconomic resources from route designation stem from accessibility for recreation such as motorized and nonmotorized trail-based recreation (OHV driving, mountain biking, hiking, etc.) along with access to other activities (such as hunting, wildlife viewing, geocaching, etc.). Generally, more access leads to more recreation, which leads to more potential for recreation-related income/revenue.

While each alternative has varying amounts of designations for primitive roads as open, administrative, size restraints, seasonal and permanent closures, none is different enough to vary in impacts on socioeconomic values. Impacts from all alternatives to area income/revenue are expected to be negligible to minor.

4.22.3 ALTERNATIVE A (NO ACTION)

Alternative A would not address issues related to major events that have shaped the socioeconomic setting in the Planning Area since the previous planning efforts. The result would be conflicting uses of public land. Revenue to private industry/businesses would continue to accrue from the following activities on public land, with the amount of revenue varying widely: production of mineral materials,

ancillary facilities to support copper mining, grazing, land disposal for development, accommodation of utilities, and camping at fee campgrounds.

Overall, the social well-being of those who feel all roads should be open, or who need motorized access because of physical limitations, would increase while the social well-being of recreationists who prefer solitary and quiet experiences could decrease. Opportunities for hunting or the quality of hunting experiences would likely decrease as more people recreate on public lands and would provide no means to manage wildlife habitat in response to growing population pressures. Groups and individuals who give a very high priority to resource use may feel that enough resource use, such as minerals production and grazing, would be allowed on public lands under this alternative. Groups and individuals who give a very high priority to resource protection may feel the resources they are concerned about would not be adequately protected.

4.22.3.1 Both Decision Areas

From Cultural and Heritage Resources on Socioeconomics

The lack of RMP decisions concerning heritage resources would tend to impede the development of cultural tourism. Under this alternative, prioritization of other resource objectives over cultural protection, interpretation, and education may result in decreased cultural tourism, having a negligible to minor negative effect on nearby revenue streams related to cultural tourism.

From Minerals Management on Socioeconomics

Under this alternative, production of saleable, leasable, and locatable minerals on public lands would continue to provide mineral resources at current levels. Since investment in locatable mineral development in the Planning Area is expected to increase, this alternative is expected to have minor to moderate impacts on local economic growth in employment and income in the surrounding communities. Total employment and secondary economic impacts from locatable mineral related jobs can be significant at the community level but is relatively low for the tri-county areas overall, particularly in recent years as communities have diversified their economies and turned towards more service related sectors (refer to section 3.5.3, socioeconomic resources).

In June 2009, the most notable active locatable mineral operations in the Planning Area were three copper mines in the Globe-Miami area of Gila County: BHP Billiton's Pinto Valley/Miami Mine, Quadra's Carlota Mine, and Freeport-McMoRan Copper & Gold's Miami Complex. These operations are located on a mix of private and Forest Service lands, although mineral potential may be present on adjacent public lands.

Extraction of saleable minerals (mineral materials) such as crushed stone and gravel from public lands would continue to represent a growing source of income for the BLM and an important material source for local communities (refer to section 3.5.3, socioeconomic resources). BLM sells mineral materials to the public at fair market value, but gives them free to states, counties, or other government entities for public projects. BLM shares a portion of the revenues from the sale of mineral materials with the state where the minerals are produced. Mineral material prices are impacted by Supply and Demand and transportation costs. Prices would increase with an imbalance between supply and demand if local mines are closed. In addition, due to the sheer weight of mineral materials, transportation plays an important

role in the cost of mineral resources to the consumer, and is the principal constraint in defining the market area for an aggregate mining operation. Therefore, adequate local supplies of these basic resources are important the economies of local communities for their infrastructure construction and maintenance. Restricting mineral development in the SDNM to valid and existing rights, such as the few parcels (totaling 25,800 acres) of split estate where the United States owns the surface land, but a non-federal entity owns the subsurface mineral estate, would have negligible to moderate negative effects on employment and economics associated with mineral development. Mineral development on these split estate lands could cause a loss of scenic views and natural landscapes, which would decrease the social well-being of those individuals or groups who value these resources. Overall, impacts on social well-being are anticipated to be negligible to moderate, depending on the development of mineral resources. However, the BLM, as the owner/manager of the surface, would work with operators to mitigate impacts on affected Monument objects to reduce impacts, including requiring the use of project design features and/or best management practices to reduce the effects.

From Recreation Management on Socioeconomics

While OHV use, hiking, hunting, and other forms of recreation would continue to be managed under current conditions, population-driven increases in demand would likely result in a negligible to minor increase in economic contributions and employment attributable to recreation, camping, and tourism on public lands. The continuation of existing recreation management programs would result in relatively minor economic impacts due to visitor expenditures. Associated social effects, such as conflicts among uses, would continue and possibly escalate, having minor to moderate negative impacts on the social well-being of recreation users.

From Special Designations Management on Socioeconomics

Continued management of existing special designations such as the Coffeepot Botanical and Vekol Valley Grassland ACECs, the Fred G. Weiler Green Belt, and the Juan Bautista de Anza NHT is expected to result in no change in social and economic impacts on the local economy.

From Travel Management on Socioeconomics

Alternative A would close an estimated 15 miles of routes in the Lower Sonoran, leaving 1670 miles open (99 percent) for public use. In the SDNM, Alternative A would close 27 miles of routes in the Monument, leaving 568 miles open (89 percent) for public use. This alternative provides the most opportunity for people who are dependent on vehicular access to enjoy the resources of the National Monument. Because visitation is expected to increase and because there are few restrictions on use and public access, this alternative is expected to have negligible to minor impacts on increased recreation-related employment and income.

Management of motorized use as proposed under Alternative A would provide for high levels of motorized access on designated routes, lending to positive experiences for those who value motorized access. However, the social well-being of groups and individuals, who feel some roads, should be closed to motorized use, or who value solitude experiences, would thus diminish under Alternative A. The overall impact of travel management to social well-being is expected to be negligible under this alternative.

From Vegetation Resources on Socioeconomics

Commercial landscapers who remove native vegetation by permit, and sell the plants would continue to benefit economically from such actions. While allowing the collection of native plant material for personal and commercial use would align with cultural values that depend on native plant collection, it may also result in deterioration of resource values. Management under Alternative A for vegetation would have no/negligible impact on current social and economic values since it is expected that no major changes would result from management actions.

From Visual Resources on Socioeconomics

Under Alternative A, the large acreage in VRM classes III and IV (78 percent of the Lower Sonoran and 49 percent of the SDNM) would support active uses of public lands, such as more intensive recreation uses in both Decision Areas, and mineral development and LUAs in the Lower Sonoran. While this would meet social and economic demands associated with those uses, such VRM class assignments could allow for the degradation of visual resources, attracting fewer visitors seeking scenic views. Over time, it is expected that management of visual resources would have a minor effect on visitor-related revenue. Additionally, loss of scenic value would have a negligible to moderate negative impact on the social values of residents who have expressed a desire to maintain the scenic views of the Sonoran Desert.

From Wilderness Characteristics Management on Socioeconomics

Coupled with increasing population growth and demand for recreation and public use of public lands, not allocating lands managed to protect wilderness characteristics could result in a degradation of those characteristics. In the long term, there would be a lack of prescriptions to keep the lands as secluded, remote, and peaceful as area residents wish that they would be. While not allocating lands to protect wilderness characteristics could provide employment and income to local communities in the form of other land uses such as mineral development, some studies indicate that protection of wilderness characteristics may provide economic benefits to surrounding communities. Rural counties with Wilderness or other protected federal lands experience greater economic and population growth than those without Wilderness (Rosenberger and English 2005). Furthermore, protected lands can have an important influence on economic growth in rural isolated counties that lack easy access to larger markets. From 1970 to 2000, real per capita income in isolated rural counties with protected land grew more than 60 percent faster than isolated counties without any protected lands (Sonoran Institute 2004). Protected lands can be especially important in promoting economic growth in tourism and in attracting retirees and others with non-labor income (Rudzitis and Johnson 2000). Overall, social well-being of people or groups who prefer solitary and quiet experiences would see minor to moderate declines and the social well-being of those who prefer more developed experiences would see minor to moderate increases.

From Wildlife and Special Status Species Management on Socioeconomics

Healthy wildlife populations are intertwined with wildlife viewing and hunting visitation, and such expenditures would not likely increase as result of management actions under Alternative A, having no impact on the area economy.

The lack of WHA allocations and specific habitat protection would disappoint those who value wildlife protection. Restoration by mostly passive means and lack of specific decisions to use native plants would slowly return damaged sites to natural conditions and may result in minor negative impacts in the social well-being of area residents who value natural desert ecosystems.

4.22.3.2 Lower Sonoran

From Lands & Realty on Socioeconomics

The continuation of existing management of realty actions would have negligible to moderate impacts on the potential economic activity associated with development related to lands and realty transactions. In the Lower Sonoran, disposal of 18,900 acres could remove the potential for those parcels to serve as undeveloped open space, thereby affecting negatively those who value open, uninterrupted tracks of land. However, making 8,000 acres available for exchange only may offset any open space losses. If land is disposed through sale, negligible to moderate increases in area income can be expected due to potential development and property tax revenue. In the Lower Sonoran, ten 1-mile wide existing utility corridors would remain and this alternative would allow for additional use. This would have a negligible to moderate impact on area economic development, depending on the nature of the development.

Development within existing or new LUAs would have negligible to moderate negative social impacts related to the location of the development, and negligible to minor economic impacts on the service population affected by infrastructure improvements Economic benefits to the local communities from growing interest in solar development on public lands are expected to be moderate to major.

From Livestock Grazing on Socioeconomics

Under Alternative A, grazing in the Lower Sonoran and north of I-8 outside the SDNM would be expected to continue at current levels, having a no impact on income trends, while supporting the traditional ranching lifestyle. Since there would be no change in the authorized level of grazing use, the real estate value of ranch properties would remain unchanged, thereby having no effect on local real estate prices. Total proposed AUMs for Alternative A are 17,541 for the Lower Sonoran decision area. As discussed in 3.5.3, socioeconomic resources, public permit costs for these permits can be calculated at $23,680 should all of these permits be active.

4.22.3.3 Sonoran Desert National Monument

From Lands & Realty on Socioeconomics

In the SDNM, three 1-mile utility corridors would remain. The corridors would support the growing needs of an increasing population in the study area. Development within existing or new LUAs would have potential negligible to minor social impacts related to location of the development, and negligible to minor economic impacts on the service population affected by infrastructure improvements. Few limitations on alignments may decrease the costs for LUA developments and would allow economic opportunity for new LUAs within the Decision Areas, having a negligible to moderate positive economic impact.

From Livestock Grazing on Socioeconomics

Allotments south of I-8 within the SDNM were closed when existing permits expired, per the Monument proclamation. Closure of these allotments caused a minor to moderate economic loss to ranchers who held the permits and a negligible to minor loss to the traditional ranching lifestyle in this area. As discussed in 3.5.3, socioeconomic resources, economic impacts may be limited due to small and decreasing portion of the tri-county economy dependent on ranching and farming (0.1 percent in Maricopa and Pima Counties and 0.7 percent in Pinal County of total employment in 2009). Total proposed AUMs for Alternative A are 8,703 for the SDNM decision area. As discussed in 3.5.3, socioeconomic resources, public permit costs for these permits can be calculated at $11,749 should all of these permits be active. In contrast, closing the allotments may allow the land to return to a more natural state, further protecting the resources of the SDNM and having a negligible to minor positive impact for those individuals and groups who believe grazing should cease in the Monument.

Under Alternative A livestock grazing would continue to be permitted on a case-by-case basis, based on rangeland health evaluations conducted during the permit renewal process.

4.22.4 ALTERNATIVE B

Alternative B would allow for the greatest number of uses and would emphasize opportunities for those uses, especially those involving motorized access and developed forms of recreation.

This alternative would require the most intensive management. Coordination among the BLM, local communities, and other public and private partners would result in both resource protection and revenue to private industry/businesses. Revenue effects to private industry/businesses from mining, and land disposition would be similar to those under Alternative A. Alternative B would have more utility corridors, communication sites, and participation in utility-scale renewable energy development than any other action alternative.

From Recreation Management on Socioeconomics

Overall, the social well-being of those who value access and resource use would be greatest under Alternative B, while the social well-being of recreationists who prefer solitary and quiet experiences would be less than any other action alternative. Opportunities for hunting and wildlife viewing would be enhanced through increased access and hands-on management. While several of the management decisions present in Alternative B would address resource protection more than those in Alternative A, in most cases only small acreage would receive protection.

The emphasis on motorized recreational uses under Alternative B would not limit contributions to the economy from users that enjoy motorized recreation. The development of recreational facilities and increased acreage of community interface and front country settings could increase revenue associated with developed recreation opportunities. On the other hand, some groups and individuals who give a very high priority to resource protection may feel the resources they are concerned about would not be adequately protected under Alternative B.

4.22.4.1 Both Decision Areas

From Cultural and Heritage Resources on Socioeconomics

Cooperative planning of heritage tourism projects and promotion of cultural tourism could increase visitation and tourism-associated revenue, having a greater potential for increased local economic impacts than under Alternative A. More than Alternative A, prioritized management of certain cultural areas would provide opportunities for increased public visitation and interpretation, thereby increasing social well-being of people who value cultural opportunities.

From Livestock Grazing on Socioeconomics

While grazing would continue in the long-term, under Alternative B it would be reduced from Alternative A by almost 40 percent. This alternative would allow fewer ranching opportunities and less associated income than afforded in Alternative A, having a moderate to major impact on the income of affected ranchers and a negligible to minor impact to local communities. In the Lower Sonoran decision area, a total of 10,431, or 7,110 AUMS fewer than Alternative A, are proposed. The approximate total cost of these AUMS on public land would be $9,598. Under the current grazing rates, the equivalent cost of these 7,110 AUMs on private land would be $63,990. In the SDNM, a total of 5,321, or 3,382 AUMs less than Alternative A, are proposed. The approximate total cost of these AUMS on public land would be $4,565. Under the current grazing rates, the equivalent cost of these 3,382 AUMs on private land would be $30,438. Coordination and consultation with affected parties would be the same as described in alternative A. Minor negative social impacts would be expected for the ranching lifestyle. Reduced grazing would have a greater positive impact on the social well-being of those who think that grazing should be limited.

From Travel Management on Socioeconomics

As under Alternative A, some forms of visitation and associated economic activity may increase under Alternative B due to few restrictions on public access, even though some decisions may slightly limit public access in order to meet resource goals and objectives. Overall, sales and rental businesses associated with motorized recreation would likely increase, while the sales of supplies and gear associated with nonmotorized recreation may decrease, as compared to Alternative A.

There may be a negligible to minor positive impact to the economies of local communities but little or no net change in employment with recreation use on public lands under Alternative B. This alternative provides more access than any other action alternative but – when compared to Alternative A – the closures might have minor negative impacts on the social wellbeing of those who value motorized access to the Planning Area. Overall, Alternative B would provide the least opportunity for solitude and nonmotorized recreation and would diminish the social well-being of groups and individuals who participate in these activities.

From Vegetation Resources on Socioeconomics

Impacts would be similar to those described in Alternative A for both Decision Areas.

From Wilderness Characteristics on Socioeconomics

Impacts would be similar to those described in Alternative A for both Decision Areas. No new areas would be managed for wilderness characteristics.

From Wildlife and Special Status Species Management on Socioeconomics

Employment and income is expected to remain the same or have minor increases over Alternative A due to management actions protecting wildlife movement corridors that would increase opportunities for healthy wildlife and associated hunting, wildlife viewing, and photography.

The lack of WHA allocations under Alternative B, however, would have similar impacts as Alternative A. Restoration by active means and use of native plants would return damaged sites to natural conditions faster than under Alternative A, aligning better with the social values of those who value maintaining natural desert ecosystems.

4.22.4.2 Lower Sonoran

From Lands & Realty on Socioeconomics

Alternative B allows for 36,300 acres available for disposal by any method – almost twice as many acres as Alternative A. 3,400 acres are made available for R&PP and no lands would be made available for exchange only. PILT payments to the counties would decrease compared to Alternative A during land disposals, but those lands would become subject to property tax, which typically generates more revenue than PILT payments. Overall impacts on revenue/income are expected to be negligible to minor. The social values of those people or groups who value retention of public lands would decline, but there would be increased opportunities for other agencies or groups to apply for parcels through the R&PP Act compared to Alternative A. Overall social impacts are expected to be minor.

Alternative B would allow for the development of utilities within the designated corridors, with the least amount of LUA exclusion areas of any action alternative. Fewer limitations on alignments may decrease the costs for LUA developments. Adjacent communities would not need to accommodate transmission lines where the lines could be put on public lands because ten BLM utility corridors would provide sufficient, yet limited, locations for new utilities. Placement of communication facilities would not be allowed to conflict with wildlife management, aligning with the social values of those people or groups who value intact wildlife areas but possibly increasing costs to communication companies. Impacts are anticipated to be negligible to minor. Compared to Alternative A, the BLM's participation in utility-scale renewable energy development could increase, having minor to major impacts on utility-associated revenue.

From Minerals Management on Socioeconomics

Impacts would be similar to those described in Alternative A for both Decision Areas. Impacts of ACEC designation are discussed under ACEC management, below.

From Recreation Management on Socioeconomics

Recreation management under Alternative B would serve a large and growing recreational demand in the study area. In the Lower Sonoran, the 648,900 acres of RMAs (including 53 percent backcountry and 34 percent front country) would provide a wide variety of recreational opportunities and allow for intensive use. Management decisions under Alternative B would allow for the development of a larger number of recreational facilities on public lands compared to Alternative A, which would accommodate the highest number and density of visitors.

Communities next to RMAs would likely experience more sales of goods and services to support the particular recreational activities of the developed areas than in Alternative A. Overall, potential increases in recreation-related employment and income would be greatest under this alternative, though somewhat similar to Alternative E. The greatest negative impacts on social well-being would be felt by those who value primitive, nonmotorized recreation and quiet open space. On the other hand, those who value motorized recreation would experience the most well-being under this action alternative.

From Special Designations on Socioeconomics

While this alternative enlarges the Coffeepot Mountain ACEC (from 8,900 acres to 14,372 acres) not designating several potential ACECs may result in deterioration of the resources currently present, conflicting with the social well-being of people or groups who value these resources but aligning with the social well-being of people or groups who value fewer restrictions on public lands. ACEC management under this alternative could impact locatable, leasable, and saleable mineral extraction and associated jobs and revenue in local economies. Existing and proposed ACECs are located primarily on public lands, and existing area locatable minerals operations are located on private lands, but some potential may exist on adjacent public lands. Valid existing rights would be recognized on all ACECs, but some areas would be withdrawn to locatable mineral extraction or classified as avoidance areas for mineral materials. The ACEC designation could require additional stipulations and mitigation for minerals development. Closures and stipulations may impact the amount of locatable and saleable minerals extracted, with potential impacts on local direct and indirect jobs as well as costs for local community building projects, should local mineral material process be increased.

From Visual Resources on Socioeconomics

In the Lower Sonoran, Alternative B would allocate the majority of public lands as VRM Class III and Class IV (83 percent). Effects are expected to be similar to Alternative A, but with greater intensity.

4.22.4.3 Sonoran Desert National Monument

From Lands & Realty on Socioeconomics

As described for the Lower Sonoran, this alternative provides the least amount of LUA exclusion. Three one wide mile utility corridor would be designated; therefore, impacts would be similar to Alternative A.

From Recreation Management on Socioeconomics

The entire SDNM would be managed as an ERMA, with 76 percent managed as backcountry and 22 percent managed as front country. This alternative has the least amount of backcountry of any action alternative. Front country acreage would be near rapidly growing communities to the north of SDNM, which would likely receive revenue from spending on goods and services to support the particular recreational activities of the developed areas. Overall economic impacts, however, are expected to be similar to Alternative A, but slightly greater intensity.

From Special Designations on Socioeconomics

Designation of the Highway 238 and I-8 as scenic byways in the SDNM would increase tourism and related spending in the area, at a negligible to minor level. The current character of these roads would be maintained through more active management than under Alternative A and align with the social well-being of people or groups who value protection of natural and cultural resources as well as public access and visitation. In the SDNM, Alternative B would discontinue the designation for the Vekol Valley Grassland ACEC, which may counter social values specific to this designation. However, the impacts would be negligible because the resources within this area would be managed to a similar or greater level of protection under the Monument proclamation.

From Visual Resources on Socioeconomics

In the SDNM, Alternative B would not allocate any acreage to VRM Class IV but would allocate 22 percent of the area to VRM Class III. This alternative has more land allocated to Class I and II than Alternative A, but less than any action alternative. Impacts would be similar to those described in Alternative A, only at a slightly less intensity.

4.22.5 ALTERNATIVE C

Alternative C would respond to recent trends in the Planning Area by balancing "hands-on" resource protection with human use and influence. Revenue to private businesses from mineral materials and locatable minerals would be similar to Alternative B. Revenue from land disposition would be similar to other alternatives. No ephemeral grazing would be permitted. Management to accommodate infrastructure (e.g., utility corridors, telecommunication sites, and utility-scale renewable energy opportunities) would provide sufficient locations, albeit fewer than under Alternative B.

Overall, Alternative C would positively impact the social well-being of recreationists who prefer solitary and quiet experiences. On the other hand, the social well-being of those who feel all roads should be open, or who need motorized access because of physical limitations, could decline compared to Alternatives A and B. Opportunities for hunting and wildlife viewing would be enhanced through a focus on protecting wildlife habitat and providing suitable, but limited, access. Groups and individuals who give a very high priority to resource use may feel that not enough resource use would be allowed on public lands under this alternative. Likewise, some groups and individuals who give a very high priority to resource protection may feel the resources they are concerned about would be adequately protected. Emphasis of nonmotorized recreational uses, increased management and protection of wildlife habitats, and designated route closures and use limitations would limit contributions to the economy from users that enjoy motorized recreation. The Planning Area might receive a similar amount of business revenue

related to the public land as it would under Alternative B, but more of the recreation revenue would be associated with cultural and ecotourism and less would be associated with motorized recreation.

4.22.5.1 Both Decision Areas

From Cultural and Heritage Resources on Socioeconomics

Unlike Alternatives A and B, Alternative C would allocate 127,600 acres of SCRMAs in the Lower Sonoran and 49,800 acres of SCRMAs in the SDNM, which would be intensively managed for protection of resources and scientific research. Cultural management prescriptions would have a joint emphasis on public visitation and scientific research/resource protection, but with fewer sites selected for public visitation than under Alternatives A and B, thereby possibly having a smaller economic impact than in Alternative B. Like Alternative B, cooperative planning of heritage tourism projects with tribes, other agencies, and organizations could specifically affect local economies in surrounding communities by increasing visitation and tourism-associated revenue at a negligible to minor level.

From Livestock Grazing on Socioeconomics

Under Alternative C, perennial grazing would be the same as Alternative A. However, this alternative would allow no ephemeral grazing. This could affect some cattle ranchers who rely on ephemeral grazing. Grazing would continue in the long-term with similar maintenance of a traditional ranching lifestyle as Alternative A, although perhaps with the need to rely on other cattle production options, such as feedlots. Net income to ranchers would likely decrease compared to Alternative A, but would be greater than B because perennial livestock numbers would be larger.

From Special Designations on Socioeconomics

Alternative C would allocate 63,300 acres of ACECs – more than under Alternatives A and B but less than under Alternatives D and E would have improved effects on the social well-being of people or groups who value these resources and degrading effects on the social well-being of people or groups who value fewer restrictions on public lands.

From Travel Management on Socioeconomics

In the Lower Sonoran, there would be 529 fewer miles of routes open to the public than proposed under Alternative A and 429 fewer miles than proposed under Alternative B. In the SDNM, 190 fewer miles of routes would be open to the public than proposed under Alternative A and 140 fewer miles than proposed under Alternative B. Under Alternative C, management emphasis would be placed on resource protection, which is still consistent with serving both the social values of the protection of resources and public access/use opportunities on public land. Although not as dense as under Alternatives A and B, the motorized route network under Alternative C would still be responsive to the desires of individuals and groups who feel public lands should remain open to motorized access, enhancing their social well-being, albeit less than under Alternatives A and B.

Alternative C would provide an increased opportunity for solitude and nonmotorized recreation, increasing the social well-being of groups and individuals who participate in these activities. Compared to Alternatives A and B, potential decreases in visitation may occur for some users as a result of more

restrictions on use and decreased public access. In general, sales and rental businesses associated with motorized recreation under Alternative C would be slightly lower compared to Alternative A and B, while the sales of supplies and gear associated with nonmotorized recreation may be slightly higher. There may be a slight impact to the economies of local communities.

From Vegetation Resources on Socioeconomics

Impacts would be similar to those described in Alternative B. Resource values would be further protected under Alternative C by not permitting wood harvesting in the Decision Area, although such actions may have a minor to moderate negative social and economic impact to those residents or visitors who harvest wood.

Compared to Alternatives A and B, the focus on controlling invasive species would include requiring SRP users to use certified weed-free feed for their animals would result in decreased introduction and spread of invasive species. Such actions would increase the cost to users. However, the social values associated with maintaining native species on public lands would be met. In the SDNM, impacts from restrictions on harvesting vegetation would be similar to Alternative B.

From Wildlife and Special Status Species Management on Socioeconomics

Compared to Alternatives A and B, Alternative C would be more successful maintaining healthy wildlife populations and natural landscapes, which tend to attract visitors to the Decision Areas. This would be accomplished through the creation of four WHAs, along with expanded management for wildlife movement corridors. As a result, visitor-related expenditures would increase in response to ecological/biological management actions under Alternative C as compared to Alternatives A and B.

4.22.5.2 Lower Sonoran

From Lands & Realty on Socioeconomics

Impacts from land tenure decisions would be similar to Alternative B. In the Lower Sonoran, future development of utilities within designated utility corridors would be allowed under Alternative C, although there would be one less corridor than under Alternative B. As under Alternative B, the BLM would consider transmission line siting outside the corridors on a case-by-case basis. In addition to special designations, WHAs, SCRMAs, ACECs, and allocated lands managed to protect wilderness characteristics would be avoidance areas as under Alternative B. Routing around these areas could be costly to utility companies and ultimately to consumers. Communication sites would also be accommodated as in Alternative B, further aligning with the social values of those people or groups who value intact wildlife areas but possibly increasing costs to communication companies.

The BLM would evaluate utility-scale renewable energy sites on a case-by-case basis and authorize them if the project is consistent with other management objectives for the area. WHAs, SCRMAs, ACECs, and allocated lands managed to protect wilderness characteristics would be avoidance areas under Alternative C. While the BLM would not work with industry to identify priority areas for utility-scale renewable energy development, there could still be numerous sites permitted in the Lower Sonoran given the high potential for solar energy facility development.

From Minerals Management on Socioeconomics

The revenue yield from mineral extraction would be somewhat reduced compared to Alternatives A and B because mineral material disposals in ACECs, SCRMAs, WHAs, and allocated Lands Managed to Protect Wilderness Characteristics would be approved in a manner that maintains or enhances the resources for which the designation was made. Leasable mineral development would be unlikely and would be subject to similar stipulations. The effects of management decisions for locatable minerals are the same as described under Alternative B, except for additional stipulations concerning natural resource protection where mineral development occurs. Jobs and income associated with locatable minerals may be reduced in local areas, although quantitate impacts would be determined by a variety of factors including price of minerals in the market, and the location and cost of extraction. See ACEC management and Lands Managed to Protect Wilderness Characteristics discussions below for additional details.

From Recreation Management on Socioeconomics

Management of recreation in Alternative C would balance motorized and nonmotorized uses with resource protection, which would meet overall recreational demand. While the sales and rental of recreational vehicles and equipment would be greater than Alternative A, especially in gateway communities, the increase would not be as high compared to Alternative B. On the other hand, mechanized vehicle use, equestrian recreation, and hiking would involve equipment expense that could offset any losses associated with motorized recreational activities.

SRMAs would be of similar size as under Alternative B, more land would be allocated to backcountry in order to serve Alternative C's management focus on balancing motorized and nonmotorized uses. While the total number of visitors to public lands could be as high as under Alternative B, motorized recreation use may decrease and nonmotorized recreation use may increase. Groups or individuals who value both types of recreational activities would have a range of places to enjoy them.

From Visual Resources Management on Socioeconomics

Under Alternative C, less area of the Lower Sonoran (48 percent) would be assigned to VRM Classes III and IV and more area would be assigned to VRM Class I and II (52 percent) than Alternatives A and B. The social well-being of visitors and residents who desire protection of scenic views would increase, along with associated tourism spending. However, the reduced acreage in Class III and IV would reduce opportunities for more developed recreation and mining use, each with associated negative impacts on local economies and social values.

From Wilderness Characteristics Management on Socioeconomics

Alternative C would allocate 128,100 acres in the Lower Sonoran as lands managed to protect wilderness characteristics. Compared to Alternatives A and B, which have no lands managed to protect wilderness characteristics allocations, the social well-being of people or groups who prefer more developed experiences and opportunities would decrease and the social well-being of recreationists who prefer solitary, quiet experiences would increase. Impacts on the local economy are anticipated to be minor to negligible. No large changes in employment and income are expected to remain unchanged despite the lands managed to protect wilderness characteristics allocations.

From Special Designations on Socioeconomics

Restrictions for ACEC mineral management under Alternative C would be similar to those under Alternative A except that the area is increased to 63,300 acres. As discussed under Alternative B, ACEC management under this alternative could impact locatable, leasable, and saleable mineral extraction and associated jobs and revenue in local economies. In particular, closures and stipulations may impact the amount of locatable and saleable minerals extracted, with potential impacts on local direct and indirect jobs as well as costs for local community building projects, should local mineral material process be increased.

4.22.5.3 Sonoran Desert National Monument

From Lands & Realty on Socioeconomics

In the SDNM, two one-half mile utility corridor would be designated – as under Alternative B– however, only transportation and underground utility uses with their ancillary above ground facilities would be allowed in the corridor under Alternative C. This would likely increase costs to utility companies and their customers and slightly decrease the ability of utility companies to meet the growing needs of the Planning Area.

In contrast to both Alternatives A and B, communication facilities would not be allowed within SDNM and no communication sites would be designated. Such actions would protect the visual and/or natural resources of the Monument, as well as increasing the costs to meet the growing communication needs of the Planning Area.

From Recreation Management on Socioeconomics

As under Alternative B, the entire SDNM would be established as an ERMA; however, under Alternative C, 88 percent would be allocated as backcountry and 11 percent allocated as front country, with more acreage assigned to backcountry compared to Alternative B. As a result, the front country recreational demand would be less served and the less intensive backcountry demand would be better served under Alternative C, with the social value for dispersed and primitive nonmotorized, non-mechanized recreation opportunities at SDNM being more recognized. Communities would still be likely to receive revenue from spending on goods and services to support the particular recreational activities of the area.

From Visual Resources Management on Socioeconomics

Under Alternative C, 88 percent of lands would be allocated as VRM Class I and II, while 12 percent would be allocated as VRM Class III and IV. Overall, the allocations proposed by Alternative C would likely attract more visitors seeking scenic views than the allocations proposed by Alternatives A and B, thereby likely increasing tourist spending on a negligible to minor level.

From Wilderness Characteristics Management on Socioeconomics

Alternative C would allocate 112,200 acres in the SDNM as lands managed to protect wilderness characteristics. Compared to Alternatives A and B, the social well-being of people or groups who prefer

more developed experiences and opportunities would decrease and the social well-being of recreationists who prefer solitary, quiet experiences would increase.

4.22.6 ALTERNATIVE D

Alternative D would respond to recent trends in the Planning Area by emphasizing resource protection and nonmotorized recreation in remote settings. Its overall management would be the least intensive of all alternatives. Several of the programs that provide an income would be curtailed or terminated, including reductions in lands available for mineral entry and the closing of all grazing allotments, negatively affecting private businesses. Alternative D proposes the least land eligible for disposal. Alternative D also proposes the smallest acreage available for utility corridors and the least potential utility-scale renewable energy site acreage, and would require some utilities to be placed underground, an expensive option. Alternative D's emphasis on nonmotorized recreational uses, designated route closures, and use limitations would limit contributions to the economy from users that enjoy motorized recreation, but may increase contributions to the economy from users that enjoy nonmotorized recreation. Overall, there would be fewer revenue-generating recreational uses under Alternative D compared to all other alternatives.

Overall, there would be positive effects to the social well-being of recreationists who prefer solitary and quiet experiences. The social well-being of those who feel all roads should be open, or who need motorized access because of physical limitations, could decline. Opportunities for hunting and wildlife viewing would be enhanced by a focus on protecting wildlife habitat, but may be impaired by limitations on access.

4.22.6.1 Both Decision Areas

From Cultural and Heritage Resources on Socioeconomics

Similar to Alternatives A and B, no allocation would be made for SCRMAs under Alternative D, with cultural resource protection being accomplished through ACEC designations. Compared to Alternative C, the BLM's investment in combined site protection and development would decrease, potentially decreasing the number of cultural tourists and recreational users to the area. There would be a concurrent decrease in associated spending in the surrounding communities; however, the social well-being of those people or groups who value resource protection would increase over the other alternatives.

From Livestock Grazing on Socioeconomics

Compared to all other alternatives, net income to pertinent ranchers would be reduced the most under Alternative D. Economic and social impacts limited primarily to rural communities with a history of ranching. In Tonopah, Arizona, for example, participants in a socioeconomic workshop in 2003 identified retention of grazing rights and the ranching lifestyle as a priority for the community. In such localities, impacts are expected to be major as revenue from livestock grazing on public lands in the Planning Area would cease all together. The termination of grazing throughout both Decision Areas under Alternative D would be interpreted by some as the end of a ranching tradition, while it would be interpreted by others as an effort to return public lands to a more natural state. Overall economic impacts on the region would be minor to moderate as ranching provides a small percentage of jobs and income for the

tri-county region. Comparing costs of public and private permitting; in the Lower Sonoran Decision Area, all 17,541 perennial AUMs proposed under Alternative A would be eliminated. The approximate total cost of these AUMS on public land would be $23,680. Under the current grazing rates, the equivalent cost of these permits on private land would be $213,120. In the SDNM, all 8,703 AUMs proposed under Alternative A would be eliminated. The approximate total cost of these AUMS on public land would be $11,749. Under the current grazing rates, the equivalent cost of these permits on private land would be $72,327. The difference in these rates could make the cost of livestock operations cost-prohibitive to many ranchers who would have to then turn to other sources for feeding their cattle or get out of the ranching business completely. Impacts of Alternative D on these permittees and their employees would be major. On other public users, impacts would be minor.

From Recreation Management on Socioeconomics

Alternative D would allocate much less land to RMAs – 56,500 acres versus more than 648,000 acres in Alternatives B and C for the Lower Sonoran and no ERMA in the SDNM. Resource protection measures such as ACECs would be in place under Alternative D and consistent with management goals to emphasize nonmotorized and undeveloped recreation opportunities. The reduced variety of recreational outcomes and visitor facilities under Alternative D would provide for a reduced number and density of visitors compared to Alternatives B and C.

As the demand for more intensive recreational uses is likely to increase in the surrounding communities due to increases in the population, communities adjacent to the Decision Areas would not likely receive revenue associated with spending on goods and services to support the particular recreational activities of the developed areas. Alternative D emphasizes resource protection/conservation and nonmotorized, primitive recreation, which would increase the social well-being of people or groups who value protection, solitude, quiet, and other traits of remote areas over the other alternatives. In contrast, motorized recreation enthusiasts would experience the largest decrease in opportunities for recreation throughout the Decision Areas. The sales and rental of recreational vehicles and equipment would likely decrease as compared to Alternatives A, B, and C, especially in gateway communities; however, sales and rental of equipment and supplies for nonmotorized forms of recreation may offset this loss to some degree.

From Special Designations on Socioeconomics

In contrast to Alternative C, it would be unlikely that visitation would increase due to proposed protection of resources because access to places where people-place connections exist would decrease under Alternative D. Such places under Alternative D would include wildlife, cultural, and special areas, and areas managed for species and habitat. Under Alternative D, total ACEC designations would protect natural and cultural resources and the outstanding landscape and scenic features present on a total of 263,700 acres, more than under A, B, or C. Resources currently present would receive increased protection compared to the other alternatives, aligning with the social well-being of people and groups who value increased protection of public lands, while decreasing the social well-being of people or groups who value resource use and access. While no SCRMAs would be allocated under Alternative D, the same area would be under ACEC designation, which would place similar emphasis on protecting sensitive cultural and biological resources in these areas, could require additional stipulations and mitigation for mineral development and could restrict authorization of renewable mineral sites similar to Alternative C. Several active mineral materials operations exist in proposed ACECs and would need to

be shut down and reclaimed following expiration of the current contract or permit. These include two sites used by the Maricopa County Department of Transportation (Courthouse Pit & Narramore Pit), Kilauea Crushers' Estrella Pit, and the Bush Sand & Gravel site north of Ajo. Mineral material prices are related to distance of transport and supply and demand. If sufficient alternate locations for mineral material cannot be located in the vicinity of the planning area, costs of materials for local communities may increase.

From Travel Management on Socioeconomics

In the Lower Sonoran, motorized access to public lands would be reduced most compared to all other alternatives; both by closing 378,300 acres to motorized vehicle use and by limiting open routes to an estimated 904 miles or 54 percent of available routes. In the SDNM, motorized vehicles would be limited to 261 miles of routes (41 percent of all available routes). In addition, allocated lands managed to protect wilderness characteristics would be closed to motorized use areas. The net result would be to offer more remoteness to those who value this quality than the other alternatives, but fewer opportunities for more intensive recreational experiences and convenient access. Those who are physically limited to visit public lands by motorized vehicle would be excluded from more portions of the Decision Areas than under the other alternatives. Among nonmotorized users, those who prefer not to share routes with motorized vehicles would tend to be attracted to the routes that are closed to motorized use. It is unlikely that the designated routes and trails under Alternative D would address the growing recreation and tourism demand for motorized use and access, which could lead to a reduced level of use that could damage sensitive resources.

The most potential for decreased visitation due to increased restrictions on use and reduced opportunities for public access would occur under Alternative D. These include restrictions on motorized access, camping, recreational target shooting, equestrian use, and nonmotorized mechanized use, as well as seasonal closures, not allowing group tours for cultural resources, and closing environmentally sensitive areas. Economic activity associated with visitation to public lands could be shifted to other recreation sites within the general area that are not as restrictive. Nonetheless, given the increasing urbanization in the area and the wider attraction of Monument designation, the overall visitation to public lands from local and regional residents is expected to increase or remain unchanged despite the restrictive management under Alternative D.

From Vegetation Resources on Socioeconomics

In contrast to Alternative A, B, and C, collection of native plant material would be prohibited in both Decision Areas under Alternative D. This would result in a decline of the social and economic well-being of those people or groups who have a cultural attachment to collection, while resource values would receive increased protection.

Also in contrast to Alternatives A, B, and C, the focus on controlling invasive species would include requiring all equestrian and stock animal users to use certified weed-free feed and refrain from consuming forage on public lands. This would result in largest decrease in introduction and spread of invasive species. This alternative would most increase the cost to users but decrease costs to the BLM. The social values associated with maintaining native species on public lands would be met.

From Wilderness Characteristics on Socioeconomics

Alternative D prescribes the most acreage to allocated lands managed to protect wilderness characteristics: 250,000 acres in Lower Sonoran and 1548000 acres in the SDNM. Impacts would be similar to Alternative C, only with larger intensity. There is potential for minor impacts on the local economy should the management of areas for wilderness characteristics attract additional visitors or enhance quality of life as discussed under Alternative A.

From Wildlife and Special Status Species Management on Socioeconomics

As under Alternative B, managing uses to protect wildlife and wildlife habitat would require investment for wildlife health, with a long-term social and economic effect on maintaining the integrity of the Sonoran Desert. Under Alternative D, more opportunities would exist for hunting, wildlife viewing, and photography than under Alternatives A and B, but less than under Alternative C.

In addition, Alternative D would remove existing wildlife waters, which could further decrease opportunities for hunting, wildlife viewing, and photography. This would especially be true in times of drought when wildlife populations may decline due to the removal of all wildlife waters. Restoration by passive means and use of native plants would return damaged sites to natural conditions slower than under the other alternatives, which would align with the social values of maintaining natural desert ecosystem. Overall, this alternative is expected to create less revenue to local economies than Alternatives A, B, and C.

4.22.6.2 Lower Sonoran

From Lands & Realty on Socioeconomics

Under Alternative D, more acreage would be made available for retention than under any other Alternative. Acreage available for R&PP and disposal by any means would be similar to Alternative B. Revenue associated with land development would be the least under this Alternative, as compared to others. The social well-being of those individuals or groups who value retention of public lands would increase compared to other alternatives.

In the Lower Sonoran, Alternative D would designate the least number of corridors than any other alternative, although all designated corridors would be one mile wide. More acreage would be in LUA exclusion areas than under any other Alternative.

These actions under Alternative D would promote resource conservation for the protection and enhancement of natural and cultural resources, further aligning with the social values of those people or groups who value intact wildlife and cultural areas, more so than under any other alternative. At the same time, these decisions would reduce the economic opportunity for new LUAs on public lands. As a result, alternate routings may be needed to provide new utility service to the potential service population, which could potentially be at increased costs to the utility company and ultimately to the consumer.

Impacts from management of utility-scale renewable energy under Alternative D would be similar to those under Alternative C, although somewhat more restrained as ACECs would be exclusion areas for

utility-scale renewable energy development sites outside of designated corridors, and lands managed to protect wilderness characteristics would only be available for location with special stipulations.

From Minerals Management on Socioeconomics

Under Alternative D, the most land would be closed to mineral entry in the Lower Sonoran. This would reduce the revenue yield to the BLM and mining industry, although there is not sufficient data available to project whether the reduction in the acreage would increase the cost of mineral materials in the region. For mineral materials and leasables, the revenue yield would be further reduced because permit approvals in WHAs would be based on whether the mineral extraction could be done in a manner that maintains or enhances the resources for which the designation was made. In addition, ACEC management under this alternative could impact locatable, leasable, and saleable mineral extraction and associated jobs and revenue in local economies.

From Visual Resources on Socioeconomics

In the Lower Sonoran, Alternative D would allocate the most acreage to VRM Classes I and II (77 percent of the Decision Area), the least acreage to VRM Classes III (21 percent of the Decision Area). This would result in an increase in the social well-being of visitors and residents who desire protection of scenic views compared to Alternatives A, B, and C.

4.22.6.3 Sonoran Desert National Monument

From Lands & Realty on Socioeconomics

No utility corridors would be designated within the SDNM, although existing LUA would be retained. As under Alternative C, communication sites would be not be designated in SDNM and new communication facilities would be prohibited. These actions under Alternative D would promote resource conservation for the protection and enhancement of natural and cultural resources, further aligning with the social values of those people or groups who value intact wildlife and cultural areas, more so than under any other alternative. At the same time, these decisions would reduce the economic opportunity for new LUAs on public lands. As a result, alternate routings may be needed to provide new utility service to the potential service population, which could potentially be at increased costs to the utility company and ultimately to the consumer.

From Visual Resources on Socioeconomics

In the SDNM, Alternative D would allocate the most acreage to VRM Class I and II (100 percent) no acreage allocated in Classes III or IV. This would protect visual and scenic resources in all landscapes across the SDNM, attracting the most visitors seeking scenic views. While the increased acreage in VRM Class I would align with those groups or individuals who value scenic views, the allocation would impact those users who value more intensive uses of public lands.

4.22.7 ALTERNATIVE E (PROPOSED RMP)

Alternative E would respond to recent trends in the Planning Area by providing for a range of recreational and cultural visitation experiences while providing resource protection. There would be

intensive management of uses and "hands-on" resource protection measures. Revenue effects to private industry/businesses and to the BLM from recreation would be similar to Alternative B, while effects from mining and land disposition would be similar to Alternative C, and effects from grazing would be similar to Alternative A. With several utility corridors in Alternative E, the BLM could present the many options to energy providers for transmission line siting, helping meet energy demand at a relatively low cost. Utility-scale renewable energy development prescriptions would be similar to Alternative B, but more areas would be avoidance or exclusion areas under Alternative E.

Alternative E would provide a variety of recreational experiences with enough additional controls to protect resources and to provide for additional niche markets, such as cultural and heritage tourism. Overall, there would be positive effects to the social well-being of recreationists who prefer solitary and quiet experiences and to the social well-being of those who feel a majority of roads should remain open. Opportunities for hunting and wildlife viewing would be enhanced through a focus on protecting wildlife habitat and providing suitable access. Groups and individuals who give a very high priority to resource use may feel that not enough resource use would be allowed on public lands under this alternative, though more resource use would occur under this alternative than under Alternatives C or D. Some of the groups and individuals who give a very high priority to resource protection may feel the resources they are concerned about (e.g., wildlife, visual resources, and desert ecosystems) would be adequately protected.

4.22.7.1 Both Decision Areas

From Cultural and Heritage Resources on Socioeconomics

Alternative E would be similar to Alternative D in the Lower Sonoran by not allocating SCRMAs (outside of the Monument) but providing protection to resources in the Saddle Mountain area through ACEC designation. However, the BLM's investment in combined site protection and development would be similar to Alternative C and may result in slightly increased visitation compared to Alternatives A and D, with an associated increase in spending in the surrounding communities.

From Livestock Grazing on Socioeconomics

Grazing under Alternative E would be classified similar to Alternative A. Impacts in terms of maintaining a traditional ranching lifestyle and resultant economic impact would be similar to that described under Alternatives A. Impacts from Grazing in the SDNM would be similar to those in Alternative B for the Monument, with the exception that proposed AUMs would be reduced to by 5,589 to a total of 3,114 AUMs as compared with Alternative A. Estimated replacement cost of the 5,589 permits on private land would be $50,301 compared to $4,203 on public lands.

From Wildlife and Special Status Species Management on Socioeconomics

Wildlife and habitat management under Alternative E would provide opportunities for hunting, wildlife viewing, and photography similar to Alternative C, but more than under Alternatives A, B, and D, due to allocating a WHA in the Lower Sonoran while still providing some public access and wildlife waters.

From Recreation Management on Socioeconomics

In the Lower Sonoran, Alternative E would allocate a similar number of acreage to RMAs as Alternative C. Front country allocation would be similar to Alternative D and backcountry allocation would be similar to Alternative B. In addition, a greater variety of recreational opportunities and visitor facilities would be provided under Alternative E, although to a lesser degree than in Alternatives A and B. Management of the SRMAs would be similar to Alternative B, but would spur somewhat different spending on goods and services.

As under Alternative B, the entire SDNM would be an ERMA, with less area managed as front country than C, but more than B. Under Alternative E, the 78,700 acres allocated to the front country setting would accommodate sustainable motorized and mechanized access for camping, picnicking, and other activities near rapidly growing communities to the north of SDNM and the Town of Buckeye. The communities would benefit from spending on goods and services to support the particular recreational activities of the developed areas. The 406,500 acres allocated to backcountry would provide opportunities for visitors to engage in primitive nonmotorized, non-mechanized activities. Visitor facilities would be provided offsite in coordination with the local communities, and provide a potential opportunity for a development project in the local communities.

From Special Designations on Socioeconomics

Under Alternative E, there would be the most total acres under ACEC designation compared to other alternatives. This management strategy would align with the social well-being of people and groups who value increased protection of public lands and the social well-being of people or groups who value resource use and access.

ACEC management under this alternative could impact locatable, leasable, and saleable mineral extraction and associated jobs and revenue in local economies as discussed under Alternative B. Similar to Alternative D, no SCRMAs would be allocated under Alternative E, although the same area would be under ACEC designation with a reduced boundary to avoid areas with locatable mineral potential in the Gila Bend Mountains. Similar to Alternative C, lands within 500 feet of the cliff faces with petroglyphs on the Gila River would be closed to saleable minerals. As discussed under Alternative C, this restriction is currently in place through site-specific decisions and thus would have no effect. Two recently active mineral materials sites are located within proposed Special Designation areas. The Maricopa County Department of Transportation (MCDOT) previously operated mineral materials sites through Free Use Permits within a part of the Fred J. Weiler RCA (Narramore Pit) and within a portion of the proposed Saddle Mountain ACEC (Courthouse Pit). Permits for both sites are currently expired, but MCDOT has expressed an interest in operating the sites again. The site within the RCA would not be allowed to resume operation. Within the ACEC there are no significant resource conflicts so the location would be available for mineral materials disposal to MCDOT through a new free-use permit provided that no new surface is disturbed.

From Travel Management on Socioeconomics

Overall, impacts on visitation from increased restrictions on use and public access would be most similar to Alternative C. In addition, increased restrictions on public access to meet resource goals and objectives would be similar to Alternative C.

From Vegetation Resources on Socioeconomics

As under Alternative B, collection of native plant material for personal use and scientific purposes in the Lower Sonoran would align with cultural values; however, resource values would be further protected under Alternative C by not permitting wood harvesting, which is similar to Alternative D. Impacts from requiring a special use permit for collecting plant material in the SDNM would be the same as under Alternative B. Impacts from controlling invasive species and requiring the use of certified weed-free feed would be similar to Alternative C.

From Wilderness Characteristics on Socioeconomics

Alternative E would designate fewer acres in both Decision Areas than proposed under Alternatives C and D as lands managed to protect wilderness characteristics. As a result, Alternative E would meet both the social well-being of people or groups who prefer solitary, quiet experiences and provide potential associated economic benefits from protected lands as well as allow for the development of some areas for people or groups who prefer more developed experiences and opportunities. Proposals for use of lands managed to protect wilderness characteristics would be considered on a case-by-case basis and would not likely be permitted, increasing costs similar to Alternative C.

4.22.7.2 Lower Sonoran

From Lands & Realty on Socioeconomics

Impacts from land tenure decisions would be similar to Alternative C. In the Lower Sonoran, utility corridors would be limited to 8 one mile wide corridors and the core mountain area of the Saddle Mountain ACEC would be an exclusion area for LUAs, which is similar to Alternative D. Like Alternative C, other ACECs and allocated lands managed to protect wilderness characteristics would be avoidance areas. These decisions would allow for the future development of utilities within designated utility corridors, increasing the economic opportunity for new LUAs on public lands compared to Alternatives A and D. As a result, new utility service to the potential service population would be met, which could potentially reduce costs to the utility company and ultimately the consumer while still promoting resource conservation more than Alternatives A, B, and C, and aligning with the social values of those people or groups who value intact wildlife and cultural areas.

Impacts from utility-scale renewable energy development prescriptions would be similar to Alternative D, albeit more widespread as ACECs and lands managed to protect wilderness characteristics would be avoidance areas for utility-scale renewable energy development sites and facilities outside of designated corridors, other than with special stipulations. The core mountain area of Saddle Mountain ACEC would be an exclusion area.

From Minerals Management on Socioeconomics

Under Alternative E, the economic effects of mineral resource extraction would be similar to those under Alternative C.

From Visual Resources on Socioeconomics

Impacts would be similar to those described in Alternative B.

4.22.7.3 Sonoran Desert National Monument

From Lands & Realty on Socioeconomics

In the SDNM, no utility corridors would be designated, which is the same as Alternatives D. Compared to Alternative B, this would greatly increase costs to utility companies and their customers while protecting the visual resources and open space views in the Monument. Impacts in the SDNM would be similar to Alternative D.

4.23 IMPACTS ON ENVIRONMENTAL JUSTICE

This section assesses environmental justice effects of the Planning Area alternatives. Public-land uses can cause adverse effects to communities defined by environmental justice constraints. As mentioned in Chapter 3, *Affected Environment* (p. 251), the communities of Buckeye, Gila Bend, Tolleson, Ak Chin Village, Gila River Indian Community, Arlington, Tonopah, Mobile, Palo Verde, Sentinel, Rainbow Valley, Ajo, the Tohono O'odham Nation, Casa Grande, Florence, the Gila River Indian Community, Maricopa, Stanfield, the community bordering the eastern portion of the SDNM, Globe, and Miami and Gila County all have characteristics of either minority populations greater than 42.2 percent or more than 17.4 percent of the community live below the poverty level.

The resource management decisions expected to have the greatest impacts on socioeconomics in the study area includes those relating to the management of energy and minerals and lands and realty.

4.23.1 METHODS OF ANALYSIS

4.23.1.1 Indicators

The following impact indicators are used when conducting analysis on Environmental Justice:

- Adverse impacts on low income or minority communities as measured by potential reduced income/employment to these communities.
- Actions that could lead to an impediment to economic development in low income or minority communities.

Assumptions

See assumptions described for socioeconomic impacts.

Program Areas with No Impacts on Environmental Justice

Management actions from all program areas except for lands and realty and minerals are not expected to have an impact on environmental justice in the Planning Area and are not discussed further.

4.23.2 COMMON TO ALL ALTERNATIVES

4.23.2.1 Both Decision Areas

No unique impacts are identified that are common to all alternatives for both Decision Areas.

4.23.2.2 Lower Sonoran

No unique impacts are identified that are common to all alternatives for the Lower Sonoran.

4.23.2.3 Sonoran Desert National Monument

From Minerals Management on Environmental Justice

Under all alternatives, no adverse impacts are anticipated from minerals management to adjacent low income or minority communities from mineral management within the SDNM

From Travel Management on Environmental Justice

There would be no impacts on communities with environmental justice concerns from management of the SDNM under Alternative A. The route designation of within the SDNM is not expected to have any impact on low-income and/or minority communities and is therefore not discussed further in this analysis.

4.23.3 ALTERNATIVE A (NO ACTION)

4.23.3.1 Both Decision Areas

From Lands & Realty Management on Environmental Justice

The community of Mobile is considered both a minority and low-income community. Three landfills and three utility corridors with existing utility lines currently exist in the Mobile area. The density of major utility lines and landfills in the Mobile area is much higher than in the remainder of the region and areas near major utility lines and landfills typically have lower property values and more difficulty attracting development than do areas without such facilities.

Management decisions to designate these utility corridors within the Mobile area could be a continuing impediment to local economic development; impacts are expected to be negligible to major, depending on the proposed actions.

Utility corridors are also located within or adjacent to several of the other minority or low-income areas in the study area, but there is not necessarily a disproportionate effect of existing utility lines on those communities as major utility lines are present near most population centers, regardless of their minority or income status.

4.23.3.2 Lower Sonoran

From Minerals Management on Environmental Justice

Ajo, Globe, and Miami area are minority communities. Miami is also low-income communities. Should there be a resurgence in copper mining, this population would likely benefit from some of the jobs created. However, under Alternative A, no disproportionate negative impacts are expected due to current minerals management.

4.23.3.3 Sonoran Desert National Monument

No unique impacts are identified for Alternative A for the SDNM.

4.23.4 ALTERNATIVE B

4.23.4.1 Lower Sonoran

From Lands & Realty on Environmental Justice

The community of Mobile would be affected by the continuation of the utility corridors as described under Alternative A.

Under Alternative B, the additional Gila Bend-Santa Rosa alternate corridor and Tucson Electric Power, North corridor would potentially intensify the effects of corridors in the Mobile area via reduced potential for other economic development. Impacts are expected to be minor. Maintaining the I-8 corridor would increase the acreage of corridors near the minority and low-income areas of Gila Bend, Casa Grande, and Stanfield, could also which could reduce potential for other economic development. Impacts are expected to be minor.

From Minerals Management on Environmental Justice

Impacts are likely to be similar to those described under Alternative A.

4.23.4.2 Sonoran Desert National Monument

From Lands & Realty on Environmental Justice

In the SDNM, impacts would be similar to those discussed in Alternative A.

4.23.5 ALTERNATIVE C

4.23.5.1 Both Decision Areas

From Lands & Realty on Environmental Justice

The community of Mobile would be affected by utility corridors as described under Alternative A. However, the requirement that utilities in the Santa Rosa-Gila Bend corridor be placed underground in

the SDNM might discourage its use. Less use of this corridor in the Monument could concentrate uses in the Mobile area similar to Alternative B.

The effects maintaining the I-8 corridor on Gila Bend, Casa Grande, and Stanfield would be as described for Alternative B.

The community of Mobile would be affected by utility corridors as described under Alternative A. However, the requirement that utilities in the Santa Rosa-Gila Bend corridor be placed underground in the SDNM might discourage its use. Less use of this corridor in the Monument could concentrate uses in the Mobile area similar to Alternative B.

4.23.5.2 Lower Sonoran

From Minerals Management on Environmental Justice

Impacts are expected to be similar to but lower intensity than described for Alternatives A and B.

4.23.5.3 Sonoran Desert National Monument

No unique impacts have been identified for Alternative C for the SDNM.

4.23.6 ALTERNATIVE D

4.23.6.1 Both Decision Areas

From Lands & Realty on Environmental Justice

As under Alternative A, the community of Mobile would be affected by utility corridors. Differing from the other alternatives, however, would be the removal of the Santa Rosa-Gila Bend corridor on SDNM. Such actions would mean either that the corridor just to the east of the Monument in the Mobile area would not be used as it would have no major utility grid connection to its west or that uses would be concentrated in corridors outside the Monument. A portion of the I-8 corridor east of Gila Bend and another portion west of Stanfield would also be truncated because of the removal of the corridor from SDNM. A smaller number of potential utility lines in the area compared to other alternatives would likely mean the least potential negative economic development impact to the community of Mobile.

4.23.6.2 Lower Sonoran

From Minerals Management on Environmental Justice

Impacts are expected to be similar to but lower intensity than described for Alternatives A, B and C.

4.23.6.3 Sonoran Desert National Monument

No unique impacts have been identified for Alternative D for the SDNM.

4.23.7 ALTERNATIVE E (PROPOSED RMP)

4.23.7.1 Both Decision Areas

From Lands & Realty on Environmental Justice

Impacts on minority and low-income populations in the Planning Area would be similar to that described under Alternative C.

4.23.7.2 Lower Sonoran

From Minerals Management on Environmental Justice

Impacts on minority and low-income populations in the Planning Area would be similar to that described under Alternative C.

4.23.7.3 Sonoran Desert National Monument

No unique impacts have been identified for Alternative C for the SDNM.

4.24 IMPACTS ON TRIBAL INTERESTS

This section presents potential impacts of the alternatives on tribal interests, specifically archaeological, historic, and American Indian resources, as determined through changes in the resources or access to them. As discussed in **Chapter 3**, Affected Environment, the locations of most cultural resource sites in the Planning Area are not known, which makes analyzing impacts on such resources difficult. In general, archaeological, historic, and American Indian resources may be impacted by unauthorized collection, vandalism, erosion, trampling, OHV use off-road, fire, mechanized surface disturbance, and loss of access to sacred or traditional use and gathering areas.

4.24.1 METHODS OF ANALYSIS

4.24.1.1 Indicators

No indicators were used to analyze impacts from program areas on tribal interests.

4.24.1.2 Assumptions

No assumptions were used to analyze impacts from program areas on tribal interests.

4.24.1.3 Program Areas with No Impacts on

There would be no impacts on tribal interests from actions proposed under the following program areas:

- Air Quality
- Cave Resources

- Paleontological Resources
- Soil Resources
- Water Resources
- Wild Horse and Burro Management
- Hazardous Materials and Public Safety

4.24.1.4 Qualitative Intensity Scale

The intensities of impacts are the same as those described in **Table 4-1**, Qualitative Terms for the Intensity of Impacts.

4.24.2 COMMON TO ALL ALTERNATIVES

4.24.2.1 Both Decision Areas

From Wildland Fire Management on Tribal Interests

There have been minimal vegetation treatment projects in the past because fuel loads are generally low with reduced chance of catastrophic fire. As a result, any treatments to reduce fuel load in the Decision Area would be small scale and localized, resulting in negligible to moderate impacts. Treatment efforts would help to stop root damage and erosion of deposits and structures from invasive species and help to keep archaeological and historical resources intact. Impacts from wildland fire management on American Indian resources would be moderate.

4.24.2.2 Lower Sonoran

No unique impacts are identified for the Lower Sonoran that are common to all alternatives.

4.24.2.3 Sonoran Desert National Monument

No unique impacts are identified for the SDNM that are Common to All Alternatives.

4.24.3 ALTERNATIVE A (NO ACTION)

4.24.3.1 Both Decision Areas

From Cultural and Heritage Resources on Tribal Interests

Under Alternative A, ongoing protection would be provided to archaeological and historical sites. Maintaining designated public use sites in both Decision Areas would provide opportunities to educate the public about past activities and allow for public enjoyment of these resources. Cultural inventories, documentation, research, protective measures, monitoring, and Site Steward Patrols would continue to provide information about the past in the Decision Areas and to protect cultural resource sites. The impact to archaeological and historical resources would be minor. Continuing to interpret and direct the

public to public use sites could lead to damage and vandalism to American Indian resources at these areas. Opportunities also would be available to interpret and explain past and current American Indian uses of the resources and areas near these public use sites from an American Indian perspective. The presence of the general public at some of these sites may deter American Indian visits and activities. Impacts would be moderate and site-specific.

Unauthorized collection and vandalism to archaeological and historical sites by visitors would also be expected to increase. Some sites would be monitored, as applicable, deterring impacts from visitors. A substantial portion of monitoring would continue to be conducted by Site Stewards, who would assist in providing information to apprehend vandals. Law enforcement would continue to be used to stop the destruction of the public lands. Educational efforts would continue to encourage protection of cultural resources and generate an appreciation of the values being protected. The impact would be detectable but it would be negligible and localized within small areas.

From Livestock Grazing on Tribal Interests

Compaction of soil, additional erosion, and displacement of artifacts associated with livestock grazing would continue under Alternative A. Impacts on archaeological and historic resources would be minor and could be mostly averted by avoiding archeological and historical resources when locating wells and other grazing related developments.

From Recreation Management on Tribal Interests

Recreation use in the Decision Areas would increase due to an increase in regional population, as well as new interest in the area due to the designation of the SDNM. More intense recreational use on lands near the communities would result in more impacts on archaeological and historical resources. Impacts in some-specific areas near communities or on some types of archaeological sites, such as caves, rock shelters, or rock art, could be moderate or major for specific sites.

From Special Designations on Tribal Interests

No new ACECs would be established in the Decision Areas. This would allow for continued surface disturbance and intrusions that would affect both cultural resources and/or TCPs. The impacts would range from landscape to site-specific and would be moderate and long-term.

From Travel Management on Tribal Interests

Impacts from travel management primarily stem from management actions that restrict or increase access. Increased access to cultural sites could increase contact by visitors who could intentionally damage sites by collecting surface artifacts, vandalizing, illegally digging. Visitors can also unintentionally damage sites by camping on or driving across sites. In fact, studies have shown that damage to sites is mainly concentrated within several hundred yards of roads (Sullivan et al. 2002). Reducing such access by closing roads or restricting travel could thus protect cultural resources. On the other hand, increased access can allow for the increased presence of law enforcement, cultural resource personnel, and site stewards for purposes of monitoring sites and areas. Increasing access could also increase the amount of cultural resource inventories and research. Finally, increased access would allow for the increased presence of the public, which can also deter vandalism.

Under Alternative A, motor vehicles would be restricted to existing or designated roads. This would limit impacts associated with motorized vehicle use on or near sites. However, all existing open routes would remain open, including routes that could be damaging resources. In addition, continued route proliferation could occur due to the lack of a travel management plan. Alternative A would designate the most miles of routes open to motorized use by the public compared to the other alternatives, which would result in moderate impacts on cultural resources. Increased access leads to more opportunities for vandalism to occur and for continued monitoring of the area to stop such damage. Alternative A would provide the most motorized access to TCPs and other traditional use or sacred areas by American Indians. This type of access would make it more likely that damage, and vandalism to American Indian TCPs and other traditional use or sacred and archaeological sites by other visitors using motorized and mechanized vehicles would occur.

From Vegetation Resources on Tribal Interests

Lack of current public policy to protect vegetation under Alternative A would increase the opportunity for fragmentation, loss, or alteration of these resources. This, in turn, would affect plant resources that have strong cultural and medicinal values for American Indians. Restoration activities, especially in the Sonoran Desert Ecological Zone, would affect archaeological and historical resources. Eradication of noxious weeds may involve surface disturbance, which would impact archaeological and historical sites. Any surface disturbing activity would need to avoid sites eligible for listing on the NRHP and an agreed upon buffer would be established around villages, as requested by the Tribes. Mitigation of some impacts would be provided through Section 106 procedures. Conversely, restoration projects could promote the health and sustainability of vegetation that is gathered by American Indians. Overall impacts from ecological and biological management on American Indian resources would be moderate.

From Visual Resources on Tribal Interests

Under Alternative A, most acres would remain in VRM Classes III and IV, which would mean that archeological and cultural resources would be less protected due to a lower level of mitigation being required to protect the visual aspects of resources and landscapes. Traditional use areas would similarly be affected due to visual intrusions and surface disturbance. Major modifications to the visual landscape could be allowed under Class IV. VRM Class I and II categories, on the other hand, would help protect cultural resource sites and landscapes from visual intrusions and surface disturbance under Alternative A; however, such categories would limit research excavations.

From Wilderness Characteristics on Tribal Interests

No areas would be allocated as lands managed to protect wilderness characteristics under Alternative A.

From Wildlife and Special Status Species Management on Tribal Interests

Water developments in cooperation with AGFD for wildlife on public lands would also affect cultural resources and native habitats due to their development in areas that were used by American Indians for habitation and gathering resources.

4.24.3.2 Lower Sonoran

From Lands & Realty on Tribal Interests

Land disposals would impact archaeological and historical resources because the lands and associated resources would leave the protection provided by federal laws. Impacts would be long term permanent and major.

Land use authorizations such as ROW, permits, or leases would cause long-term impacts on archaeological and historical resources. There would also be impacts from lands and realty authorizations due to new areas being opened through maintaining access routes that would create new routes for motorized recreation. Other actions proposed by local communities under R&PP leases could also impact archaeological and historical resources. These and impacts mentioned above would be mitigated under Section 106 of the NHPA. Overall, impacts from lands and realty would be moderate.

From Minerals Management on Tribal Interests

Most of the Lower Sonoran would be open to mineral exploration and development under Alternative A. Impacts on archaeological and historical resources in the Lower Sonoran from associated ground disturbance would be moderate. Increased access due to the construction of roadways to mines would result in an increase in the likelihood that impacts from vandalism would occur. Impacts would be site specific and could be major, resulting in a loss of information on the local and regional history and prehistory. Mining activities could disrupt access to TCPs and other traditional use or sacred areas and the additional noise and disturbance associated with active mining sites could disturb some activities at nearby TCPs and other traditional use or sacred areas. Impacts would be major and would be site specific. Section 106 procedures may reduce some impacts.

4.24.3.3 Sonoran Desert National Monument

The SDNM would remain closed to new mineral entry under all alternatives.

4.24.4 ALTERNATIVE B

4.24.4.1 Both Decision Areas

From Cultural and Heritage Resources on Tribal Interests

Impacts from cultural resource research and other allowable uses would be the same as described under Alternative A and remain minor. There would be no new special designations under Alternative B for cultural resources. This would allow for a greater opportunity of resource loss and/or damage due to increased access and disturbance in areas with TCPs and other traditional use or sacred areas and archeological and historic resources. Impacts would be moderate and long-term. Permitted activities such as SRPs or outfitters and guides would be educated about the provisions of the Archaeological Resources Protection Act and Native American Grave Protection and Repatriation Act, which would help protect archaeological and historical sites. Establishments of visitor limits, supplemental rules, or restrictions on a case-by-case basis based on various strategies, including carrying capacity or LAC, could protect archaeological and historical sites.

From Livestock Grazing on Tribal Interests

Impacts from livestock grazing would be the same as described for Alternative A.

From Recreation Management on Tribal Interests

Impacts from recreation management would be the same as described under Alternative A.

From Special Designations on Tribal Interests

Areas and resources that have importance to American Indians would have no greater protection than under Alternative A due to no new ACECs being established in the Decision Areas. This would allow for continued surface disturbance and intrusions that would affect both cultural resources and/or TCPs. The impacts would range from landscape to site-specific and would be moderate and long-term.

From Travel on Tribal Interests

In the Lower Sonoran, the types of impacts from travel management would be similar to impacts discussed under Alternative A. Overall impacts would decrease, however, because routes damaging cultural resources would be closed and a travel management plan intended to control and stop proliferation of routes would be in place. Alternative B would slightly reduce impacts on undisturbed areas by visitors and vandals. This would slightly increase the difficulty for American Indians to access TCPs and other traditional use or sacred areas. Overall impacts would range from minor to moderate.

From Vegetation Resources on Tribal Interests

Restoration activities, especially the restoration of the Sonoran Desert Ecological Zone and the development of wildlife waters could affect archaeological and historical resources. Eradication of noxious weeds may involve surface disturbance, which would impact archaeological and historical sites. Conversely, restoration projects could promote the health and sustainability of vegetation that is gathered by American Indians. Impacts from ecological and biological resources management on American Indian resources would be minor to moderate.

From Visual Resources on Tribal Interests

As under Alternative A large areas of the Decision Areas would primarily be allocated to VRM Class III and IV, resulting in similar impacts. Slightly more area would be allocated to VRM Class I and II under Alternative B, resulting in slightly more protection to archeological and cultural resources and TCPs. Impacts from VRM would be moderate and long-term.

From Wilderness Characteristics on Tribal Interests

No areas would be allocated as lands managed to protect wilderness characteristics under Alternative A.

4.24.4.2 Lower Sonoran

From Lands & Realty on Tribal Interests

Impacts from land disposals would be the same as described under Alternative A, although impacts would be more widespread as more acres would be available for disposal under Alternative B.

From Minerals Management on Tribal Interests

The impacts from mining would the same as described under Alternative A for the Lower Sonoran.

4.24.4.3 Sonoran Desert National Monument

From Lands & Realty on Tribal Interests

Impacts would be the same as those described in Alternative A.

From Minerals Management on Tribal Interests

The impacts from mining would the same as described under Alternative A for the SDNM.

4.24.5 ALTERNATIVE C

4.24.5.1 Both Decision Areas

From Cultural and Heritage Resources on Tribal Interests

Compared to Alternatives A and B, a greater emphasis would be placed on cultural resource research and other allowable uses under Alternative, which would lead to a greater understanding of American Indian resources in the Decision Areas, thus benefiting such resources. Impacts from research and other allowable uses would range from minor to moderate.

From Livestock Grazing on Tribal Interests

Impacts would be the same as those describe for Alternative B.

From Recreation Management on Tribal Interests

Impacts from recreation management would be similar to those described under Alternative A.

From Special Designations on Tribal Interests

Under Alternative C, more acres would be protected under ACEC designation than under Alternatives A and B, which would provide greater protection to resources in these areas.

From Travel Management on Tribal Interests

Under Alternative C, impacts from travel management would be similar to Alternative B; however, fewer miles of roads would be open to the public, resulting in fewer opportunities for vandalism and less impacts on archeological and historical resources from roads. Closing more miles of roads under Alternative C would also make it more difficult for American Indians to visit TCPs and other traditional use or sacred areas and for researchers to access sites. Overall impacts would be minor.

From Vegetation Resources on Tribal Interests

Impacts would be negligible.

From Visual Resources on Tribal Interests

Alternative C would involve acreage under VRM Class I and II standards compared to Alternatives A and B, which would protect a greater number of American Indian resources due to less ground disturbance and visual intrusion in resources areas and landscapes. The impacts would be minor and long-term.

From Wilderness Characteristics on Tribal Interests

Under Alternative C, 128,100 acres in the Lower Sonoran and 112,200 acres in the SDNM would be allocated as lands managed to protect wilderness characteristics. Both TCPs and other traditional use or sacred areas would benefit from associated management actions to protect wilderness characteristics. Impacts would be minor.

From Wildlife and Special Status Species Management on Tribal Interests

Impacts in Alternative C would be similar to Alternative B. The primary exception is that several WHAs would be allocated, which would increase the protection of ecological and biological resources in the allocated areas. In addition, no new wildlife waters would be developed, eliminating disturbance associated with such developments that would occur under Alternative B.

4.24.5.2 Lower Sonoran

From Lands & Realty on Tribal Interests

Impacts from land tenure adjustments under Alternative C would be similar to Alternatives A and B. However, Alternative C would make fewer acres available for disposal than Alternative B, resulting in less impact; however, impacts would be greater than under Alternative A due to more acres that would be made available for disposal.

From Minerals Management on Tribal Interests

The impacts from mining would be the same as under Alternatives A and B.

4.24.5.3 Sonoran Desert National Monument

From Lands & Realty on Tribal Interests

Impacts would be the same as those described in Alternative B.

From Minerals Management on Tribal Interests

The impacts from mining would the same as described under Alternative A for the SDNM.

4.24.6 ALTERNATIVE D

4.24.6.1 Both Decision Areas

From Cultural and Heritage Resources on Tribal Interests

Under Alternative D, a greater emphasis would be placed on cultural resource protection compared to Alternatives A, B or C. Impacts from protection would be minor. Only research that was not ground-disturbing would be allowed, which would limit understanding of American Indian resources in the Decision Areas.

From Livestock Grazing on Tribal Interests

There would be no impacts from grazing under Alternative D because public lands would ultimately be closed to grazing.

From Wildlife and Special Status Species and Habitat Resources on Tribal Interests

Impacts from ecological and biological resources under Alternative D would be similar to Alternative B and C except that one large WHA would be allocated, which would increase the protection of ecological and biological resources in these areas. In addition, no new wildlife waters would be developed and all existing wildlife waters would be removed. As a result, there would be no new disturbance related to new wildlife waters and existing disturbances would be removed.

From Recreation Management on Tribal Interests

By providing fewer points of access for recreation use, Alternative D would result in the least amount of ground disturbance and intrusions from visitors to archeological and historical resources, TCPs, and plant communities that are important to American Indians. Impacts would be minor across most of the area but could be high in areas of concentrated recreation use.

From Special Designations on Tribal Interests

The greatest number of acres would be protected by ACEC designations under Alternative D. This would provide the greatest protection to archeological and historical resources, TCPs, and plant communities that are important to American Indians. The benefits from this alternative would moderate and long-term.

From Travel on Tribal Interests

The least number of miles of routes would be open to the public under Alternative D, providing the greatest protection to American Indian resources among the alternatives. There would be less surface disturbance and intrusion into resource gathering areas and reduced impacts on archeological and historical resources and TCPs and other traditional use or sacred areas. However, access for American Indians into TCPs and other traditional use or sacred areas would be more difficult given that fewer routes would be open. Impacts from surface disturbance and motorized intrusions would be negligible to minor and benefits would be moderate.

From Vegetation Resources on Tribal Interests

Vegetation resources would be enhanced due to better-protected vegetative communities. On the other hand, there would be potentially fewer areas available for gathering resources by American Indians due to limited motorized vehicle access. Impacts from surface disturbance and motorized intrusions would be negligible to minor while benefits would be moderate.

From Visual Resources on Tribal Interests

Alternative D proposes the most acres to be assigned to VRM Class I and II among the alternatives. This means that the visual integrity of historic and archaeological landscapes and resources, TCPs, and other traditional use or sacred areas and plant communities important to American Indians in the Decision Areas would be more protected than under the other alternatives. Impacts would be moderate.

From Wilderness Characteristics on Tribal Interests

The greatest number of acres would be allocated lands managed to protect wilderness characteristics under Alternative D compared to the other alternatives. As a result, Alternative D would provide less access for vandalism along routes but potentially greater opportunities for vandalism away from routes.

4.24.6.2 Lower Sonoran

From Lands & Realty on Tribal Interests

Impacts from land tenure adjustments would be similar to Alternatives A, B, and C. The fewest number of acres would be available for disposal under Alternative D and would thus have the least impact on American Indian resources.

From Minerals Management on Tribal Interests

Under Alternative D, the fewest number of acres would be open to mining, which would protect traditional cultural places and other traditional use or sacred areas from increases in access and surface disturbance associated with active mining operations. Impacts would be minor due to the smaller potential for destruction or damage to archaeological and historical sites during mineral exploration or development.

4.24.6.3 Sonoran Desert National Monument

No acres would be disposed of in the SDNM.

From Minerals Management

The impacts from mining would the same as described under Alternative A for the SDNM.

4.24.7 ALTERNATIVE E (PROPOSED RMP)

4.24.7.1 Both Decision Areas

From Cultural and Heritage Resources on Tribal Interests

Impacts from cultural resource management would be the same as described under Alternative C.

From Lands & Realty on Tribal Interests

Impacts from land tenure would be the same as described under Alternatives A. Impacts from land disposals would be similar to Alternative C due to similar acres available for disposal.

From Livestock Grazing on Tribal Interests

Impacts from grazing would be the same as described under Alternative A.

From Recreation Management on Tribal Interests

Impacts from recreation would be the same as described under Alternatives C for both Decision Areas.

From Special Designations on Tribal Interests

Impacts from designating 4 ACECs would increase the protection of ecological and biological resources in these areas.

From Travel Management on Tribal Interests

The types of impacts from travel management decisions would be the same as described under Alternative B. Overall, impacts would be less intense than under Alternatives B and most similar to C due to the decrease of miles of roads that would be open to motorized public travel under Alternative E. Overall impacts would be moderate.

From Vegetation Resources on Tribal Interests

Impacts would be negligible.

From Visual Resources on Tribal Interests

Impacts would be negligible.

From Wilderness Characteristics on Tribal Interests

Under Alternative E, impacts from allocating lands managed to protect wilderness characteristics would be the same as under Alternatives C and D; however, impacts would be more limited as fewer acres would be managed as such under Alternative E.

From Wildlife and Special Status Species Management on Tribal Interests

Impacts from ecological and biological resources under Alternative E would be similar to Alternative B, with the exception that one large WHA would be allocated, increasing the protection of ecological and biological resources in these areas.

4.24.7.2 Lower Sonoran

From Minerals Management on Tribal Interests

Impacts from mineral development would be similar to those described under Alternative A, with the exception that Saddle Mountain would be closed to saleable mineral material disposal, protecting American Indian resources in this area.

4.24.7.3 Sonoran Desert National Monument

From Lands & Realty on Tribal Interests

Impacts would be the same as those described in Alternative D.

From Minerals Management on Tribal Interests

The impacts from mining would the same as described under Alternative A for the SDNM.

4.25 CUMULATIVE IMPACTS

Cumulative impacts are those effects on the environment that result from incremental impacts of management direction contained in this PRMP/FEIS when added to the effects of other past, present, and reasonably foreseeable future actions, regardless of what agency (federal, tribal, state, or local) or private entity undertakes such actions. Cumulative impacts can result from individually minor, but collectively significant actions taking place over a period of time (40 CFR 1508). Analysis focuses on the cumulative impacts from actions within and outside the Planning Area.

Potential cumulative impacts, projects, and actions in the Planning Area were determined by examining other plans in the region, by talking with local governments and state and federal land managers, and from information provided by the BLM staff. Projects outside the Planning Area were only considered if they would have the potential to affect resources in the region.

4.25.1 METHODS OF ANALYSIS

4.25.1.1 Indicators

See indicators identified previously for each specific resource or resource use.

4.25.1.2 Assumptions

The following assumptions were used when considering cumulative impacts:

- The timeframe for this cumulative impact analysis encompasses past activities for the past one hundred years in the Planning Area. It also includes present activities and anticipated future activities that may extend 20 years into the future.
- All of the Reasonably Foreseeable Development Scenarios mentioned in **Section 4.1.6**, Reasonably Foreseeable Development Scenarios would occur over the next 20 years.

4.25.1.3 Qualitative Intensity Scale

The intensities of impacts are the same as those described in **Table 4-1**, Qualitative Terms for the Intensity of Impacts.

4.25.2 COMMON TO ALL ALTERNATIVES

4.25.2.1 Both Decision Areas

Cumulative Impacts on Air Resources

Cumulative impacts on air resources would be similar under all alternatives. Cumulative air quality impacts in the Planning Area have been addressed by air quality nonattainment plans and air quality maintenance plans that MAG and ADEQ have been required to prepare for approval by the EPA. These plans are required because the Phoenix area is a nonattainment area for several air pollutants and these plans are, in reality, quantitative cumulative air quality impact assessments.

Three main factors are anticipated to contribute to the cumulative impacts on air quality:

- Anticipated population growth in the Planning Area, especially the rapid growth in the Phoenix nonattainment areas.
- Anticipated increased emissions from additional OHV use both within and outside of the Decision Areas.
- With the continued use and development of BLM-neighboring lands, dust is likely to persist as a problem in the Decision Areas into the foreseeable future. Air resources on public lands may be affected by offsite use, agricultural activities, and development regardless of the RMP alternative selected. It is assumed that because offsite sources are the major contributors to dust within the Planning Area, there would be negligible differences in

cumulative impacts on air resources from the BLM activities proposed under each RMP alternative.

Cumulative Impacts on Climate Change

Primary climate change indicators that can be monitored include ambient air temperature, precipitation amounts and timing, annual snow pack levels, and stream flow volume and timing. The trends in climate change and its impacts within the Planning Area discussed in **Section 3.2.3**, Climate Change, would continue under all alternatives. Current management policy and direction is to address climate change, although no management actions in the current RMPs for the Planning Area specifically address climate change.

By its very nature, climate change is a cumulative impacts issue. Individual local GHG emissions cannot be considered outside of the larger context of global cumulative emissions. As discussed in **Section 4.3**, Impacts on Climate Change, the precise link between potential emissions from BLM-proposed actions and specific impacts on or from global climate change is not known. However, it is known that some proposed actions would likely increase or decrease GHG levels in the atmosphere if implemented. These are discussed below in qualitative terms.

A report by the Arizona Climate Change Advisory Group from 2005 estimates that, in 2000, approximately 87 million metric tons (MMt) of CO_2 equivalent (CO_{2e}) were emitted from sources in Arizona. That same year, an estimated 7 MMt of CO_{2e} was sequestered in Arizona's forests and forest products (not including any rangeland sequestration that might occur), resulting in net Arizona CO_{2e} emissions of 80 MMt in 2000 (Arizona Climate Change Advisory Group 2005). This amount equals 1.2 percent of total US GHG emissions and 0.2 percent of global GHG emissions for the same year (World Resources Institute 2011). However, Arizona GHG emissions have been raising rapidly compared with the nation as a whole as a result of the state's rapid rate of population and economic growth. From 1990 to 2000, Arizona's GHG emissions rose 51 percent compared with a national GHG emissions increase of 23 percent (Arizona Climate Change Advisory Group 2005). Even with Arizona's increasing share of total US GHG emissions, any emissions changes from BLM management actions in the Planning Area, either short term or long term, would have a negligible cumulative impact on national and global GHG emission levels.

Burning of fossil fuels for transportation made up 39 percent of Arizona's GHG emissions in 2000 (Arizona Climate Change Advisory Group 2005). The small proportion of this fossil fuel-powered travel that would be impacted by the BLM's management actions under this PRMP/FEIS makes the contribution of such actions to state, national, and global GHG levels negligible. Additionally, methane emissions from agricultural activities—including manure management, fertilizer use, and livestock—contributed 5 percent of Arizona's 2000 GHG emissions (Arizona Climate Change Advisory Group 2005). Therefore, BLM management actions related to livestock grazing in the Planning Area would also have a negligible impact on state, national, and global GHG emission levels.

Under all alternatives BLM actions would not be expected to influence directly or indirectly how non-BLM lands or resources are managed in terms of either increasing or decreasing CO_{2e} levels from those sources.

Cumulative Impacts of Illegal Border Activities

Arizona's 370-mile border with Mexico consists of sparsely populated areas, vast expanses of rugged mountainous terrain aligned in north-south corridors, and broad valleys and desert. Such geography provides unlimited opportunities for drug-related activities and illegal immigrant trafficking. Illegal activities around the US-Mexico border have been occurring for the past several decades and are anticipated to continue into the future.

Undocumented aliens and drug traffickers frequently cause damage to the environment by creating new roads, destroying vegetation, cutting fencing, and leaving garbage and/or hazardous materials (e.g., human waste, abandoned vehicles, drug paraphernalia, etc.) on the landscape. Trash, illegal roads, graffiti, and general vandalism resulting from illegal alien traffic would be expected to continue to detract from the visual quality of area. Illegal roads and trails may divert surface water flows to some extent. Illegal crossings and required law enforcement response to this traffic have resulted in route proliferation, off-road vehicle activity, increased human presence in backcountry areas, discarded trash, abandoned vehicles, cutting of firewood, illegal campfires, and increased chance of wildfire. Habitat degradation and disturbance of Sonoran pronghorn almost certainly result from these illegal cross border activities (DHS 2009).

Law enforcement activities employed to combat the illegal activities include construction of fences, new roads to patrol the affected areas, construction of electronic surveillance equipment, and gather trash and clean up hazardous materials.. The construction related activities result in short-term environmental impacts similar in nature to the impacts described in this Final EIS (e.g., loss of vegetation, soil erosion, displacement of wildlife, new visual intrusions on the landscape, etc.). Longer term impacts include permanent built features (such as surveillance equipment and border fences) that are expected to reduce the illegal activities, resulting in fewer impacts occurring on the natural and human environment that would allow currently disturbed areas to rehabilitate through natural processes or management efforts (DHS 2009).

As noted in Chapter 5, Consultation and Coordination, the BLM works with state and federal agencies to reduce the impacts from the illegal and law enforcement activities. Additionally, the BLM has standard operating procedures and administrative actions that are employed to reduce these impacts.

Cumulative Impacts on Special Designations

Areas of Critical Environmental Concern**.** Over the next 20 years, ACEC lands would be primarily affected by urban expansion and population growth, OHV use and nonmotorized recreation, mineral development, and rights-of-way for roads and energy. Over the long term, the implementation of the Proposed Action or alternatives could result in direct and indirect cumulative impacts on the relevant and important criteria for which the ACECs were designated. On-the-other-hand, strict application of the ACEC management prescriptions and actions could lessen or avoid the most extreme impacts.

Long-term and cumulative impacts on ACECs from urban expansion, rights-of-way, energy development, and motorized and nonmotorized recreation uses are similar to those described for wilderness. Mineral development could impact some of the ACEC's cultural, recreation, geologic or scenic values near urban areas due to demand for minerals and construction sand and gravel. Cultural resources would be subject

to increased theft or vandalism due to increasing recreation use in areas with significant cultural resources.

Wildlife resources in the ACEC may experience the most notable cumulative impacts. Increase human use would disrupt wildlife or modify their behavior. Rights-of-way for roads and energy would cut or impair wildlife corridors and animal movement. In addition to traffic, recreation activities and land uses that would contribute increased ambient noise levels, along with noise from OHV use and other dispersed recreational activities. Several of the ACEC areas contain noise or human activity-sensitive areas of wildlife habitat and species (e.g., desert tortoise, Sonoran pronghorn, big horn sheep for which, increased noise levels and human activity can have a substantial impact.

Juan Bautista de Anza National Historic Trail. The Anza NHT is a cultural resource of national significance. Cumulative impacts on the trail's integrity must be considered, including the visual impacts of land uses on the historic trail corridor. Impacts that enhance or degrade the visual resource, recreation values and the integrity of the setting, feeling, and historic association with trail need to be analyzed.

Trail segments within the SDNM remain once of the least disturbed landscapes along the entire 1,200 mile length of the Anza NHT. This setting is protected by National Monument status, but the Anza NHT would be impacted by increased public interest and use, growing urbanization to the north and east outside of the Monument, and fragmented land ownership and uses in other part of the Planning Area.

The Anza NHT is primarily affected by the OHV use and the existing and proposed ROWs for transportation, communication and energy developments. To a lesser extent, visitation and vandalism of the NHT would also affect its integrity. Population growth and the resulting increase in recreational use are expected to have a significant impact on the NHT and its historic landscape setting. Additional population, particularly in the Maricopa and Pinal County areas would result in more recreational use of the NHT, which would increase OHV traffic along the trail corridor, the potential for vandalism, and demands for new ROWs corridor over the life of the plan.

New roads would cross the trail in potentially many areas outside the SDNM, especially to the east. The roads would all impair or destroy the natural character of the landscape. Other state and private lands east of the Monument would become both urbanized and residential. Trail values would be lost in these areas.

Implementation of large road or energy projects in the corridor outside of the SDNM would forever change the landscape of this area, irreparably degrade the integrity of the Anza NHT and it would diminish the public's experience and understanding of the historic expedition and the cultural landscape of that period. The continuing decline in air quality and the regional haze of smog and dust in the central and southwest parts of Arizona would reduce the long-range vistas once enjoyed by trail visitors.

Urbanization would impact the historic feel of the landscape and impact the dark night skies of the area, which is another important experience enjoyed by visitors to the desert.

Wilderness Areas. Population growth in the Phoenix/Tucson urban corridor and the resulting increase in recreational use are expected to have a moderate to significant impact to wilderness areas in the Planning Area over the life of the plan. Increases in motorized and non-motorized use during the life of

this plan could have minor to potentially major impacts on the three components of wilderness character: solitude, naturalness, and opportunities for primitive/unconfined recreation.

In the next 20 years, designated wilderness areas would be primarily affected by the number and proximity of adjacent motorized travel corridors, the volume and type of traffic on those corridors, the sights and sounds of urbanizing human development near or on the borders of wilderness, continuing human and drug smuggling impacts on the Borderlands, the intensity of military and civilian over flights, and the quantity and type of recreational users.

The North Maricopa Mountains, South Maricopa Mountains, Sierra Estrella and Table Top wildernesses, areas with good hiking trails and/or good paved road access would be most influenced with increased visitation, more vehicular incursions, growing trail and off trail recreation use, and exposure to the sights and sounds of adjacent human activities. Moreover, the North Maricopa Mountains, South Maricopa Mountains, and Sierra Estrella wilderness areas each border federal, private and state lands annexed into cities and slated for large scale residential development, transportation corridors and solar energy development. Solitude opportunities and the perception of natural landscapes may be impaired the most due to more people and visitor-to-visitor contacts, greater noise, and more urban light impacts. The interiors of these four areas described above should protect good to outstanding wilderness characteristics over the life of the plan.

The Woolsey Peak and Signal Mountain wilderness areas may experience moderate visitor use increases, anticipate moderately increased amounts of motorized recreation use along their boundaries, and be subject to increased noise and light pollution. Wilderness values, on the whole, would remain as they are today as the two areas are rugged and remote, lack any visitor amenities, and have no hiking or equestrian trails.

The Table Top and South Maricopa Mountains wilderness areas would continue to be subject to ongoing levels of incursions by drug smugglers and human traffickers. Over-the-long-term smuggling-related roads, trails, look outs and trash accumulations would continue, damaging wilderness values and discouraging primitive recreation opportunities. This resource damage and decline in primitive recreation opportunities, while not irreversible, is difficult to reclaim and restore.

Cumulative Impacts on Water Resources

The cumulative impacts on water resources would be similar under all alternatives. Because activities on both private and public lands affect water resources, the impacts of development cumulatively affect watershed conditions. As a result, many watercourses in central Arizona have been degraded by increased sediment load due to soil disturbance resulting from urbanization, livestock grazing, and recreation. Furthermore, leachate from mining and tail-water drainage from agriculture has historically degraded water quality in the region. Under Alternative A, these activities would continue to affect water resources. However, under Alternative D, the cumulative effects on water resources are expected to be less than under any other alternative given that recreation and mining would be more restricted and grazing would be prohibited.

Cumulative Impacts on Soil Resources

The cumulative effects on soils would be similar under all alternatives and are expected to be limited to a particular site. Management practices in the Planning Area and activities on private lands have led to some detrimental soil conditions, some of which persist over the long term. Additionally, as private lands continue to be developed, especially near the Phoenix metropolitan area, soil becomes compacted and displaced. As a result, impacts on watershed conditions may occur through the loss of vegetation.

Cumulative Impacts on Visual Resources

Allocating VRM Classes establishes standards for managing the effects of surface disturbing activities. Potential impacts of the alternatives on visual resources are based on the potential management decisions to create visual changes in or contrasts on the landscape. The analysis shows that the VRM Classes have a spectrum or range of potential impacts by each alternative. In Alternative A, the visual impacts potentially come from valid and existing rights and activities. Alternatives B, C, and E reflect differentiating impacts along with the highly protective measures in Alternative D. During the life of the plan, population growth of the large and small communities of this planning area would contribute and impact the natural night sky conditions as well as the general landscape, regardless of which Alternative is implemented. The Lower Sonoran and SDNM Decision Areas would continue to serve as undeveloped open space as the private and state lands are developed with the SDNM potentially being surrounded by land annexed into cities and towns in the next decade.

Cumulative Impacts on Wilderness Characteristics

The cumulative impacts analysis area for wilderness characteristics includes Lands with Wilderness Characteristics in the LSFO and the SDNM, and certain lands surrounding such areas, as deemed necessary to satisfactorily assess impacts on the resource. Past and present action within the planning area and RFD Scenarios over the next 20 years has the potential to cause cumulative impacts on wilderness characteristics. Wilderness characteristics in areas not managed to protect those characteristics could be lost or impaired due to urban expansion and population growth. Simply put, more people mean more motorized and nonmotorized recreation use, along with associated community needs like roads, power, utilities, sand and gravel pits, and ROWs. The majority of these recreation uses and community growth developments could occur on BLM lands and contribute to the overall availability and quality of naturalness and non-motorized recreation settings, and associated solitude.

Wilderness characteristics in areas not managed to protect those characteristics could be lost or impaired due to increasing demand for ROW for utilities, renewable energy, and roads. Vast solar developments would remove a large amount of public land from recreation-related visitor use, contributing to greater concentrations of visitors within the SDNM and LSFO public lands. Greater user concentrations would detract from or decrease the quality of solitude and primitive recreation activities.

Wilderness characteristics are primarily affected by the number and proximity of motorized travel corridors; the volume and type of traffic on those corridors; and the quantity and type of recreational users. Population growth and the resulting increase in recreational use are expected to eventually impact lands with wilderness characteristics. An increase in motorized and nonmotorized use during the life of the plan could have major impacts on solitude, naturalness, and opportunities for primitive and unconfined recreation, mainly on lands not managed to protect such characteristics.

Recreational developments in the Saddle Mountain ERMA and the Ajo ERMA would impair naturalness and opportunities for primitive recreation and solitude. On-the other hand, comprehensive travel management and recreation management planning could avoid adverse impacts altogether in some areas through maintenance of visual standards and recreation settings. Designation of ERMAs throughout the range of alternatives would disallow most recreation road construction, maintenance upgrades, or new facilities, except in response to visitor health and safety or conflicts with other resource uses. This would, in effect, globally protect or enhance wilderness characteristics. Recreational developments within the SDNM would have no direct or indirect impacts on wilderness characteristics.

Increased use of civilian and military airspace would add to noise from aircraft operations. Moreover, the new F-35 military fighter, nosier than current aircraft, may be deployed over the Decision Area's airspace. Increased levels of noise would constrain opportunities for solitude and quiet landscapes. Not much can be done to mitigate this impact and all areas with wilderness character would be subject to aircraft noise to varying degrees. Noise influences are however, both transitory and temporary, and subject to the auditory sensitivity of each individual user.

Without significant management intervention, wildlife populations and areas with special resource values are expected to continue a downward trend over the next 20 to 25 years. Accordingly, active wildlife management actions and ACEC prescriptions are anticipated on most Decision Area lands, both on lands with and without wilderness characteristics. Wildlife catchments, access roads, enclosures for owls and pronghorn, land and OHV closures and stringent Sonoran desert tortoise habitat protection stipulations are anticipated. Mostly, these actions would protect or even enhance wilderness characteristics. To a minor extent, wildlife management, special designations, and recreation visitor use projects can adversely affect localized areas with wilderness characteristics. These impacts normally come from the installation, maintenance, and use of catchments, fences, drinkers and visitor management facilities.

Livestock grazing would not impact lands with wilderness characteristics over the long-term. Livestock numbers and active management practices are expected to remain at or below current levels, and potentially end in parts of the SDNM and near urban lands. To a minor extent, specific range management projects could affect areas with wilderness characteristics. These impacts normally come from the installation, maintenance, and use of range waters, fences, and corrals. BLM would consider wilderness characteristics when assessing impacts from mining, which are likely to occur when these activities are permitted to occur on lands with such wilderness characteristics. Wilderness characteristics in some areas would be directly impaired or lost due to development of locatable and saleable minerals, with the greatest potential in the Ajo Block and Gila Bend Mountains. About 10 percent of land with wilderness character, but not managed to protect wilderness characteristics could be adversely impacted over the long term, with a loss of naturalness, and decreased solitude and primitive recreation opportunities.

The BLM can make a variety of land use plan decisions to protect wilderness characteristics, such as comprehensive travel management planning, application of land health standards, wildlife habitat planning, or site-specific cultural or recreation plans. These plans normally include application of VRM objectives to guide the placement of roads, trails, and other facilities; establishing conditions of use to be attached to permits, leases, and other authorizations to achieve the desired level of resource protection; and designating lands and travel routes as open, closed, or limited to OHVs, or actions initiated to achieve a

desired visitor experience or setting. All comprehensive and activity-based planning efforts and implementation of such plans can serve to protect wilderness characteristics generally over the long term.

Air quality management and compliance issues may better protect wilderness characteristics on lands with such character due to potential limitations and regulation of OHV travel on dirt roads and washes. Restrictions would increase over the life of the plan due to the expansion of community development and nonattainment areas ($PM_{2.5}$ and PM_{10}). Such restrictions would include use limits and closures on use of dirt roads and changes in operating procedures; potentially both directly and indirectly protect wilderness characteristics

Long-term protection of public land resources like wilderness characteristics is based, in part, on the use of an adaptive management approach to consider the magnitude of potential impacts, and then mitigate, implement, monitor, and adapt. Using this approach, BLM can make adjustments to its best management practices and mitigation measures, as necessary. Adaptive management and mitigation would be considered as follows: (1) Consider the magnitude of the potential adverse environmental impacts, based on the environmental conditions. (2) Develop detailed best management practices and mitigation measures in response to these adverse impacts. (3) Identify monitoring protocols to determine the effectiveness of these practices and measures given the outcome. (4) Consider the cost of implementation and monitoring. (5) Determine the need to adapt or modify the best management practices and mitigation measures, based on monitoring.

Cumulative Impacts on Travel Management

When analyzing cumulative impacts on travel management, the study area would extend beyond the planning area so that connectivity to regional centers beyond the planning area's boundaries (such as Yuma, AZ and Quartzite, AZ) is analyzed. Therefore, the study area for cumulative impacts on travel management would include Yuma, Maricopa, Pima, La Paz, and Pinal counties.

Since Arizona statehood in 1912, vehicles have been an essential part of outdoor activity and transportation. At statehood, there were no use restrictions on the use of vehicles, as vehicle use was just becoming popular, and the state's population was a mere 300,000 people. Vehicle capability was improved with the advent of four wheel drive in the 1940s. Vehicular impacts were negligible at this time, due to the fact that cross country travel was infrequent.

Widespread use of earthmoving equipment to create new roads between 1930 and 1980 accelerated the expansion of vehicle usage, creating moderate and major impacts throughout the state. During the same timeframe, vehicular access in southwestern Arizona was counteracted and curtailed. Since statehood, vehicle access in southwestern Arizona was largely influenced by changes in land jurisdictions. Much of the lands in the state was portioned into wildlife refuges and wilderness areas, military lands, state lands, linear canals, dams, wilderness areas, or conveyed to private ownership. Millions of acres in Arizona still exist for vehicle access, however only a few percent are actually used for travel as a result of limiting travel to roads and trails. Further reductions in the number and connectivity of the remaining roads and trails create a major cumulative impact when taken into context the past actions limiting such use, such as changes in land jurisdiction.

Today, the increasing pressure on transportation and access needs from population growth, continuing changes in land tenure, new permitted mining activities and land use authorizations on public lands (such as utility-scale renewable energy developments), and benefit based recreation outcomes which call for access restrictions to primitive roads for resource protection management actions have presented minor to major impacts on travel management throughout southwestern Arizona. Considering that non-motorized hiking and equestrian travel would not be limited to roads and trails, cumulative impact do not exist for this type of use. Bicycle use would be affected in a similar manner as motor vehicle use due to having tires and policies which limit wheeled vehicles to roads and trails. Mitigation measures from these cumulative actions include:

- Population: designation of long distance travel corridors from WUI to provide protections for access corridors. This would be associated with the active collaboration with local jurisdictions to provide managed trail experiences.

- Land Tenure: BLM would continue to create road reservation and easements for continued access on lands that are transferred out of federal ownership.

- Mining Activities and Land Use Authorizations: designate public vehicle access within ROWs (such as utility corridors) or around site-specific uses to provide continued access.

- Resource Protections Measures (specifically from special status species habitat and air quality resources): Engineer solutions to allow for continued access such as fencing, exclosures/enclosures, create low dust surfaces to prevent PM-10/fugitive dust closures.

- Benefits Based Recreation Outcomes and Restricted Access: acquire access in key corridors through licenses, and limit locations of recreation sites to a sufficient distance from roads to ensure no conflict with camping and road use.

4.25.2.2 Lower Sonoran

Cumulative Impacts on Cultural and Heritage Resources

Given the expected increases in the population centered in Phoenix, Maricopa, Buckeye, Goodyear, and Apache Junction, use of the public lands surrounding those areas would similarly increase. Land use authorizations, minerals development, and recreation would have the most extensive cumulative impacts on cultural resources in the Planning Area. Land use authorizations, including rights-of-way for development of power lines, pipelines, fiber optic lines, roads, and solar energy would be expected to continue to increase with the public demand for services.

Studies on new proposed highway segments suggest that highway planners believe these population centers would need additional connection to neighboring communities. This would in turn suggest that population would further increase in those areas. Minerals development may increase due to market forces in the region. Saleables would increase as a response to popular demand associated with development. Recreation in the Planning Area would similarly increase, especially in areas near population centers. The cultural resources in the Planning Area would experience minor to major levels of impacts by the ground-disturbing activities of these types of individual projects. History has shown that many of these utility lines lie parallel to one another and have cumulatively affected the same sites

several times. The number of ground-disturbing projects is quite concentrated near the population centers. Trends suggest that a handful of sites are threatened by damage or destruction due to these projects each year. Fortunately, many are avoided by project redesign. The remaining sites are subject to mitigation measures that reduce or minimize the effects of the projects to a negligible to moderate level.

Cumulative Impacts on Minerals

Minerals development is dependent on resource demand and may be constrained by local land management decisions. If saleable mineral deposits are removed from availability by planning decisions, such as areas made unavailable for development, the resource could be developed at another location, be it local (on non-BLM lands) or regional. Since particular environmental impacts are location specific, the eventual cumulative impacts of necessary minerals development could be more or less than if the resources within the decision area were developed. The economic impact of developing low unit value minerals (sand & gravel, crushed rock, etc.) from outside the market area could be significant since the primary expense for these commodities is usually transportation.

Leasables minerals, e.g., oil, gas, geothermal, etc., are also heavily influenced by local planning. If the BLM closes an area to leasing, the leasable mineral would not be available for development; an area open for leasing, even with major or moderate constraints, could be available, but would be restricted by the distance of the access to the actual reservoir area. While some resources could be developed via directional drilling, these are still location specific due to constraints on drilling technology.

Locatable minerals, such as uranium, gold, and copper, are less influenced by local planning, but could be significantly affected if the planning decisions are to recommend or propose withdrawal of the mineral from development. Withdrawal would remove developers' opportunity for access to the mineral resources; these types of actions are very location specific and simply moving to another location is largely out of the question.

The ongoing development for solar energy development on public, state, and private lands in the planning area results in taking areas out of locatable and/or saleable development. Some leasable mineral development could continue to occur, especially if it involves directional drilling methods that a developer could tap into a reservoir below a solar facility. However, if the access or drilling direction/depth was beyond current technology then the resource would be unavailable.

4.25.2.3 Sonoran Desert National Monument

Cumulative Impacts on Cultural and Heritage Resources

Land Use Authorizations would be excluded in wilderness and along the Anza NHT. Utility scale renewable energy facilities would be excluded from the SDNM. Land Use Authorizations would be avoided in selected areas. This has a protective effect on the Monument objects and cultural resources in the SDNM. However, these activities would be pushed over onto other land jurisdictions and other public lands outside of the Monument. The level of intensity would be minor to major on the cultural resources, especially if the projects require intensive ground-disturbing activities. Mitigation measures would be applied that would bring the impacts to a minor to moderate level.

The SDNM is withdrawn from new mineral entry, which has a major protective effect on Monument objects and cultural resources. This would have the effect of pushing mineral exploration and development onto neighboring land jurisdictions with the effect of minor to major levels of impact on cultural resources, where mineral potential is high.

Grazing would be unavailable south of Interstate 8, pursuant to the Proclamation. This has the effect of pushing grazing activities over onto state and private lands, where impacts on the cultural resources would be at a negligible to minor level. Grazing on the allotments north of the Interstate was analyzed at an implementation level for their effects on the cultural resources and Monument objects.

Cumulative Impacts on Minerals

The SDNM is withdrawn from new mineral entry. The withdrawal was established in the proclamation that established the Monument. This withdrawal would have a protective effect on many different resources, as ground disturbance from exploration, prospecting, and other activities associated with mineral development would be prohibited (see individual resource discussion in the above sections of chapter 4).

There are a few parcels (totaling approximately 25,800 acres) within the Monument where the surface is owned by the United States and the subsurface is owned by a non-federal entity, on which minerals development may still occur. Depending upon the extent and intensity of the mineral extraction activities, there would likely be ground disturbance and road building for access and mineral development. The related sights and sounds of mining activity would degrade Monument visitor experiences for viewing and enjoying the Objects for which the Monument was designated to protect to a moderate level. However, the BLM, as the owner/manager of the surface, would work with operators to mitigate these impacts on affected Monument objects through project design features and/or best management practices. .

4.25.3 ALTERNATIVE A (NO ACTION)

4.25.3.1 Both Decision Areas

Cumulative Impacts on Wilderness Characteristics

The cumulative adverse impacts from the No Action alternative on wilderness characteristics would be greatest under this alternative. No lands would be managed to maintain wilderness characteristics. Community growth, ROW, management of recreation and nonmotorized recreation uses and mineral development each could contribute to adverse effects, both directly and indirectly. Wilderness characteristics could be potentially lost or diminished in all areas, but adverse effects are more likely in areas close to urban and populated rural areas, including lands in the south part of the Ajo Block, around Saddle Mountain, and within the Gila Bend Mountains block. Wilderness Characteristics on lands within the SDNM would be slightly diminished in the Butterfield Stage and Margie's Peak areas due to high public use, but altogether fully maintained elsewhere.

Cumulative Impacts on Lands and Realty

Cumulative impacts on lands and realty occur through changes in the designation and development of land resources and in changes to access of the land. Under Alternative A, access would be the least restrictive to land use authorizations on federal land compared to any action alternatives due to the fact that LUA and utility-scale renewable energy development avoidance and exclusion areas would not be introduce and all ten 1-mile wide utility corridors that run through the planning area would be maintained. As a result, future utility development would not be shifted to other nearby private or state lands; therefore, future utility development needs would be easily met to address the increasing energy and resource demands associated with the population growth projected over the next 20 years. Overall cumulative impact from Alternative A to lands and realty management would be minor.

Cumulative Impacts on Socioeconomics

Potential cumulative effects of growth and development on social and economic values many include the loss of ranching and related western lifestyles; changes in the social leadership structure resulting from increases in urban values and reduced ranching. In general, the greatest effects would be related to economics because the actions proposed in this RMP would not, in most cases, have major social impacts in the Planning Area.

Nearby communities provide local services to recreationists and would continue to benefit from recreation under the current management.

Under current management, 26,900 acres of BLM-managed public land would be available for disposal by sale or exchange. The disposition of BLM land is not expected to be growth inducing because much of the Planning Area is growing rapidly already and would continue to do so independently of BLM land disposals. Therefore, Alternative A would have no measurable cumulative impact on growth and development in the state, and growth in and near the Planning Area would continue to impact resources on public lands.

4.25.3.2 Lower Sonoran

Cumulative Impacts on Cultural and Heritage Resources

Cumulative impacts would be similar to those in the Common to All, except for the following items. The lack of a Transportation plan would have the effect of experiencing a proliferation of routes within the Planning area, regardless of land ownership. This would have a minor to moderate impact on cultural sites, especially in areas with higher site density. The lack of a requirement to keep large scale utility lines within established utility corridors would affect cultural resources to a minor to major level of intensity due to the line placement being allowed in more areas and not concentrating them. Under Alternative A, a large percentage of the BLM lands in the Planning Area would be open to mineral entry, so most saleable mineral development would take place on BLM lands, rather than on other jurisdictions. This would impact cultural resources more on BLM lands to a minor to moderate level. Mitigation measures would reduce or minimize impacts to a negligible or minor level. The lack of management strategies for Recreation would allow recreation to occur randomly in a number of different areas. This lack of management structure and amenities would allow impacts on cultural sites that would be at a minor to moderate level.

Cumulative Impacts on Wildlife and Special Status Species

Protected species within the decision and adjacent areas have endured both historic and recent declines in population and distribution. The principal common factor in these declines has been extensive loss, fragmentation, curtailment, and adverse modification of habitat. Short- and long-term effects to protected species stem from a variety of activities including mining, livestock grazing, OHV use, camping, military training, agriculture, road construction, and development of utility corridors, surface water impoundments, groundwater withdrawals, and commercial, residential, and recreational development. Fencing, canals, and vehicle routes have all limited the ability of the Sonoran pronghorn to move across its former range to find forage and water, contributing to increased vulnerability to drought, increased mortality (especially of fawns), and an overall decrease in population size and range. Actions that have resulted in additive or interactive effects that have acted to support the survival of many protected species include the designation of national monuments, wildlife refuges, BLM administered Wilderness Areas and the BGR. Most important among these countervailing actions are the long-term land use and management actions such as the Sonoran Pronghorn Recovery Plan and Desert Tortoise Range Wide Plan that provide habitat protection and conservation for many of these species on federal lands, and specific recovery efforts directed at individual species. Increased human population growth within the region would likely lead to further loss and fragmentation of habitats for protected species from development and the increased demand for recreation. Continued surface water impoundments and groundwater withdrawals could impact those protected species that require riparian areas and vegetation, such as the southwestern willow flycatcher, as these areas become drier and upland vegetation emerges.

Alternative A does not have LUP level decisions regarding special status species; however, management of habitat is based upon existing conservation measures. Important habitats for special status plant and animal species would be protected on a case-by-case basis to maintain known existing populations. Additional management attention would be directed toward populations of listed, proposed, candidate, and other special status species through inventory and monitoring of known populations to document population levels and status. Existing populations would be maintained or increased through protection of these species and their habitats. Measures to ensure that species-specific plans such as the Desert Tortoise Rangewide Plan are followed, including the no-net loss of habitat would protect habitat for tortoise and incidentally protect habitat for other special status species.

The Coffeepot Botanical ACEC (8,900 acres) would remain under Alternative A. By continuing the designation of this area as an ACEC, a number of special status species habitats would be protected, including habitat for the Acuña cactus, cactus ferruginous pygmy-owl, and desert tortoise. Water developments would continue to be evaluated based on the AGFD's wildlife water development standards. Some special status species such as Sonoran pronghorn would generally benefit from water developments, and thus expand their distribution into previously unoccupied areas. Management actions under Alternative A would allow many existing land uses and authorizations to continue and a number of new land uses and authorizations to be approved without consideration of potential conflicts with or other impacts on special status species. All existing and future compliance requirements for special status species would have to be met, so these species would be afforded a similar level of protection as they would under Alternatives C, D, and E. However, any additional additive and complimentary benefits for special status species that could be gained from the management decisions included in the Alternatives C, D, and E would not necessarily be realized. Overall, the long-term decline in native

vegetation and special status species habitats due to land uses, conversion to urban or agricultural uses, surface water impoundment, and groundwater withdrawal would continue under Alternative A and cumulatively the effects would range from minor to major for wildlife species in general.

Cumulative Impacts on Visual Resources Management

Under Alternative A, increased demand for infrastructure would result in more on-ground projects. Visual impacts from proposed utilities, communication sites, and energy facilities have been primarily in lower elevation areas with low slope and allocations in the VRM III or IV resulting in minor to moderate effects. Overall cumulative impacts on visual resources from unauthorized causal recreational use including travel management would be minor to moderate.

Cumulative Impacts on Livestock Grazing

Cumulative impacts on livestock grazing are usually those that affect available forage, water, and space. If implemented, the overall cumulative impacts from Alternative A would result in livestock operations at or near current capacity, but with the likelihood of AUM reductions due to loss of lands to other resource uses, and a gradual reduction of available land and forage for other resources, such as recreation, energy development, land disposal, mineral development, wildfires, and wildlife habitat enhancement.

Alternative A contains the least restrictions on recreation activities. Because recreational use is expected to increase throughout the Decision Area due to an increase in the region's population, the greatest impacts on livestock grazing would likely occur from recreation. For example, the entire Lower Sonoran would be open to recreational target shooting. Cumulatively, impacts from this would include soil disturbance and loss of vegetation from vehicles and human trampling, litter from shell casings and targets that are often left behind, and potential injury and/or death of livestock. These combined impacts could cause avoidance or displacement of cattle in affected areas, which could negatively affect livestock distribution patterns and forage availability. Another impact to available space for livestock is wildland fires, which are increasing with the population growth and human expansion into public areas. Managing areas as suitable for wildland fire and allowing naturally ignited wildland fire, prescribed fire, and treatments would have cumulative impacts on the amount of forage and area available for livestock grazing in the short term, but could improve vegetation condition in the long term in fire-adapted communities. The level of impact would vary depending upon the size of the area burned. However, fire in Sonoran Desert communities that are not fire adapted would reduce the amount of forage available to livestock on a longer term. Suppression of wildfires in the Sonoran Desert would have short term-impacts by removing vegetation, but would reduce overall impacts on livestock forage in the long term by retaining the vegetative communities and stabilizing the soil. Impact intensities could range from negligible to major, depending on the size of the burn. These impacts would be similar under all alternatives.

Illegal immigration and smuggling would continue to impact public lands at current or increasing levels. Impacts may shift as illegal immigrants and smugglers adapt to new border enforcement techniques. Damage to natural and recreation resources, and related public safety concerns, would increase as resource crime and vandalism incidents swell in the growing public land-urban interface. The cost to repair and restore fences and water developments would grow and require more agency resources over the life of the plan. Furthermore, the growth of metropolitan areas would increase illegal dumping in the

boundary lands. Hazardous materials and spills may also increase in these areas. Each of these impacts cumulative affects the area of quality forage and space for both livestock and wildlife.

Fencing developments can cumulatively impact the amount of land and forage available to livestock. While pasture fencing tends to be conducive to good grazing management by allowing rotational/rest regimes, it can also be detrimental to livestock and wildlife movement across the landscape. There is often a tenuous balance between improving rangeland resources through the use of fencing to manage or exclude livestock, and minimizing fencing for the benefit of wildlife movement and dispersal. This is particularly important along wildlife corridors. For instance, restrictions on new fencing in bighorn sheep habitat that improve bighorn sheep movement can impact livestock grazing by making livestock operations less efficient, limiting livestock management options, or closing or restricting areas to livestock grazing. Fencing certain important cultural resource sites to exclude grazing would result in a small decrease in forage, but few sites would need to be fenced. Individually, activities associated with management of cultural and paleontological resources would affect relatively small, localized areas. Even cumulatively, the amount of acreage involved with multiple cultural sites and excavations would still remain small. Mineral development within the 614,900 acres currently open to mineral entry could impact livestock operations by disturbing surfaces and decreasing vegetation and add to fenced-out areas.

Restricting developments and ground-disturbing activities from areas of significant desert pavement, cryptogamic crust, and soils that are vulnerable to disruption or have high wind or water erosion potential could have a minor impact by limiting the location of livestock management facilities. Allowing projects in these areas if mitigation occurs could offset this impact. Likewise, restrictions on placement of new water developments could impact distribution of livestock. The intensity of these impacts would generally be minor.

Emphasis is placed on protection of the vegetative communities across the Decision Area. Management actions, such as requiring mitigation or avoidance of vegetation removal for projects in order to protect vegetation resources, would protect or restore vegetation communities and would generally increase available forage for livestock grazing. Actions that would reduce, damage, or destroy vegetation communities would generally decrease available forage for livestock grazing. Any of these actions are likely to be negligible to minor in scale and in some cases may be short term.

Cumulative Impacts on Recreation

Over the life of this plan, continued population growth of the large and small communities of this region would contribute to greater visitation to the Planning Area. The communities of Maricopa, Goodyear, Buckeye, and Gila Bend are expected to continue expanding their boundaries through annexation; other communities may incorporate; and the major extent of the Decision Areas would border on or be included in incorporated cities and towns, with little county-administered land. For the majority of Maricopa County, western Pinal County, and western Pima County, the Lower Sonoran would continue to serve as undeveloped open space as private and state lands are developed. Opportunities to attain beneficial outcomes would be moderately less than for the action alternatives due to custodial management of the recreation resource over 70 percent of the Decision Area, combined with case-by-case management of other resource uses.

Cumulative Impacts on Travel Management

Impacts would be the same as those described under the Common to All Alternatives section for both decision areas. Past and present actions would not be halted or addressed (such as pressures from population growth), as management actions would not change under Alternative A. As a result of not having travel management assets identified and no plan to retain current access opportunities, there would be a continual loss of access points to BLM lands. Cumulative impacts overall would range from minor to major.

4.25.3.3 Sonoran Desert National Monument

Cumulative Impacts on Cultural and Heritage Resources

Cumulative impacts would be the same as those listed in the Common to All section, with the following exceptions. The lack of a site-specific Recreational SRMA with management prescriptions for the SDNM would have the effect of allowing non-compatible uses occur on the Monument, which would have a minor to major effect on Monument objects and cultural sites on the SDNM. The lack of a Transportation plan would have the effect of experiencing a proliferation of routes within the SDNM. This would have a minor to moderate impact on the 46 Monument objects and cultural sites, in the six areas that were analyzed at an implementation level. Nineteen of those sites may have characteristics that would make them eligible for the National Register and would require appropriate mitigation measures. No effects to other land jurisdictions cultural sites would be anticipated under this travel management alternative. No restrictions on target shooting would be in place under this alternative, so direct and indirect impacts on Monument objects and cultural sites would continue. These were analyzed at an implementation level. These impacts include projectile strikes to features and trash and trampling on Monument objects and cultural resources at a minor to moderate level.

Cumulative Impacts on Wildlife and Special Status Species

Protected species within the SDNM decision and adjacent areas, and throughout their range, have endured both historic and recent declines in population and distribution. The principal common factor in these declines has been extensive loss, fragmentation, curtailment, and adverse modification of habitat. Short- and long-term effects to protected species stem from a variety of activities including mining, livestock grazing, OHV use, camping, military training, agriculture, road construction, and development of utility corridors, surface water impoundments, groundwater withdrawals, and commercial, residential, and recreational development. Actions that have resulted in additive or interactive effects that have acted to support the survival of many protected species include the designation of national monuments, wildlife refuges, BLM-administered Wilderness Areas and the BGR. Most important among these countervailing actions are the long-term land use and management actions such as the Desert Tortoise Range Wide Plan that provides habitat protection and conservation for many of these species on federal lands, and specific recovery efforts directed at individual species. Increased human population growth within the region would likely lead to further loss and fragmentation of habitats for protected species from development and the increased demand for recreation.

Water developments would continue to be evaluated based on the AGFD's wildlife water development standards. Some species throughout the planning area, such as Desert bighorn sheep would generally benefit from water developments, and thus expand their distribution into previously unoccupied areas

that lack water but contain suitable habitat. Removing vegetation in areas could assist wildlife in short term dispersal in a relatively secure manner, however could increase predation on some species with the removal of cover for escape. Livestock grazing in the SDNM, south of I-8, were terminated when existing grazing permits expired, as directed by Presidential Proclamation 7397. Impacts on wildlife or special status species associated with livestock grazing include competition for space, forage, cover, and water resources. Typically, negligible and minor impacts on wildlife are expected to occur where livestock use is in conformance with standards and guides, as measured through rangeland health assessments. These assessments in the Monument are designed to address resources in context with Monument objects.

The Vekol Valley ACEC (3,500 acres) would remain under Alternative A. Currently there are 3,500-acres of public lands within the Vekol Valley Grassland ACEC. This ACEC was designated to protect a grassland system. Currently, the Vekol Valley ACEC lies within the Sonoran Desert National Monument however it was designated before the conception of the SDNM. The ACEC has an existing decision of the previous RMP, to "close the Vekol Valley Grassland area of critical environmental concern to off-highway vehicle use," and remains in effect. In the SDNM, 160,700 acres are closed to motor vehicle uses. This closure includes approximately 157,600 acres for designated wilderness and 3,500 acres for the Vekol Valley Grassland ACEC. The designation of wilderness affords the highest level of protection of unfragmented habitat. These wilderness areas contain special status species habitat for Sonoran desert tortoise, desert bighorn sheep, and potential foraging habitat for Lesser long-nose bats. 247,700 acres are designated as limited to existing routes. Impacts on wildlife are expected to occur from unauthorized route expansion as they occur. Overall, the long-term decline in native vegetation and special status species habitats due to land uses would continue under Alternative A within the SDNM and cumulatively the effects would range from minor to major for wildlife species in general.

Cumulative Impacts on Visual Resources Management

Alternative A presents the greatest impact to visual resources within the SDNM, although overall potential impacts are moderate. Cumulative impacts from transportation and access would have the most effects due to increased OHV use, affecting vegetation and soils leading to moderate or major impacts. Cumulative impacts from VRM Class allocation are expected to be moderate in comparison with the Visual Resource Inventory.

Cumulative Impacts on Livestock Grazing

Cumulative impacts would be similar to those discussed under Alternative A for the Lower Sonoran, except, there would be a decrease in acres available to livestock grazing due to incompatibility with the protection of Monument objects. Ranchers and operators may be persuaded to transfer their operations to non-federal lands, but likelihood would be minor.

Cumulative Impacts on Recreation

The SDNM may be entirely surrounded by land annexed into cities or towns within ten years. For the majority of Maricopa County, western Pinal County, and western Pima County, the SDNM Decision Area would continue to serve as undeveloped open space as private and state lands are developed. A greater production of public benefits from recreation experiences would accrue from implementation of the action alternatives for management of other resources and the recreation resource. This is due to

the interaction of management of other resources with the impact of managing the SDNM as an ERMA. Under Alternative A, the majority of the SDNM would not be managed as an SRMA and the opportunities to attain beneficial outcomes would be the same as for the action alternatives due to custodial management of the recreation resource over 70 percent of the Monument, combined with case-by-case management of other resource uses.

Cumulative Impacts on Travel Management

Impacts would be the same as those described under Alternative A for the Lower Sonoran.

4.25.4 ALTERNATIVE B

4.25.4.1 Both Decision Areas

Cumulative Impacts on Wilderness Characteristics

Cumulative impacts would be similar to Alternative A, but to a slightly less degree. Alternative B has moderate levels of landscape-based protective prescriptions. Comprehensive travel management would be the most effective tool in maintaining wilderness characteristics.

Cumulative Impacts on Lands and Realty

Cumulative impacts on lands and realty under Alternative B would be similar to Alternative A, with the exception that some federal lands within the planning area would be allocated as avoidance and exclusion areas to LUA and utility-scale energy development. However, compared to Alternatives C, D, and E, Alternative B would allow federal lands to accommodate the most projected utility development due to limits in the amount of acreage allocated as an avoidance or exclusion area and all 10 1-mile wide multiuse utility corridors would be maintained. Overall cumulative impact from Alternative B to lands and realty management would be minor.

Cumulative Impacts on Socioeconomics

Impacts from growth and development are anticipated to be the same as Alternative A. Under this Alternative, 39,700 acres of land would be available for disposal by sale or exchange, a total that is 47 percent greater than under Alternative A. Because the disposition of BLM-managed public land is not expected to be a major growth-inducing action, this alternative would have no measurable cumulative impact on growth and development.

4.25.4.2 Lower Sonoran

Cumulative Impacts on Cultural and Heritage Resources

Impacts would be the same as those described in the Common to All section except for the following. Transportation planning would allow route designation on the BLM lands within the Planning Area. Under Alternative B, the maximum number of routes would be available compared to any other Alternative. This would make the BLM lands far more attractive and access far easier than surrounding jurisdictions for vehicle based activities. Minerals would be subject to additional segregations and

withdrawals on selected areas than would be experienced under Alternative A. Land use authorizations for large linear utility lines would have to be placed in one of the designated utility corridors, which under Alternative B, have a wider profile. A number of avoidance and exclusion areas would be designated under B as well. These restrictions would have somewhat of a protective effect on cultural resources in those selected areas. The utilities and minerals activities may shift off of BLM lands onto state and private lands where impacts on cultural resources may be at a minor to major level.

Recreational activities would be promoted under Alternative B, due to additional opportunities being offered. Specific marketing strategies in each SRMA may have a cumulative impact on the area the people choose to recreate in. Under B, the strategy would draw additional motorized recreational use from surrounding lands, which would have the effect of increasing visitation to areas on BLM. Increased visitation in some areas may have a minor to moderate intensity on the cultural resources present. Visitation in non-BLM lands may decrease in some areas.

Cumulative Impacts on Wildlife and Special Status Species

Current regional conditions and threats to special status species would be the same as described for Alternative A. The incremental effects of Alternative B would generally be the same as described for Alternative A except that it would establish specific goals, objectives, and management actions that support recovery efforts for known populations of special status species.

Alternative B would also introduce wildlife movement corridors to assist wildlife in moving from one area to another in a relatively safe manner to the tune of approximately 168,000 acres of mixed ownership in various locations throughout the decision area. Overall, the long-term it would be expected that declines in special status species habitats within the decision and adjacent areas would continue in areas that lack protection for wildlife habitats. Cumulatively effects would range from negligible to moderate for wildlife species in general.

Cumulative Impacts on Visual Resources Management

Cumulative impacts from lands and realty actions such as utility and solar projects would be moderate compared to Alternative A due to the shift from VRM Class IV into Class III. Although recreation management would be more developed, impacts would be moderate due to the allocation of the VRM Classes. With the reduction in roads, the route network would generally result in an improved visual character, and impacts would be minor. Negative moderate and minor impacts on VRM Class II and III allocation, respectively, would be similar to but more concentrated than under Alternative A.

Cumulative Impacts on Livestock Grazing

Impacts would be similar to those described under Alternative A for the Lower Sonoran, except, Alternative B identifies the greatest amount of public lands suitable for appropriate multiple uses, with an emphasis on motorized and developed recreational opportunities. Therefore, recreation and urban expansion are likely to cause the majority of impacts on livestock grazing. As described for Alternative A, the cumulative effects of the individual resources would coalesce in the loss of space, forage, and water for livestock use.

Overall cumulative impacts would be similar to Alternative A, except with an aggregate increase in effects. The cumulative impacts would include managing livestock operations with a 40 percent reduction in permitted AUMS; the increased impacts from recreation, including damage and/or loss of land and forage, harassment and/or injury to cattle, and vandalism to range developments; the likelihood of future AUM reductions due to additional loss of lands to other resource uses; and gradual reduction of available land and forage for other resources, such as recreation, energy development, land disposal, mineral development, wildfires, and wildlife habitat enhancement.

Individually and possibly collectively, permittees across the Lower Sonoran would likely experience increased costs of operations for the maintenance of vandalized fences and water developments while incurring a reduction in the value of their base properties as connected to a reduction in their grazing preference, as well as a 40 percent reduction in their potential income from their livestock revenues. Often livestock operators choose to run reduced numbers for a variety of reasons (drought, fire, personal finances, etc.), so impacts from reduced AUMs might not affect overall economic impacts of Alternative B. However, all of these impacts combined could potentially make continued livestock grazing untenable in the Decision Area, which could encourage grazing uses to be placed on nearby state and private lands.

Cumulative Impacts on Recreation

Opportunities to attain beneficial outcomes produced from recreation experiences would accrue cumulatively to a moderately greater degree than A, principally due to management of 70 percent of the decision area as SRMA's together with slightly less availability of motorized travel routes.

Cumulative Impacts on Travel Management

Cumulative impacts on travel management would be similar to Alternative A as a result of continuing to limit vehicular travel to routes with the exception that designating all routes and increasing fines for violating the designated routes policy could further create feelings of restriction by visitors to public lands. A countervailing effect could be that routes, once designated, have more protection from the impacts identified in Alternative A. Further limitations placed on vehicular travel by the creation of avoidance areas for LUAs would cause additional competition for available areas, increasing the level of impact from moderate to major. Recreation zoning in alternative B would be the most vehicle use friendly, helping to reduce the effects of opportunity loss occurring on other jurisdictions or other areas on BLM. Overall the effects of all actions prior, current and foreseeable create a moderate effect on travel management.

4.25.4.3 Sonoran Desert National Monument

Cumulative Impacts on Cultural and Heritage Resources

Cumulative impacts would be the same as those listed in the Common to All section, with the following exceptions. Three utility corridors would be designated within the SDNM, which would have minor to major impacts on Monument objects and cultural resources. The increasing population would demand services through utility lines that would apply for placement within these corridors. Grazing under this Alternative would see a reduction in preference within the allotments under permit to operate. This was analyzed at an implementation level. Generally, the sites known to occur in the SDNM allotments

have negligible to minor impacts due to grazing activities. A reduction in preference may have the effect of pushing grazing activities off of the Monument and onto other land jurisdictions, which would have a similar impact on cultural resources on those lands. Management of recreation on the Monument would be more directed under the designation of a SRMA and would tend to promote the SDNM as a destination with facilities. Numbers of visiting public would increase under this strategy and would be drawn to the amenities offered. This would have a minor impact on the Monument objects and cultural resources on the SDNM due to the higher number of visitors expected. There would be some draw of visitors from surrounding land jurisdictions to take advantage of the amenities offered. This would have a protective effect on those cultural resources there. No competitive motor sports would be allowed in the SRMA. This would push this use onto other lands and may have a negligible to minor effect on the cultural resources there. Under Alternative B, target shooting would be prohibited on 80 percent of the SDNM. This was analyzed at an implementation level.

Indirect impacts from trampling and trash accumulation to Monument objects and cultural resources would be expected at a minor level of intensity. The prohibition to shooting in such an extensive area of the SDNM would have the effect of pushing some of this use onto neighboring land jurisdictions and other public lands. The effect on the sites in those areas may experience a minor to moderate level of impacts from direct damage and indirect impacts. Transportation planning under Alternative B was analyzed at an implementation level. Under this alternative, more routes would be open and 45 cultural sites and Monument objects would be affected either directly or indirectly by the designation of these routes. Mitigation measures would be employed to reduce or minimize the effects of this action. Additional visitation may be drawn from neighboring jurisdictions to experience these routes. This may have a negligible to minor effect on those cultural resources.

Cumulative Impacts on Wildlife and Special Status Species

Current regional conditions and threats to special status species would be the same as described for Alternative A. The incremental effects of Alternative B would generally be the same as described for Alternative A, except that it would establish specific goals, objectives, and management actions that support recovery efforts for known populations of special status species.

While similar to Alternative A, this alternative does not carry forward the 3,500 acres for the Vekol Valley grassland ACEC. Negligible impacts on wildlife are anticipated from dropping the ACEC designation. Managing the grassland under the Monument proclamation affords a greater protection. Overall, the long-term decline in native vegetation and special status species habitats due to land uses would continue under Alternative B within the SDNM and cumulatively the effects would range from negligible to moderate for wildlife species in general.

Cumulative Impacts on Visual Resources Management

Cumulative impacts from transportation and access would range from negligible to moderate, because the designated route network would reduce visual impacts throughout the Monument. Minor visual impacts are expected with the allocation of VRM Classes compared with Alternative A.

Cumulative Impacts on Livestock Grazing

Cumulative impacts would be similar to those under Alternative A, except that Alternative B identifies the greatest amount of public lands suitable for appropriate multiple uses, with an emphasis on motorized and developed recreational opportunities. Therefore, recreation and urban expansion are likely to cause the majority of cumulative impacts on livestock grazing. As described for Alternative A, the cumulative effects of the individual resources would coalesce in the loss of space, forage, and water for livestock use.

Under Alternative B, managing 8,500 fewer acres with more fence lines, fewer waters, and a reduction of 40 percent in the authorized grazing preference could have a major impact by reducing the long-term viability of some livestock operations, especially when considered with the cumulative impacts of the closure of those areas south of I-8, as well. The reduction in livestock numbers could leave some operators on the SDNM with herd sizes too small to support their current operations. Operators would have to acquire additional lands outside of BLM lands in order to support a viable operation, which, in some cases, could be cost-prohibitive. All associated range improvement projects within and outside the fenced exclosures would have to be addressed on a case-by-case basis. Combined impacts from this alternative would likely be minor to moderate for allotments such as Beloat, Arnold, Hazen, and Lower Vekol, but could be moderate to major for operators of the Bighorn and Conley Allotments.

Cumulative Impacts on Recreation

Opportunities to attain beneficial outcomes produced from recreation experiences would accrue cumulatively to a moderately greater degree than in A, principally due to management of the SDNM as a Destination ERMA together with management of motorized access and travel routes for targeted benefits

Cumulative Impacts on Travel Management

Cumulative impacts would be the same as those described under Alternative A for the Lower Sonoran, except that further limitations placed on vehicular travel by protecting Monument objects could increase impacts on travel management raising the cumulative impact from moderate to major. Recreation zoning in Alternative B would be the most vehicle use friendly, helping to reduce the effects of opportunity loss occurring on other jurisdictions or other areas on BLM. Overall the effects of all actions prior, current and foreseeable create a moderate effect on travel management.

4.25.5 ALTERNATIVE C

4.25.5.1 Both Decision Areas

Cumulative Impacts on Wilderness Characteristics

Alternative C presents an array of resource-based land use designations and prescriptions supportive of maintaining wilderness characteristics. This is true both in lands managed and not managed to maintain wilderness characteristics. Some areas with wilderness characteristics in the south part of the Ajo Block and within the Gila Bend Mountains could suffer loss or diminishment of such characteristics due to site-specific effects from urban growth, ROW, motorized recreation use and mining. Comprehensive travel

management would be the most effective tool in maintaining wilderness characteristics in areas not managed as such.

Cumulative Impacts on Lands and Realty

Cumulative impacts on lands and realty under Alternative C would be the same as Alternative B, with the exception that more federal lands within the planning area would be allocated as avoidance and exclusion areas to LUAs and utility-scale energy development. Under Alternative C, there would only be nine multiuse utility corridors allocated in the planning area (. Compared to Alternative A, more utility development would be shifted to non-federal lands, as large portions of federal lands within the planning area would be off limits to surface disturbing activities. Federal lands would not play a large role in housing the large demand for solar energy development projects as anticipated in the RFD Scenarios. Overall cumulative impacts from Alternative C to lands and realty management within the planning area over the next 20 years would be minor to moderate.

Cumulative Impacts on Socioeconomics

Cumulative impacts are anticipated to be the same as Alternative B.

4.25.5.2 Lower Sonoran

Cumulative Impacts on Cultural and Heritage Resources

Impacts on cultural resources would be similar to those listed in the Common to All section.

Land use authorizations would have additional avoidance and exclusion areas applied to some areas, which also may have the effect of pushing some actions onto state or private lands. Under Alternative C, there are more SRMA's identified than Alternative A. These additional restrictions would have an overall protective effect on cultural resources than that offered under Alternative A. Cumulative impacts on cultural resources within the Planning Area would be at the minor to major level of intensity in some areas with higher site densities.

Cumulative Impacts on Wildlife and Special Status Species

Current regional conditions and threats to special status species would be similar to those described for Alternative A. Alternative C would have the strongest management influence on maintaining and promoting the conservation and enhancement of habitat for special status species through a number of resource allocation and special area designation decisions. Under Alternative C, approximately 425,000 acres would be allocated as WHAs, 296,000 acres of mixed ownership for wildlife movement corridors and would introduce 63,000 acres as the Coffeepot Batamote ACEC encompassing the Coffeepot Mountain ACEC. These allocations and their management prescriptions would allow for the protection of large areas of intact habitat and decrease the effects of habitat fragmentation and curtailment. Alternative C introduces a total of 425,000 acres of mixed ownership available for WHAs. The WHAs would include portions of the following areas: The Batamote Mountains, the Cuerda De Lena area near Ajo, the Gila Bend Mountains and Saddle Mountain. WHAs would provide minimal protection to wildlife habitats and would still allow many disruptive land uses to continue. Overall, the long-term decline in the quality and quantity of special status species habitats would likely be slowed, as large areas of habitat

would be protected on BLM-administered lands. However, the loss of special status species habitat elsewhere in the region would not be stopped, but rather these protected areas would serve as refuges for wildlife as the surrounding lands are potentially developed. Cumulatively effects would range from negligible to moderate for wildlife species in general.

Cumulative Impacts on Visual Resources Management

Visual impacts due to on-ground development would be minor. Shifts from Class III to Class II would result in greater constraints and more stringent designs. Fewer developments as well as improved designs would reduce the impacts on the landscape. Recreation management would be less developed in comparison to Alternative B but more than Alternative A. It is expected that visual impacts would be negligible to moderate, because VRM Classes would lessen the impacts. Overall impacts in comparison to Alternative A would be fewer, but moderate under Class II.

Cumulative Impacts on Livestock Grazing

Alternative C attempts to balance resource protection with human use and influence. The proposed combination of natural processes and "hands on" techniques would reduce the need for intensive livestock management and mitigation efforts needed to avoid or reduce impacts on and from livestock grazing.

If Alternative C would to be implemented, cumulative impacts would result in the continued livestock operations at or near the current capacity, but with no supplemental ephemeral forage allocated for perennial/ephemeral allotments (these allotments would be reclassified as perennial only); the likelihood of future AUM reductions and season of use restrictions due to loss of lands to other resource uses; and gradual reduction of available land and forage for other resources, such as recreation, energy development, land disposal, mineral development, wildfires, and wildlife habitat enhancement.

Cumulative Impacts on Recreation

Opportunities to attain beneficial outcomes produced from recreation experiences would accrue to a moderately greater degree than from implementation of alternatives A and B, principally due to management of 79 percent of the decision area as ERMA together with allocation of a Special Cultural Recreation Management Area, higher VRM standards, and allocation of areas for management of wilderness character.

Cumulative Impacts on Travel Management

Cumulative impacts on travel management would be similar to Alternative B as a result of continuing to limit vehicular travel to routes, except that impacts would be greater due to fewer miles of routes designated as open, due to the presence of Lands Managed to Maintain Wilderness Characteristics and wildlife designations that would limit the designated route system. Limitations placed on vehicular travel by the creation of avoidance areas for LUAs would cause additional competition for available areas, maintaining the level of impact at moderate, but could increase to major by the end of the life of the plan. Recreation zoning in Alternative C would be less vehicle use friendly than Alternative B, thus adding to the increase in impacts on vehicular use. Non-motorized recreation would be improved;

however, few designated non-motorized trails would be affected. The net sum of these actions creates a moderate cumulative impact on the travel management.

4.25.5.3 Sonoran Desert National Monument

Cumulative Impacts on Cultural and Heritage Resources

Cumulative impacts would be the same as those listed in the Common to All section, with the following exceptions. Two utility corridors would be designated within the SDNM, which would have minor to major impacts on Monument objects and cultural resources. The increasing population would demand services through utility lines that would apply for placement within these corridors. Recreation impacts would be the same as those under Alternative B. Impacts from Recreation would be the same as those listed under Alternative B. Under Alternative C, target shooting would be prohibited on 99 percent of the SDNM, leaving only 1,000 acres open to this activity. This was analyzed at an implementation level. Indirect impacts from trampling and trash accumulation to Monument objects and cultural resources would be expected at a negligible level of intensity, since no sites have been observed in that area. The prohibition to shooting in such an extensive area of the SDNM would have the effect of pushing some of this use onto neighboring land jurisdictions and other public lands. The effect on the sites in those areas may experience a minor to moderate level of impacts from direct damage and indirect impacts. Under Alternative C, transportation planning was analyzed at an implementation level. A number of routes were closed for a better balance between all open and a large number closed. Even with this strategy, 43 sites and Monument objects would be affected directly and indirectly by those routes designated as open. The net change in impact from Alternative B to C is negligible, as only two sites make the difference. So the impacts under this Alternative would be nearly the same as B in terms of travel.

Cumulative Impacts on Wildlife and Special Status Species

Current regional conditions and threats to special status species would be the same as described for Alternative B. The incremental effects of Alternative C would generally be the same as described for Alternative B except that it would establish specific goals, objectives, and management actions that support recovery efforts for known populations of special status species. Impacts on wildlife are expected to be negligible due to the level of protection prescribed in the proclamation. Overall, the long-term decline in native vegetation and special status species habitats due to land uses would continue at a slower rate under Alternative C within the SDNM and cumulatively the effects would range from negligible to moderate for wildlife species in general.

Cumulative Impacts on Visual Resources Management

Effects would be minor with transportation by the reduction of routes and the corresponding visible surface disturbance. Under Alternative C visual impacts would be generally similar to Alternatives A and B, but with fewer impacts on Class II landscapes than Alternative A.

Cumulative Impacts on Livestock Grazing

If implemented, Alternative C would adjust livestock numbers or require more intensive management (pasture rotations, seasonal removals, etc.), this would affect operator costs and would likely have moderate to major cumulative impacts. For example, the closure of portions of allotments south of I-8

has already impacted the management and finances of those permittees affected by the Proclamation. Cumulatively, more intense management of those areas north of I-8, including increased pasture rotations and seasonal removals, could bankrupt some livestock operators or make future operations untenable. However, individualized consultation, coordination, and cooperation with the effected parties would help lessen financial impacts on the operator while also decreasing impacts of grazing on rangeland resources and Monument objects.

Cumulative Impacts on Recreation

Opportunities to attain beneficial outcomes produced from recreation experiences would accrue to a moderately greater degree than from implementation of Alternative A and to a minor degree greater than from implementation of Alternative B, principally due to management of the SDNM as a SRMA together with allocation of a Special Cultural Recreation Management Area and implementing higher VRM standards.

Cumulative Impacts on Travel Management

Cumulative impacts would be similar to those described under Alternative C for the Lower Sonoran Decision Area.

4.25.6 ALTERNATIVE D

4.25.6.1 Both Decision Areas

Cumulative Impacts on Wilderness Characteristics

All lands with wilderness characteristics would be managed to maintain those characteristics under this alternative. No general or widespread cumulative adverse impacts are anticipated from urban growth, ROW or mineral development. There would be cumulative beneficial impacts from Decision Area management actions associated with comprehensive management of motorized recreation, management actions delegated by wildlife habitat conservation and ACEC designations, required comprehensive planning for travel management and livestock grazing, and air quality prescriptions.

Cumulative Impacts on Lands and Realty

Under Alternative D, the most federal lands would be excluded from surface disturbing activities compared to any other alternative and there would only be seven multiuse utility corridors allocated in the planning area (all corridors within the SDNM would be eliminated). Most utility development that would take place over the next 20 years would have to take place on nearby state and private lands, as natural resources on federal lands would be protected. Federal lands would not play a large role in housing the large demand for solar energy development projects as anticipated in the RFD Scenarios. Overall cumulative impacts from Alternative D to lands and realty management within the planning area over the next 20 years would be moderate.

Cumulative Impacts on Socioeconomics

Impacts from growth and development are anticipated to be the same as Alternative A. Under this Alternative, 29,600 acres of land would be available for disposal by sale or exchange, which is 47 percent greater than land available in Alternative A. Since the disposition of BLM-managed public lands is not expected to be a major growth inducing action, since much of the Planning Area, this alternative would have no measurable cumulative impact on growth and development.

4.25.6.2 Lower Sonoran

Cumulative Impacts on Cultural and Heritage Resources

Cumulative impacts on cultural resources under Alternative D are similar to those under the Common to All, with the following exceptions. The Transportation planning would present the most restrictive route network of any of the Alternatives. More routes would be closed or limited use under this scenario than the other alternatives, which would have the effect of pushing more vehicle use onto neighboring land jurisdictions, or concentrating the use onto fewer routes on BLM lands. Access may be limited to some areas, which could have a protective effect in some situations. Minerals would experience the same set of segregations and withdrawals, plus an addition of all of the proposed ACECs as withdrawn from mineral entry. This would have the effect of pushing operators onto state and private lands. The most restrictive list of avoidance and exclusion areas for Land Use Authorizations would be experienced under Alternative D. This would have a profound protective effect on the cultural resources on BLM lands, but would also expose other cultural resources on other jurisdictions to minor to major impacts. In recreation, only two SRMAs would be proposed for a far less intensively managed use. Fewer amenities would be offered, so this would have the effect of concentrating use where amenities were available.

Cumulative Impacts on Wildlife and Special Status Species

Current regional conditions and threats to special status species would be similar to those described for Alternative A and B. While Alternative D generally would be the most protective of special status species, restrictive of developed uses, and would result in fewer special status species conflicts from land use authorizations than any of the other Alternatives under consideration for the decision area. The Gila Bend Mountains WHA (255,000 acres) would provide for a large intact area of habitat that would begin at the Gila River Corridor and extend west all the way to US Highway 95 and south from I-10 to I-8. This large area of mostly intact habitat and vegetation would decrease the overall effects of habitat fragmentation and curtailment on some species. Alternative D would also contain approximately 814,000 acres as wildlife movement corridors throughout both decision areas. Alternative D would also designate approximately 267,000 acres as ACECs for special status species restricting land uses to protect these habitats. Overall, Alternative D would slow the long-term decline in the quantity and quality of some special status species habitats. Cumulatively effects would range from negligible to moderate for wildlife species in general.

Cumulative Impacts on Visual Resources Management

With the VRM shifting to Class II, impacts would be negligible to minor, because of developmental constraints and areas managed for more primitive experiences in the Decision Area. There would be

less projects being able to comply with the VRM criteria. Some areas would be impacted to resolve resource or user conflicts, but overall visual impacts would be negligible or minor on account of less intensive recreation management. In comparison between the VRM and Visual Resource Inventory, cumulative impacts would be negligible and are likely to be more beneficial.

Cumulative Impacts on Livestock Grazing

Under Alternative D, the decision to eliminate grazing from the Lower Sonoran Decision Areas would eliminate any impacts on or from livestock grazing. This would have major impacts on the economic viability of cattle operations throughout the region and Planning Area because permittees would be required to turn to other means to sustain their herds or get out of the ranching business altogether. In turn, those towns and communities that are dependent on the ranching industry could see moderate to major economic impacts and grazing would be heavily dependent on private and state lands in the Planning Area. Impacts would be major.

Cumulative Impacts on Recreation

Opportunities to attain beneficial outcomes produced from recreation experiences would be similar to A and moderately less than for B and C as recreation resources would be managed custodially on 75 percent of the decision area and beneficial outcomes would not be actively produced. Additionally, allocating cultural sites for conservation for future use; designating the least total mileage and percentage of routes for motorized use; and managing to the highest VRM standards would preclude easy access to facilitated recreation opportunities.

Cumulative Impacts on Travel Management

Cumulative impacts on travel management would be similar to Alternative B, except, recreation zoning in Alternative D would be the least vehicle use friendly, thus adding to the increase in impacts on vehicular use. Non-motorized recreation would be the best of any alternative. The sum of these actions and regional actions creates a major impact on the travel management.

4.25.6.3 Sonoran Desert National Monument

Cumulative Impacts on Cultural and Heritage Resources

Cumulative impacts would be the same as those listed in the Common to All section, with the following exceptions. In Alternative D, no utility corridors would be designated within the SDNM. This is a major protective effect on the Monument objects and cultural resources within the SDNM. The increasing public demand for utilities would be pushed entirely onto neighboring BLM lands and other jurisdictions, which would have a minor to major impact on the cultural resources of those areas. Mitigation measures would be employed to reduce or minimize those impacts to a minor to moderate level. Under Alternative D, grazing activities would slowly be discontinued through several management actions. This was analyzed at an implementation level. No sites or Monument objects would be affected by this management action on the SDNM. This would have the effect of pushing grazing activities off of the Monument completely and onto other land jurisdictions, which would have negligible to moderate impacts on cultural resources on those lands. Under Alternative D, the SRMA designated for the SDNM would be managed for an undeveloped style of recreation. No facilities and very little structure would

be employed under this regime. Increasing numbers of visitors are expected to use this area, but without proper direction and facilities. Impacts on the Monument objects and the cultural sites may be at a negligible to moderate level due to the lack of designated facilities designed to handle additional visitation. Trampling, vehicle travel off the routes and the accumulation of trash may be expected to impact sites. Since target shooting would be prohibited under this alternative, no effect to Monument objects or cultural resources would be anticipated. This was analyzed at an implementation level. Under Alternative D, a transportation planning scheme of the maximum number of routes would be closed or limited to use. This would have a protective effect on Monument objects and cultural resources within the SDNM. Seventeen sites were identified as either directly or indirectly impacted by the designation of these routes. This was analyzed at an implementation level. Mitigation measures would be used to reduce or minimize the impacts due to this activity which would bring the level of impact to minor to moderate. Closing such a high number of routes would have the effect of concentrating use on the remaining routes, and on lands outside of the SDNM. These other jurisdictions may experience additional route proliferation which would impact sites there to a minor to moderate level. Reducing access into some areas may have a minor protective effect.

Cumulative Impacts on Wildlife and Special Status Species

Current regional conditions and threats to special status species would be the same as described for Alternative A. The incremental effects of Alternative C would generally be the same as described for Alternative D except that it would establish specific goals, objectives, and management actions that support recovery efforts for known populations of special status species. Impacts on wildlife are expected to be negligible due to the level of protection prescribed in the proclamation. Overall, the long-term decline in native vegetation and special status species habitats due to land uses would continue at a slower rate than alternative C, under Alternative D within the SDNM and cumulatively the effects would range from negligible to moderate for wildlife species in general.

Cumulative Impacts on Visual Resources Management

Visual cumulative impacts from transportation and access would be negligible to minor, because motorized routes would be reduced in Alternative D. For the most part, visual impacts would be the same as Alternatives B and C with Alternative D having fewer impacts on Class II and considerably less in Class III than Alternative A.

Cumulative Impacts on Livestock Grazing

Cumulative impacts would be the same as those described under Alternative D for the Lower Sonoran.

Cumulative Impacts on Recreation

Opportunities to attain beneficial outcomes produced from recreation experiences would accrue to a minor degree greater than from implementation of Alternatives A, B, and C, principally due to management of the SDNM as a SRMA together with allocation of cultural sites for conservation for future use; having the least total mileage and percentage of routes available for motorized use; and having the highest VRM standards, which, in combination, would limit easy access to targeted recreation opportunities.

Cumulative Impacts on Travel Management

Cumulative impacts would be the same as those described under Alternative C for the SDNM, except that limiting vehicular travel to only licensed drivers with a prohibition on vehicles displaying OHV decal vehicles in the SDNM would cause additional competition for available areas outside SDNM. Recreation zoning in Alternative D would be the least vehicle use friendly, thus adding to the increase in impacts on vehicular use. Non-motorized recreation would be the best of any alternative. The sum of these actions and regional actions creates a major impact on the travel management.

4.25.7 ALTERNATIVE E (PROPOSED RMP)

4.25.7.1 Both Decision Areas

Cumulative Impacts on Wilderness Characteristics

Cumulative impacts on wilderness characteristics would be similar to Alternative C. Alternative E has considerable land use designations and protective prescriptions supportive of maintaining wilderness characteristics. This is true both in lands managed and not managed to maintain wilderness characteristics.

Cumulative Impacts on Lands and Realty

Cumulative impacts under Alternative E would be similar to those described under Alternative C, with the exception that the cumulative impacts for the SDNM would be similar to Alternative D.

Cumulative Impacts on Socioeconomics

Impacts from growth and development are anticipated to be the same as Alternative A. Under this Alternative, 39,600 acres of land would be available for disposal by sale or exchange, which is 47 percent greater than land available in Alternative A. Since the disposition of BLM-managed public lands is not expected to be a major growth inducing action, this alternative would have no measurable cumulative impact on growth and development.

4.25.7.2 Lower Sonoran

Cumulative Impacts on Cultural and Heritage Resources

Cumulative impacts on cultural resources under Alternative E are similar to those under the Common to All, with the following exceptions. The Transportation planning and Minerals activities would have effects similar to Alternative C. Land Use Authorizations would have a more protective effect on cultural resources than Alternative C, because additional avoidance and exclusions would apply for the ACEC areas. Recreation would have an effect somewhere between Alternative B and C. Recreational opportunities would be offered across the Decision Area, which would draw some visitors from other areas especially in the winter seasons.

Cumulative Impacts on Wildlife and Special Status Species

Current regional conditions and threats to special status species would be the same as described for Alternative A, C and D. However alternative E provides a balance through multiple uses and incorporates a better approach to manage key ecosystems and special status species habitats while providing opportunities for resource uses that meet social and economic needs. The Gila Bend Mountains WHA (255,000 acres) would provide for a large intact area of habitat that would begin at the Gila River Corridor and extend west all the way to US Highway 95 and south from I-10 to I-8. This large area of mostly intact habitat and vegetation would decrease the overall effects of habitat fragmentation and curtailment on special status species. Alternative E would also incorporate approximately 227,000 acres of mixed ownership as wildlife movement corridors, and approximately 250,000 acres as ACES, similar to those in Alternative D. Overall, the long-term incremental effects of Alternative E would be similar in nature to those described for Alternative C and D; however, the decline of special status species habitats would be slowed to the greatest extent of the Alternatives. Cumulatively effects would range from negligible to moderate for wildlife species in general.

Cumulative Impacts on Visual Resources Management

It is expected that development impacts, recreation management, and transportation and access would be similar to Alternative C. The LSFO would have negligible to minor impacts on Classes I and III in comparison to Alternative A and potentially major impacts on Class II landscapes.

Impacts on Class IV would be similar to Alternatives A and B, but less beneficial effects compared with Alternatives C and D.

Cumulative Impacts on Livestock Grazing

Cumulative impacts would be the same as those described under Alternative C for the Lower Sonoran.

Cumulative Impacts on Recreation

Cumulative impacts would be the same as those described under Alternative C for the Lower Sonoran.

Cumulative Impacts on Travel Management

Cumulative effects from the preferred alternative would be most similar to Alternative C. A moderate level of cumulative impact would be expected. Some of BLM's actions would help to offset the loss of physical access by designating routes and making a commitment to acquire access, thus stopping the slow loss of access. Furthermore, creating an Open use area near Ajo would satisfy local OHV enthusiasts, possibly reducing their concerns over losing route mileage. Route modeling in Alternative C preserves access to most destinations, cutting off access on spur routes, reclaiming routes and some short cut or redundant routes. Allocation of Areas Managed to Maintain Wilderness Characteristics would be in locations that would have minor effects on the existing route system and thus unlikely to affect future designated routes more than minorly. Desert Tortoise is on the Candidate Species list for becoming a threatened and endangered species. Tortoise's effect on a designated route system is difficult to predict, however, its listing would likely cause the designation of large OHV closed areas in Category

I areas, which have lower road densities today. Considering these impacts on travel management and the route system, cumulative impacts would be expected to be moderate.

4.25.7.3 Sonoran Desert National Monument

Cumulative Impacts on Cultural and Heritage Resources

Cumulative impacts would be the same as those listed in the Common to All section, with the following exceptions. Under Alternative E, Land Use Authorizations impact would be the same as those under D for utility corridors. Under Alternative E, grazing would see a reduction in preference and reduced use levels, which would affect fewer sites overall. This would have a protective effect compared to Alternative A to a moderate level. Some grazing activities and use would be pushed onto neighboring land jurisdictions and would affect cultural resources at the same level of intensity. Recreation, under Alternative E would have the same effects as those under Alternative C. Since dispersed recreational target shooting throughout the Monument would continue, the impacts of target shooting under Alternative E would be the same as those described for Alternative A. However, if Management and Administrative Actions designed to change the conduct of recreational target shooters has the desired effect, impacts from recreational target shooting should be greatly decreased. Under Alternative E, transportation planning effects on Monument objects and cultural resources would be similar to those under Alternative C.

Cumulative Impacts on Wildlife and Special Status Species

Current regional conditions and threats to special status species would be the same as described for Alternative A, C and D. However alternative E provides a balance through multiple uses and incorporates a better approach to manage key ecosystems and special status species habitats while providing opportunities for resource uses that meet social and economic needs. Overall, the long-term decline in native vegetation and special status species habitats due to land uses would continue at a slower rate than either alternative C or D under Alternative E within the SDNM and cumulatively the effects would range from negligible to minor for wildlife species in general.

Cumulative Impacts on Visual Resources Management

Transportation and access impacts are expected to be similar to Alternative C. SDNM would have negligible to minor impacts on Classes I in Alternatives C, B and D, and fewer impacts on Class II landscapes than Alternatives A and B, however, more impacts than C and D. Impacts on visual resources would be considerably less than Alternative A in Class III landscapes. Impacts on Class IV would be the same as in Alternatives B, C and D.

Cumulative Impacts on Livestock Grazing

The Beloat and the Conley Allotments would experience the greatest cumulative impacts, which would be slightly different under all other alternatives, but would nevertheless affect the forage, water, and space, which would eventually impact the sustainability of livestock grazing on these two allotments. For example, the Big Horn Allotment has already seen all areas south of I-8 closed to livestock grazing per the Proclamation when the grazing permit expired in 2008. Further, Alternative E proposes to make the Conley Allotment within the SDNM boundaries unavailable to livestock grazing. This could make the use

of the fragmented parcels outside the Monument boundary difficult to manage. Additionally, Alternatives B, C, and E propose to remove even more land from livestock use. Water sources within each of the proposed exclosures would have to be relocated outside the fenced areas and cattle would have to be monitored closely until they become accustomed to the new changes. Recreation and public use of the Bighorn and Conley Allotments could remove additional lands and forage, and place more restrictions on water developments. These combined impacts could make livestock grazing on the entire allotments unmanageable and cost-prohibitive.

Cumulative Impacts on Recreation

Cumulative impacts would be the same as those described under Alternative C for the SDNM.

Cumulative Impacts on Travel Management

Impacts would be the same as those described under Alternative E for the Lower Sonoran.

4.26 IMPLEMENTATION-LEVEL ANALYSIS

4.26.1 METHODOLOGY FOR ANALYZING IMPLEMENTATION-LEVEL DECISIONS WITHIN THE SDNM

Activity-level decisions proposed for implementation in tandem with the development of the Lower Sonoran and SDNM RMP include:

- Designation of routes in the SDNM that are approved for motorized and nonmotorized public use; and
- AUM levels for administering livestock grazing in the SDNM based on the findings from the grazing compatibility analysis (which can be found in **Appendix E**, Compatibility Analysis: Livestock Grazing on the Sonoran Desert National Monument).

Because all implementation and activity-level decisions take place only within the SDNM Decision Area, only program areas that are responsible for managing Monument objects (refer to **Appendix A**, Sonoran Desert National Monument Presidential Proclamation) have analyzed these decisions in detail. Program areas that manage these objects include cultural and heritage resources (**Table 4-25**, Impacts from Implementation-Level Decisions on Wildlife and Special Status Species Monument Objects), Wildlife and Special Status Species (**Table 4-25**, Impacts from Implementation-Level Decisions on Wildlife and Special Status Species Monument Objects), and vegetation resources (**Table 4-26**, Impacts from Implementation-Level Decisions on Vegetation Monument Objects). Special designations also manage a Monument object (i.e. the Juan Bautista de Anza NHT); however, impacts on the Anza NHT are discussed with the cultural and heritage Monument objects in **Table 4-25**, Impacts from Implementation-Level Decisions on Wildlife and Special Status Species Monument Objects.

Impacts are quantified to the extent practical with available data. Qualitative terms have been established to indicate the level of intensity an impact would have on a resource. These intensities range from negligible to major. The three program areas that manage Monument objects have further defined these terms specific to their program area, and in some cases have outlined particular thresholds. These

definitions can be found in the beginning of each program area's general RMP impacts analysis, while the general definitions can be found in **Section 4.1.6**, Reasonably Foreseeable Development Scenarios.

4.26.1.1 Route Designations

To assist in analyzing impacts related to designating route systems within the SDNM, the Monument was divided into 18 site-specific sample areas. These sample areas were identified by the BLM travel specialists as areas where there are known travel issues and public use concerns (for a more general descriptions of each of these site-specific sample areas, refer to **Table S.1**, Description of SDNM Site-Specific Sample Areas in **Appendix S**, Route Evaluation Methodology & Impact Analysis and the detailed, large-scale SDNM Route Designations map included on the CD version of the RMP). Each resource specialist selected sample areas that were representative of the related objects their program area managed, then gathered resource data and analyzed impacts from the designation of individual routes as opened, closed, and limited within those sample areas.

4.26.1.2 Livestock Grazing

Implementation-level analysis of impacts related to livestock grazing within the Monument was conducted at the allotment level (refer to Maps 2-8a, 2–8b, 2–8c, 2–8d and 2–8e for allotments within the Monument). The cultural, special status species (wildlife), and vegetation specialist gathered resource data at the allotment level, then analyzed impacts that would take place within those allotments from the actions presented by each individual alternative.

4.26.2 IMPLEMENTATION-LEVEL ANALYSIS FOR CULTURAL & HISTORIC SITES MONUMENT OBJECTS

Impacts from implementation-level decisions on cultural and historical sites Monument objects are presented below in **Table 4-24**, Impacts from Implementation-Level Decisions on Cultural and Historical Sites/Monument Object).

Table 4-24
Impacts from Implementation-Level Decisions on Cultural and Historical Sites Monument Objects

SDNM Monument Objects Managed by Cultural Archeological and Historical Sites
Impact Indicators
Number of disturbed or damaged Archeological and Historical Sites: rock art sites, lithic quarries, scattered artifacts, large villages, permanent habitat sites, acres within the Juan Bautista de Anza NHT, Mormon Battalion Trail, and Butterfield Overland Stage Route. Damages to sites include: • Damage to the arrangement or structure of features; • Artifacts broken, missing, or rearranged; • Site or historic trail elements re-arranged; • Subsurface cultural and historic deposits re-arranged; • Evidence of trampling that has disturbed deposits or accelerated processes of erosion at archaeological sites or on historic trail attributes; • Loss of archaeological context and associated opportunities for scientific research; • Damage to historic sense of a particular period of time or feeling of the prehistoric site, the historic

Table 4-24
Impacts from Implementation-Level Decisions on Cultural and Historical Sites Monument Objects

trail, or associated site's context;

- Changes to the historic setting, to the level that the prehistoric site, the historic trail(s), and associated site values are diminished.

SDNM Archeological and Historical Sites

	Number of Known Sites				
	Alt. A	Alt. B	Alt. C	Alt. D	Alt. E
Area Analyzed	Sites within or near Open Routes				
Area 1 &2	4 (3*)	4 (3*)	4 (3*)	4 (3*)	4 (3*)
Area 4	2 (1*)	2 (1*)	1 (1*)	0	1 (1*)
Area 7	28 (7*)	28 (7*)	28 (7*)	6(6*)	28 (7*)
Area 8	3 (1*)	3 (1*)	3 (1*)	3 (1*)	3 (1*)
Area 9	4 (2*)	4 (2*)	4 (2*)	3 (2*)	3 (2*)
Area 10	5 (5*)	4 (5*)	3 (5*)	1 (5*)	4 (5*)
* Sites appear to have the characteristics to make them eligible for the NRHP.					
Allotment Analyzed	Sites within Open and Available Acres for Livestock Grazing				
Arnold	0	0	0	0	0
Beloat	5 (2*)	5 (2*)	5 (2*)	0	5 (2*)
Bighorn	9 (9*)	9 (9*)	6 (6*)	0	9 (9*)
Conley	21 (9*)	20 (9*)	20 (9*)	0	0
Hazen	4 (5*)	4 (5*)	5 (5*)	0	4 (5*)
Lower Vekol	4 (3*)	4 (3*)	4 (3*)	0	4 (3*)

Assumptions

- The Area of Potential Effect (APE) on the SDNM for travel management impacts on cultural and heritage resources and the Monument objects managed by this program as listed above are 0.25 mile on either side of all routes.
- No changes in route designations within wilderness areas preclude any effects to cultural resources and Monument objects.
- There is a higher probability that cultural resources are present within or near river corridors, spring locations, historic trails, and high-quality arable land with access to water
- Measures that withdraw land, restrict surface development, or reduce or eliminate heavy concentrations of livestock to protect resources provide direct and indirect protection of historic trail and associated cultural resources from disturbance and from incompatible and unauthorized activities.
- Natural processes such as erosion or weathering degrade the integrity of many types of historic trail and cultural resources over time. Human visitation, recreation, OHV use, livestock grazing, fire and non-fire vegetation treatments, and other activities can increase the rate of deterioration through natural processes. While the effect of a few incidents may be negligible, the effect of repeated actions or visits over time would intensify impacts.
- Vandalism or unauthorized collecting would continue to destroy historic trails and associated cultural resources. Exposure or access to areas where these resources are present would increase the risk of vandalism or unauthorized collection of artifacts.
- Surface disturbing activities can vary in nature and include mechanical/vehicular, livestock/wildlife, and human - caused. Ground-disturbing activities from mechanical/vehicular means are assumed to have the potential to

Table 4-24
Impacts from Implementation-Level Decisions on Cultural and Historical Sites Monument Objects

impact cultural resources by damaging features, crushing or compacting subterranean features, rearranging features, pushing soils to remove or excavate the original surface, and disturbing the contextual arrangement of features and artifacts. Ground-disturbing activities from wildlife and livestock can occur when an animal burrows or wallows in soft soils and damages features. Other animal activities can disturb original subsurface cultural soil horizons, crush or compact surface artifacts, and rearrange the context of artifacts and features. Human ground disturbance can occur from fire contamination, trampling, digging, vandalism, and unauthorized collection. Little of the Area has been inventoried for cultural resources, and there is no predictive modeling or sensitivity mapping available to estimate or quantify resource density. The potential exists for cultural resources on most of the Area, but the presence and significance of resources and impacts cannot be quantified. Most of the length of the Anza NHT has not been inventoried for associated cultural resources.

- Site monitoring, non-project-related inventories, interpretive development, site stabilization and other proactive management activities would continue.
- Inventory data is legacy data, collected over the course of 34 years.

Impacts on Cultural, Archeological and Historic Sites Monument Objects from SDNM Route Designations

Alternative A (No Action)

Alternative A (No Action) SDNM Route Designation Action

- No routes would be formally designated under Alternative A; therefore, the existing routes would remain open.

SDNM Route Designations

	Roads			Primitive Roads			Trails		
Area Analyzed	Open	Admin Only	Closed	Open	Admin Only	Closed	Open	Admin Only	Closed
Area 1 & 2	-	-	-	12.5	-	-	-	-	-
Area 4	-	-	-	11.8	-	-	-	-	-
Area 7	-	-	-	12.8	-	5.2	-	-	-
Area 8	-	-	-	0.3	-	-	-	-	-
Area 9	-	-	-	13.7	-	-	-	-	-
Area 10	-	-	-	14.9	-	-	-	-	-

Site-Specific Area (Refer to Map 4-1)	**BLM Routes in Site Specific Area (maps only available on CD version of DLUP – EIS)**	**Impact Analysis from Alternative A (No Action) SDNM Route Designation Actions**
Areas 1 & 2	8002, 8003, 8003A, 5005, 8005A, 8005B, 8005C, 8005D	There are four known cultural sites in these areas; three have the characteristics to be eligible for the NRHP. Use along the routes in these areas has been heavy, and high vehicle speeds are common, creating gouges, high-cut bank berms, and additional route deviations. Recent trail restorations have addressed these issues while in the temporary closure. If current

Table 4-24
Impacts from Implementation-Level Decisions on Cultural and Historical Sites Monument Objects

		condition means a return to the former management regime before the closure, routes would increase in high volume; vehicle damage would expand beyond route berms and edges, leading to erosion, encroachment, and route deviations, thus increasing the possibility of cultural sites being trampled, disturbed, and displaced. The likelihood of sites losing their integrity would be high. Impacts would be moderate.
Area 4	8000, 8000A, 8000B, 8000C, 8000D, 8000E, 8000F, 8000G, 8000I, 8000K, 8000L, 8000M, 8000N, 8000O, 8000P, 8000Q, 8000R, 8000S, 8000T, 8000U, 8000X, 8000Y, 8001, 8001F, 8001G, 8002, 8002G, 8002H, 8005, 8005D, 8005E, 8005H, 8005I	There are two known cultural sites in this area, but only one site has the characteristics to be eligible for the NRHP. The two sites have been impacted indirectly by the proliferation of additional routes created by the public, which has led to unauthorized camping, trash accumulation, and unauthorized collection of artifacts. If this route management scheme were to continue, impacts would be similar to those described under Areas 1 and 2 in Alternative A, and impacts would be moderate.
Area 7	8008, 8008B, 8008D, 8008E, 8008F, 8008H, 8008I, 8009F, 8011, 8026, 8026B	There are 28 known cultural sites in this area, and seven sites have the characteristics to be eligible for the NRHP. The routes in this area are maintained at a primitive level. The 5.2 miles of parallel routes are primarily in washes and receive extremely low levels of traffic. Closure of these routes, and keeping 12.8 miles of low-use routes open in this area, would have a negligible effect on these sites and Monument objects. These routes offer access into otherwise remote areas, slightly increasing threats to these along the routes. Under Alternative A, negligible impacts on the approximately 17 known cultural sites that lie within a ¼ mile of the route would be anticipated.
Area 8	8011	There are three known cultural sites in this area, one of which, the Big Horn Station historic site, has characteristics to be eligible for the NRHP. The area has low visitor use due to the lack of safe legal access; however, new illegal routes inevitably would be created as interest in the site increases. Currently, there is a lack of safe legal access off of I-8, so the public cannot legally access the Big Horn Station historic site or other places within this portion of the SDNM. Impacts are anticipated to

Table 4-24
Impacts from Implementation-Level Decisions on Cultural and Historical Sites Monument Objects

		range from negligible to moderate, as illegal route usage could increase in high volume, vehicle damage would expand beyond route berms and edges, leading to erosion, encroachment, and route deviations, thus increasing the possibility of cultural sites being trampled, disturbed, and displaced.
Area 9	8007, 8007A, 8007B, 8007C, 8007D, 8007F, 8007K, 8008, 8009F, 8010, 8026, 8043, 8044, 8045, 8046	There are five known cultural sites in this area, two of which have the characteristics to be eligible for the NRHP. Sites within this area have been impacted from past route use and maintenance, cutting into the site and disturbing a small portion of the substrate. Sites still retain some integrity. Vekol Road is maintained at a class 3 level of maintenance. The existing route in Area 9 is high volume, so all route improvements would lead to higher speeds, which may increase the chances of vehicle encroachment onto sites. When route maintenance is done and when speeds increase, it would lead to soils thrown up onto adjacent site features, leading to an increase in erosion on sites. This would occur at a minor to moderate level of intensity and have a possibility of affecting the four known sites within ¼ mile of these routes. Impacts overall would be moderate.
Area 10	8008F, 8009C, 8009E, 8011A, 8011C, 8011D, 8011F, 8011G, 8015, 8015A, 8015B, 8015C	There are five known cultural sites in this area, all of which have the characteristics to be eligible for the NRHP. The routes within this area are maintained at a primitive level. The cultural sites within this area have been impacted from past route use; however, all of the sites retain their integrity. The routes in this area offer access into remote areas, increasing the threats of vandalism and unauthorized collection for the five known sites within ¼ mile of each of the routes. While threats exist, a negligible level of effect is expected.

Alternative B

Alternative B SDNM Route Designation Actions

- Approximately 24.2 miles of road and 494.4 miles of primitive road would be open to motorized vehicles. An additional 4.2 miles of road would be constructed and opened to motorized vehicles.
- Approximately 37 miles of trail would be allocated as open to nonmotorized and non-mechanical vehicles.

SDNM Route Designations

	Roads			Primitive Roads			Trails		
Area Analyzed	Open	Admin Only	Closed	Open	Admin Only	Closed	Open	Admin Only	Closed
Area 1 & 2	0.2	-	-	9.1 (1.9*)	-	1.4	-	-	-
Area 4	1.2	-	-	10.4	-	0.2	-	-	-
Area 7	-	-	-	13.5 (0.4**)	-	4.1	-	-	-

Table 4-24
Impacts from Implementation-Level Decisions on Cultural and Historical Sites Monument Objects

Area 8	-	-	-	0.3	-	-	-	-	-
Area 9	6.4	-	-	7.4	-	-	-	-	-
Area 10	-	-	-	9.8 (1.5**)	-	3.5	-	-	-

*Open to nonmotorized use only**Limited to 50 feet

Site Specific Area (Refer to Map 4-1)	**BLM Routes in Site Specific Area (maps only available on CD version of DLUP – EIS)**	**Impact Analysis from Alternative B SDNM Route Designation Actions**
Areas 1 & 2	8002, 8003, 8003A, 5005, 8005A, 8005B, 8005C, 8005D	Impacts would be similar to Alternative A, except, within Alternative B, usage on 9.1 miles of route would change to primitive, nonmotorized. This would have a more protective effect on this segment than Alternative A. Diverting traffic off the two nonmotorized route segments would lead to slowing the speed of traffic. This would have a protective effect on the features and Monument objects within ¼ mile of these routes. Impacts would be negligible.
Area 4	8000, 8000A, 8000B, 8000C, 8000D, 8000E, 8000F, 8000G, 8000I, 8000K, 8000L, 8000M, 8000N, 8000O, 8000P, 8000Q, 8000R, 8000S, 8000T, 8000U, 8000X, 8000Y, 8001, 8001F, 8001G, 8002, 8002G, 8002H, 8005, 8005D, 8005E, 8005H, 8005I	Impacts would be similar to those described in Area 4 under Alternative A, except 0.2 miles of access routes off of the pipeline route would be closed. This would reduce the visitation to the eligible cultural site in this area, thus leading to a minimization of impacts compared to Alternative A and decreasing the impacts to a negligible intensity.
Area 7	8008, 8008B, 8008D, 8008E, 8008F, 8008H, 8008I, 8009F, 8011, 8026, 8026B	Impacts within Areas 7 would be the same as those described under Alterative A.
Area 8	8011	The Bighorn Station historic site lies within this area. It is proposed that this site would be allocated to public use for the

Table 4-24
Impacts from Implementation-Level Decisions on Cultural and Historical Sites Monument Objects

		purpose of developing an interpretive area. This area lies in a zone where a new access route is proposed. This access route would address the problem of a lack of safe legal access off of I-8, so that the public could access the Big Horn Station historic site and other places within this portion of the SDNM. This new route would be designed to minimize impacts on undiscovered cultural resources that may lie in the area. It is anticipated that there would be a negligible level of impacts. The Big Horn Station historic site currently has low visitor usage due to the lack of safe legal access. The addition of the new route connecting a freeway exit to the site may have the effect of increasing public visitation to the site to a minor level of intensity. Design of the site's interpretive facilities would be done in a way that would minimize impacts anticipated by this change. The installation of the interpretive facilities would be contingent upon the development of safe, legal access.
Area 9	8007, 8007A, 8007B, 8007C, 8007D, 8007F, 8007K, 8008, 8009F, 8010, 8026, 8043, 8044, 8045, 8046	Impacts would be the same as those described under Alternative A for the Monument.
Area 10	8008F, 8009C, 8009E, 8011A, 8011C, 8011D, 8011F, 8011G, 8015, 8015A, 8015B, 8015C	One of the five cultural sites within ¼ mile of designated routes in this area lies on a route that would be open, so the impact for the open routes would be moderate. By reducing the volume and type of vehicles to limited usage and closed to all uses on 3.5 miles of the route, it is anticipated that impacts on the site values would be less than under Alternative A. This would be a minor level of effect. Under Alternative B, there would be an overall reduction in numbers of visitors into more remote portions of this area, leading to a decreasing threat of vandalism and trampling on the five known sites within ¼ mile of these routes. It is anticipated that effects to the site values would be less than under Alternative A. Impacts are anticipated to have a minor level of intensity.
Alternative C		
Alternative C SDNM Route Designation Actions		
• Approximately 24.2 miles of road and 358.1 miles of primitive road would be open to motorized vehicles. • Approximately 37 miles of trail would be allocated as open to nonmotorized and non-mechanical vehicles.		

Table 4-24
Impacts from Implementation-Level Decisions on Cultural and Historical Sites Monument Objects

SDNM Route Designations									
	Roads			Primitive Roads			Trails		
Area Analyzed	Open	Admin Only	Closed	Open	Admin Only	Closed	Open	Admin Only	Closed
Area 1 & 2	-	-	-	6.1 (4.9*)	-	1.4	-	-	-
Area 4	1.2	-	-	8.7	-	1.9	-	-	-
Area 7	-	-	-	11.5 (0.4^)	0.7	5.4	-	-	-
Area 8	-	-	-	0.3	-	-	-	-	-
Area 9	6.4	-	-	6.8	0.3	0.3	-	-	-
Area 10	-	-	-	5.3	-	9.6	-	-	-

*Open to nonmotorized use only, **Limited to 50 feet, ^ Seasonally Closed

Site Specific Area (Refer to Map 4-1)	**BLM Routes in Site Specific Area (maps only available on CD version of DLUP – EIS)**	**Impact Analysis from Alternative C SDNM Route Designation Actions**
Areas 1 & 2	8002, 8003, 8003A, 5005, 8005A, 8005B, 8005C, 8005D	Unlike Alternative A, the 6.1 miles of routes in Alternative C would be managed as primitive, nonmotorized routes. This would eliminate vehicle use on these routes and therefore have a more protective effect on this segment than Alternative A because use would be restricted to hiking and equestrian use. North-south routes would become access to trail heads (rt. 3002, 3022, and 3027) would require designated parking areas and staging areas at the end of each access route for nonmotorized users to access the trail as hikers and equestrians. Adopting this alternative would have effect of increasing traffic on 3003, 3063, 3100, 3109, 3062, and 3002 routes, so that a loop could be driven. There may be some increased vehicle use along the 6.1 miles of open routes due to the removal of the east end of the trail from motorized use. Additional unknown sites within ¼ mile of these routes would be subject to fewer threats than under Alternative A from trampling and vehicle encroachment. Impacts are anticipated to be minor.
Area 4	8000, 8000A, 8000B, 8000C, 8000D, 8000E, 8000F, 8000G, 8000I, 8000K, 8000L, 8000M, 8000N, 8000O, 8000P, 8000Q, 8000R, 8000S, 8000T, 8000U,	Impacts would be similar to those in Alternative A for Area 4, except that all but one access route off the pipeline route would be closed. This would reduce visitation to the eligible cultural site, leading to a greater reduction of impacts on the site, thus leading to a minimization of impacts compared to Alternative A and decreasing the impacts to a negligible intensity.

Table 4-24
Impacts from Implementation-Level Decisions on Cultural and Historical Sites Monument Objects

	8000X, 8000Y, 8001, 8001F, 8001G, 8002, 8002G, 8002H, 8005, 8005D, 8005E, 8005H, 8005I	
Area 7	8008, 8008B, 8008D, 8008E, 8008F, 8008H, 8008I, 8009F, 8011, 8026, 8026B	Impacts within Area 7 would be the same as those described under Alterative A.
Area 8	8011	Impacts would be similar to those discussed under Alternative A.
Area 9	8007, 8007A, 8007B, 8007C, 8007D, 8007F, 8007K, 8008, 8009F, 8010, 8026, 8043, 8044, 8045, 8046	Impacts would be the same as those described under Alternative A for the Monument.
Area 10	8008F, 8009C, 8009E, 8011A, 8011C, 8011D, 8011F, 8011G, 8015, 8015A, 8015B, 8015C	Unlike Alternative A, 9.6 miles of route would be "closed to all uses" under this alternative. This would have a more protective effect than Alternative A by eliminating vehicle use on the routes and encroachment onto the sites over the long term. Further human visitation and the threat of vandalism would be curbed due to the distance to any open routes. The elimination of several long segments of route into the middle of this remote area would eliminate vehicle access and reduce visitation considerably more than under Alternative A. This would lead to the elimination of vehicle encroachment and the reduction of vandalism and unauthorized collection on five known sites that exist along the ¼ mile wide area on either side of the routes. The open routes would have impacts similar to Alternative A. Overall impacts would be decreased to minor intensities from Alternative A.
Alternative D		
Alternative D SDNM Route Designation Actions		
• Approximately 24.2 miles of road and 200 miles of primitive road would be open to motorized vehicles. Approximately 37 miles of trail would be allocated as open to nonmotorized and non-mechanical vehicles.		

Table 4-24
Impacts from Implementation-Level Decisions on Cultural and Historical Sites Monument Objects

SDNM Route Designations									
	Roads			Primitive Roads			Trails		
Area Analyzed	Open	Admin Only	Closed	Open	Admin Only	Closed	Open	Admin Only	Closed
Area 1 & 2	0.2	-	-	1 (8.4*)	-	1.6	-	-	-
Area 4	1.2	-	-	5.6	1.0	4.0	-	-	-
Area 7	-	-	-	(0.8**)	-	17.2	-	-	-
Area 8	-	-	-	0.3	-	-	-	-	-
Area 9	6.4	-	-	6.5	-	0.9	-	-	-
Area 10	-	-	-	-	1.3	13.5	-	-	-

*Open to nonmotorized use only, **Limited to 50 feet, ^ Seasonally Closed

Site Specific Area (Refer to Map 4-1)	**BLM Routes in Site Specific Area (maps only available on CD version of DLUP – EIS)**	**Impact Analysis from Alternative D SDNM Route Designation Actions**
Areas 1 & 2	8002, 8003, 8003A, 5005, 8005A, 8005B, 8005C, 8005D	Unlike Alternative A, most of the route segments in these areas would be managed as primitive, nonmotorized routes or for administrative use only. This would eliminate vehicle use on the closed routes and limit use on the administrative-use segment. This would have a more protective effect on this segment than under Alternative A because use would be restricted to hiking and equestrian use. More miles of the historic trail (the Juan Bautista de Anza NHT) would be managed as primitive routes than under the other alternatives. This comports well with the intent of the Juan Bautista de Anza NHT Comprehensive Management Plan. One segment would be managed as an "administrative use only." This designation would limit vehicle use to a negligible level of intensity. The designation of several long segments of route to nonmotorized use in this area would eliminate vehicle access and reduce visitation considerably more than under Alternative A. This would lead to the elimination of vehicle damage and encroachment on the unknown sites that may exist along the ¼ mile wide area on either side of the routes. Also, the designation of this alternative would lead to the development of designated parking and camping areas at each point where access routes intersect the nonmotorized sections of the historic trail in this area. Impacts would be decreased to negligible to minor intensities from Alternative A.
Area 4	8000, 8000A, 8000B, 8000C,	Impacts would be negligible, as all of the access routes off the pipeline road would be closed.

Table 4-24
Impacts from Implementation-Level Decisions on Cultural and Historical Sites Monument Objects

	8000D, 8000E, 8000F, 8000G, 8000I, 8000K, 8000L, 8000M, 8000N, 8000O, 8000P, 8000Q, 8000R, 8000S, 8000T, 8000U, 8000X, 8000Y, 8001, 8001F, 8001G, 8002, 8002G, 8002H, 8005, 8005D, 8005E, 8005H, 8005I	
Area 7	8008, 8008B, 8008D, 8008E, 8008F, 8008H, 8008I, 8009F, 8011, 8026, 8026B	Closure of 95% of the routes in this remote area would have a more protective effect than under Alternative A on 28 known sites that lie within ¼ mile of the routes. Eliminating vehicle use would nearly eliminate visitation to all of the sites except those in proximity to other open routes. Vehicle damage, encroachment, and threats from unauthorized collection would be reduced or eliminated. Impacts would be decreased to minor intensities.
Area 8	8011	Impacts would be similar to those discussed under Alternative A.
Area 9	8007, 8007A, 8007B, 8007C, 8007D, 8007F, 8007K, 8008, 8009F, 8010, 8026, 8043, 8044, 8045, 8046	Impacts would be the same as those described under Alternative A for the Monument; however, under Alternative D, feeder routes from the south, i.e. 6095 and 6010, would be closed. This would have the effect of reducing the volume of use on the northern and middle portions of route 6001. Under Alternative D, the volume would be reduced, which would lead to fewer vehicle incursions into the area within ¼ mile of the routes. This offers slightly more protection than that offered under Alternative A, which would have a minor level of intensity.
Area 10	8008F, 8009C, 8009E, 8011A, 8011C, 8011D, 8011F, 8011G, 8015, 8015A, 8015B, 8015C	In Alternative D, all but 1.3 mile of the 14.9 miles of route would be "closed to all uses." This would have a more protective effect than under Alternative A by eliminating vehicle use on the roads and encroachment onto the sites over the long term. In addition, visitation would be greatly reduced to all five sites in the ¼ mile area on either side of these routes because access would be on foot. Lower visitation would lead to fewer threats of vandalism, unauthorized collection, and vehicle encroachment. This would offer far more protective

Table 4-24
Impacts from Implementation-Level Decisions on Cultural and Historical Sites Monument Objects

		management than under Alternative A, therefore impact intensities would be decreased to minor.

Alternative E (Proposed RMP)

Alternative E (Preferred Alternative) SDNM Route Designation Actions

- Approximately 24.2 miles of road and 331 miles of primitive road would be open to motorized vehicles. Approximately 37 miles of trail would be allocated as open to nonmotorized and non-mechanical vehicles.

SDNM Route Designations

	Roads			Primitive Roads			Trails		
Area Analyzed	Open	Admin Only	Closed	Open	Admin Only	Closed	Open	Admin Only	Closed
Area 1 & 2	0.2	-	-	6.1 (6*)	-	0.3	-	-	-
Area 4	1.2	-	-	10.6	-	-	-	-	-
Area 7	-	-	-	11.7	-	6.2	-	-	-
Area 8	-	-	-	0.3	-	-	-	-	-
Area 9	6.4	-	-	6.9	-	0.5	-	-	-
Area 10	-	-	-	10.3	-	4.6	-	-	-

*Open to nonmotorized use only, **Limited to 50 feet, ^ Seasonally Closed

Site Specific Area (Refer to Map 4-1)	**BLM Routes in Site Specific Area (maps only available on CD version of DLUP – EIS)**	**Impact Analysis from Alternative E (Preferred Alternative) SDNM Route Designation Actions**
Areas 1 & 2	8002, 8003, 8003A, 5005, 8005A, 8005B, 8005C, 8005D	Impacts would be the same as those described in Alternative C for these areas.
Area 4	8000, 8000A, 8000B, 8000C, 8000D, 8000E, 8000F, 8000G, 8000I, 8000K, 8000L, 8000M, 8000N, 8000O, 8000P, 8000Q, 8000R, 8000S, 8000T, 8000U, 8000X, 8000Y, 8001, 8001F, 8001G, 8002, 8002G, 8002H, 8005, 8005D,	Impacts would be the same as those described under Alternative C for Area 4.

Table 4-24
Impacts from Implementation-Level Decisions on Cultural and Historical Sites Monument Objects

	8005E, 8005H, 8005I	
Area 7	8008, 8008B, 8008D, 8008E, 8008F, 8008H, 8008I, 8009F, 8011, 8026, 8026B	Impacts would be the same as those described under Alternative A for Area 7.
Area 8	8011	Impacts would be the same as those described in Alternative B for Area 8.
Area 9	8007, 8007A, 8007B, 8007C, 8007D, 8007F, 8007K, 8008, 8009F, 8010, 8026, 8043, 8044, 8045, 8046	Impacts would be the same as those described in Alternative A for Area 9.
Area 10	8008F, 8009C, 8009E, 8011A, 8011C, 8011D, 8011F, 8011G, 8015, 8015A, 8015B, 8015C	Impacts would be the same as those described in Alternative B for Area 10.

Impacts on Cultural and Heritage Monument Objects from SDNM Livestock Grazing

Alternative A (No Action)

Alternative A (No Action) SDNM Livestock Grazing Action

Allotment	Proposed Permitted Livestock Grazing Animal Unit Months (AUMs)
Arnold	0
Beloat	776
Bighorn	2,812
Conley	3,403
Hazen	886
Lower Vekol	826

Site Specific Area (Refer to Map 4-1)	**Impact Analysis from Alternative A (No Action) SDNM Livestock Grazing Actions**
Arnold Allotment	No sites have been recorded or inventoried within this allotment on the SDNM; therefore, there are no known direct or indirect impacts.

Table 4-24
Impacts from Implementation-Level Decisions on Cultural and Historical Site Monument Objects

Beloat Allotment	One of the two cultural sites within the allotment lies in an area along a densely vegetated wash with soft soils. It is likely that livestock would congregate more in an area like this and would threaten the physical integrity of the site by disturbing the artifacts through crushing and some displacement. Livestock congregating in the wash also may cut down the banks and reduce soil retaining vegetation, which could lead to erosion near the site. Site features and physical integrity may be disturbed or damaged by the ensuing erosion. Impacts are anticipated to be negligible to the upland cultural site and potentially moderate to the site in the wash.
Bighorn Allotment	Four of the nine cultural sites within this allotment exist along densely vegetated washes or near an earthen livestock tank where livestock typically congregate. These four sites would experience the same impacts as those described for the Beloat Allotment under Alternative A above. Impacts are anticipated to be negligible for the five cultural sites in the uplands, and potentially moderate for the sites in the washes.
Conley Allotment	One of the ten cultural sites within the allotment lies along a densely vegetated wash with soft soils. This site and any of the other nine sites that may lie along the densely vegetated washes or near an earthen livestock tank would experience the same impacts as those described for the Beloat Allotment under Alternative A. Impacts are anticipated to be negligible to moderate, depending on the location of each site.
Hazen Allotment	None of the five cultural sites within this allotment exist along densely vegetated washes, or near an earthen livestock tank where livestock typically congregate, therefore, impacts would be negligible.
Lower Vekol Allotment	None of the three cultural sites within this allotment exist along densely vegetated washes or near an earthen livestock tank where livestock typically congregate; therefore, impacts would be negligible.

Alternative B

Alternative B SDNM Livestock Grazing Action	
Allotment	Proposed Permitted Livestock Grazing Animal Unit Months (AUMs)
Arnold	0
Beloat	541
Bighorn	2,301
Conley	1,572
Hazen	531
Lower Vekol	646

Table 4-24
Impacts from Implementation-Level Decisions on Cultural and Historical Site Monument Objects

Site Specific Area (Refer to Map 4-1)	Impact Analysis from Alternative B SDNM Livestock Grazing Actions
Arnold Allotment	No sites have been recorded or inventoried within this allotment on the SDNM; therefore, there are no known direct or indirect impacts.
Beloat Allotment	Impacts are anticipated to be the same as those described under Alternative A for the Beloat Allotment, but to a lesser degree, as AUMs would decrease by 235. Impacts are expected to decrease to negligible to minor intensities.
Bighorn Allotment	Impacts are anticipated to be the same as those described under Alternative A for the Bighorn Allotment, but to a much lesser degree, as AUMs would decrease by 781 and 56,341 acres would become unavailable to livestock (these numbers include areas south of I-8, as well). Those objects of the Monument found to be incompatible with livestock grazing would be directly fenced off with approximately 14 miles of proposed fence line. . Additionally, the Happy Camp Public Use Site proposed under this alternative, may require fencing to prevent impacts from livestock. Cultural surveys would be conducted to ensure no cultural resources are impacted by the installation of the fence. Additionally, salt blocks and supplements would not be permitted within 1/4 mile of the Anza-Butterfield Trail to decrease impacts from livestock. Impacts from livestock on cultural resources are expected to decrease to minor intensities from Alternative A.
Conley Allotment	Impacts are anticipated to be the same as those described under Alternative A for the Conley Allotment, but to a much lesser degree, as AUMs would decrease by 1,831 and 6,010 acres would become unavailable to livestock. Those objects of the Monument found to be incompatible with livestock grazing would be directly fenced off with approximately 69 miles of fence line. Additionally, approximately 10 acres around North Tank would be fenced off to prevent further impacts from livestock. The Anza-Butterfield Interpretive Trail Area and the Christmas Camp Public Use Site proposed under Alternative B may need to be fenced to prevent impacts from livestock. Due to the decrease in permitted livestock and the fencing to prevent further impacts on cultural objects within certain parts of the Monument, Cultural surveys would be conducted to ensure no cultural resources are impacted by the installation of any proposed fences. impacts are expected to decrease to minor intensities from Alternative A.
Hazen Allotment	Impacts are anticipated to be the same as those described under Alternative A for the Hazen Allotment, but to a much lesser degree, as AUMs would be cut in half (531 AUMs). Impacts are expected to decrease to negligible to minor intensities.
Lower Vekol Allotment	Impacts are anticipated to be the same as those described under Alternative A for the Lower Vekol Allotment, but to a much lesser degree, as AUMs would decrease by 180 and 54 acres would be removed from livestock use. Impacts are expected to decrease to negligible to minor intensities.

Table 4-24
Impacts from Implementation-Level Decisions on Cultural and Historical Site Monument Objects

Alternative C	
Alternative C SDNM Livestock Grazing Action	
Allotment	Proposed Permitted Livestock Grazing Animal Unit Months (AUMs)
Arnold	0
Beloat	936
Bighorn	2,278
Conley	2,212
Hazen	873
Lower Vekol	793

Site Specific Area (Refer to Map 4-1)	**Impact Analysis from Alternative C SDNM Livestock Grazing Actions**
Arnold Allotment	No sites have been recorded or inventoried within this allotment on the SDNM; therefore, there are no known direct or indirect impacts.
Beloat Allotment	Impacts would be similar as those described under Alternative A for the Beloat Allotment.
Bighorn Allotment	Impacts from livestock on the Bighorn Allotment are anticipated to be similar as those described under Alternative A and B for the Bighorn Allotment, but to a lesser degree, as AUMs would decrease by 534 and the area made unavailable for livestock grazing would increase to 70,565 acres. Approximately 27 miles of fencing is anticipated to be needed to prevent impacts from livestock on portions of the Monument found to be incompatible with livestock grazing. Impacts from livestock are expected to decrease to minor intensities due to the decrease in numbers and the fenced exclosure. Other impacts under this alternative are expected to be the same as Alternative B.
Conley Allotment	Impacts are anticipated to be the same as those described under Alternative A for the Conley Allotment, but to a lesser degree, as AUMs would decrease by 1,191. Fewer miles of fence line would be needed for this alternative, thus decreasing the potential impacts of fence installation on cultural resources. All other impacts are similar to Alternative B for this allotment.
Hazen Allotment	Impacts would be the same as those described under Alternative A for the Hazen Allotment.
Lower Vekol Allotment	Impacts would be the same as those described for Alternative A for the Lower Vekol Valley Allotment, except that about 670 acres of unavailable lands would be fenced off with about 3 miles of fence line. Impacts from this would be similar to those described in Alternative B.

Table 4-24
Impacts from Implementation-Level Decisions on Cultural and Historical Site Monument Objects

Alternative D	
Alternative D SDNM Livestock Grazing Action	
• Impacts would be negligible, as all allotments currently available to grazing would be closed to grazing when current permits expire. North Tank and other proposed interpretive sites and trail heads would not need to be fenced because impacts from livestock to cultural and historical sites would be eliminated.	
Site Specific Area (Refer to Map 4-1)	Impact Analysis from Alternative D SDNM Livestock Grazing Action
• Impacts would be negligible, as all allotments currently available to grazing would be closed to grazing when current permits expire.	
Alternative E (Proposed RMP)	
Alternative E (Proposed RMP) SDNM Livestock Grazing Action	
SDNM Grazing Allotments	
Allotment	Proposed Permitted Livestock Grazing Animal Unit Months (AUMs)
Arnold	0
Beloat	552
Bighorn	1,633
Conley	0
Hazen	400
Lower Vekol	529
Site Specific Area (Refer to Map 4-1)	**Impact Analysis from Alternative E (Preferred Alternative) SDNM Livestock Grazing Actions**
Arnold Allotment	No sites have been recorded or inventoried within this allotment on the SDNM; therefore, there are no known direct or indirect impacts.
Beloat Allotment	Impacts would be the same as those described under Alternative B and C for the Beloat Allotment.
Bighorn Allotment	Impacts are anticipated to be the same as those described under Alternative A for the Bighorn Allotment, but to a much lesser degree, as AUMs would decrease by 868. The number of acres made unavailable, and the miles of fence line, would be the same as in Alternative C. Impacts are expected to be similar to Alternative C except that fewer cattle would be present to affect cultural resources.
Conley Allotment	This alternative would make the entire Conley Allotment inside the SDNM boundaries unavailable for livestock grazing. Due to the fact that there are no AUMs proposed for the Conley Allotment, impacts on cultural resources are expected to be negligible.
Hazen Allotment	Impacts would be the same as those described for Alternative B for the Hazen Allotment.
Lower Vekol Allotment	Impacts would be the same as those described for Alternative B for the Lower Vekol Valley Allotment.

4.26.3 IMPLEMENTATION-LEVEL ANALYSIS FOR WILDLIFE AND SPECIAL STATUS SPECIES MONUMENT OBJECTS

Impacts from implementation-level decisions on special status species Monument objects are presented below in **Table 4-25**, Impacts from Implementation-Level Decisions on Wildlife and Special Status Species Monument Objects.

Table 4-25
Impacts from Implementation-Level Decisions on Wildlife and Special Status Species Monument Objects

Monument Objects Managed by Special Status Species Habitat

- Sand Tank Mountains,
- Diversity of Plant and Animal Species,
- Saguaro Cactus Forests,
- Wildlife,
- A Functioning Desert Ecosystem.

Impact Indicators

- Sand Tank Mountains,:
- Acres of disturbed habitat within the Sand Tank Mountains
- Diversity of Plant and Animal Species,
- Acres of disturbed palo verde-mixed cacti habitat
- Saguaro Cactus Forests,:
- Acres of disturbed palo verde-mixed cacti habitat
- Wildlife,:
- A Degradation or improvement of wildlife habitat quality
- Reduction or increases in wildlife populations in general
- Connectivity of habitats for wildlife usage
- Functioning Desert Ecosystem
- Acres of disturbed palo verde-mixed cacti habitat
- Acres of disturbed creosote-bursage habitat

Wildlife includes: Sonoran desert tortoise, desert bighorn, red back whiptail, raptors, javelina, owls (elf, western screech), mule deer, Sonoran pronghorn, mountain lion, gray fox, bobcat, lesser long-nosed bat, California leaf-nosed bat, cave myotis bat, and Sonoran green toad.

SDNM Grazing Allotments					
	Acres of Potentially Disturbed Habitat				
	Alt. A	Alt. B	Alt. C	Alt. D	Alt. E
Areas Analyzed	Route Designations				
Area 15	939	774	528	263	461
Area 16	382	242	186	108	211
Impact Indicators					
Allotment Analyzed			**Livestock Grazing**		
Arnold	1,631	1,631	1,631	**0**	1,631
Beloat	**33,797**	**33,797**	**33,797**	**0**	**33,797**
Bighorn	**91,687**	**88,795**	74,784	**0**	88,783

Table 4-25
Impacts from Implementation-Level Decisions on Wildlife and Special Status Species Monument Objects

Conley	77,747	71,726	50,448	**0**	**0**
Hazen	31,638	31,638	31,638	**0**	31,638
Lower Vekol	15,663	15,617	14,997	**0**	15,459
Area Analyzed	**Target Shooting**				
Entire Monument	482,334	69,500	1,134	**0**	482,334

* Sites appear to have the characteristics which would make them eligible for the NRHP.

Assumptions

- Wildlife habitat would be managed for wildlife and migratory birds with an emphasis on special status species.
- Special status species habitat would be managed for the benefit of species as a priority over other resource allocations or uses.
- All surface-disturbing activities would include mitigation and adaptive management to reduce impacts on special status wildlife and special status species and their habitat.
- In general, vegetative communities are considered to be in good condition but small localized impacted areas may be present.
- Although some areas are more suitable for different classes and species of wildlife, the impacts from different classes of wildlife would be similar and would not be discussed separately.
- Typically, negligible and minor impacts on wildlife are expected to occur where use is infrequent and human interactions are few. Interactions are few in areas where roads and trails are infrequently used such as but not limited to, rough roads or wilderness trails.

Impacts on Special Status Species Monument Objects from SDNM Route Designations

Alternative A (No Action)

Alternative A (No Action) SDNM Route Designation Actions

- No routes would be formally designated under Alternative A. therefore, the existing routes would remain open.

SDNM Route Designations

	Roads			Primitive Roads			Trails		
Area Analyzed	Open	Admin Only	Closed	Open	Admin Only	Closed	Open	Admin Only	Closed
Area 15	-	-	-	18.2	-	-	-	-	-
Area 16	-	-	-	15.2	-	0.2	-	-	-

*Open to nonmotorized use only, **Limited to 50 feet, ^ Seasonally Closed

Site Specific Area (Refer to Map 4-1)	**BLM Routes in Site Specific Area (maps only available on CD version of DLUP – EIS)**	**Impact Analysis from Alternative A (No Action) SDNM Route Designation Actions**
Area 15	8000, 8000J, 8002, 8002E, 8002H, 8003, 8003A,	Within existing non-designated routes, 939 acres of palo-verde mixed cacti, creosote-bursage, and xeroriparian habitat

Table 4-25
Impacts from Implementation-Level Decisions on Wildlife and Special Status Species
Monument Objects

	8003B, 8005, 8005A, 8005B, 8005D, 8005E, 8005F, 8005G, 8037, 8037F, 8037G, 8037L, 8037Q, 8037R, 8039, 8039A, 8039B, 8039H, 8039I, 8039J, 8039K, 8039L	would be disturbed. Impacts are occurring based on the lack of control over motorized travel due to a lack of route designation system. Even though use is infrequent on the routes within Area 15, disturbances to some of the objects within the Monument can still occur. Disturbance range from wildlife mortality from vehicle impact and crushing, disturbance of viable habitat, to no disturbance at all in remote locations where there are no routes or access. If current conditions were to be maintained, impacts would range from negligible to moderate intensities.
Areas 16	8008, 8008C, 8008K, 8013, 8013A, 8014, 8014A, 8016, 8016D, 8021	Within existing non-designated routes, 382 acres of palo-verde mixed cacti, creosote-bursage, and xeroriparian habitat would be disturbed. Impacts would be similar to those described in Area 15 for Alternative A.

Alternative B

Alternative B SDNM Route Designation Action

- Approximately 24.2 miles of road and 494.4 miles of primitive road would be open to motorized vehicles. An additional 4.2 miles of road would be constructed and opened to motorized vehicles. Approximately 37 miles of trail would be allocated as open to nonmotorized and non-mechanical vehicles.

SDNM Route Designations

	Roads			Primitive Roads			Trails		
Area Analyzed	Open	Admin Only	Closed	Open	Admin Only	Closed	Open	Admin Only	Closed
Area 15	1.2	0.4	-	16.5	-	-	-	-	-
Area 16	-	-	-	15.2	-	0.2	-	-	-

*Open to nonmotorized use only, **Limited to 50 feet, ^ Seasonally Closed

Site Specific Area (Refer to Map 4-1)	**BLM Routes in Site Specific Area (maps only available on CD version of DLUP – EIS)**	**Impact Analysis from Alternative B SDNM Route Designation Actions**
Areas 15	8000, 8000J, 8002, 8002E 8002H, 8003 8003A, 8003B	• Within designated routes, 774 acres of palo-verde mixed cacti, creosote-bursage, and xeroriparian habitat would be disturbed. Impacts would be similar to those described in

Table 4-25
Impacts from Implementation-Level Decisions on Wildlife and Special Status Species Monument Objects

	8005, 8005A 8005B, 8005D 8005E, 8005F 8005G, 8037 8037F, 8037G 8037L, 8037Q 8037R, 8039 8039A, 8039B 8039H, 8039I 8039J, 8039K, 8039L	Area 15 for Alternative A, except, the 17.7 miles of open routes would allow a greater amount of access to areas of importance for objects and could increase unneeded traffic into some areas that could affect the persistence of some objects. Impacts would be expected to range from negligible to moderate on objects. • No route closures are anticipated for this area under Alternative B.
Areas 16	8008, 8008C, 8008K, 8013, 8013A, 8014, 8014A, 8016, 8016D, 8021	• Within designated routes, 242 acres of palo-verde mixed cacti, creosote-bursage, and xeroriparian habitat would be disturbed. Impacts would be similar to those described in Area 16 for Alternative A, except, the 15.2 miles of open routes would allow a greater amount of access to areas of importance for objects and could increase unneeded traffic into some areas that could affect the persistence of some objects. Impacts would be expected to range from negligible to moderate on objects. • The 0.2 miles of closure are in key habitats for a number of Monument objects and could increase habitat availability and connectivity and improve populations at a local level. However the areas that would be closed would decrease the access for administrative purposes and could affect the ability to conduct health and habitat assessments for objects. Impacts from closing these 0.2 miles would be expected to range from negligible to minor based on necessity to access some areas for administrative use.
Alternative C		
Alternative C SDNM Route Designation Actions		
• Approximately 24.2 miles of road and 358.1 miles of primitive road would be open to motorized vehicles. Approximately 37 miles of trail would be allocated as open to nonmotorized and non-mechanical vehicles.		

Table 4-25
Impacts from Implementation-Level Decisions on Wildlife and Special Status Species
Monument Objects

SDNM Route Designations									
	Roads			Primitive Roads			Trails		
Area Analyzed	Open	Admin Only	Closed	Open	Admin Only	Closed	Open	Admin Only	Closed
Area 15	1.2	0.4	-	15.5 (0.7*)	-	0.3	-	-	-
Area 16	-	-	-	6.1 (1.3^)	-	7.9	-	-	-

*Open to nonmotorized use only, **Limited to 50 feet, ^ Seasonally Closed

Site Specific Area (Refer to Map 4-1)	**BLM Routes in Site Specific Area (maps only available on CD version of DLUP – EIS)**	**Impact Analysis from Alternative C SDNM Route Designation Actions**
Areas 15	8000, 8000J, 8002, 8002E 8002H, 8003 8003A, 8003B 8005, 8005A 8005B, 8005D 8005E, 8005F 8005G, 8037 8037F, 8037G 8037L, 8037Q 8037R, 8039 8039A, 8039B 8039H, 8039I 8039J, 8039K, 8039L	• Within designated routes, 528 acres of palo-verde mixed cacti, creosote-bursage, and xeroriparian habitat would be disturbed. Impacts would be similar to those described in Area 15 for Alternative A, except, impact intensities would decrease to negligible to minor, as only 16.6 miles of open routes would be designated. • Impacts related to habitat improvements from closing 0.3 miles of primitive routes would be similar to those described in Alternative B for Area 15, however administrative access limitations for wildlife purposes would increase compared to Alternative B; therefore, impacts would be minor.
Areas 16	8008, 8008C, 8008K, 8013, 8013A, 8014, 8014A, 8016, 8016D, 8021	• Within designated routes, 186 acres of palo-verde mixed cacti, creosote-bursage, and xeroriparian habitat would be disturbed. Impacts would be similar to those described in Area 16 for Alternative A, except, the 6.1 miles of open routes would allow a greater amount of access to areas of importance for objects and could increase unneeded traffic into some areas that could affect the persistence of some objects. Similar to Alternative B, impacts would be maintained at negligible to moderate levels. • The closure of 7.9 miles would be similar to those described in Alternative B for Area 16,

Table 4-25
Impacts from Implementation-Level Decisions on Wildlife and Special Status Species Monument Objects

		however administrative access limitations for wildlife purposes would slightly increase compared to Alternative B; therefore, impacts would remain at minor.

Alternative D

Alternative D SDNM Route Designation Actions

- Approximately 24.2 miles of road and 200 miles of primitive road would be open to motorized vehicles.
- Approximately 37 miles of trail would be allocated as open to nonmotorized and non-mechanical vehicles.

SDNM Route Designations

	Roads			Primitive Roads			Trails		
Area Analyzed	Open	Admin Only	Closed	Open	Admin Only	Closed	Open	Admin Only	Closed
Area 15	1.2	0.4	-	7.4 (0.6*)	0.5	8.1	-	-	-
Area 16	-	-	-	2.6	1.7	11	-	-	-

*Open to nonmotorized use only, **Limited to 50 feet, ^ Seasonally Closed

Site Specific Area (Refer to Map 4-1)	**BLM Routes in Site Specific Area (maps only available on CD version of DLUP – EIS)**	**Impact Analysis from Alternative D SDNM Route Designation Actions**
Areas 15	8000, 8000J, 8002, 8002E 8002H, 8003 8003A, 8003B 8005, 8005A 8005B, 8005D 8005E, 8005F 8005G, 8037 8037F, 8037G 8037L, 8037Q 8037R, 8039 8039A, 8039B 8039H, 8039I 8039J, 8039K, 8039L	Within designated routes, 263 acres of palo-verde mixed cacti, creosote-bursage, and xeroriparian habitat would be disturbed. Alternative D would close 8.1 miles of route within this area. Closing large areas, with no or limited administrative access to important habitat areas for objects, could create new impacts by eliminating the ability to perform health and habitat assessments as they relate to objects and could result in minor to moderate impacts. Minor to moderate impacts could be related to but not limited to invasive species, water sources not functioning properly, habitat degradation, population die-offs and waste being left on the landscape without access to address the issue. However closing the 8.1 miles to routes could increase habitat availability, habitat connectivity and within the closed route area could increase the population of objects at a local level.
Areas 16	8008, 8008C, 8008K, 8013, 8013A, 8014, 8014A, 8016, 8016D, 8021	Within designated routes, 108 acres of palo-verde mixed cacti, creosote-bursage, and xeroriparian habitat would be disturbed. Impacts would be similar to those described in Area 16 for Alternative A, except, the 2.6 miles of open routes is substantially less compared to any

Table 4-25
Impacts from Implementation-Level Decisions on Wildlife and Special Status Species Monument Objects

		other alternative. However, the limited amount of open routes in this area would concentrate use only within areas that the public can legally access. Concentrated use could cause mortality, degradation of habitat and avoidance of the area by some objects creating minor to moderate impacts. The closure of 11 miles closures would be similar to those described in Alternative B for Area 16, however administrative access limitations for wildlife purposes would increase compared to Alternative B; therefore, impacts would be negligible to moderate.

Alternative E (Preferred Alternative)

Alternative E (Preferred Alternative) SDNM Route Designation Actions

- Approximately 24.2 miles of road and 331 miles of primitive road would be open to motorized vehicles.
- Approximately 37 miles of trail would be allocated as open to nonmotorized and non-mechanical vehicles.

SDNM Route Designations

	Roads			Primitive Roads			Trails		
Area Analyzed	Open	Admin Only	Closed	Open	Admin Only	Closed	Open	Admin Only	Closed
Area 15	1.2	0.4	-	15.9 (0.6*)	-	-	-	-	-
Area 16	-	-	-	7.1 (1.3^)	-	6.9	-	-	-

*Open to nonmotorized use only, **Limited to 50 feet, ^ Seasonally Closed

Site Specific Area (Refer to Map 4-1)	**BLM Routes in Site Specific Area (maps only available on CD version of DLUP – EIS)**	**Impact Analysis from Alternative E (Preferred Alternative) SDNM Route Designation Actions**
Areas 15	8000, 8000J, 8002, 8002E 8002H, 8003 8003A, 8003B 8005, 8005A 8005B, 8005D 8005E, 8005F 8005G, 8037 8037F, 8037G 8037L, 8037Q 8037R, 8039 8039A, 8039B 8039H, 8039I	Impacts would be the same as those described under Alternative C for Area 15, except, slightly less miles of routes would be open (15.9 miles) under Alternative E for this area, equating to 461 acres of palo-verde mixed cacti, creosote-bursage, and xeroriparian habitat being disturbed. Impacts would still be negligible to minor.

Table 4-25
Impacts from Implementation-Level Decisions on Wildlife and Special Status Species Monument Objects

	8039J, 8039K, 8039L	
Areas 16	8008, 8008C, 8008K, 8013, 8013A, 8014, 8014A, 8016, 8016D, 8021	Impacts would be the same as those described under Alternative C for Area 16, except, slightly less miles of routes would be open (7.1 miles) under Alternative E for this area, equating to 211 acres of palo-verde mixed cacti, creosote-bursage, and xeroriparian habitat being disturbed. Impacts would still be negligible to minor. Impacts from route closures would be the same as Alternative C, except, slightly less miles would be closed to motorized travel (approximately 6.9 miles), under Alternative E. Impacts would remain at minor.

Impacts on Special Status Species and Habitat Monument Objects from SDNM Livestock Grazing

Alternative A (No Action)

Alternative A (No Action) SDNM Livestock Grazing Action

SDNM Grazing Allotments

Allotment	Proposed Permitted Livestock Grazing Animal Unit Months (AUMs)
Arnold	0
Beloat	776
Bighorn	2,812
Conley	3,403
Hazen	886
Lower Vekol	826

Site Specific Area (Refer to Map 4-1)	Impact Analysis from Alternative A (No Action) SDNM Livestock Grazing Actions
Arnold Allotment	Impacts would be negligible as there are no proposed AUMs in the Arnold Allotment for Alternative A. Interactions between wildlife and livestock would only occur when ephemeral grazing is permitted. Additional waters for both livestock and wildlife would become available when ephemeral use is permitted, pursuant to the Special Ephemeral Rule.
Beloat Allotment	The Beloat Allotment consists of 23,645 acres of Sonora-Mojave Creosotebush-White Bursage Desert Scrub, 10,144 acres of Sonoran Palo verde-Mixed cacti Desert Scrub habitat, and 2,053 acres of Xeroriparian habitat, which are habitats for bighorn sheep and desert tortoise. Maintaining the current level of AUMs within this allotment could result in the loss or reductions in canopy cover within these habitats, which in turn could cause some wildlife to avoid areas that are needed for thermal refuge, nesting and/or foraging. These impacts on Monument objects would generally be negligible to minor in intensity. Range improvement projects would be considered pursuant to 43 CFR 4120-3.

Table 4-25
Impacts from Implementation-Level Decisions on Wildlife and Special Status Species
Monument Objects

Bighorn Allotment	The Bighorn Allotment consists of 45,330 acres of Sonora-Mojave Creosotebush-White Bursage Desert Scrub, 195 acres of Sonoran-Mojave Mixed Salt Desert Scrub, 46,155 acres of Sonoran Palo verde-Mixed cacti Desert Scrub, and 13,393 acres of Xeroriparian, which are habitats for bighorn sheep, lesser long-nosed bat, and desert tortoise. Impacts would be the same as those described for the Beloat Allotment. Impacts on objects would be expected to range from negligible to minor.
Conley Allotment	The Conley Allotment consists of 1,668 acres of Sonoran-Mojave Mixed Salt Desert Scrub, 30,427 acres of Sonoran Palo verde-Mixed cacti Desert Scrub, and 1,393 acres of Xeroriparian, which are habitats for bighorn sheep, lesser long-nosed bat, and desert tortoise. Impacts would be the same as those described for the Beloat Allotment. Impacts on objects would be expected to range from negligible to minor
Hazen Allotment	The Hazen Allotment consists of 17,062 acres of Sonora-Mojave Creosotebush-White Bursage Desert Scrub, 238 acres of Sonoran-Mojave Mixed Salt Desert Scrub, 14,336 acres of Sonoran Palo verde-Mixed cacti Desert Scrub, and 726 acres of Xeroriparian, which are habitats for bighorn sheep, Tucson shovel-nosed snake, and desert tortoise. Impacts would be the same as those described for the Beloat Allotment. Impacts on objects would be expected to range from negligible to minor.
Lower Vekol Allotment	The Lower Vekol Allotment consists of 5,256 acres of Sonora-Mojave Creosotebush-White Bursage Desert Scrub, 114 acres of Sonoran-Mojave Mixed Salt Desert Scrub, 10,285 acres of Sonoran Palo verde-Mixed cacti Desert Scrub, and 197 acres of Xeroriparian, which are habitats for bighorn sheep, Tucson shovel-nosed snake, and lesser long-nosed bat. Impacts would be the same as those described for the Beloat Allotment. Impacts on objects would be expected to range from negligible to minor.

Alternative B

Alternative B SDNM Livestock Grazing Action

SDNM Grazing Allotments

Allotment	Proposed Permitted Livestock Grazing Animal Unit Months (AUMs)
Arnold	0
Beloat	541
Bighorn	2,031
Conley	1,572
Hazen	531
Lower Vekol	646

Table 4-25
Impacts from Implementation-Level Decisions on Wildlife and Special Status Species Monument Objects

Site Specific Area (Refer to Map 4-1)	Impact Analysis from Alternative B SDNM Livestock Grazing Actions
Arnold Allotment	Impacts would be negligible and similar to Alternative A.
Beloat Allotment	Impacts are anticipated to be the same as those described under Alternative A for the Beloat Allotment, just to a lesser degree, as AUMs would be decrease by 235. This increase in available forage for wildlife is expected to be negligible to minor. Ungulates such as mule deer and bighorn sheep travelling the corridor between the North Maricopa Mountains Wilderness Area and the Sierra Estrella Wilderness Area could encounter approximately 20 fewer cattle, an impact that is likely negligible to minor.
Bighorn Allotment	Impacts on important vegetation communities and wildlife habitat are anticipated to be the same as those described under Alternative A for the Bighorn Allotment, just to a much lesser degree, as AUMs would be decrease by 781. This increase in available forage is expected to be minor to moderate. On the Bighorn Allotment, approximately 2,974 acres of the creosote bush/ bursage vegetative community were found to be incompatible with livestock grazing. Therefore, under Alternative B, approximately 14 miles of wildlife-friendly fence is proposed to exclude livestock from these areas. Maintenance of water facilities within these exclosures would become the responsibility of state and federal agencies for the continued benefit of wildlife. The proposed fence line may impact some ungulate movement along known wildlife corridors in the South Maricopa Mountain Wilderness Area and beyond (see Map 2-2b). However, fencing would adhere to BLM stipulations, with the top and bottom strands smooth wire so as not to restrict wildlife movement. Fencing should have negligible impacts on the Tucson shovel-nosed snake, the lesser long-nosed bat, or the Sonoran desert tortoise. Impacts are expected to be negligible to minor and are to the benefit of wildlife.
Conley Allotment	On the Conley Allotment, approximately 5,552 acres of various vegetative communities were found to be incompatible with livestock grazing. Under Alternative B, approximately miles of fencing would be needed to prevent further impacts from livestock on this vegetation/habitat. However, no known wildlife corridors would be directly or indirectly impacted by the fencing proposed in this alternative. Additionally, under Alternative B, AUMs would be decreased by 1,831 (or approximately 153 cows yearlong) from Alternative A . The combination of increased forage and habitat availability is expected to offset the impacts from increased fencing. Maintenance of water sources inside the exclosures would become the responsibility of federal and state agencies for the benefit of wildlife. Impacts are expected to be negligible to minor and are to the benefit of wildlife.
Hazen Allotment	There were no areas of the Hazen Allotment found to be incompatible with Monument objects. However, because of the important wildlife habitat and travel corridors for bighorn sheep in the North Maricopa Mountains Wilderness Area and the Sierra Estrella Wilderness Area, a decrease of 531 AUMs is proposed under this alternative. Impacts are anticipated to be the same as those described under Alternative A for the Hazen Allotment, just to a much lesser degree. No additional fencing is proposed. Impacts on special status species are expected to be negligible to minor.

Table 4-25
Impacts from Implementation-Level Decisions on Wildlife and Special Status Species
Monument Objects

Lower Vekol Allotment	Approximately 2 miles (or 7 acres) of Sandy Wash ecological sites were found to be incompatible with livestock grazing on the Lower Vekol Allotment. Impacts are anticipated to be the same as those described under Alternative A for the Lower Vekol Allotment, just to a much lesser degree, as AUMs would be decreased by 180. Impacts are expected to be negligible to minor.

Alternative C

Alternative C SDNM Livestock Grazing Action

SDNM Grazing Allotments

Allotment	Proposed Permitted Livestock Grazing Animal Unit Months (AUMs)
Arnold	0
Beloat	936
Bighorn	2,278
Conley	2,212
Hazen	873
Lower Vekol	793

Site Specific Area (Refer to Map 4-1)	Impact Analysis from Alternative C SDNM Livestock Grazing Actions
Arnold Allotment	Alternative C does not apply to allotments designated as ephemeral only. Impacts would be the same as described for Alternative A.
Beloat Allotment	Impacts are anticipated to be similar to those described under Alternative B for the Beloat Allotment, just to a lesser degree, as AUMs would be decrease d by 384. Impacts on wildlife from livestock are expected to be negligible to minor.
Bighorn Allotment	Impacts in forage availability are anticipated to be similar to those described under Alternative A for the Bighorn Allotment, just to a much greater degree, as 534 AUMs originally allocated for livestock would become available for wildlife. More acres would be fenced off under this alternative than under Alternative B, but because fencing would incorporate existing fences and topographic barriers, only 27 miles of new fence line is proposed. The topographic barriers (e.g., cliffs, rocky outcrops, gorges) make it difficult for cattle to navigate, but would not affect mule deer or bighorn sheep movement. Water sources within the exclosed areas would become the responsibility of state and federal agencies. The combination of increased habitat and increase forage would have minor to moderate beneficial impacts on special status species.
Conley Allotment	Under Alternative C, nearly half of the Conley Allotment would be fenced off, using a combination of 18 miles of new fence, as well as existing fences and natural topographic features. Impacts are anticipated to be similar to those described under Alternative B for the Conley Allotment, with an AUM decrease of 1,191. Impacts would be similar to those described for the Bighorn Allotment, Alternative C. Water sources within the exclosed areas would become the responsibility of state and federal agencies. The combination of increased habitat and increased forage would have minor to moderate beneficial impacts on special status species.

Table 4-25
Impacts from Implementation-Level Decisions on Wildlife and Special Status Species
Monument Objects

Hazen Allotment	Under Alternative C, there would be a decrease of only 13 AUMs (or 1 cow grazing yearlong). Therefore, impacts would be very similar as those described under Alternative A for the Hazen Allotment.
Lower Vekol Allotment	Impacts would be similar to those described for Alternative A and B for the Lower Vekol Valley Allotment except that approximately 3 miles of fence would be built to eliminate impacts of livestock on the xeroriparian vegetative resources found to be incompatible with livestock grazing. This wildlife-friendly fencing is expected to have negligible impacts on special status species.

Alternative D

Alternative D SDNM Livestock Grazing Action

All allotments currently allocated for livestock grazing would become unavailable for grazing when current permits expire.

Impact Analysis from Alternative D SDNM Livestock Grazing Actions

Implementation of Alternative D would result in the cessation of livestock grazing through the management action to close all currently open grazing allotments. This decision would remove any livestock grazing impacts on the vegetative resources and Monument objects. Approximately 8,703 AUMs of forage would become available to wildlife. However, the expectation is that the impacts on the creosote bush/ bursage communities and the palo-verde-mixed cactus communities from the cessation of grazing would generally be small, and only slightly noticeable changes to vegetative resources would occur. Where the impacts from livestock grazing on vegetation are more noticeable (such as in the xeroriparian areas), the results of removing livestock would be more apparent (i.e. regrowth of heavily utilized vegetation, some reestablishment of vegetation around watering facilities and heavily used livestock trails). During years of increased winter rainfall the fuel load created from the growth of annual species (up to 2000 pounds/acre + air dry weight) would not be subject reduction from livestock grazing, which could result in increased frequency and/or intensity of fire in these non-fire adapted ecosystems. Approximately 130 miles of fence line throughout the SDNM would be removed after permits expire. The burden of removing fences would fall on state and federal wildlife managers. Fences along rights-of-way, such as highways, roads, railways, and utility corridors, would remain in place. A total of 14 wildlife catchments are located north of I-8 and would be maintained by federal and state wildlife managers. In addition a total of 9 corrals, approximately 236 miles of fence would be considered for removal. The removal of the corrals and the fences would assist wildlife's ability to move across the landscape without impediments to objects as related to fencing. Impacts from removing the fences and corrals would be expected to be negligible to moderate depending on the areas of fence to be removed. The burden of maintaining of 1 fenced reservoir, 16 unfenced reservoirs, 4 storage tanks, 2 troughs, 5 wells, 5 miles of pipeline, and 1 windmill would fall on state and federal wildlife managers. The combination of increased forage availability, fewer fences restricting movement, and no competition with livestock at water sources on the entire Monument would be expected to range from negligible to moderate.

Alternative E (Preferred Alternative)

Alternative E (Preferred Alternative) SDNM Livestock Grazing Action

SDNM Grazing Allotments

Allotment	Proposed Permitted Livestock Grazing Animal Unit Months (AUMs)
Arnold	0
Beloat	552

Table 4-25
Impacts from Implementation-Level Decisions on Wildlife and Special Status Species
Monument Objects

Bighorn	1,633
Conley	0
Hazen	400
Lower Vekol	529

Site Specific Area (Refer to Map 4-1)	**Impact Analysis from Alternative E (Preferred Alternative) SDNM Livestock Grazing Actions**
Arnold Allotment	Impacts would be similar to Alternative A. The Arnold Allotment would continue to be considered for ephemeral use pursuant to the Special Ephemeral Rule.
Beloat Allotment	Under Alternative E, there would be a reduction of AUMs from the current 776 to 552 AUMs. Proposed actions and subsequent impacts would be similar to those described under Alternative B for the Beloat Allotment and would benefit wildlife species.
Big Horn Allotment	Impacts are anticipated to be similar to those described under Alternative B for the Bighorn Allotment, except that AUMs would decrease from the existing 2,812 to 1,633, a reduction of 42% that would become available wildlife forage. Impacts of this alternative are expected to be negligible to minor and to the benefit of wildlife.
Conley Allotment	Under this alternative, the entire portion of the Conley Allotment that falls within the Monument boundaries would become unavailable for grazing. Additionally, rather than the fencing proposed under Alternative B or C, pasture fences within the Monument would be removed, and a fence separating the SDNM and Lower Sonoran portions of the allotment would be considered. Conley's 3,403 AUMs within SDNM would become available forage for wildlife. However, much of the Conley consists of a creosote bush/bursage community; therefore, impacts from this decision would likely not be noticeable for many years. In contrast, the xeroriparian areas, particularly along Waterman Wash, are expected to experience minor to moderate improvements in forage and habitat availability. Impacts are expected to be to the benefit of wildlife species.
Hazen Allotment	Impacts would be similar to those described for Alternative A for the Hazen Allotment, except that 294 AUMs of forage would become available to wildlife. Impacts on wildlife from this difference are expected to be negligible to minor.
Lower Vekol Allotment	Impacts would be the same as those described for Alternative B for the Lower Vekol Valley Allotment, except that 297 AUMs would become available for wildlife. Impacts on wildlife from this difference are expected to be negligible to minor.

4.26.4 IMPLEMENTATION-LEVEL ANALYSIS FOR VEGETATION MONUMENT OBJECTS

Impacts from implementation-level decisions on vegetation Monument objects are presented below in **Table 4-26**, Impacts from Implementation-Level Decisions on Vegetation Monument Objects.

Table 4-26
Impacts from Implementation-Level Decisions on Vegetation Monument Objects

Vegetation Management Objects

- Sand Tank Mountains
- Diversity of Plant and Animal Species
- Saguaro Cactus Forests
- Vegetation Communities: Creosote-Bursage, Desert Grassland, and Washes
- Functioning Desert Ecosystem

Impact Indicators

- Sand Tank Mountains
  - Acres of disturbed palo verde-mixed Cacti Vegetation Community.
- Diversity of Plant and Animal Species
  - Acres of woodland assemblages, palo verde-mixed cacti vegetation communities.
- Saguaro Cactus Forests
  - Acres of disturbed saguaro cacti and nurse plant areas.
- Vegetation Communities: Creosote-Bursage, Desert Grassland, and Washes
  - Acres of creosote-bursage, desert grassland, and wash areas.
- Functioning Desert Ecosystem
  - Acres of disturbed vegetation communities.

SDNM Monument Object Indicators					
	Acres of Potentially Disturbed Vegetation Communities				
	Alt. A	Alt. B	Alt. C	Alt. D	Alt. E
Area Analyzed	**Route Designations (miles)**				
Areas 6, 7, 9, 10, 11, 12, 14, 16, and 17	310	283.3	190.4	89.8	192.5
Areas 1, 3, 4, 5, 6, 12, 14, 15, 16, and 17	259.9	239.8	173.3	126.3	154.7
Areas 5, 7, 11, 12, 16, and 17 (miles in wash)	21.5	21.5	7.4	1.5	1.3
Area 13	0	7.8	725	0	725
Area 16	48	29.6	20.1	7.8	22.8
Allotment Analyzed	**Livestock Grazing**				
Arnold	1,631	1,631	1,631	0	1,631
Beloat	33,797	33,797	33,797	0	33,797
Bighorn	91,687	88,795	74,784	0	88,783

Table 4-26
Impacts from Implementation-Level Decisions on Vegetation Monument Objects

Conley	77,747	71,726	50,448	0	0
Hazen	31,638	31,638	31,638	0	31,638
Lower Vekol	15,663	15,617	14,997	0	15,459
Area Analyzed	**Target Shooting**				
Entire Monument	482,334	69,500	1,134	0	482,334

* Sites appear to have the characteristics which would make them eligible for the NRHP.

Assumptions

- All surface-disturbing activities would include mitigation and adaptive management to reduce impacts on special status species and their habitat.
- In general, vegetative communities are considered to be in good condition but small localized impacted areas may be present

Alternative A (No Action)
Alternative A (No Action) SDNM Route Designation Actions

- No routes would be formally designated under Alternative A, therefore; the existing routes would remain open.

SDNM Route Designations

Area Analyzed	Roads			Primitive Roads			Trails		
	Open	Admin Only	Closed	Open	Admin Only	Closed	Open	Admin Only	Closed
6, 7, 9, 10, 11, 12, 14, 16, and 17	-	-	-	98.4	-	3.8	34.3	-	-
1, 3, 4, 5, 6, 12, 14, 15, 16, and 17	-	-	-	104.5	-	0.2	34.3	-	-
5, 7, 11, 12, 16, and 17	-	-	-	67.3	-	3.8	-	-	-
13	-	-	-	-	-	4.7	-	-	-
16	-	-	-	8.2	-	0.2	-	-	-

*Open to nonmotorized use only, **Limited to 50 feet, ^ Seasonally Closed

Site Specific Area (Refer to Map 4-1)	*BLM Routes in Site Specific Area (*maps only available on CD version of DLUP – EIS)	Impact Analysis from Alternative A (No Action) SDNM Route Designation Actions
Areas: 6, 7, 9, 10, 11, 12, 14, 16, and 17	8000V, 8000W, 8000Y, 8001, 8001A, 8001B, 8001G, 8001H, 8001J, 8002, 8002B, 8002C, 8002D, 8003, 8004, 8004F, 8006H, 8006I, 8007, 8007A, 8007B, 8007C, 8007D, 8007F, 8007K, 8008, 8008B, 8008C, 8008D, 8008E, 8008F, 8008H, 8008I, 8008K, 8009C, 8009E, 8009F, 8010, 8011, 8011A, 8011C, 8011D, 8011F, 8011G, 8012, 8013, 8013A, 8014, 8014A, 8015, 8015A, 8015B, 8015C, 8016, 8016A, 8016B, 8016D, 8017, 8018, 8019,	These areas represent the palo verde-mixed cacti, saguaro cactus forest and the woodland communities. Approximately 310 acres of the 303, 300 acres of this community would be potentially disturbed by designated open routes in these areas. The direct loss of individual plants and saguaros and potential increased soil erosion in areas surrounding the routes, resulting from soil compaction on the routes, could lead to conditions that do not

Table 4-26
Impacts from Implementation-Level Decisions on Vegetation Monument Objects

	8021, 8026, 8026B, 8026, 8037, 8037A, 8037B, 8037C, 8037E, 8037F, 8037G, 8037H, 8037K, 8037O, 8037P, 8038B, 8038E, 8039, 8039K, 8039C, 8039D, 8039M, 8043, 8044, 8045, 8046	support a functioning and healthy community. In addition there could be an increase in potential for the spread of noxious/invasive weeds from vehicle traffic. Impacts would be expected to be negligible due to the small acreage impacted and that the palo verde-mixed cacti community generally consists of rocky, shallow soils that are well armored with gravels and rock or exposed bedrock. This results in less susceptibility to impacts from vehicle use. The majority of these acres within this community, which includes the largest portion of the saguaro cactus forest, are additionally protected within existing wilderness areas which has few routes.
Areas: 1, 3, 4, 5, 6, 12, 14, 15, 16, and 17	8000, 8000A, 8000B, 8000C, 8000D, 8000E, 8000F, 8000G, 8000J, 8000I, 8000K, 8000L, 8000M, 8000N, 8000O, 8000P, 8000Q, 8000R, 8000S, 8000T, 8000U, 8000V, 8000W, 8000X, 8000Y, 8001, 8001A, 8001B, 8001C, 8001D, 8001E, 8001F, 8001G, 8001H, 80011, 8001J, 8002, 8002B, 8002C, 8002G, 8002H, 8003, 8003A, 8003B, 8004, 8004E, 8004F, 8004H, 8005, 8005A, 8005B, 8005C, 8005D, 8005E, 8005F, 8005H, 8005I, 8006H, 8006I, 8007C, 8007K, 8008, 8008C, 8008K, 8009K, 8012, 8013, 8013A, 8014, 8014A, 8016, 8016D, 8018, 8019, 8021, 8037, 8037A, 8037B, 8037C, 8037E, 8037F, 8037G, 8037H, 8037K, 8037L, 8037O, 8037P, 8037Q, 8037R, 8038B, 8038E, 8039, 8039A, 8039B, 8039C, 8039D, 8039H, 8039I, 8039J, 8039K, 8039L, 8039M, 8002D, 8002E,	These areas represent the creosote bush-bursage community. Approximately 259.9 acres of the 179,600 acres of this community would be potentially disturbed by designated open routes in these areas. This community is the most susceptible to impacts from vehicle use due to the more erosive nature of the soils. Impacts would generally be negligible, but could reach minor or moderate if route proliferation leads to direct loss of vegetation and conditions leading to severe erosion particularly during wet periods when the roads are difficult to travel. Impacts can be minimized in this community by road closures, route limitations or stabilization of routes. The direct loss of individual plants and potential increased soil erosion in areas surrounding the routes, resulting from soil compaction on the routes, could lead to conditions that do not support a functioning and healthy community. In addition there could be an increase in potential for the spread of noxious/invasive weeds from vehicle traffic.
Areas: 5, 7, 11, 12, 16, and 17	8000V, 8000W, 8000Y, 8001, 8001A, 8001B, 8001C, 8001D, 8001E, 8001F, 8001G, 8001H, 80011, 8001J, 8002, 8002B, 8002C, 8002D, 8003, 8004, 8004F, 8006H, 8006I, 8007C, 8007K, 8008, 8008B, 8008C, 8008D, 8008E, 8008F, 8008H, 8008I, 8008K, 8009F, 8011,	These areas represent the desert wash community 21.5 miles of the 970 total miles of the desert wash community would be potentially disturbed by designated open routes in these areas. This community is susceptible to impacts from vehicle use due to

Table 4-26
Impacts from Implementation-Level Decisions on Vegetation Monument Objects

	8012, 8013, 8013A, 8014, 8014A, 8016, 8016A, 8016B, 8016D, 8017, 8018, 8019, 8021, 8026, 8026B, 8039C, 8039D, 8039M	the direct loss of vegetation, channel alteration and/or bank alteration. In most cases the vegetated bank soils are associated with the creosote bush-bursage community and are more susceptible to erosion. Impacts would generally be negligible, but could reach minor if route proliferation leads to additional loss of vegetation and severe erosion along the banks and vegetated channel sand bars in the larger braided washes. Impacts can be minimized in this community by road closures or route limitations.
Area 13	8007, 8007E, 8007G	Under Alternative A, no miles of routes within Area 13 are designated as "open" to motorized vehicles; therefore, there would be no impacts. This area represents the desert grassland community.
Area 16	8008, 8008C, 8008K, 8013, 8013A, 8014, 8014A, 8016, 8016D, 8021	This area represents the Sand Tank Mountains. Approximately 48 acres of the area would be potentially disturbed by designated open routes. Several vegetation communities are located within the Sand Tank Mountains area (palo verde-mixed cacti community and saguaro cactus forest, creosote bush-bursage and desert washes). The potential impacts on these communities are due to the direct loss of vegetation, channel alteration and/or bank alteration. Impacts would generally be negligible, but could reach minor or moderate if route proliferation leads to additional loss of vegetation and severe erosion. Impacts can be minimized in this community by road closures or route limitations.

Table 4-26
Impacts from Implementation-Level Decisions on Vegetation Monument Objects

Alternative B

Alternative B SDNM Route Designation Actions

- Approximately 24.2 miles of road and 494.4 miles of primitive road would be open to motorized vehicles.
- An additional 4.2 miles of road would be constructed and opened to motorized vehicles.
- Approximately 37 miles of trail would be allocated as open to nonmotorized and non-mechanical vehicles.

SDNM Route Designations

Area Analyzed	Roads			Primitive Roads			Trails		
	Open	Admin Only	Closed	Open	Admin Only	Closed	Open	Admin Only	Closed
6, 7, 9, 10, 11, 12, 14, 16, and 17	6.6	-	-	94.7	-	0.8	34.3	-	-
1, 3, 4, 5, 6, 12, 14, 15, 16, and 17	7.0	0.4	-	93.9 (3.1*)	-	0.2	34.3 (1.4*)	-	-
5, 7, 11, 12, 16, and 17	3.5	-	-	67.6	-	-	-	-	-
13	-	-	-	4.7	-	-	-	-	-
16	-	-	-	8.4	-	-	-	-	-

*Open to nonmotorized use only, **Limited to 50 feet, ^ Seasonally Closed

Site Specific Area (Refer to Map 4-1)	BLM Routes in Site Specific Area (maps only available on CD version of DLUP – EIS)	Impact Analysis from Alternative B SDNM Route Designation Actions
Areas: 6, 7, 9, 10, 11, 12, 14, 16, and 17	8000V, 8000W, 8000Y, 8001, 8001A, 8001B, 8001G, 8001H, 8001J, 8002, 8002B, 8002C, 8002D, 8003, 8004, 8004F, 8006H, 8006I, 8007, 8007A, 8007B, 8007C, 8007D, 8007F, 8007K, 8008, 8008B, 8008C, 8008D, 8008E, 8008F, 8008H, 8008I, 8008K, 8009C, 8009E, 8009F, 8010, 8011, 8011A, 8011C, 8011D, 8011F, 8011G, 8012, 8013, 8013A, 8014, 8014A, 8015, 8015A, 8015B, 8015C, 8016, 8016A, 8016B, 8016D, 8017, 8018, 8019, 8021, 8026, 8026B, 8026, 8037, 8037A, 8037B, 8037C, 8037E, 8037F, 8037G, 8037H, 8037K, 8037O, 8037P, 8038B, 8038E, 8039, 8039K, 8039C, 8039D, 8039M, 8043, 8044, 8045, 8046	Approximately 283.3 acres of the palo verde-mixed cacti community and saguaro cactus forest would be potentially disturbed by designated open routes in these areas. The impacts would be the same intensity as Alternative A for these areas, negligible, however slightly minimized with 26.7 fewer acres impacted due to road closures.

Table 4-26
Impacts from Implementation-Level Decisions on Vegetation Monument Objects

Site Specific Area (Refer to Map 4-1)	BLM Routes in Site Specific Area (maps only available on CD version of DLUP – EIS)	Impact Analysis from Alternative B SDNM Route Designation Actions
Areas: 1, 3, 4, 5, 6, 12, 14, 15, 16, and 17	8000, 8000A, 8000B, 8000C, 8000D, 8000E, 8000F, 8000G, 8000J, 8000I, 8000K, 8000L, 8000M, 8000N, 8000O, 8000P, 8000Q, 8000R, 8000S, 8000T, 8000U, 8000V, 8000W, 8000X, 8000Y, 8001, 8001A, 8001B, 8001C, 8001D, 8001E, 8001F, 8001G, 8001H, 8001I, 8001J, 8002, 8002B, 8002C, 8002D, 8002E, 8002G, 8002H, 8003, 8003A, 8003B, 8004, 8004E, 8004F, 8004H, 8005, 8005A, 8005B, 8005C, 8005D, 8005E, 8005F, 8005H, 8005I, 8006H, 8006I, 8007C, 8007K, 8008, 8008C, 8008K, 8009K, 8012, 8013, 8013A, 8014, 8014A, 8016, 8016D, 8018, 8019, 8021, 8037, 8037A, 8037B, 8037C, 8037E, 8037F, 8037G, 8037H, 8037K, 8037L, 8037O, 8037P, 8037Q, 8037R, 8038B, 8038E, 8039, 8039A, 8039B, 8039C, 8039D, 8039H, 8039I, 8039J, 8039K, 8039L, 8039M	Approximately 239.8 acres of this community would be potentially disturbed by designated open and administrative use only routes in these areas. Impacts would be negligible and similar to Alternative A, but could increase if route proliferation occurs.
Areas: 5, 7, 11, 12, 16, and 17	8000V, 8000W, 8000Y, 8001, 8001A, 8001B, 8001C, 8001D, 8001E, 8001F, 8001G, 8001H, 8001I, 8001J, 8002, 8002B, 8002C, 8002D, 8003, 8004, 8004F, 8006H, 8006I, 8007C, 8007K, 8008, 8008B, 8008C, 8008D, 8008E, 8008F, 8008H, 8008I, 8008K, 8009F, 8011, 8012, 8013, 8013A, 8014, 8014A, 8016, 8016A, 8016B, 8016D, 8017, 8018, 8019, 8021, 8026, 8026B, 8039C, 8039D, 8039M	Impacts would generally be negligible, and the same as Alternative A

Table 4-26
Impacts from Implementation-Level Decisions on Vegetation Monument Objects

Site Specific Area (Refer to Map 4-1)	BLM Routes in Site Specific Area (maps only available on CD version of DLUP – EIS)	Impact Analysis from Alternative B SDNM Route Designation Actions
Area 13	8007, 8007E, 8007G	7.8 acres of the grassland community would be potentially disturbed by designated open routes in the Vekol Valley Grassland ACEC. This community is susceptible to impacts from vehicle use due to the more erosive nature of the soil. Impacts from routes would be the direct loss of individual plants and potential increased soil erosion in areas surrounding the routes, leading to conditions that do not support a functioning and healthy vegetation community. Impacts would generally be minor, but could reach moderate if mitigation of routes does not occur resulting in conditions leading to severe erosion. Impacts can be minimized in this community by road closures, route limitations or stabilization of routes which would minimize the level of impact to vegetation. This would result in improved conditions for these sites to reclaim and revegetate.
Area 16	8008, 8008C, 8008K, 8013, 8013A, 8014, 8014A, 8016, 8016D, 8021	Approximately 29.6 acres of the area would be potentially disturbed by designated open routes. Impacts would be the same as those described under Alternative A and generally would be negligible.
Alternative C		
Alternative C SDNM Route Designation Actions		
• Approximately 24.2 miles of road and 358.1 miles of primitive road would be open to motorized vehicles. • Approximately 37 miles of trail would be allocated as open to nonmotorized and non-mechanical vehicles.		

Table 4-26
Impacts from Implementation-Level Decisions on Vegetation Monument Objects

SDNM Route Designations									
Area Analyzed	Roads			Primitive Roads			Trails		
	Open	Admin Only	Closed	Open	Admin Only	Closed	Open	Admin Only	Closed
6, 7, 9, 10, 11, 12, 14, 16, and 17	6.6	-	-	55.7 (31.3^)	-	8.5	34.3	-	-
1, 3, 4, 5, 6, 12, 14, 15, 16, and 17	7.0	0.4	-	67.3 (6.7*) (17.7^)	-	5.4	34.3 (1.4*)	-	-
5, 7, 11, 12, 16, and 17	3.5	-	-	33.0 (31.3^)	-	3.3	-	-	-
13	-	-	-	-	4.7	-	-	-	-
16	-	-	-	6.1 (1.3^)	-	0.9	-	-	-

*Open to nonmotorized use only, **Limited to 50 feet, ^ Seasonally Closed

Site Specific Area (Refer to Map 4-1)	BLM Routes in Site Specific Area (maps only available on CD version of DLUP – EIS)	Impact Analysis from Alternative C SDNM Route Designation Actions
Areas: 6, 7, 9, 10, 11, 12, 14, 16, and 17	8000V, 8000W, 8000Y, 8001, 8001A, 8001B, 8001G, 8001H, 8001J, 8002, 8002B, 8002C, 8002D, 8003, 8004, 8004F, 8006H, 8006I, 8007, 8007A, 8007B, 8007C, 8007D, 8007F, 8007K, 8008, 8008B, 8008C, 8008D, 8008E, 8008F, 8008H, 8008I, 8008K, 8009C, 8009E, 8009F, 8010, 8011, 8011A, 8011C, 8011D, 8011F, 8011G, 8012, 8013, 8013A, 8014, 8014A, 8015, 8015A, 8015B, 8015C, 8016, 8016A, 8016B, 8016D, 8017, 8018, 8019, 8021, 8026, 8026B, 8026, 8037, 8037A, 8037B, 8037C, 8037E, 8037F, 8037G, 8037H, 8037K, 8037O, 8037P, 8038B, 8038E, 8039, 8039K, 8039C, 8039D, 8039M, 8043, 8044, 8045, 8046	The impacts would be the same intensity as Alternative B for these areas, negligible, however minimized with 92.9 fewer acres impacted due to road closures.

Table 4-26
Impacts from Implementation-Level Decisions on Vegetation Monument Objects

Site Specific Area (Refer to Map 4-1)	BLM Routes in Site Specific Area (maps only available on CD version of DLUP – EIS)	Impact Analysis from Alternative C SDNM Route Designation Actions
Areas: 1, 3, 4, 5, 6, 12, 14, 15, 16, and 17	8000, 8000A, 8000B, 8000C, 8000D, 8000E, 8000F, 8000G, 8000J, 8000I, 8000K, 8000L, 8000M, 8000N, 8000O, 8000P, 8000Q, 8000R, 8000S, 8000T, 8000U, 8000V, 8000W, 8000X, 8000Y, 8001, 8001A, 8001B, 8001C, 8001D, 8001E, 8001F, 8001G, 8001H, 8001I, 8001J, 8002, 8002B, 8002C, 8002D, 8002E, 8002G, 8002H, 8003, 8003A, 8003B, 8004, 8004E, 8004F, 8004H, 8005, 8005A, 8005B, 8005C, 8005D, 8005E, 8005F, 8005H, 8005I, 8006H, 8006I, 8007C, 8007K, 8008, 8008C, 8008K, 8009K, 8012, 8013, 8013A, 8014, 8014A, 8016, 8016D, 8018, 8019, 8021, 8037, 8037A, 8037B, 8037C, 8037E, 8037F, 8037G, 8037H, 8037K, 8037L, 8037O, 8037P, 8037Q, 8037R, 8038B, 8038E, 8039, 8039A, 8039B, 8039C, 8039D, 8039H, 8039I, 8039J, 8039K, 8039L, 8039M	The impacts would be the same intensity as Alternative B for these areas, negligible, however minimized with 66.5 fewer acres impacted due to road closures.
Areas: 5, 7, 11, 12, 16, and 17	8000V, 8000W, 8000Y, 8001, 8001A, 8001B, 8001C, 8001D, 8001E, 8001F, 8001G, 8001H, 8001I, 8001J, 8002, 8002B, 8002C, 8002D, 8003, 8004, 8004F, 8006H, 8006I, 8007C, 8007K, 8008, 8008B, 8008C, 8008D, 8008E, 8008F, 8008H, 8008I, 8008K, 8009F, 8011, 8012, 8013, 8013A, 8014, 8014A, 8016, 8016A, 8016B, 8016D, 8017, 8018, 8019, 8021, 8026, 8026B, 8039C, 8039D, 8039M	Impacts would generally be the same as those described under Alternative A, just substantially decreased, as only 7.4 miles of routes would be open in wash areas. Impacts would be negligible.
Area 13	8007, 8007E, 8007G	Impacts from routes could potentially be the same as Alternative A, although somewhat reduced since public use would not be allowed. Impacts would likely be negligible.
Area 16	8008, 8008C, 8008K, 8013, 8013A, 8014, 8014A, 8016, 8016D, 8021	Impacts would be the same as those described under Alternative A, just substantially decreased. Impacts would be negligible.
Alternative D		
Alternative D SDNM Route Designation Actions		
• Approximately 24.2 miles of road and 200 miles of primitive road would be open to motorized vehicles. • Approximately 37 miles of trail would be allocated as open to nonmotorized and non-mechanical vehicles.		

Table 4-26
Impacts from Implementation-Level Decisions on Vegetation Monument Objects

SDNM Route Designations									
	Roads			Primitive Roads			Trails		
Area Analyzed	Open	Admin Only	Closed	Open	Admin Only	Closed	Open	Admin Only	Closed
6, 7, 9, 10, 11, 12, 14, 16, and 17	6.6	-	-	22.5 (1.8*)	6.1	65.2	-	-	-
1, 3, 4, 5, 6, 12, 14, 15, 16, and 17	7.0	0.4	-	37.2 (8.4*)	7.3	44.2	34.3 (1.4*)	-	-
5, 7, 11, 12, 16, and 17	3.5	-	-	11.0 (1.7*)	0.3	50.1	-	-	-
13	-	-	-	-	-	4.7	-	-	-
16	-	-	-	2.6	1.7	4.1	-	-	-

*Open to nonmotorized use only, **Limited to 50 feet, ^ Seasonally Closed

Site Specific Area (Refer to Map 4-1)	**BLM Routes in Site Specific Area (maps only available on CD version of DLUP – EIS)**	**Impact Analysis from Alternative D SDNM Route Designation Actions**
Areas: 6, 7, 9, 10, 11, 12, 14, 16, and 17	8000V, 8000W, 8000Y, 8001, 8001A, 8001B, 8001G, 8001H, 8001J, 8002, 8002B, 8002C, 8002D, 8003, 8004, 8004F, 8006H, 8006I, 8007, 8007A, 8007B, 8007C, 8007D, 8007F, 8007K, 8008, 8008B, 8008C, 8008D, 8008E, 8008F, 8008H, 8008I, 8008K, 8009C, 8009E, 8009F, 8010, 8011, 8011A, 8011C, 8011D, 8011F, 8011G, 8012, 8013, 8013A, 8014, 8014A, 8015, 8015A, 8015B, 8015C, 8016, 8016A, 8016B, 8016D, 8017, 8018, 8019, 8021, 8026, 8026B, 8026, 8037, 8037A, 8037B, 8037C, 8037E, 8037F, 8037G, 8037H, 8037K, 8037O, 8037P, 8038B, 8038E, 8039, 8039K, 8039C, 8039D, 8039M, 8043, 8044, 8045, 8046	The impacts would be the same as Alternative C for these areas, negligible, however minimized with 100.6 fewer acres impacted due to road closures.

Table 4-26
Impacts from Implementation-Level Decisions on Vegetation Monument Objects

Site Specific Area (Refer to Map 4-1)	BLM Routes in Site Specific Area (maps only available on CD version of DLUP – EIS)	Impact Analysis from Alternative D SDNM Route Designation Actions
Areas: 1, 3, 4, 5, 6, 12, 14, 15, 16, and 17	8000, 8000A, 8000B, 8000C, 8000D, 8000E, 8000F, 8000G, 8000J, 8000I, 8000K, 8000L, 8000M, 8000N, 8000O, 8000P, 8000Q, 8000R, 8000S, 8000T, 8000U, 8000V, 8000W, 8000X, 8000Y, 8001, 8001A, 8001B, 8001C, 8001D, 8001E, 8001F, 8001G, 8001H, 8001I, 8001J, 8002, 8002B, 8002C, 8002D, 8002E, 8002G, 8002H, 8003, 8003A, 8003B, 8004, 8004E, 8004F, 8004H, 8005, 8005A, 8005B, 8005C, 8005D, 8005E, 8005F, 8005H, 8005I, 8006H, 8006I, 8007C, 8007K, 8008, 8008C, 8008K, 8009K, 8012, 8013, 8013A, 8014, 8014A, 8016, 8016D, 8018, 8019, 8021, 8037, 8037A, 8037B, 8037C, 8037E, 8037F, 8037G, 8037H, 8037K, 8037L, 8037O, 8037P, 8037Q, 8037R, 8038B, 8038E, 8039, 8039A, 8039B, 8039C, 8039D, 8039H, 8039I, 8039J, 8039K, 8039L, 8039M	The impacts would be the same intensity as Alternative C for these areas, negligible, however minimized with 47 fewer acres impacted due to road closures.
Areas: 5, 7, 11, 12, 16, and 17	8000V, 8000W, 8000Y, 8001, 8001A, 8001B, 8001C, 8001D, 8001E, 8001F, 8001G, 8001H, 8001I, 8001J, 8002, 8002B, 8002C, 8002D, 8003, 8004, 8004F, 8006H, 8006I, 8007C, 8007K, 8008, 8008B, 8008C, 8008D, 8008E, 8008F, 8008H, 8008I, 8008K, 8009F, 8011, 8012, 8013, 8013A, 8014, 8014A, 8016, 8016A, 8016B, 8016D, 8017, 8018, 8019, 8021, 8026, 8026B, 8039C, 8039D, 8039M	Impacts would generally be the same as those described under Alternative A, just substantially decreased, as only 1.5 miles of routes would be open in wash areas. Impacts would be negligible.
Area 13	8007, 8007E, 8007G	Impacts are the same as those described under Alternative A.
Area 16	8008, 8008C, 8008K, 8013, 8013A, 8014, 8014A, 8016, 8016D, 8021	Impacts would be the same as those described under Alternative A, just substantially decreased by 12.3 acres of disturbance. Impacts would be negligible.
Alternative E (Proposed RMP)		
Alternative E (Preferred Alternative) SDNM Route Designation Actions		
• Approximately 24.2 miles of road and 331 miles of primitive road would be open to motorized vehicles. • Approximately 37 miles of trail would be allocated as open to nonmotorized and non-mechanical vehicles.		

Table 4-26
Impacts from Implementation-Level Decisions on Vegetation Monument Objects

SDNM Route Designations									
	Roads			Primitive Roads			Trails		
Area Analyzed	Open	Admin Only	Closed	Open	Admin Only	Closed	Open	Admin Only	Closed
6, 7, 9, 10, 11, 12, 14, 16, and 17	6.6	-	-	63.9 (31.3^)	0.3	-	34.3	-	-
1, 3, 4, 5, 6, 12, 14, 15, 16, and 17	7.0	0.4	-	72.5 (6.7*) (17.7^)	0.3	-	34.3 (1.4*)	-	-
5, 7, 11, 12, 16, and 17	3.5	-	-	35.9 (31.3^)	0.3	-	-	-	-
13	-	-	-	4.7	-	-	-	-	-
16	-	-	-	7.1 (7.1^)	-	-	-	-	-

*Open to nonmotorized use only, **Limited to 50 feet, ^ Seasonally Closed

Site Specific Area (Refer to Map 4-1)	BLM Routes in Site Specific Area (maps only available on CD version of DLUP – EIS)	Impact Analysis from Alternative E (Preferred Alternative) SDNM Route Designation Actions
Areas: 6, 7, 9, 10, 11, 12, 14, 16, and 17	8000V, 8000W, 8000Y, 8001, 8001A, 8001B, 8001G, 8001H, 8001J, 8002, 8002B, 8002C, 8002D, 8003, 8004, 8004F, 8006H, 8006I, 8007, 8007A, 8007B, 8007C, 8007D, 8007F, 8007K, 8008, 8008B, 8008C, 8008D, 8008E, 8008F, 8008H, 8008I, 8008K, 8009C, 8009E, 8009F, 8010, 8011, 8011A, 8011C, 8011D, 8011F, 8011G, 8012, 8013, 8013A, 8014, 8014A, 8015, 8015A, 8015B, 8015C, 8016, 8016A, 8016B, 8016D, 8017, 8018, 8019, 8021, 8026, 8026B, 8026, 8037, 8037A, 8037B, 8037C, 8037E, 8037F, 8037G, 8037H, 8037K, 8037O, 8037P, 8038B, 8038E, 8039, 8039K, 8039C, 8039D, 8039M, 8043, 8044, 8045, 8046	The impacts would be the same as Alternative C for these areas.

Table 4-26
Impacts from Implementation-Level Decisions on Vegetation Monument Objects

Site Specific Area (Refer to Map 4-1)	BLM Routes in Site Specific Area (maps only available on CD version of DLUP – EIS)	Impact Analysis from Alternative E (Preferred Alternative) SDNM Route Designation Actions
Areas: 1, 3, 4, 5, 6, 12, 14, 15, 16, and 17	8000, 8000A, 8000B, 8000C, 8000D, 8000E, 8000F, 8000G, 8000J, 8000I, 8000K, 8000L, 8000M, 8000N, 8000O, 8000P, 8000Q, 8000R, 8000S, 8000T, 8000U, 8000V, 8000W, 8000X, 8000Y, 8001, 8001A, 8001B, 8001C, 8001D, 8001E, 8001F, 8001G, 8001H, 8001I, 8001J, 8002, 8002B, 8002C, 8002D, 8002E, 8002G, 8002H, 8003, 8003A, 8003B, 8004, 8004E, 8004F, 8004H, 8005, 8005A, 8005B, 8005C, 8005D, 8005E, 8005F, 8005H, 8005I, 8006H, 8006I, 8007C, 8007K, 8008, 8008C, 8008K, 8009K, 8012, 8013, 8013A, 8014, 8014A, 8016, 8016D, 8018, 8019, 8021, 8037, 8037A, 8037B, 8037C, 8037E, 8037F, 8037G, 8037H, 8037K, 8037L, 8037O, 8037P, 8037Q, 8037R, 8038B, 8038E, 8039, 8039A, 8039B, 8039C, 8039D, 8039H, 8039I, 8039J, 8039K, 8039L, 8039M	The impacts would be the same intensity as Alternative C for these areas, negligible, however minimized with 18.6 fewer acres impacted due to road closures.
Areas: 5, 7, 11, 12, 16, and 17	8000V, 8000W, 8000Y, 8001, 8001A, 8001B, 8001C, 8001D, 8001E, 8001F, 8001G, 8001H, 8001I, 8001J, 8002, 8002B, 8002C, 8002D, 8003, 8004, 8004F, 8006H, 8006I, 8007C, 8007K, 8008, 8008B, 8008C, 8008D, 8008E, 8008F, 8008H, 8008I, 8008K, 8009F, 8011, 8012, 8013, 8013A, 8014, 8014A, 8016, 8016A, 8016B, 8016D, 8017, 8018, 8019, 8021, 8026, 8026B, 8039C, 8039D, 8039M	Impacts would be the same as Alternative D.
Area 13	8007, 8007E, 8007G	Impacts would be the same as Alternative C.
Area 16	8008, 8008C, 8008K, 8013, 8013A, 8014, 8014A, 8016, 8016D, 8021	Impacts would be the same as those described under Alternative A, just substantially decreased by 25.2 acres of disturbance. Impacts would be negligible.
Impacts on Vegetation Monument Objects from SDNM Livestock Grazing		
Impacts on vegetation Monument objects from SDNM livestock grazing AUM allocations would be the same as those described under **Section 4.26.4**, Implementation-Level Analysis for Vegetation Monument Objects, because the actions that address wildlife habitat likewise address vegetation characteristics and impacts from livestock grazing as well.		

CHAPTER 5

CONSULTATION AND COORDINATION

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CHAPTER 5
CONSULTATION AND COORDINATION

5.1 INTRODUCTION

This chapter describes the public outreach and participation opportunities made available through the development of this PRMP/EIS and consultation and coordination efforts with tribes, government agencies, and other stakeholders. This chapter also lists the agencies, organizations, and individuals that received a copy of the Draft RMP/EIS.

The BLM land use planning activities are conducted in accordance with NEPA requirements, CEQ regulations, and DOI and BLM policies and procedures implementing NEPA. NEPA and associated laws, regulations, and policies require BLM to seek public involvement early in and throughout the planning process to develop a reasonable range of alternatives to proposed actions and to prepare environmental documents that disclose the potential impacts of proposed actions and alternatives. Public involvement and agency consultation and coordination, which have been at the heart of the planning process leading to this PRMP/FEIS, were achieved through Federal Register notices, public comments on the Draft RMP/EIS, public and informal meetings, individual contacts, media releases, planning bulletins, and the Lower Sonoran-SDNM RMP Web site at: http://www.blm.gov/az/st/en/prog/planning/son_des.html.

5.2 PUBLIC COLLABORATION AND OUTREACH

Active involvement by the public helps to ensure that the alternatives considered address the diversity of public interests, builds trust between BLM and the public, creates public "buy-in" to and understanding of the eventual management decisions, and develops a working relationship that will carry into the shared implementation of those management decisions.

BLM has performed a variety of public outreach programs to increase involvement in the planning process. BLM has taken a two-pronged approach to public involvement. The first has been traditional public involvement through scheduled and announced public meetings, such as the public meetings at the scoping and draft comment periods.

The second approach has been public interaction through BLM participation at community meetings, special interest group meetings, and coordination with elected representatives. BLM staff were invited to speak at meetings in the communities of Tonopah, Buckeye, Gila Bend, Ajo, and Mobile as well as at numerous environmental and recreation groups. These informal meetings have provided the BLM an opportunity to explain the planning process and timeline, and to encourage citizen participation in the planning efforts. These meetings have been very helpful for both the planning effort and to identify issues that need immediate action, independent of the planning process. Several communities also have met independently to discuss public lands and develop recommendations to present to BLM. BLM has continued to actively encourage public involvement through the formal planning process, informal community meetings, and other methods.

5.2.1 SCOPING PROCESS

The Lower Sonoran-SDNM public scoping process began officially with the publication of Notices of Intent (NOIs) in the Federal Register. The NOI to initiate planning on the SDNM Decision Area was published on April 24, 2002 (Vol. 67, No. 79, Page 20158, [AZ-400-02-1610-DO-089A]), and the NOI to initiate planning on the Lower Sonoran (formerly known as the Phoenix South) Decision Area was published on December 9, 2002 (Vol. 67, No. 236, Page 72968, [AZ-020-03-1610-DO-089A]). The BLM also released the following:

- A Planning Bulletin to the entities on BLM's mailing list, including federal, state, county, and local agencies, tribes, organizations and special interest groups, and other interested parties. The Bulletin was published in both English and Spanish;
- Newspaper legal announcements in statewide and local papers; and
- Media and public service announcements in both English and Spanish to local and regional newspapers, television, and radio stations issued January 21-31, 2003.

A complete, detailed listing of the media outlets where information was released is included in the Scoping Report, which can be downloaded from the project Web site found on the Internet at: http://www.blm.gov/pgdata/etc/medialib/blm/az/pdfs/planning/son_des.Par.48097.File.dat/Scoping_Report.pdf.

BLM conducted 11 public scoping meetings during February and March of 2003. The open house scoping meetings were held in the Arizona communities of Maricopa, Gila Bend, Casa Grande, Globe-Miami, Ajo, Sells, Tucson, Buckeye, Mesa, Phoenix, and Yuma. Each of the 11 meetings was conducted in an open house format, allowing meeting participants to review maps and display boards of each planning area and to ask specific questions one-on-one with BLM staff about the RMP/EIS process.

Comments received during the initial scoping period largely fell into the following three categories:

- Public Values – those features or qualities valued by various members of the public, such as an area's natural beauty, the quiet peaceful surroundings, and a place to "get away from it all" without having to travel great distances;
- Public Activities – those activities that the public noted doing on public lands, such as hiking, hunting, sight-seeing, camping, wildlife observation, and driving and motorized touring; and
- Desired Management – the public's ideas and input for how BLM should manage the public lands in the Lower Sonoran Field Office area and Sonoran Desert National Monument, which focused on managing for resource protection and to provide public access to the lands.

Section 1.3.4, Planning Issues Addressed in the RMP Process, summarizes the issues raised during scoping. Additional details can be found in the Scoping Report on the project Web site.

5.2.2 PROJECT WEB SITE

The BLM maintains a project Web site to provide the public with the latest information about the RMP/EIS process. The Web site, available at: http://www.blm.gov/az/st/en/prog/planning/son_des.html, provides background information about the project, a public involvement timeline and calendar, maps and photos of the planning area, copies of documents such as the NOIs, newsletters, the Draft RMP/EIS, and point-of-contact information.

5.2.3 MAILING LIST

The BLM compiled a mailing list of the individuals, agencies, and organizations that had participated in past BLM projects. Attendees at the scoping open houses, and public meetings were added to the mailing list if they wanted to receive or continue to receive project information. In addition, all individuals or organizations who submitted scoping comments and comments on the Draft RMP/EIS were added to the mailing list. Through this process, the mailing list was revised and now includes approximately 500 entries. Requests to be added to or to remain on the official Lower Sonoran-SDNM RMP distribution list will continue to be accepted throughout the planning process.

5.3 CONSULTATION AND COORDINATION

5.3.1 AGENCY COORDINATION

Agency coordination is an important step in a successful collaborative process for several reasons. First, early involvement with other federal, tribal, state, and local governments establishes a solid working relationship with each agency. Next, coordination builds trust and credibility between agencies that can then be transferred to the public. Finally, coordination will help ensure that BLM develops land use decisions that are supported by and conform to other jurisdictions in any given area to the maximum extent possible.

BLM has coordinated with federal, state, and county agencies throughout the planning and EIS process. The BLM has gathered issues, ideas, and concerns, and discussed the role of agencies in the process. A full listing of the agencies that BLM coordinated with can be found in the Scoping Report at: http://www.blm.gov/pgdata/etc/medialib/blm/az/pdfs/planning/son_des.Par.48097.File.dat/Scoping_Report.pdf.

A letter introducing the RMP/EIS, identifying data-gathering efforts, and offering agencies the opportunity to become cooperating agencies in the planning efforts was sent to more than 200 agencies. A cooperating agency meeting was held at the Arizona State Office on October 30, 2002. The purpose of the meeting was to discuss BLM's planning process, collaborative planning, and the meaning and responsibilities of cooperating agency status. Opportunities for involvement in BLM's planning process without becoming a cooperating agency also were discussed. It was made clear that BLM's goal was to encourage involvement by all interested parties using whatever methods the parties wished.

MOUs have been developed for those agencies choosing to be a cooperating agency on the Lower Sonoran-SDNM RMP/EIS to outline the roles and responsibilities of the cooperating agencies and the BLM throughout the planning process. BLM has signed MOUs with the following agencies:

- Arizona Game and Fish Department
- Arizona Department of Transportation

5.3.2 TRIBAL GOVERNMENT-TO-GOVERNMENT CONSULTATION

BLM contacted the following tribes by letter on July 25, 2002, to initiate consultations and to reiterate the opportunity to be a cooperating agency in the planning process:

- Ak-Chin Indian Community
- Fort McDowell Yavapai Nation
- Fort Sill Apache Tribe
- Gila River Indian Community
- Hopi Tribe
- Pascua Yaqui Tribe
- Salt River Pima-Maricopa Indian Community
- San Carlos Apache Tribe
- Tohono O'odham Nation
- Tonto Apache Tribe
- White Mountain Apache Tribe
- Yavapai-Apache Indian Community
- Yavapai-Prescott Indian Tribe

On June 28, 2002, a meeting was held at the Ak-Chin tribal headquarters with the Cultural Resources Committee of the Four Southern Tribes (Ak-Chin Indian Community, Gila River Indian Community, Salt River Pima-Maricopa Indian Community, and the Tohono O'odham Nation). The planning process and planning areas were described, and formal consultation, cooperating agency status, and community involvement and collaboration were discussed. Tribal staff emphasized the importance of ongoing and regular consultation, protection of cultural and natural resources, and the need for law enforcement to protect cultural sites from damage and looting.

On August 21, 2002, Phoenix District Office (PDO) staff met with the Hopi Cultural Preservation Office staff at the Hopi Tribal Government Complex. The primary interest of the staff was the Agua Fria National Monument, but the staff did reiterate the need for continuing consultations for all public lands in Arizona. Hopi staff emphasized the importance of protecting cultural sites, and restricting uses that

may adversely affect those sites. Other concerns included the BLM reburial policy and scientific testing and data recovery.

On September 17, 2002, PDO staff met with Tohono O'odham Nation cultural and natural resources staff, legislative council members, and representatives of the Tribal Chairman. BLM provided a short presentation on the planning process and planning areas, and formal consultation, cooperating agency status, and community involvement and collaboration were discussed. The Tohono O'odham Nation staff was interested in natural and cultural resource protection; grazing management; law enforcement, both with regard to cultural resource site protection, undocumented immigrants, and drug smuggling; and opportunities for co-management of the SDNM. The Tohono O'odham Nation was interested in acquiring two parcels of land: Darby Wells near Ajo (the effort to make this land available is currently underway) and the Florence Cemetery. The Tohono O'odham Nation was also interested in becoming a cooperating agency. On October 18, 2002, a follow-up meeting was held with the Legislative Resource Committee of the Tribal Council to provide information on the planning process and further discuss issues of interest to the Tohono O'odham Nation.

On September 18, 2002, PDO staff met with the Ak-Chin Indian Community Tribal Council. BLM provided a short presentation on the planning process and planning areas; formal consultation, cooperating agency status, and community involvement and collaboration were discussed. The Ak-Chin expressed interest in cultural resource protection, particularly on the SDNM, and requested that BLM keep the Ak-Chin cultural staff informed on progress in the planning process.

On March 28, 2003, a field trip was held with representatives from the Four Southern Tribes on the SDNM. The trip included stops at a petroglyph site, historic Papago site, archaic site, and the Vekol Grasslands ACEC. In addition to discussion of each site and appropriate protection measures, BLM's categorization process for cultural sites and the ongoing Class I Cultural inventory were discussed.

In addition to formal consultation and opportunities to become cooperating agencies, the tribes were invited to attend the agency scoping meeting held on June 5, 2003. Throughout 2004, the BLM presented planning effort updates and information to several tribes and tribal groups, including the Four Southern Tribes Cultural Resources Working Group, the Tohono O'odham Nation, the Ak-Chin Indian Community and the Gila River Indian Community. Topics included updates on the plan's status and discussion of cultural and heritage resource issues. In 2005, the BLM met with the Ak-Chin Indian Community to discuss concerns regarding access into certain tribal lands and BLM reviewed the travel management planning and route designation process for the planning effort. In February 2005, the BLM sent out letters to 13 consulting tribes with draft management alternatives and planning effort status, including information on public workshops for discussing the preliminary alternatives. Additionally, throughout 2005, the BLM was in regular contact with several tribes to discuss cultural resource issues, travel management designations, and route access to tribal lands. Between 2006 and release of the Draft RMP/EIS in August 2011, the BLM had annual meetings with the tribes to discuss the planning efforts status and other issues that concerned the tribes; these issues generally focused on preservation of cultural resources, access to tribal lands, and land tenure adjustments.

In August 2011, BLM held a meeting at the Cultural Resource Working Group of the Four Southern Tribes to discuss the pending release of the Draft RMP/EIS and how the tribes would be able to comment on the document.

5.3.3 SECTION 106 CONSULTATION

In accordance with the requirements of Section 106 of the National Historic Preservation Act, the BLM is coordinating with and soliciting input from the Arizona SHPO. The BLM and Arizona SHPO are following the coordination protocols in the Arizona Protocol relating to amending resource management plans; the protocol provides for a phased consultation process related to historic, traditional, and cultural resources for an EIS and subsequent activities that could tier from a ROD. Per these procedures, the BLM Arizona initiated consultation with the Arizona SHPO by written correspondence in 2003. The letter described the Lower Sonoran-SDNM RMP/EIS and specified the need to consult on information presented in the EIS.

Over the course of the planning process, BLM met with or contacted the SHPO to share updates and information on the planning effort, including sending a copy of the Scoping Report in February 2004 and the Draft RMP/EIS in October 2011. On October 21, 2011, the BLM send a letter to the SHPO detailing the history of the planning effort and requesting review and comment on the Draft RMP/EIS by the SHPO. On November 14, 2011, the BLM received the SHPO's comments on the Draft RMP/EIS noting comments regarding impacts to cultural resources and associated mitigation outlined in the plan.

5.3.4 SECTION 7 CONSULTATION

In accordance with the requirements of Section 7 of the ESA, the BLM is currently consulting with the USFWS to ensure that the BLM's proposed action would not jeopardize the continued existence of any listed threatened, endangered, or proposed species or critical habitat.

BLM is currently working on the BA and has had one meeting with the USFWS to explain the proposed action and the format used for the effects determinations for the four listed species in the Lower Sonoran-SDNM BA from the preferred alternative. Once a draft BA is completed, BLM will deliver the draft to the USFWS for comments and clarification.

From these ongoing consultations, the USFWS will develop a BO which can include conservation recommendations to minimize or avoid possible adverse effects on listed species or their critical habitat. It can also impose reasonable and prudent measures needed to minimize any harmful impacts, and can require monitoring and reporting to ensure adequate protection compliance. A BO prevents unacceptable harm to an ESA-listed species or its habitat, and is purely biological: it is a scientific judgment about a proposed action, not a policy document.

5.3.5 FEDERAL AND MILITARY COORDINATION

The BLM has coordinated with other federal agencies and military installations within the Planning Area, including the National Park Service and US Air Force. The BLM and National Park Service met to discuss management options in the Ajo Block area, specifically regarding land tenure adjustments, land use authorizations, rights-of-way, borderland and associated law enforcement issues, national park access, boundary management, endangered species management, recreation, and comprehensive travel management decisions. The BLM has coordinated with the Base Executive Council and Interagency Executive Committee regarding the planning efforts and military involvement for borderlands, travel and recreation management, land restoration, and threatened and endangered species management on Luke

Air Force Base and the Barry M. Goldwater Air Force Range military installations, and management of public lands in the Ajo Block, Sentinel Plain, and SDNM.

The BLM also works with the Borderlands Management Taskforce, which coordinates all federal agencies involved with borderlands management. BLM's responsibility is to manage and protect natural resources, protect employees and public land users, and coordinate with all other law enforcement agencies (e.g., county, state, and federal agencies, including Immigration and Customs Enforcement). Issues include impacts related to undocumented immigration, drug and human trafficking, and coordinated management and mitigation measures.

5.3.6 ARIZONA GOVERNOR'S OFFICE COORDINATION

The BLM has coordinated and consulted with the Arizona governor and governor's office and other state agencies. BLM met with the Arizona Department of Transportation to review regional transportation plans and discuss the agency's concerns and questions. Additionally, BLM has had extensive coordination with the Arizona Game and Fish Department to discuss wildlife management, public access route designations, and wildlife movement corridors. BLM also invited AGFD to participate in and/or comment on the target shooting analysis; however, BLM has not received a response or comments on this issue.

Prior to approval of the PRMP/FEIS, the governor will be given the opportunity to identify any inconsistencies between the proposed plan and state or local plans, policies, and programs, and to provide recommendations in writing (during the 60-day consistency review period).

5.3.7 LOCAL GOVERNMENT

The BLM has coordinated and consulted with local governments throughout the planning process. BLM met with the Maricopa County Department of Transportation regarding regional transportation issues, including discussion of anticipated highway planning projects. BLM also met with the Maricopa County and Pinal County Park and Recreation departments to discuss recreation-related land management coordination efforts for the Saddle Mountain, Buckeye Hills, and San Tan Mountains areas. BLM also met with the Town of Gila Bend regarding their recreation and development interests.

Additionally, BLM has reviewed numerous county planning documents, including the Pinal County Comprehensive Plan, the Pinal County Open Space and Trails Master Plan, and the City of Maricopa's Parks, Trails, and Open Space Master Plan. BLM's planning guidance notes that RMPs shall be consistent with other federal, state, and local plans to the maximum extent consistent with federal law and FLPMA provisions, and assure that consideration is given to those state and local plans relevant to the development of land use plans for public lands. BLM has reviewed these county plans for consistency and found that the actions proposed in the PRMP are generally consistent with the intent and actions in the county plans.

Local governments submitted scoping comments when BLM initiated the planning effort and reviewed and commented on the Draft RMP/EIS. BLM will continue to coordinate with local governments after the RODs are signed.

5.3.8 PUBLIC OUTREACH AND LOCAL CONSTITUENCY GROUPS

In an effort to provide outreach to the local communities in the planning area, BLM contacted constituency groups with interest in several of the planning issues. BLM contacted several shooting groups to discuss the target shooting analysis, including the Table Mesa Coalition, the Arizona State Rifle and Pistol Association, and the AGFD. The Table Mesa Coalition provided feedback on the shooting analysis, including information on safe shooting practices and distances and areas that should remain open for shooting activities.

5.4 PUBLIC COMMENT ON THE DRAFT RMP/EIS

The EPA published a Notice of Availability (NOA) of the Draft RMP/EIS on August 25, 2011. The NOA initiated the 90-day public comment period required for planning actions. In preparing the PRMP/FEIS, the BLM considered all comments received or postmarked during the public comment period. The DRMP/DEIS was made available for viewing, downloading, and commenting by a variety of methods, including as a PDF on the BLM Web site, CD, paper copies, and on the BLM's ePlanning system.

5.4.1 PUBLIC MEETINGS AND PUBLIC NOTIFICATION

The BLM held 8 public meetings in the Planning Area in October 2011. Meeting locations included Phoenix, Ajo, Gila Bend, Mesa, Casa Grande, and Buckeye.

Over 200 people attended the public meetings. The largest number of attendees was from non-affiliated individuals, followed by non-profit organizations, local clubs, and government agencies.

5.4.2 EPLANNING

The Lower Sonoran-SDNM DRMP/DEIS is one of the first in BLM to use the latest version of ePlanning., It was published in the ePlanning system in order to streamline preparation and organization of the document, and make it more easily accessible to the public for viewing and commenting. Information on ePlanning can be found at Internet Web site:
http://www.blm.gov/wo/st/en/prog/planning/planning_overview/eplanning2.html.

All comments submitted regarding difficulties using the ePlanning application are being considered in the maintenance of the software application and in future upgrades.

5.4.3 SUMMARY OF COMMENTS

The comment period closed on November 25, 2011. All written comments sent prior to midnight (12:00 AM on November 25, 2011) were accepted as official comments. Methods of submitting comments included the ePlanning web platform, letters, facsimiles, and email messages. All comments, regardless of how they were submitted, received equal consideration.

Over 250 organizations, government agencies, industry representatives, and individuals responded during the comment period. Most of the written submissions contained multiple comments on different topics, and over 500 unique comments were made. All information received through these comments has been

evaluated, verified, and incorporated into the Final EIS, as appropriate. If you are interested in reviewing individual letters or the complete set of letters received on the Draft RMP/EIS, they are available for viewing through the PDO web site and on compact disc by request.

Comments on the DRMP/DEIS pertained to a number of issues, including but not limited to scope of the document, NEPA adequacy of the baseline data and impact analysis, information related to consultation and coordination on the project, and policies and guidance the BLM needed to follow. In addition, comments were received for the following resources and resource uses: air quality, cultural resources, fish and wildlife, livestock grazing, land use and special designations, minerals and energy, noise, national scenic and historic trails, recreation, socioeconomics, special status species, tribal interests, vegetation, visual resources, and water resources. BLM responses to the comments are presented in **Chapter 6**, Comments Received on the Draft EIS.

5.5 LIST OF PREPARERS

Table 5-1
List of Preparers

Name	Degree	Role
Preparers: 2011 Draft RMP/EIS and 2012 PRMP/FEIS		
Bureau of Land Management, Management Team		
Angelita S. Bulletts	B.S., Anthropology	Phoenix District Manager
Emily Garber	B.A., Anthropology M.A., Anthropology;	Lower Sonoran Field Manager
Richard B. Hanson	B.S., Park and Recreation Resources	Sonoran Desert National Monument Manager and Recreation/Wilderness
Bureau of Land Management, Interdisciplinary Team		
Brian Achziger	Fire Science	Fire Management Specialist, Fuels – Phoenix District Office
Barbara Albiston	B.S., English	Writer/Editor – Boise District Office
Don Applegate	B.S., Recreation Resources Management	Recreation Program Lead – Arizona State Office
Leah Beaudoin Baker	M.A., Global Environmental Policy; B.S., Biology	Planning and Environmental Coordinator – Phoenix District Office
Mike Behrens	M.S., Forest Science/Fire Ecology; B.S., Forest Science	Fire Management Officer – Phoenix District Office (Former)
Jameson Belke	B.S., Geography/Cartography	GIS Specialist – Phoenix District Office (Former)
Thomas V. Bickauskas	B.S., Manufacturing Engineering Technology	Travel Management Coordinator – Hassayampa Field Office
Steve Bird	B.S., Wildlife Sciences	Wildlife Biologist – Sonoran Desert National Monument
Todd Calico	B.I.S., Natural Resources Management and Environmental Studies, GIS Certificate	GIS Specialist – Arizona Strip Office
Bill Coulloudon	B. S., Rangeland Management	Range Management Specialist – Arizona State Office
David Eddy	B.S., Geology	Geologist – Hassayampa Field Office

Table 5-1
List of Preparers

Name	Degree	Role
Andrea Felton	M.S., Range and Wildlife Management; B.A, English	Rangeland Management Specialist — Lower Sonoran Field Office
Sharisse Fisher	B.S., Geography	GIS Specialist – Phoenix District Office
Penny Foreman	B.S., Business Management; B.S., Recreation and Tourism Management	LS-SDNM RMP Project Manager – Lower Sonoran Field Office
Chris Garbo	M.U.E.P, Urban & Environmental Planning; B.S., Regional Development	Planning and Environmental Assistant – Lower Sonoran Field Office (Former)
Jeff Garrett	B.S., Geology	Mining Law Program Lead – Arizona State Office
Jo Ann Goodlow	M.P.M., Planning Management	Reality Specialist– Lower Sonoran Field Office
Chris Horyza	B.S., Forestry and Range Management	Arizona BLM Planning and Environmental Program Lead – Arizona State Office
Michael Johnson	M.A., Anthropology; B.A. Anthropology	Deputy Preservation Officer – Arizona State Office
Byron Lambeth	B.S., Rangeland Management	Rangeland Resources – Lower Sonoran Field Office (Former)
Mariano Lanza	B.S., Environmental Technology Management and Engineering	Surface Protection Specialist, Hazardous Materials, Public Safety – Lower Sonoran Field Office
Matthew Magaletti	M.U.E.P., Urban and Environmental Planning; B.S., Planning	Realty Specialist/Assistant Planning and Environmental Coordinator – Lower Sonoran Field Office (Former)
Ken Mahoney	B.S., Leisure Studies, Park Planning & Resource Management	National Landscape Conservation System Coordinator – Arizona State Office
Elroy Masters	B.A., Biology	State Fish and Wildlife Program Lead – Arizona State Office
Joshua Mays	B.S., Wildlife and Restoration Ecology	Biological Science Technician – Lower Sonoran Field Office (Former)
Roger Oyler	B.S., Agriculture, Range Science	Arizona Wild Horse and Burro Program Lead – Arizona State Field Office
David G. Proffitt	M.U.E.P., Urban & Environmental Planning; B.A. English	Writer/Editor & Assistant Environmental Planner – Lower Sonoran Field Office (Former)
William J. Ragsdale	B.S., Agriculture	Outdoor Recreation Planner – Lower Sonoran Field Office
Jim Renthal	M.S., Watershed Management	Soil, Water, Air, Riparian Program Lead – Arizona State Office
David L. Scarbrough	B. S., Forestry	Outdoor Recreation Planner – Sonoran Desert National Monument

Table 5-1
List of Preparers

Name	Degree	Role
Paul Sitzmann	B.A., Ecology and Evolutionary Biology	Range Technician – Phoenix District Office, Wildlife Biologist Agua Fria National Monument
Michael Werner	B.S., Natural Resources	Realty Specialist – Arizona State Office
Ammon Wilhelm	B.S., Fish and Wildlife Management	Wildlife Biologist – Kingman Field Office
EnviroSystems Management 2011 Draft RMP/EIS		
Lilian Jonas	Ph.D., Sociology; M.A., Applied Sociology; B.S., Biology	Writer/Editor
Environmental Management and Planning Solutions, Inc., Interdisciplinary Team 2012 PRMP/FEIS		
Angie Adams	BA, Biology, English Minor, Drake University, 1995	Transportation, Recreation
David Batts	MS, Natural Resource Planning, Michigan State University, 1993 BS, International Development, Lewis and Clark College, 1989	Socioeconomics
James Bode	BA, Environmental Studies, University of Colorado at Boulder, 2009	Socioeconomics; Technical Editing
Amy Cordle	BS, Civil Engineering, Virginia Polytechnic Institute and State University, 1992	Air Quality, Climate Change
Annie Daly	BA, Environmental Studies, Loyola Marymount University, 2011	Fire Management, Hazardous Materials
Zoe Ghali	MS, Environmental Physiology, University of Colorado, Boulder, 2006; Interdisciplinary Certificate in Environmental Policy, University of Colorado, Boulder, 2006; BS, Biology, University of California, Santa Barbara, 2001	Socioeconomics
Holly Prohaska	MS, Environmental Management, University of San Francisco (2000); BA, Marine Science / Biology, University of San Diego (1995)	Public Outreach, Project Management
Laura Long	MA, 2010, Media and Communications, European Graduate School; BA, 2004, English Literature, Florida State University	Technical Editor
Carol-Anne Murray	MA, Anthropology, University of Wyoming, 1997; BA, Anthropology, University of California, Los Angeles, 1992	Project Manager, Cultural Resources, Paleontology, Tribal Interests

Table 5-1
List of Preparers

Name	Degree	Role
Katie Patterson	JD, Environmental Law, University of Colorado –Boulder 2011; BA, Environmental Policy, Vanderbilt University, 2008	Air Quality, Climate Change
Jennifer Thies	MS, Resource Management, University of Nevada Reno, 1998; BS, Conservation and Resource Studies, University of California, Berkeley, 1993	Lands and Realty
Drew Vankat	MS, Environmental Policy and Planning, University of Michigan, 2006; BPh, Urban and Environmental Planning, Miami University, 2003	Travel Management, Recreation
Jennifer Whitaker	MS, Project Management, Regis University, 2007; BS, Public Affairs, Concentration Natural Resource Management, Indiana University, 1997	Mineral Resources
Kate Wynant	BA, Environmental Studies; Spanish; Minor in Political Science; University of Colorado – Boulder, 2006	Visual Resources Management
Meredith Zaccherio	MS, Biology, Boston University, 2005; BS, Biology, SUNY Binghamton, 2001; BS, Environmental Science, SUNY Binghamton, 2001	Plants and Wildlife
Preparers: 2006 Administrative Draft		
Bureau of Land Management, Management Team		
Teresa A. Raml	B.S., Wildlife Biology	Phoenix District Manager (Former); District Manager – California Desert District
Marshal Kevin Harper	M.A., Archaeology	Lower Sonoran Field Manager (Former)
Ralph Costa	B.S., Engineering	Lower Sonoran Acting Associate Field Manager for Lands and Minerals (Retired)
Eugene Dahlem	M.S., Zoology	Sonoran Desert National Monument Manager (Retired)
Karen Kelleher	M.E.M., Landscape Ecology	Sonoran Desert National Monument Manager (Former)
Bureau of Land Management, Interdisciplinary Team		
Jim Andersen	B.S., Natural Resource Management	Lead Realty Specialist – Hassayampa Field Office
Camille Champion	M.S., Environmental Sciences; B.S., Geology	Lands and Realty – Lower Sonoran Field Office (Former)
William Crolly	A.S., Forest Technician, Technical Fire Management	Fire Management – Phoenix District Office (Former)

Table 5-1
List of Preparers

Name	Degree	Role
Joseph Dixon	M.A., Geology; B.A., Geology	Mineral Resources – Sonoran Desert National Monument (Former)
Lin Fehlmann	B.S., Secondary Education, Biological Resources	Water Rights – Arizona State Office (Retired)
Helen Graham	B.S., Biology	Fire Management – Phoenix District Field Office (Former)
Nancy Guererro	B.A., Communications	External Affairs – Phoenix District Office (Former)
Genevieve Johnson	M.U.E.P., Urban and Environmental Planning; B.S., Conservation Biology	Project Manager, Socioeconomics – Lower Sonoran Field Office (Former)
Glenn Joki	B.S., Engineering Studies	Fire Management – Phoenix District Office (Retired)
James Maes	B.S., Mechanical Engineering	Air Quality, Hazardous Materials, Public Safety – Lower Sonoran Field Office (Former)
Angel Mayes	A.A., General Studies	Realty Specialist – Sonoran Desert National Monument (Former)
Sally Olivieri	A.S., Forest Technician	Geographic Information Systems and Mapping – Kingman Field Office
Demetrius Purdie-Williams	B.S., Technology	Geographic Information Systems and Mapping – Phoenix District Office (Former)
Kirk N. Rentmeister	B.S., Geology	Geologist – Hassayampa Field Office (Former)
Gregg Simons	B.S., Forest Management	BLM State Planning and Environmental Coordinator – Arizona State Office (Retired)
Christine Tincher	B.A., Communication	External Affairs – Phoenix District Office (Former)
Lori Young	B.S., Wildlife Management	Wildlife Biologist – Sonoran Desert National Monument (Former)
EnviroSystems Management, Interdisciplinary Team		
Sunny Bush	M.T., Hazardous Materials and Waste Management; B.A., English	Hazardous Materials, Public Health and Safety
Debra Duerr	B.A., Urban Planning	Project Manager, Visual Resources
URS Corporation, Interdisciplinary Team		
Kirsten Erickson	M.A., Public History and US History; B.A., History	Cultural and Heritage Resources
Jennifer Frownfelter	M.S., Environmental Management, Public Policy; B.S., Environmental, Population, and Organismic Biology, Environmental Conservation	Lands and Realty

Table 5-1
List of Preparers

Name	Degree	Role
Jeff Johnson	M.S., Plant Biology; B.S., Plant Biology	Biological Resources, Fire and Fuels
Colleen Mahoney	None	Administrative Support
Peter Martinez	M.A., Geography Information Management; B.S., Environmental Geography	Database and Web Applications
Brad Norling	M.S., Zoology and Physiology; B.S., Wildlife Biology	Biological Resources
Dave Palmer	M.A., Geology; B.S., Geology	Minerals, Geological and Paleontological Resources, Cave Resources
Meg Quarrie	B.A., Liberal Arts	Administrative Support
Ryan Rausch	M.S.E.L., Environmental Law; B.A., Biology	Project Coordinator, Water Resources, Soils
Patty Renter	Geography, Visual Basic, Introduction to ArcView, Computer information Systems	Geographic Information Systems
Gene Rogge	M.A., Anthropology; B.A., Anthropology	Cultural and Heritage Resources
Cindy Smith	B.S., Liberal Arts and Sciences	Principal-in-Charge
Barbara Sprungl	M.B.A., Business Administration; B.S., Chemical Engineering	Air Quality
Brock Tunnicliff	Ph.D., Natural Resource Management; M.S., Watershed Hydrology; B.S., Forest Ecology	Wilderness Characteristics, Travel Management, Special Designations, Recreation
Leslie Watson	B.S., Zoology	Biological Resources
Sandy Weir	B.S., Geography	Socioeconomics
Jessica Wellmeyer	M.S., Geology; B.S., Geology	Water Resources and Soils
Jen Wennerlund	M.S., Geography; B.S., Geography, Cartography, Remote Sensing, Land Use Planning	Geographic Information Systems Manager

CHAPTER 6

RESPONSE TO COMMENTS ON THE DRAFT RMP/DRAFT EIS

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CHAPTER 6
RESPONSE TO COMMENTS ON THE DRMP/DEIS

6.1 INTRODUCTION

After publishing the DRMP/DEIS, the BLM had a 90-day public comment period to receive comments on the DRMP/DEIS. The BLM received written comments by mail, email, and submitted at the public meetings. Comments covered a wide spectrum of thoughts, opinions, ideas, and concerns. BLM recognizes that commenters invested considerable time and effort to submit comments on the DRMP/DEIS, and developed a comment analysis methodology to ensure that all comments were considered as directed by NEPA regulations.

According to NEPA, BLM is required to identify and formally respond to all substantive public comments. BLM developed a systematic process for responding to comments to ensure all substantive comments were tracked and considered. Upon receipt, each comment letter was assigned an identification number and logged into CommentWorks, a Web-based database that allowed the BLM to organize, categorize, and respond to comments. Substantive comments from each letter were coded to appropriate categories based on content of the comment, retaining the link to the commenter. The categories generally follow the sections presented in the DRMP/DEIS, though some relate to the planning process or editorial concerns.

Comments similar to each other were grouped under a topic heading, and BLM drafted a statement summarizing the ideas contained in the comments. The responses were crafted to respond to the comments; a response indicates whether or not the commenters' points resulted in a change in the document. As a result of public comments, changes were made to the DRMP/DEIS and reflect consideration given to public comments. A summary of major changes between the DRMP/DEIS and the Proposed RMP/Final EIS can be found in **Section 1.7**, Changes between the DRMP/DEIS and the PRMP/FEIS in **Chapter 1**, Purpose and Need for the RMP.

Although each comment letter was diligently considered, the comment analysis process involved determining whether a comment was substantive or nonsubstantive in nature. In performing this analysis, BLM relied on the CEQ's regulations to determine what constituted a substantive comment.

A substantive comment does one or more of the following:

- Questions, with a reasonable basis, the accuracy of the information and/or analysis in the EIS;
- Questions, with a reasonable basis, the adequacy of the information and/or analysis in the EIS;
- Presents reasonable alternatives other than those presented in the Draft EIS that meet the purpose and need of the proposed action and addresses significant issues;
- Questions, with a reasonable basis, the merits of an alternative or alternatives;

- Causes changes in or revisions to the proposed action; and
- Questions, with a reasonable basis, the adequacy of the planning process itself.

Additionally, BLM's NEPA handbook identifies the following types of substantive comments:

- Comments on the Adequacy of the Analysis: Comments that express a professional disagreement with the conclusions of the analysis or assert that the analysis is inadequate are substantive in nature but may or may not lead to changes in the Proposed RMP/Final EIS. Interpretations of analyses should be based on professional expertise. Where there is disagreement within a professional discipline, a careful review of the various interpretations is warranted. In some cases, public comments may necessitate a reevaluation of analytical conclusions. If, after reevaluation, the manager responsible for preparing the EIS (authorized office [AO]) does not think that a change is warranted, the response should provide the rationale for that conclusion.
- Comments That Identify New Impacts, Alternatives, or Mitigation Measures: Public comments on a draft EIS that identify impacts, alternatives, or mitigation measures that were not addressed in the draft are substantive. This type of comment requires the AO to determine whether it warrants further consideration. If it does, the AO must determine whether the new impacts, new alternatives, or new mitigation measures should be analyzed in the Final EIS, a supplement to the Draft EIS, or a completely revised and recirculated Draft EIS.
- Disagreements with Significance Determinations: Comments that directly or indirectly question, with a reasonable basis, determinations regarding the significance or severity of impacts are substantive. A reevaluation of these determinations may be warranted and may lead to changes in the Final EIS. If, after reevaluation, the AO does not think that a change is warranted, the response should provide the rationale for that conclusion.

Comments that failed to meet the above description were considered nonsubstantive. Many comments received throughout the process expressed personal opinions or preferences, had little relevance to the adequacy or accuracy of the DRMP/DEIS, or represented commentary regarding resource management without any real connection to the document being reviewed. These comments did not provide specific information to assist the planning team in making a change to the Preferred Alternative, did not suggest other alternatives, and did not take issue with methods used in the DRMP/DEIS, and are not addressed further in this document. Examples of some of these comments include the following:

- The best of the alternatives is Alternative D (or A, B, or C);
- BLM has yet to show land stewardship at or above the level currently demonstrated by the private sector;
- Your plan does not reflect balanced land management;
- Stop giving away land to the mineral companies;

- More land should be protected as wilderness;
- I want the EIS to reflect the following for this area: no grazing, no logging, no drilling, no mining, and no OHVs;
- You need to protect all ACECs/Wild and Scenic Rivers/areas with wilderness characteristics;
- Do not add any more road closures to what is now in existence;
- People need access and the roads provide revenue for local communities; and
- More areas should be made available for multiple uses (drilling, OHVs, ROWs, etc.) without severe restrictions.

Opinions, feelings, and preferences for one element or one alternative over another, and comments of a personal and/or philosophical nature were all read, analyzed, and considered, but because such comments are not substantive in nature, BLM did not respond to them. It is also important to note that while all comments were reviewed and considered, comments were not counted as "votes." The NEPA public comment period is neither considered an election nor does it result in a representative sampling of the population. Therefore, public comments are not appropriate to be used as a democratic decision-making tool or as a scientific sampling mechanism.

Comments citing editorial changes to the document were reviewed and incorporated. The Proposed RMP/Final EIS has been extensively technically edited and revised to fix typos, missing references, definitions, and acronyms, and other clarifications as needed.

6.1.1 HOW THE CHAPTER IS ORGANIZED

The chapter is divided up into three main sections. **Section 6.1**, Introduction, provides an overview of the comment response process. **Section 6.2**, Issue Topics and Responses, contains comments, summary statements, and responses for all topics except livestock grazing management. The section is divided into sub-topic headings that include excerpts from individual comment letters, a summary statement (as necessary), and the BLM's response to the summary statement. **Section 6.3**, Responses for Specific Comments, contains comments and responses pertaining to the specific livestock grazing management and travel management implementation decisions considered in the SDNM. Due to the detail and uniqueness of these and their specificity to implementation level decisions, these comments are presented in more detail and responded to individually.

6.2 ISSUE TOPICS AND RESPONSES

6.2.1 EXTENSION REQUEST

Comment Number: 100105-2
Commenter: Doug Martin

Comment Excerpt Text:
I fielded many of the questions and explained the plan as best as I could. There were many people who are not very computer literate and I offered to walk them through the comment process. Walking these people through

the process is taking longer than I hoped and many of their comments may not be submitted in time. With this being such an important issue with long lasting effects on the public, we need more time. I hope you are receiving many comments. That would show greater public involvement.

I'd like to see an extension to this comment period. Maybe just an extra 30 days. This will give me time to help these folks learn to use the website and make their comment.

Comment Number: LSFO-SDNM-DRMP--1-18612-2
Commenter: Douglas Martin

Comment Excerpt Text:
I'd like to see an extension to this comment period is approved. Maybe just an extra 30 days. This will give me time to help these folks learn to use the website and make their comment. I do realize there is a time line but since the goal is to obtain public comments I think this is the right thing to do. If it were only a few people I wouldn't say anything, but there was forty-fifty people at the last meeting.

Summary

Commenters requested a 30-day extension to the public review period for the DRMP/DEIS due to difficulties with accessing and using the Web site to review the document and make comments.

Response

The BLM may grant an extension to the public comment period when it is determined to be warranted due to a high volume of requests or a high level of controversy. In this case, the BLM determined that the schedule mandated by the court settlement did not allow for any extensions.

6.2.2 EPLANNING

Comment Number: 100039-1
Commenter: John Norris

Comment Excerpt Text:
The inability to comment on the proposed plan because of the byzantine steps involved is counter-productive. It is one of the least user friendly sites I have ever visited and discourages comments from other than IT experts.

Comment Number: 100040-1
Commenter: Richard Ditch

Comment Excerpt Text:
There hasn't been a version of Microsoft Internet Explorer for Mac computers for many years now so why do you require the use of IE7 to comment on plans? I was planning on commenting on "Lower Sonoran and Sonoran Desert National Monument Draft Resource Management Plan and Environmental Impact Statement (DRMP/EIS)" at this link: https://www.blm.gov/epl-frontoffice/eplanning/planAndProjectSite.do?methodName=renderDefaultPlanOrProjectSite&projectId=11 856&dctmId=0b0003e8800a9942

PLEASE do not assume that everyone uses a Windows PC and has IE7 - many of us prefer and use better computers and software.

Comment Number: 100049-1
Commenter: Brent Moody

Comment Excerpt Text:
I have tried repeatedly to use your website to provide my comments on the restrictions you have proposed with respect to the use of firearms in the area covered by your proposed plan. The procedure for providing comments is convoluted and virtually impossible for the average citizen to use.

Comment Number: 100054-1
Commenter: Carol Millette

Comment Excerpt Text:
Please note I was not able to submit online as I use Firefox.

Comment Number: 100074-1
Commenter: Tom Britt

Comment Excerpt Text:
Therefore I expect you will consider these comments even if received after the 11/25/2011 deadline noted in your media release since access to this document has not been adequate.

Comment Number: 100105-1
Commenter: Doug Martin

Comment Excerpt Text:
During the course of these meetings I met many concerned people and was able to show them my copy of the draft LSRMP. This site is a bit confusing at times and I'm receiving many emails from people having trouble posting their comments.

Comment Number: LSFO-SDNM-DRMP-1-17313-1
Organization: RSD Racing
Commenter: Douglas Martin

Comment Excerpt Text:
Your public input process is a joke. If I hadn't stumbled onto this form by accident I wouldn't be making this comment at all. I will be at the meetings as well, but my point is you are using an electronic, web based media to contact off road enthusiasts, but avoiding the off road websites.

Comment Number: LSFO-SDNM-DRMP-1-17563-1
Commenter: J Garner

Comment Excerpt Text:
I'm finding it extremely difficult and time-consuming to access pertinent information to comment on this website. In particular it is impossible to scroll through the document page by page. Clicking on the next or previous page buttons does nothing. Because most people view documents even online by scrolling through pages until they find what they're interested in it makes it nearly impossible to find what you're looking for so you can post an appropriate comment, suggestion, or criticism. If I didn't have the printed copy of this document with me as I do, it would be close to impossible to find the section, paragraph or sentence that I would like to comment on. Because most people in this day and age will access this information online, it's extremely important to be able to navigate

this site in an efficient manner. Due to the limited time available to submit comments on this report I hope these concerns are addressed in a timely fashion. If not, it might prove necessary to extend the time available for public comment.

Summary

Several commenters noted problems using the BLM's ePlanning software during the public commenting process for the DRMP/DEIS.

Response

In order to make documents more easily accessible to the public, along with streamlining preparation and organization of land use planning documents, BLM has developed the Web-based ePlanning system (http://www.blm.gov/wo/st/en/prog/planning/planning_overview/eplanning2.html).

The Lower Sonoran-SDNM project is one of the first in BLM to use the latest version of ePlanning for viewing and commenting on documents, though the Draft RMP was made available for review via other media (such as PDF on the BLM Web site, CD, and paper copies) and comment via other methods (such as email, comment cards at public meetings, postal mail, and fax).

All comments submitted regarding difficulties using the ePlanning application will be considered in the maintenance of the software application and in future upgrades.

6.2.3 PLANNING ISSUES

Comment Number: 100110-3
Commenter: Tyler Kokjohn

Comment Excerpt Text:
2.12.2 (page 216) Adaptive Management

The draft plan describes what is meant by adaptive management and recommends, but does not mandate, a commitment to employ adaptive management principles. In Appendix H (page 1223) a similar lukewarm promise is made regarding best management practices. That means a comprehensive and strategically focused control system for the plan is lacking. This is a serious oversight because it asks the public to endorse a plan that provides virtually no insight into its projected function. More information needs to be provided and, most important, forethought and planning needs to go into the mechanisms to implement, monitor and when necessary, modify the RMP as necessary to ensure the conservation of BLM resources for public use now and in the future. A plan without a management structure that allows cumulative impacts to be recognized, provides a broad-scale capacity to assess conditions and track management activities to confirm their success or reveal failure, will be crippled before it is approved. This oversight puts the RMP into immediate jeopardy of devolving to an uncoordinated hodgepodge of quasi-independent sub-plans.

Comment Number: 100137-1
Organization: Fennemore Craig P.C.
Commenter: Dawn Meidinger

Comment Excerpt Text:
The core of resource management planning is the identification of concerns, needs, and issues regarding resource use and development and receipt of input from interested parties. See 43 C.F.R. § 1610.4-1. According to the DRMP, over 6,000 comments were received from the scoping effort conducted in 2003. The BLM then distilled those comments into six major issues (i.e., Travel Management, Wilderness Characteristics, Wildlife, Livestock Grazing, Renewable Energy Development and Recreation) in an effort to summarize general public concerns. DRMP at 7-11. In the 2002 NOI, BLM stated that the identified issues would be placed into one of three categories: 1) issues to be resolved in the plan; 2) issues resolved through policy or administrative action; or 3) issues beyond the scope of the plan. See 67 Fed. Reg. 72968 (Dec. 9, 2002). Thereafter, the BLM stated it would provide rationale in the plan for the placement of the issues into categories and then identify other management questions and concerns to be addressed in the plan. Id. Agency follow through on this commitment in the NOA is absent in the DRMP/EIS. Id.

Summary

Commenters requested general planning and process related information in the RMP/EIS including 1) a commitment to employ adaptive management principles and 2) rationale for placement of scoping issues into categories and identification of other management questions and concerns addressed in the RMP/EIS.

Response

The regulations in 43 CFR 1610.4-9 require that land use plans establish intervals and standards for monitoring and evaluations, based on the sensitivity of the resource decisions involved. Land use plan monitoring is the process of (1) tracking the implementation of land use planning decisions (implementation monitoring), and (2) collecting data/information necessary to evaluate the effectiveness of land use planning decisions (effectiveness monitoring). Throughout implementation, the BLM monitors the management actions and documents BLM's progress toward full implementation of the land use plan and the achievement of desired outcomes. It is BLM policy to encourage field offices to involve tribes, state and local governments, and the public if they express an interest in participating in this process (BLM Land Use Planning Handbook, p. 33).

The monitoring process should collect information in the most cost-effective manner and may involve sampling or remote sensing. Monitoring could be so costly as to be prohibitive if it is not carefully and reasonably designed. Therefore, it is not necessary or desirable to monitor every management action or direction. Unnecessary detail and unacceptable costs can be avoided by focusing on key monitoring questions and proper sampling methods. The level and intensity of monitoring would vary, depending on the sensitivity of the resource or area and the scope of the proposed management activity.

BLM's planning handbook defines adaptive management as "…a system of management practices based on clearly identified outcomes, monitoring to determine if management actions are meeting outcomes, and, if not, facilitating management changes that would best ensure that outcomes are met or to re-evaluate the outcomes" (BLM Land Use Planning Handbook, p. 36). The BLM planning guidance noted above sets the stage for adaptive management by:

- Planning for desired future conditions via goals and objectives,
- Identifying management actions and allocations that would help meet the desired future conditions, and
- Directing field offices to conduct implementation plans, effectiveness and implementation monitoring, evaluations every five years, and noting whether maintenance, amendment, or revision is needed to address changes and/or progress.

The cyclical nature of the planning process captures the intent of adaptive management. Through the RMP Goals and Objectives, the RMP provides the framework that would be used for developing the resource or use triggers and thresholds that would guide adaptive management. Further thought is required to design monitoring plans that are considered implementation of the RMP.

The scoping comments were categorized into the three categories as described in the DRMP/DEIS. The scoping comments categorized as issues to be addressed in the RMP were then further divided into applicable resource groupings. The methods used are described in Section 3.3 of the scoping report, which may be found on the BLM Web site (http://www.blm.gov/pgdata/etc/medialib/blm/az/pdfs/planning/son_des.Par.48097.File.dat/Scoping_Report.pdf). The PRMP/FEIS was clarified to better explain how the scoping process resulted in the plan addressing the issues, as well as how new issues raised during the draft public comment period were incorporated into the Final EIS. See **Section 1.3.2**, Public Scoping, and **Section 1.7**, Changes between the DRMP/DEIS and the PRMP/FEIS, for details.

6.2.4 NEPA

6.2.4.1 Alternatives

Comment Number: 100126-3
Organization: The Wilderness Society
Commenter: Phil Hanceford

Comment Excerpt Text:
The DRMP/DEIS does not currently contain an alternative that would designate the minimum road network necessary for protection of the Monument objects. BLM should include this alternative and choose it as the preferred in the Proposed RMP to be consistent with current policy guidance for the National Landscape Conservation System.

Comment Number: 100126-52
Organization: The Wilderness Society
Commenter: Phil Hanceford

Comment Excerpt Text:
BLM has policy direction for units of the National Landscape Conservation System that requires designation of roads only when required for public health and safety, are necessary for the exercise of valid existing rights, minimize impacts to fragile resources, or further the purposes for which an area was designated. This is, in short, the "minimum road network" necessary for protection of the values for which the unit was designated. BLM should both analyze a minimum road network alternative and choose it as the best option consistent with BLM policy and for the protection of Monument objects.

Comment Number: 100136-30
Organization: Western Watersheds Project
Commenter: Greta Anderson

Comment Excerpt Text:
BLM has made the same fatal flaw for the LSFO that it made for the SDNM: it failed to analyze a reasonable range of alternatives, including an alternative that would shift the LSFO allotments to ephemeral use.

Comment Number: 100136-60
Organization: Western Watersheds Project
Commenter: Greta Anderson

Comment Excerpt Text:
Unfortunately, the BLM failed to analyze an alternative that would end livestock grazing immediately, and instead considered only terminating grazing upon the expiration of current permits under Alternative B. DRMP/DEIS at 148. The plan does not disclose when those permits expire. Id. at 1293-1295. The plan does not disclose that BLM already renewed the permits without NEPA under the Rescissions Rider to the 001 Appropriations Act of 2004 (P.L. 108-108). The permitted grazing on the SDNM allotments (Beloat, Conley, Hazen, and Lower Vekol) is slated to continue until 2015 under this authority. Because the permits contain language suggesting that the permits may be cancelled, suspended or modified at the completion of processing them in compliance with applicable laws and policies, there is no reason that the BLM did not consider an alternative that would have established immediate removal of livestock grazing.

Comment Number: 100137-6
Organization: Fennemore Craig P.C.
Commenter: Dawn Meidinger

Comment Excerpt Text:
In addition, the DRMP/EIS misses the mark in terms of identifying and adequately discussing alternatives eliminated from detailed study. The DRMP/EIS identified four separate implementation strategies including: 1) the prohibition of carrying of weapons; 2) allowing unrestricted driving in washes; 3) disposing of federal land bordering the Gila River Indian Reservation and the Estrella Mountains; and 4) converting all grazing allotments to strictly ephemeral use only and states that those four "alternatives" were dismissed from further study for various identified reasons. DRMP at 40-41. None of the identified individual implementation strategies rise to the level of land use management alternatives for the entire planning area. Even if all four were considered together, the requirement to identify and dismiss other reasonable alternatives has not been met. This failure violates the BLM's planning regulations (43 C.F.R. § 1610.4-5) as well as applicable NEPA regulations. See 40 C.F.R. § 1502.14 (a) and (c) (mandate to rigorously explore and evaluate all reasonable alternatives including those not within the jurisdiction of the lead agency).

Comment Number: 100148-4
Commenter: Jon M Shumaker

Comment Excerpt Text:
There is no discussion of how the plan will be implemented—how personnel needs will be addressed or even what they are, how costs will be met or even what those are, nothing about funding expectations, nothing about consequences in the event no funding is forthcoming, etc. There is nothing about expanding resource staff.

Summary

Commenters recommended several alternatives be included and analyzed including 1) an alternative that designates the minimum road network necessary for protection of the SDNM objects, 2) an alternative that analyzes selling/patenting lands under R&PP actions in the SDNM to manage recreational shooting, 3) an alternative that would shift the LSFO allotments to ephemeral use, and 4) an alternative that would completely end livestock grazing. Commenters noted several deficiencies in the alternatives including a lack of suitable recreational shooting sites in Alternative B and failure to identify and adequately discuss alternatives eliminated from detailed study.

Response

The DRMP/DEIS considered a range of alternatives designed to meet the BLM's legal duties and purpose and need for action. The purpose and need section in the DRMP/DEIS clearly states that the purpose of the agency action includes compliance with all applicable laws, including the Sonoran Desert National Monument Proclamation (see **Section 1.1**, Purpose and Need). All transportation network designs suggested in the alternatives were determined to protect the objects of the Monument. The route network suggested in Alternative D contains the fewest routes and would result in the largest area without motorized access (see **Table 2-35**, Off-Highway Vehicle Area Designations by Alternative). For example, selling or patenting SDNM parcels under authority of the Recreation and Public Purposes Act would not be consistent with the Proclamation.

The BLM's range of alternatives in the DRMP/DEIS represented a full spectrum of options. Alternatives analyzed include a No Action Alternative, three action alternatives, and the preferred alternative. The No Action Alternative is a continuation of current management as written. Alternative B represented a use-oriented perspective. Alternative C proposes a mix of natural processes and "hands-on" techniques for resource stabilization and restoration, thus reducing the need for intensive use management to avoid or mitigate any adverse effects. Alternative D represented a mostly conservation-oriented approach. Alternative E (the Proposed RMP) provides a balanced approach between uses and conservation. Specific to grazing program actions, the BLM included a no-grazing alternative and considered but eliminated from detailed analysis an alternative that proposed ephemeral use (see **Section 2.4**, Summary of Alternatives, Alternative D, and **Section 2.5**, Alternatives Considered but not Further Analyzed, Livestock Grazing, respectively).

The BLM acknowledges many variations of alternatives could be included in the RMP analysis process. However, the BLM is not required to analyze in detail each variation, including those variations determined not to meet the RMP's purpose and need or those determined to be unreasonable given BLM mandates, policies, and programs (CEQ 40 Questions, question number 29b). CEQ regulations require BLM to analyze a reasonable range of alternatives.

Chapter 2, Alternatives, in the Final EIS was modified to include information for how the BLM determined the Proposed RMP in the Final EIS (**Section 2.2**, Selection of the Proposed RMP) and expanded the explanation for alternatives eliminated from consideration (**Section 2.5**, Alternatives Considered but not Further Analyzed).

6.2.4.2 Data Adequacy

Comment Number: 100121-19
Organization: Sierra Club
Commenter: Jim Vaaler

Comment Excerpt Text:
In order to comply with the National Environmental Policy Act, the DEIS must fully disclose all relevant research and management information, such as annual data on bighorn surveys, annual and seasonal visitor numbers, numbers and categories of special use permits, citations and infractions, work projects, water hauls, budgets, staffing, etc.

Comment Number: 100161-1
Organization: Pacific Biodiversity Institute
Commenter: Peter Morrison

Comment Excerpt Text:
I am also disappointed that the BLM has failed to provide accurate and thorough information to the public in the DRMP/DEIS and associated maps and data. The BLM does not reference in the DRMP/DEIS most of the research reports that PBI conducted on the SDNM for TNC and the BLM. This research was conducted for the specific purpose of understanding ecological conditions and processes on the Monument in relation to management decisions. Only one of the six reports that PBI wrote for TNC and the BLM is referenced in the (DRMP/DEIS). Five of our studies are not mentioned in the DRMP/DEIS despite the fact that they were produced at over 4 years ago and I personally presented the information to BLM staff that were responsible for management of the SDNM and development of the DRMP/DEIS. PBI developed high quality information and maps on vegetation communities and their ecological condition, explicitly to aid BLM in developing their management plans and the DRMP/DEIS. Instead of using this high quality information, BLM used data that are coarser scale and much less accurate than the data that PBI's provided to BLM. For example, the BLM used vegetation community maps that have no resemblance to the detailed and accurate vegetation maps that PBI produced and delivered to the BLM, which much more accurately characterize the Monument's ecosystems. The agency's reliance on low quality and low resolution information to make management decisions is inexplicable. I am personally and professionally disappointed at BLM's choice to ignore this scientifically -robust information

Comment Number: 100161-10
Organization: Pacific Biodiversity Institute
Commenter: Peter Morrison

Comment Excerpt Text:
When the BLM does not provide adequate data, or zero content data or data that is in direct conflict with maps in the DRMP/DEIS it makes it very difficult for the public to conduct a detailed review of the DRMP/DEIS. I suggest that the BLM rectify this situation, revise its analysis and issue a supplemental DRMP/DEIS which rectifies all the issues that I have discussed above.

Comment Number: 100161-9
Organization: Pacific Biodiversity Institute
Commenter: Peter Morrison

Comment Excerpt Text:
On a final note, the BLM should be advised that some of the GIS data files included as supporting information on the DRMP/DEIS website page are devoid of any data or other information. Some of this data has zero content. This includes data from PBI's studies. The GIS data that BLM provided to the public through the website is also woefully incomplete.

Summary

Commenters expressed their general opinion that the DRMP/DEIS did not include sufficient or appropriate data to support management and analysis, including reference to Pacific Biodiversity Institute reports and requests to disclose all relevant management information and supporting data.

Response

The CEQ regulations require an environmental impact statement to "succinctly describe the environment of the area(s) to be affected or created by the alternatives under consideration. The description shall be no longer than is necessary to understand the effects of the alternatives. Data and analyses in a statement shall be commensurate with the importance of the impact, with less important material summarized, consolidated, or simply referenced. Agencies shall avoid useless bulk in statements and shall concentrate effort and attention on important issues" (40 CFR 1502.15).

The requisite level of information necessary to make a reasoned choice among the alternatives in an EIS is based on the scope and nature of the proposed action(s). The baseline data provided in **Chapter 3**, Affected Environment have been revised and updated to include information provided by commenters and additional relevant data. This updated information along with the various appendices in the Lower Sonoran-SDNM RMP/EIS supports, at the general land use planning-level of analysis, the environmental impact analysis resulting from management actions presented in **Chapter 2**, Alternatives, of the RMP/EIS. For example, in the LHE (**Appendix F**, Arizona Land Health Evaluation for the Sonoran Desert National Monument), the BLM explained how they applied the baseline data collected as part of the Pacific Biodiversity Institute (PBI) studies (see Land Health Standard B, Desired Resource Conditions). The PBI study was "designed to be used as baseline information to help assess changes and trends in the condition of the natural communities. Analysis of the applicable vegetative community data for 48 study sites (interchangeably referred to as plots) is included in this evaluation… Depending on the location and position on the landscape, PBI study sites were analyzed to address vegetation attributes specific to wildlife habitat (bighorn sheep) values. In some instances, these sites were located in areas that receive no livestock use or negligible livestock use. Data were also collected by PBI in the Barry M. Goldwater Range (BGR) and the southern portion of Area A (See **Map F-4**, SDNM Grazing Allotments & Monitoring Sites). Historical records indicate that livestock use in this area has been recently absent or relatively light."

While the PBI data added to the BLM's baseline information, one year of PBI data, in itself, is not enough to support sound conclusions. BLM chose to use NRCS Ecological Site descriptions to assist BLM in defining ecological conditions. Classification, mapping, and spatial scale concepts often become confusing

when comparing different classification, mapping, and hierarchical relationships. Ecological site classification is based on the fundamental idea that differences in associations of plant species and their resilience are governed by subtle differences in local climate, geomorphology, and soils (Bestelmeyer et al. 2009).

PBI's study was of limited use because it did not address the intensity, frequency, timing, class of livestock, season of use, ecological sites, precipitation patterns, and other variables the BLM needs to address the effects of current livestock grazing practices on the objects of the Monument. However, BLM did use some of PBI's plot data to address vegetation attributes when defining Ecological Site and Key Area DPC objectives.

The impacts of historical grazing are not in doubt. What is questionable and not elucidated by the PBI study is whether or not current livestock grazing is compatible with SDNM object protection. Only by a site-specific assessment and monitoring can BLM determine the effects of current livestock grazing practices on the objects of the Monument.

NRCS ecological site descriptions assist the BLM in defining, quantifying, and documenting the relationships among climate, landscape elements (for example landform, aspect, slope, and elevation), soils, and plant species or groups of plant species.

As specific actions come under consideration, the BLM would conduct subsequent NEPA analyses that include site-specific project and implementation-level actions, which may include but are not limited to timber harvest, fuels treatment, restoration, or other ground-disturbing activities.

6.2.5 THE SONORAN DESERT NATIONAL MONUMENT

Comment Number: 100121-3
Organization: Sierra Club
Commenter: Jim Vaaler

Comment Excerpt Text:
BLM has not demonstrated how each of the SDNM's objects will be protected in the DRMP/DEIS. This analysis and demonstration must be completed prior to finalizing the RMP.

Comment Number: 100126-1
Organization: The Wilderness Society
Commenter: Phil Hanceford

Comment Excerpt Text:
This IM clearly affirms that not all uses must be accommodated within Monuments; BLM's priority is fulfilling the purposes of the Monument and protecting the Monument Objects. BLM has not yet shown how each of the objects are being protected by the plan. This analysis must be performed before the RMP is complete.

Recommendations: We applaud BLM for including a list of Monument objects in the Draft RMP. BLM must now specifically describe how each of the objects are being protected and prioritized over other uses in the RMP.

Comment Number: 100136-96
Organization: Western Watersheds Project
Commenter: Greta Anderson

Comment Excerpt Text:
The BLM claims that future study design recommendations by peer reviewers will be considered in any monitoring plan for the SDNM. DRMP/DEIS at 1054. We note that BLM has, in the past, collected monitoring data sporadically, and most of the data sets used in the LHE and DRMP/DEIS are incomplete or reflect such widely-spaced monitoring episodes as to be useless. See McPherson 2009. The resources of the LSFO and SDNM are too precious to neglect and the DRMP/DEIS should have included the monitoring plan; without this, the anticipated impacts of the preferred alternative cannot be verified and management cannot be adjusted accordingly.

Summary

Commenters noted adequacy issues in the DRMP/DEIS related to management of the SDNM and provided recommendations to analyze and demonstrate how each of the SDNM's objects would be protected. Commenters also requested that the RMP/EIS include a monitoring plan for the SDNM.

Response

The Proclamation's management mandates create an exception to the BLM's general management mandate as set forth in FLPMA (See BLM Instruction Memorandum, No. 2009-115). The Proclamation mandates the protection of the historic, cultural, natural, and scientific objects within the Monument as the highest priority. The BLM's range of alternatives are designed to provide a framework that protects the Monument objects while managing the Monument in accordance with the provisions of the Proclamation and other authorities such as FLPMA, the National Historic Preservation Act, Endangered Species Act, and the Minerals Leasing Act, where applicable.

The BLM developed the management goals, objectives, and actions under each action alternative with the purpose of protecting Monument objects (see **Section 1.1** for the purpose and need of the SDNM RMP). The PRMP represents an effort to identify an optimum course of action to protect the Monument objects while allowing for compatible public uses as described in the Proclamation (see **Appendix A**, Sonoran Desert National Monument Presidential Proclamation). For instance, Cultural Resources, Goal 2 states that the BLM would "Reduce threats, reduce or prevent damage, and resolve potential conflicts from naturally occurring or unauthorized human-caused damage or deterioration" and management action CH-2.1.4 states, "Sites and Monument Objects damaged by vandalism, excessive visitation, vehicle traffic, or other causes, would be restored by using signing, fencing, gating, trail re-routing or other measures." (See **Table 2-6**, Management Actions and Allowable Uses for Cultural Resources). Further, Vegetation, Goal 1 for the SDNM states: "The natural diversity and abundance of native vegetation occurs as expected for landform and ecological site, and within the SDNM would protect the vegetative objects of the Monument" and Objective 1.1 states the BLM would "Maintain or restore vegetative communities to achieve desired future conditions (DFCs)," including the noted vegetation communities in the SDNM such as palo verde/mixed cacti ecosystem (See **Table 2-9**, Management Actions and Allowable Uses for Vegetation Resources). In short, the DRMP/DEIS range of action alternatives are intended to meet the stated intent of the Proclamation.

As required by 40 CFR 1502.16, the DRMP/DEIS provides a discussion of the environmental impacts of the alternatives. The analysis was expanded to show how actions could protect the Monument's objects, describe any adverse environmental effects that cannot be avoided should the alternatives be implemented, show the relationship between short-term uses of man's environment and the maintenance and enhancement of long-term productivity, and describe any irreversible or irretrievable commitments of resources that would be involved in the action should it be implemented. For example, in **Section 4.5**, Impacts on Cultural and Heritage Resources, the Alternative C analysis for the SDNM expands on the nature of impacts that results in protections to cultural resources from the proposed designation of the Sonoran Desert Historic Trails SCRMA. The revised analysis in the PRMP/FEIS presents the decision maker with detailed information to aid in determining whether to proceed with the PRMP or make a reasoned choice among the other alternatives in a manner such that the public could have an understanding of the environmental consequences associated with the alternatives (see 40 CFR 1502.1).

The BLM recognizes that monitoring the implementation and effectiveness of RMP decisions is an important step in the planning process (see 43 CFR 1610.4-9 and BLM Land Use Planning Handbook, Section V. Monitoring, Evaluation, and Adaptive Management, p. 32). Monitoring programs were considered under the Administrative Actions section of the RMP/EIS and are noted under the Grazing Administration, Air Quality, and Cultural Resources programs. Specific monitoring programs would be developed after the BLM Authorized Officer signs the Record of Decision, at which point the BLM begins implementing the RMP decisions.

6.2.6 PLANNING PROCESS

Comment Number: 100120-8
Commenter: Bill Broyles

Comment Excerpt Text:
I worry that the plan doesn't look far enough into the future. Considering our state's and the West's growing population, I expected to see more talk about groundwater, viewsheds, usage, resources monitoring and thresholds, special regulation triggers, buffer areas on BLM lands, and recovery plans, as well as staffing goals, budget needs, and performance objectives.

Comment Number: 100137-3
Organization: Fennemore Craig P.C.
Commenter: Dawn Meidinger

Comment Excerpt Text:
Due to the passage of time between the 2002 NOI, the conduct of scoping in 2003, and subsequent publication of the NOA in late 2011, BLM should have conducted additional scoping. The additional scoping should have included a summary of prior scoping comments, notice to the public that the agency still intended to complete the DRMP/EIS and the opportunity to provide further input. Public sentiment about the utilization of public lands has certainly changed over the past decade particularly in light of the "great recession." Job creation, support of industry, and domestic security resulting from minimizing dependence on foreign resources are important issues facing the public today and those key public policy issues were not as apparent in 2003. The above referenced defects in the planning and scoping process are fundamental flaws and can only be addressed through the conduct of additional scoping, public coordination and consultation.

Comment Number: 100137-4
Organization: Fennemore Craig P.C.
Commenter: Dawn Meidinger

Comment Excerpt Text:
In keeping with the requirement to coordinate and consult with other federal and state agencies, it should be noted that the content of what typically makes up an entire chapter on "Consultation and Coordination" in draft and final RMPs is absent from the document. This chapter must be included to ensure compliance with the NEPA and BLM land use planning policy. See 40 C.F.R. § 1502.25 and BLM Land Use Planning Handbook H-1601-1 (Appendix F). Without the inclusion of a chapter on Consultation and Coordination in the DRMP, it is not possible to determine if the agency has properly undertaken consultation with the United States Fish and Wildlife Service ("USFWS") (16 USC § 1536 (a)(2) and the Advisory Council on Historic Preservation pursuant to §106 of the National Historic Preservation Act ("'NHPA").

Comment Number: 100147-1
Organization: Arizona Public Service Company
Commenter: Michael Neal

Comment Excerpt Text:
There is no evidence in this four-volume document of any consultation or coordination with existing ROW/easement holders including APS for either the Lower Sonoran area or the Sonoran Desert National Monument. Appropriate departments to speak with at APS would include Transmission and Distribution Maintenance, Forestry and Special Programs, Natural Resources, Land Services, and Siting.

Comment Number: 100148-2
Commenter: Jon M Shumaker

Comment Excerpt Text:
There appears to be no list of individuals and organizations that were consulted with in the course of preparing this document.

Comment Number: 100148-8
Commenter: Jon M Shumaker

Comment Excerpt Text:
It is completely inappropriate and unacceptable to wrap management plans for the Lower Sonoran and for Sonoran Desert National Monument into a single document. The final result is a disorganized jumbled mess that is confusing and virtually incomprehensible for the general public—and this from someone who reads complex, boring documents for a living. This document obfuscates what exactly is being proposed where. It is at times difficult if not impossible to understand what parts of this refer to the Monument vs. the Lower Sonoran management area vs. the planning area. The SDNM component must be pulled out and presented clearly in a separate, stand-alone document so that there is no confusion, and no ambiguity regarding what is being proposed and how those proposals will be implemented. As a sometime land manager, I reviewed this document with an eye to how I would use it as a land manager, and it is in my opinion completely worthless as a planning and/or management tool, especially with regard to SDNM. BLM must go back to the drawing board on this, separate the two documents, and do it right this time.

Comment Number: 100166-2
Commenter: Steve Saway

Comment Excerpt Text:
The Yuma Field Office Record of Decision and Resource Management Plan was recently approved in January 2010. Lands in the Lower Sonoran Field Office have many of the same characteristics as lands in the Yuma Field Office. Recommend the Yuma RMP be considered in preparation of the final Lower Sonoran RMP/EIS. The Yuma Plan also reflects involvement by the Arizona BLM Resource Advisory Council (RAC), while the Draft Lower Sonoran plan does not. From a public perspective, it is good to have consistent policies and a seamless transition for lands that lie in adjacent field offices.

Comment Number: 100117-2
Commenter: Douglas Thomas

Comment Excerpt Text:
Citizens are at a distinct dis-advantage in this comment process. BLM has had at least 10 years to analyze and formulate the 1379 page SDNM Draft RMP before publishing it in August 2011. Citizens, however, have 90 days to analyze and formulate their comments regarding same, without the advantage of the considerable resources available to BLM in this process.

Summary

Commenters identified several process-related items associated with NEPA compliance and other applicable BLM policy and regulations, including (1) the plan does not look far enough out in terms of groundwater, viewsheds, usage, resources monitoring and thresholds, special regulation triggers, buffer areas on BLM lands, and recovery plans, as well as staffing goals, budget needs, and performance objectives, (2) requests for a monitoring plan, (3) inclusion of a "Consultation and Coordination" Chapter, (4) conducting additional scoping due to the amount of time since the NOI, (5) comments indicating BLM failed to consult with ROW and easement holders during the process, and (6) general recommendations to consider the Yuma RMP/EIS during this process.

Commenters also (7) suggested the plan should completely separate the Lower Sonoran and SDNM Decision Areas, (8) stated that BLM should have done better coordination with the Yuma Field Office, and (9) stated that 90 days was insufficient to comment on a document that took BLM 10 years to write.

Response

1) The RMP is intended to have a life of approximately 20 years, but changing conditions may require amendments to keep the plans current. BLM does not have the authority to manage groundwater, as that is a function of the Arizona Department of Water Resources. Management of viewsheds and land use are included in the RMP and form the essence of the alternatives. BLM is not allowed to manage buffer areas, recovery plans are implementation actions not addressed in an RMP, and staffing and budget are administrative actions, not RMP-level land use planning decisions. If the "performance objectives" refer to land use objectives, many objectives are defined in **Chapter 2** and establish the targets against which success is measured.

2) The BLM recognizes that monitoring the implementation and effectiveness of RMP decisions is an important step in the planning process (see 43 CFR 1610.4-9 and BLM Land Use Planning Handbook,

Section V. Monitoring, Evaluation, and Adaptive Management, p. 32). Monitoring programs were considered under the Administrative Actions section of the RMP/EIS and are noted under the Grazing Administration, Air Quality, and Cultural Resources programs. Specific monitoring programs would be developed after the BLM Authorized Officer signs the Record of Decision, at which time the BLM begins implementing the RMP decisions.

3, 5 & 6) The BLM has included a Consultation and Coordination chapter (**Chapter 5**) in the Final EIS that documents how and with whom BLM conducted required consultation (e.g., Section 7 consultation with the USFWS and tribal consultation), coordination with adjacent BLM field offices, affected permit holders, the Resource Advisory Council and cooperating agencies, complete listing of comments received on the DRMP/DEIS and responses to the comments, and an expanded list of document preparers and reviewers.

4) The public comment period on the DRMP/DEIS was another opportunity for the public to provide comments and raise issues. Additionally, the scope and purpose and need for the Lower Sonoran–SDNM RMP/EIS have not changed since publication of the Notice of Intent in 2002; therefore, a new scoping period is not needed.

7) The decision to include plans for both decision areas into one EIS is because, although they are managed differently, they are within the same geographic area and are not completely independent. The idea of including them in one EIS is intended to capture impacts that relate to both areas in one document, allowing the public to clearly see the management proposed for both areas and see how management for the Monument differs from other BLM land. Some uses that are allowed and managed for on BLM lands within the Lower Sonoran Decision Area may not be appropriate within the SDNM Decision Area, due to the focus on protection of Monument objects. By including both plans together, the public can see those differences.

8) BLM has coordinated with the Yuma Field Office and has attempted to develop consistent management approaches where the management objectives are similar. The Resource Advisory Council has been involved in the Lower Sonoran-SDNM RMP as well, receiving many briefings and providing comments.

9) Due to a settlement agreement, BLM has very little time to complete the RMP process. CEQ Regulations require a minimum of 45 days for public comment on an EIS, and BLM regulations require a 90-day public comment period on RMP/EIS documents.

6.2.7 BORDER ISSUES

Comment Number: 100043-2
Commenter: John N. Ellis

Comment Excerpt Text:
Can we please get an in depth analysis by the BLM of the damage caused and the unsafe conditions created in the Sonoran Desert Nation Monument by the "illegal's" using the area for illegal activity?

Comment Number: 100051-2
Organization: Town of Gila Bend
Commenter: Colby Turner

Comment Excerpt Text:
The designations also fail to address the true nature of the problem, Illegal Drug and Immigrant Traffic Damage which leads to further damage by Government Enforcement Agencies (Border Patrol, Pinal County, Maricopa County) as they monitor the area and pursue suspects.

Comment Number: 100058-1
Commenter: Tom Matheson

Comment Excerpt Text:
Secondly the report does not seem to seriously address the issue of environmental degradation caused by illegal immigration. This damage is widespread and will not be stopped by regulations imposed on law-abiding citizens. To ignore serious mention of this problem in the report seriously damages its legitimacy and therefore its worth and value. This seemingly intentional omission is unacceptable and will diminish support for your efforts.

Comment Number: 100104-2
Commenter: Tom Taylor

Comment Excerpt Text:
1. I hope you can boost patrols of the landscape, not only for illegal uses by citizens, but also the negative impact of illegal human migrations.

Comment Number: 100109-4
Commenter: Joaquin Vega

Comment Excerpt Text:
Furthermore, in recent years we have seen an increase in undocumented aliens and Customs and Border Patrol activities throughout all of the current parks and monuments in the Southwest. BLM's desire to implement preferred alternatives to governing and maintaining the land would merely go unnoticed with DHS and CBP's overruling authority on the land. Currently, all these lands are subjected to daily degradation with disregard to rules and regulations. I've seen it with my own eyes, and so have many residents. They violate many standards already, such as creating new roads, destroying flora in the process, and even cutting fence, allowing horse and burro onto roadways causing safety concerns. All of these things should not go unnoticed, when it is vital towards the BLM's initiative of preservation.

Comment Number: 100111-1
Organization: National Park Service
Commenter: Lee Baiza

Comment Excerpt Text:
Border impacts affect access to areas, cause diverse and abundant damage to resources and infrastructure and greatly limit management effectiveness. This is particularly true of the Ajo Block. The Draft EIS does not substantively discuss border issues and their influence on management. The NPS views this draft EIS review as an opportunity to incorporate today's border challenges into the management process and we hope through this process to continue cooperating with BLM to develop comprehensive strategies regarding a collective response to

these issues. These discussions are important not only to reduce adverse impacts on resources, but are critical in the continued efforts to save Sonoran pronghorn from extinction.

Comment Number: 100117-1
Commenter: Douglas Thomas

Comment Excerpt Text:
In this citizen's view, if....

"....The purpose of the Lower Sonoran and SDNM Draft RMP/Environmental Impact Statement (EIS) is to provide guidance for managing the use of public lands and provide a framework for future land management actions within the Planning Area..."

...then failure on BLM's part to thoroughly analyze and take into consideration (as part of their planning process) the ramifications of the SDNM lands being in the middle of an Illegal Alien and Drug smuggling corridor is highly suspect.

Comment Number: 100117-3
Commenter: Douglas Thomas

Comment Excerpt Text:
Unfortunately, BLM has chosen not to include a comprehensive analysis of the data they compiled as part of their planning process for the SDNM and Lower Sonoran decision areas. Without such a comprehensive analysis, BLM will be proceeding with a decision making process and formulating new regulations without considering how the reality of Illegal Alien and Drug Smuggling will ultimately determine the wisdom and/or effectiveness of these new regulations.

Comment Number: 100117-5
Commenter: Douglas Thomas

Comment Excerpt Text:
Land managers on Federal lands adjacent to the Lower Sonoran and SDNM Decision Areas have taken proactive steps to identify, quantify and analyze the effects of WDS on the lands they manage and in their decision processes. The Lower Sonoran and SDNM decision areas are direct recipients of much of the smuggling traffic through these adjacent lands.

All federal land managers rightfully acknowledge that border issues are beyond their explicit scope. however, land managers should not use this an excuse for not explicitly recognizing. analyzing and quantifying the problem of Illegal Alien and Drug Smuggling and how it will ultimately impact the effectiveness of their land management decisions.

Comment Number: 100117-6
Commenter: Douglas Thomas

Comment Excerpt Text:
There are 1264 instances of "Travel" to be found in the SDNM DRMP/EIS. The rules and regulations formulated as a result of BLM's decision process will determine what access the public will have to the decision areas in the future.

According to the document, "The plan alternatives progressively explore increasing restrictions to motorized recreation and access, which would result in a progressively limited, motorized route network and reduced access." If BLM had conducted, included, and considered an analysis of the effects IA/DS has on the decision areas, the route evaluation process and corresponding route "decision tree" might look entirely different.

To what end would it be to "progressively explore increasing restrictions" (in any of the plan alternatives) on the existing motorized network of existing routes when smugglers adhere to their own "route plan"?

Comment Number: 100117-8
Commenter: Douglas Thomas

Comment Excerpt Text:
The SDNM may be unique in that much of the existing road network are primitive roads that occur mostly in washes near the Sand Tank Mountains and few upland primitive roads exist. Smugglers make extensive use of this travel network in washes throughout the SDNM. Nature has generally paved the most direct routes north through the SDNM to Interstate 8 and the smugglers take advantage of this fact:

Comment Number: 100117-9
Commenter: Douglas Thomas

Comment Excerpt Text:
Once inside the "Area A" boundary on BLM land, smugglers use one of the 8026 route alternatives to arrive at Johnson's Well. The smuggling route then proceeds on the Sand Tank Wash Road (Route 8008) to Papago Indian Chief Mine, south of Javelina Mountain. This area is listed in the DRMP/EIS as one of the " Site-Specific Sample Areas " that is "representative of remote, pristine and lightly used areas of SDNM that are difficult to access without aid of high clearance or specialized vehicles. "

From Papago Indian Chief Mine the smugglers have their choice of two routes north, but once they have delivered their loads to Interstate 8, they traverse a complete loop back to Kaka, through the SDNM and/or the BMGR. One route north traverses east of the Sand Tank Mountains on Big Horn Road (Route 8011), NW to the 8020 road, takes the wash that parallels the 8020 road west to the Goetz Well road (Route 8012), and takes the 801 2 road north to Bender Wash (Route 8018). The Bender Wash and all branches west of the Getz well area are listed in the DRMP/EIS as one of the "Site-Specific Sample Areas" that is "representative of remote areas of SDNM where vehicle routes exist in sand washes and use prior to the Monument proclamation is well known. This area is outside the area A permit area. "

As stated before, the Bender Wash route puts smugglers to within 1/2 mile of Interstate 8 and access to 7 miles of Interstate mile markers to use as drop-off/load-up points. The other possible route north from Papago Indian Chief Mine is through the Sand Tank Wash, through the middle of the Sand Tank Mountain s (Route 8013) This area is also listed in the DRMP/EIS as one of the "Site-Specific Sample Areas" that is ...

"... representative of remote areas of the SDNM where the only available vehicle routes are in sand washes. This area is considered to be some of the best desert wash habitat in SDNM. Wash travel inside Area A was prohibited by previous Air Force land use plan. Designating these routes as primitive roads is being considered". Continuing in the description "... this area is representative of large mountainous areas with few routes and good habitat and primitive recreation opportunity. The area is fairly pristine."

Route 8013 winds through the middle of the Sand Tank Mountains in the Sand Tank Wash, connects with Route 8017, traverses west to Route 8014 and north to the Bender Wash (Route 8018) and/or the gate at MM124, with the previously mentioned access to Interstate 8.

The route back to Kaka on the Tohono O'odham Reservation completes the "smuggling circuit". Retracing either one of two routes mentioned above has been documented as a return route, however, recently smugglers have been remiss to retrace any part of these routes for fear of detection. Currently the "return route home" entails following the Bender Wash (Route 8018) or the wash aligned with Route 8019 to the west outside the SDNM boundary to the "Nine Mile Wash" road, and south to Route 8008, across the BMGR "Hot Zone" and back to the Indian Reservation and Kaka.

Comment Number: 100149-3
Organization: Desert Protectors
Commenter: Fred Goodsell

Comment Excerpt Text:
A glaring omission in the plan is consideration of on-going and future border activities. Those activities affect everything that goes on at all levels and stages of the use of the land.

Comment Number: LSFO-SDNM-DRMP--1-18511-1
Commenter: Grady Rhodes

Comment Excerpt Text:
According to reports from law enforcements, the SDNM is in the middle of a drug and human smuggling corridor starting in Mexico. I have been in this area and I have seen the large warning signs to U.S. citizens to beware of the dangers from smugglers. I will not stand for U.S. officials limiting the access and freedoms of law abiding U.S. citizens on public lands so that illegal immigrants and drug smugglers from Mexico have an easier time entering the U.S. If "urbanites" are "freaked out" at the sound of target shooting, how will they feel when they become the human targets of murdering drug smugglers? Stop this foolishness and choose "Alternative A - do nothing". This is the best option to make the best of a very bad situation caused by unwillingness of the U.S. Government to protect its border with Mexico.

Comment Number: LSFO-SDNM-DRMP--1-18661-1
Commenter: Gina Kirkpatrick
Commenter: Kevin Kirkpatrick

Comment Excerpt Text:
Now I want to get to the point of closing the area and making it Wilderness. If that happens, you have now opened the area up to be a perfect destination for drug running. Since it will not be heavily patrolled and the fly zone will be at a higher altitude, how would you stop this from happening. To some of us, this is in our back door and we have concerns about this happening. Also, if this happens, the desert will get more destroyed by the drug runners than the general public using the land for multi purposes.

Comment Number: LSFO-SDNM-DRMP--1-18661-1
Commenter: Gina Kirkpatrick
Commenter: Kevin Kirkpatrick

Comment Excerpt Text:
Now I want to get to the point of closing the area and making it Wilderness. If that happens, you have now opened the area up to be a perfect destination for drug running. Since it will not be heavily patrolled and the fly zone will be at a higher altitude, how would you stop this from happening. To some of us, this is in our back door and we have concerns about this happening. Also, if this happens, the desert will get more destroyed by the drug runners than the general public using the land for multi purposes.

Summary

Commenters expressed several concerns regarding the effects of border issues in the planning area, including impacts on BLM management, environment degradation, and threats to public health and safety and requested the BLM address these issues in the RMP.

Commenters also suggested the BLM take a proactive approach, requesting increased monitoring of the border and coordination with adjacent land managers to develop comprehensive strategies in response to these issues.

Several commenters provided detailed information regarding smuggling activities and the use of roads/washes taking place in the Ajo Block, the Tohono O'odham, and the SDNM.

Commenters were also concerned that if areas were to become wilderness, law enforcement would be restricted from these areas, diminishing their effectiveness.

Response

The BLM considers law enforcement actions to be administrative and outside the scope of an RMP. Law enforcement officers have the authority to conduct their duties or work collaboratively with other law enforcement agencies. This is a standard operating procedure. Joint law enforcement cooperation is described in **Chapter 5**, Consultation and Coordination, **Section 5.3.5**, Federal and Military Coordination.

However, as drug and human trafficking issues are known to occur in the planning area, these border issues were considered in the cumulative impacts section of the FEIS (see **Section 4.25.2.1**, Both Decision Areas, Cumulative Impacts on Special Designations, Wilderness Areas; **Section 4.25.3.2**, Lower Sonoran, Cumulative Impacts on Livestock Grazing;). Additionally, the BLM added a new section under **Section 4.25.2.1** titled "Cumulative Impacts of Illegal Border Activities" to specifically address the environmental and public safety impacts resulting from illegal and law enforcement activities in the border region.

It is BLM's policy to allow emergency and/or law enforcement access into wilderness areas under administrative access provisions. See **Section 2.7.1**, Management Common to All Alternatives, Wilderness.

6.2.8 ADMINISTRATIVE ACTIONS

Comment Number: 100052-3
Organization: National Rifle Association
Commenter: Susan Recce

Comment Excerpt Text:
Under the Federal Lands Hunting, Fishing, and Shooting Sports Roundtable MOU, the parties pledged to work together to increase access and opportunities for hunting, fishing, and recreational shooting and to resolve issues associated with these activities. The non-governmental organizations have responded in every instance when a federal land manager has requested assistance in getting sites cleaned up, in reaching out to the local shooting community, and in seeking volunteers to assist the land manager in encouraging safe and responsible shooting by the public. There is no record that a manager of the SDNM ever contacted the BLM's MOU partners and asked for assistance.

Comment Number: 100052-6
Organization: National Rifle Association
Commenter: Susan Recce

Comment Excerpt Text:
In addition the BLM should call upon its MOU partners to assist in identifying suitable sites and implementing the Respected Access is Open Access outreach campaign to shooters, as well as all recreationists, on BLM lands.

Comment Number: 100052-9
Organization: National Rifle Association
Commenter: Susan Recce

Comment Excerpt Text:
The MOU lists resources that are available for responding to issues and opportunities associated with looting and shooting. But MOU partners took a step further by funding research in advance of developing an education outreach campaign in partnership with Tread Lightly! The campaign was launched as the Respected Access is Open Access campaign. Today it is being used by recreational interests beyond hunting and shooting. Materials created by Tread Lightly! are available free of charge for downloading for placement in kiosks, visitor centers and other public places. In fact, the BLM has a link to Tread Lightly! on a page devoted to target shooting on BLM Arizona lands. The non-governmental organizations have stepped up to the commitments they pledged by signing the MOU, but they have not seen a similar level of commitment from the BLM. If it were otherwise, the BLM would have reached out to its national partners to address recreational shooting in the SDNM.

Comment Number: 100068-1
Commenter: Melvin Lee Garrett

Comment Excerpt Text:
The issue of environmental damage (primarily trash left by irresponsible shooters) is a real problem, but not an insurmountable one. One possible way to improve matters considerably is the posting of properly and carefully worded signage. You must entice the shooters into a feeling of co-ownership of the land (and, from a very large-scale perspective, that may not be too far from the truth.) People generally do not trash and destroy what belongs to them. (Please note that the signage at the Table Mesa Recreational Area, while an honest attempt, is far too business-like and is not particularly effective.)

Comment Number: 100110-6
Commenter: Tyler Kokjohn

Comment Excerpt Text:
c. Integrate plans to standardize data collection, create computerized databases that preserve raw data and all metadata, and allow for public input and review of the data or results into the plan objectives. This draft does not even recognize that we are in the computer age and the public has vast resources of social networks available to them. Managers should seek to exploit this potential for fast updates and citizen participation by establishing a web-based system for public information inputs to management or the data system. This could be as simple as establishing a Facebook page.

Comment Number: 100110-8
Commenter: Tyler Kokjohn

Comment Excerpt Text:
suggest the following:

Agency permitted activities - (agency approved collecting, scientific studies, wildlife census efforts, archaeological investigations, etc.) – request/require that a condition of agency approval to conduct these activities is the stipulation that a report will be given to BLM when work concludes or, if very long-term in scope, activity reports will be presented to the agency on a periodic basis. This information can then become part of the information inventory for land managers. Request that the agency manager receives copies of any publications that result from the permitted activities. To give an example, regarding paleontological resources you might request to know what was found (and taken), the location, and other information of interest (discovery of nearby vertebrate fossils of value, evidence of other excavation efforts, vandalism, etc.).

Special interest group activities - enlist help from organizations known to be active in the area to conduct inventories, assess conditions, or report conditions and problems. This could be groups such as the Arizona Archaeological Society, Off-road user groups, rockhounds and recreational prospectors, Sierra Club, Arizona Wilderness Coalition, etc.

Employ BLM volunteers whenever possible – solicit reports from agency-trained citizen volunteers (trail monitors, site stewards, etc.) working in the area.

Basically, adopt the stance that (1) any activity undertaken on BLM lands is an opportunity to gather management information (2) the BLM will need to be creative in management efforts as both agency personnel and funds will almost certainly be limited for the foreseeable future.

Comment Number: 100113-3
Organization: Archery Trade Association et al.
Commenter:

Comment Excerpt Text:
We are also very concerned that the BLM failed to consult with any of the 40 national hunting, fishing, sport shooting and wildlife conservation organizations who signed a memorandum of understanding (MOU) with the BLM In 2006. Under the MOU, the parties pledged to work together to increase access and opportunities for hunting, fishing, and recreational shooting and to resolve issues associated with these activities. There is no record that a manager of the SDNM ever contacted the BLM's MOU partners and asked for assistance.

Comment Number: 100120-13
Commenter: Bill Broyles

Comment Excerpt Text:
7. Build an office, maintenance yard, and a visitor center adjacent to the Monument, such as in Gila Bend, Casa Grande, Mobile, or maybe Buckeye, or even within the Monument, perhaps along Highway 238. BLM needs a much greater presence both in the Monument and the neighboring communities.

Comment Number: 100120-18
Commenter: Bill Broyles

Comment Excerpt Text:
13. Develop and present a multi-media interpretive program for Monument resources, such as Bighorn Station, ranching history, padres and explorers, Native Americans… the list is long. The NPS interpretive model is appropriate for BLM, too, and again take a look at Escalante-Grand Staircase NM with its successful programs. Your anniversary celebration for the Monument and for the Arizona Wilderness Act was splendid. Again, you need a visitor center, even if it is housed with the Gila Bend Museum or a municipal building in Casa Grande or a mobile trailer.

Comment Number: 100123-4
Organization: Friends of the Sonoran Desert National Monument
Commenter: Thomas Hulen

Comment Excerpt Text:
The Draft RMP does not discuss how the Bureau of Land Management intends to educate the public about the rich cultural and heritage of the area comprising the Sonoran Desert National Monument.

Comment Number: 100132-6
Organization: Tread Lightly! Inc.
Commenter: Lori McCullogh

Comment Excerpt Text:
More important than the past though is the future, through a public/private partnership with Tread Lightly! and the Federal Lands Hunting & Shooting Sports Roundtable have worked to develop better ethics education materials for use by local land managers. Through the Respected Access is Open Access campaign, quality materials are available for free that speak exactly to the issues that are prompting the closure of SDNM. A current overview about the Respected Access campaign is also attached, but more information about the campaign as well as the materials available for your use can be found at www.respectedaccess.org.

If we don't have exactly the right messages or look for the SDNM, I commit to customizing our materials, and in short order, to be more valuable to the Sonoran office. Before closing the entire SDNM off to recreational shooting, I implore BLM to give Tread Lightly! and its partners within the hunting and shooting sports community the opportunity to work with land managers in the Sonoran field office to try and improve behavior through an increased emphasis on ethics education and promoting responsible behaviors to see if the situation can be improved on the ground.

Comment Number: 100151-15
Organization: Arizona Off Highway Vehicle Coalition
Commenter: Jeff Gursh

Comment Excerpt Text:
Implementation and budget section of the TMP:

Please plan to use 501 c3 organizations to accomplish the tasks of completing the deferred maintenance necessary to make the designated routes land health standard compliant. There is a statewide assistance agreement in place already allowing such assistance. Plan to apply for OHV sticker funds to accomplish this work.

Comment Number: 100166-16
Commenter: Steve Saway

Comment Excerpt Text:
Also, I think BLM should consider a partnership with the Arizona Game and Fish Department whereby the Gila River RMZ could also offer a wildlife viewing destination at the Painted Rock State Wildlife Area (which currently has no public access).

Comment Number: LSFO-SDNM-DRMP--1-18361-2
Organization: Offroading and off road racing
Commenter: Douglas Martin

Comment Excerpt Text:
Secondly. "local partners sought to monitor". Is this a mandatory condition? What if nobody wants to be out in that area? Is the area then closed to competitive events?

Comment Number: LSFO-SDNM-DRMP--1-18361-7
Organization: Offroading and off road racing
Commenter: Douglas Martin

Comment Excerpt Text:
Also, will this are being designated as the only "open" area near town, will water be piped out there for dust control? This forty acre lot only has one mile and half course on it. Will it be allowed to be developed into more of a complex with more trails, tracks, and facilities?

Summary

Several commenters requested actions that are not land use planning-level decisions, including agency and stakeholder outreach (not associated with the RMP process), education, site-specific activities, and other administrative actions. Commenters requested actions related to (1) BLM coordination under the Federal Lands Hunting, Fishing, and Shooting Sports Roundtable Memorandum of Understanding to discuss recreational shooting issues in the SDNM, (2) outreach, education, and other programs, including using the "Tread Lightly" and "Respected Access is Open Access" campaigns to help manage recreational shooting in the SDNM, (3) utilizing computer technology for public input (e.g., Facebook), (4) requiring a condition of approval for a report to the BLM after completion of agency-permitted activities, (5) building a visitor center/office and developing an interpretive program for the SDNM, (6) establishment of partnerships to manage and monitor recreational activities, (7) using 501(c)(3) organizations to perform maintenance in support of land health standards for designated routes, (8)

asking if local partners are a mandatory condition for the Open Area, and (9) asking if there would be water piped to the open area, or opportunities for expansion of the trail network.

Response

During the planning and analysis process for shooting in the SDNM, the BLM contacted local shooting sports interest groups. See **Chapter 5**, Consultation and Coordination for further details.

As noted in the Draft EIS in **Section 2.2.3**, Administrative Actions, these types of activities are day-to-day activities conducted by BLM, which are often required by FLPMA but do not require NEPA analysis or written decision by a responsible official to be accomplished. Examples of administrative actions include, but are not limited to: mapping, surveying, inventorying, monitoring, partnering, developing education materials, adjusting staffing, patrolling, and scientific research and studies. Selection of organizations, partners, or contractors to work on federal projects is based on qualifications rather than profit or non-profit status. This topic is beyond the scope of this land use planning initiative.

It is BLM policy to work with neighboring communities to provide visitor services. Additionally, should a visitor center for the SDNM be proposed in the future, the BLM would undertake the required NEPA documentation specific to the project, and involve the public through scoping and commenting.

While it is not mandatory for local partners to monitor open areas, having a local partner to assist with management and monitoring would be a condition for allocating this open area. BLM has very little local presence and wants to assure users have a pleasant experience and that the local environment is cared for. The specifics of management, such as water piping, trail networks, parking locations, etc. are implementation-level decisions outside the scope of this RMP. Those would be decided in a site-specific planning effort.

6.2.9 CUMULATIVE ISSUES

Comment Number: 100137-18
Organization: Fennemore Craig P.C.
Commenter: Dawn Meidinger

Comment Excerpt Text:
Similarly, the cumulative effects analysis is nothing more than a statement of the obvious, proclaiming that "more utility development would be shifted to non-federal lands, as large portions of public lands within the planning area would be off limits to surface disturbing activities." DRMP/EIS at 895. Put simply, the economic consequences of land use administration that leaves large portions of federal lands "off limits" to surface disturbance must be fully evaluated. At a minimum, the effects on rural low-income population areas whose future growth and prosperity depends on commerce and industry must be considered. Currently, the extent of the socio-economic analysis in the cumulative effects section of the DRMP/EIS is a mere mention that growth-inducing effects are not expected to occur from the less than 50,000 acres of public land that will be offered for disposal. DRMP/EIS at 903. Again, this analysis is inadequate and fails to meet NEPA requirements and BLM's stated planning criteria. See 40C.F.R. § 1502.16(a) and (b) (BLM will produce an EIS in compliance with NEPA standards).

Comment Number: 100137-21
Organization: Fennemore Craig P.C.
Commenter: Dawn Meidinger

Comment Excerpt Text:
The cumulative effects analysis in the DRMP/EIS regarding the impacts on mineral development consists of a single paragraph that speaks volumes about the insufficiency:

"Minerals development is dependent on resource demand and is not constrained by local and management decisions. If mineral deposits are removed from availability by planning decisions, the resource will simply be developed at another location, be it located (on non-BLM lands) regional, national or international. Since particular environmental impacts are location specific, the eventual cumulative impacts of necessary minerals development could be more or less than if the resources within the decision area were developed. The impact of developing low unit value minerals (sand & gravel, crushed rock, etc.) from outside the market area could be significant since the primary expense for these commodities is usually transportation." DRMP/EIS at 883.

The sentiment appears to be that if mineral development is precluded in this BLM planning area, it will simply go elsewhere. The key fact missing from this result driven analysis is that minerals occurrence is not universal and if mineral resource development is foreclosed in areas where minerals are naturally occurring, the development cannot simply be replicated in another location.

Summary

Commenters questioned the adequacy of the socioeconomic and minerals cumulative effects analyses, indicating the analyses were not in compliance with NEPA and BLM planning criteria.

Response

The cumulative impacts analysis has been updated to incorporate new and updated data on past, present, and reasonably foreseeable future actions. Additional socioeconomic and mineral cumulative effects analysis is provided.

6.2.10 AIR RESOURCES

6.2.10.1 Emissions and Conformity

Comment Number: 100126-45
Organization: The Wilderness Society
Commenter: Phil Hanceford

Comment Excerpt Text:
The Draft RMP does not adequately analyze the impacts to air quality that will result from the area and route designations, and activities planned and permitted in this document. Because the planning area has levels of ozone that are near the point of exceeding NAAQS, or that are exceeding NAAQS, BLM must disclose that it is prevented by FLPMA and the Clean Air Act from approving any activities that would further exacerbate or exceed these levels. The failures described above are contrary to both FLPMA and the Clean Air Act, which require that BLM observe air quality standards, and NEPA, which requires that BLM disclose the impacts of the activities it is analyzing. BLM must prepare a comprehensive emissions inventory, which includes fugitive dust emissions, and

then model these figures in near-field, far-field, and cumulative analyses. Without doing so, BLM cannot know what impact these activities will have and whether it is complying with federal and state air quality standards. BLM may not authorize any activities which will contribute ozone precursors (NOX and VOCs) or PM2.5 to ambient concentrations in the planning area (e.g. it may not permit any vehicular travel on designated routes) if these emissions will lead to exceedance of federal or state air quality standards.

Comment Number: 100140-10
Organization: US Environmental Protection Agency
Commenter: Kathleen Goforth

Comment Excerpt Text:
The EPA recommends that the BLM include in the PEIS a detailed qualitative (and if possible, quantitative) comparison of particulate matter emissions for each alternative.

Comment Number: 100140-2
Organization: US Environmental Protection Agency
Commenter: Kathleen Goforth

Comment Excerpt Text:
The DEIS states that the largest source of particulate matter emissions within the Decision Areas is related to "surface-disturbing activities including construction, mining, and OHV (recreation-related) travel." The DEIS, however, does not provide enough information to compare projected emissions for each alternative. This is important, because as stated in the DEIS, "air quality regulations boundaries for PM2.5 and PM10 will expand to encompass the majority of the Decision Area, in parallel with population growth." It is not clear in the DEIS how, or if, the preferred alternative will conform to the State Implementation Plans (SIP) for the nonattainment areas located in both Planning Areas.

Comment Number: 100140-3
Organization: US Environmental Protection Agency
Commenter: Kathleen Goforth

Comment Excerpt Text:
We also ask for more information on the preferred alternative's potential air quality impacts, and whether it will conform to the SIPs for the nonattainment areas within the Lower Sonoran and Sonoran Desert National Monument Planning Areas

Summary

Commenters recommended an accounting and assessment of emissions associated with management in the RMP/EIS to ensure the alternatives conform to State Implementation Plans for nonattainment areas.

Response

As indicated by commenters, under Section 176(c)(1) of the Clean Air Act (CAA), the BLM is responsible for demonstrating that its actions do not interfere with state and local plans to bring an area into attainment with the national ambient air quality standards (NAAQS); as discussed in **Section 3.2.1** and shown on **Map 3-1** of the DRMP/DEIS, portions of the decision areas are within nonattainment areas for one or more of the NAAQS. To meet the implementing regulations for the CAA General

Conformity rule found at 40 CFR 51 Subpart W and 40 CFR 93 Subpart B, a CAA general conformity analysis was conducted to determine whether the actions proposed in the RMP are subject to and meet the requirements of the General Conformity Rule and whether those actions conform to the applicable state implementation plans. The preliminary findings from the analysis have been included in **Section 4.2** of the PRMP/FEIS. In addition, the impacts on air quality from travel management have been updated for each alternative in the FEIS.

6.2.10.2 Grazing LHE

Comment Number: 100136-85
Organization: Western Watersheds Project
Commenter: Greta Anderson

Comment Excerpt Text:
The DRMP/DEIS is largely silent about the impacts of livestock grazing on air quality. The BLM only admits that the construction of range developments and the movement of livestock could create dust emissions, but fails to analyze or disclose the impacts of vegetation removal on soil surface erodibility. DRMP/DEIS at 388, 400. This is significant, especially since the BLM is proposing to reauthorize both perennial and ephemeral use on the Monument, ensuring that vegetation cover is removed, soils are trampled, and soil crusts are destroyed by cattle. The LHE and key area data are insufficient indicators of the potential for dust creation since they are not representative of the areas with the most concentrated impacts (such as water developments).

Summary

Commenters recommended additional analysis of impacts of livestock grazing related to air resources due to the proposed changes in the LHE.

Response

Section 4.2 of the DRMP/DEIS identifies potential impacts from livestock grazing on air quality, including negligible short-term, localized dust emissions from livestock movement and from surface disturbance related to rangeland improvements. Impacts from all action alternatives except for Alternative D were determined to be similar in magnitude to baseline conditions. Additional information has been added to **Section 4.2** of the PRMP/FEIS to describe potential indirect dust impacts that could result from removal of vegetative cover and destruction of soil crusts by livestock.

Best management practices (BMPs) and standard operating procedures (SOPs) for soil resources and livestock grazing described in **Appendix H**, Best Management Practices and Standard Operating Procedures, and guidelines for grazing administration described in **Appendix L**, Guidelines for Grazing Administration, would be followed to minimize erosion impacts from livestock grazing.

6.2.10.3 Impacts

Comment Number: 100120-9
Organization:
Commenter: Bill Broyles

Comment Excerpt Text:
3. Protect regional air quality by ending grazing, off-roading, ATVs, abandoning unneeded trails and roads, ending driving in washes in the Monument, and limiting other activities that disturb soil crust or raise dust. Both Maricopa and Pinal counties face federal issues with air quality. Concerning a haboob that rolled through the Phoenix area earlier this year, one newspaper reported, "Pinal County's degraded bowl is the likely contributor. Name your poison: vast acreages of tilled land, grazed desert, feedlots, land cleared for subdivisions, silty washes and river bottoms, dirt roads, ATV trails, sand-and-gravel operations." "The storm rolled over vast stretches of public lands managed by the state Land Department and the Bureau of Land management. They are riddled with wildcat trails and roads and leases for grazing, though this spring there was not enough forage for cattle."

"Monson, of the USGS, said land management is key. Overgrazing not only removes vegetation that keeps dust from blowing, it also breaks the desert's natural crust, the one defense left when the vegetation is gone." page 12, col 4. (From Arizona Daily Star, September 25, 2011. "Swirling dust is our destiny," by Tom Beal. Pages A1, 12.)

Comment Number: 100121-5
Organization: Sierra Club
Commenter: Jim Vaaler

Comment Excerpt Text:
Air quality in and near the planning area is significantly affected by vehicular traffic. The Phoenix area exceeds federal health-based standards for both ozone and coarse particulates (PM10). Because of this, the DRMP/DEIS must carefully examine the air quality impacts of any planned actions, include any route designations. Transportation and off-road vehicle activities contribute significantly to PM10 emissions, and cars and trucks are also a major factor relative to ozone precursors.

Comment Number: 100121-6
Organization: Sierra Club
Commenter: Jim Vaaler

Comment Excerpt Text:
In addition to the specific public health issues, BLM must address any impacts to Class I airsheds.

Comment Number: 100126-86
Organization: The Wilderness Society
Commenter: Phil Hanceford

Comment Excerpt Text:
As required by the Clean Air Act (CAA), the Secretary of Interior has an "affirmative responsibility" to protect the air quality related values of Class I airsheds. Clean Air Act, 42 USC § 7475(d)(2)(B). Thus, the BLM and Interior Department's decisions in the RMP must also comply with this CAA mandate. There are several areas in the proximity that are designated Class I airsheds, including nearby wilderness areas and Saguaro National Park. Decisions in the RMP, such as designating a route transportation network may have direct and cumulative impacts

on the air quality and visibility of these areas. BLM must analyze the impacts to these areas from decisions in the RMP in the EIS. BLM must also protect the air quality and visibility of these areas from decisions in the RMP.

Comment Number: 100151-16
Organization: Arizona Off Highway Vehicle Coalition
Commenter: Jeff Gursh

Comment Excerpt Text:
Please see AZOHVC draft State Air Quality 5% plan General Dust permit and letter showing the exemption of OHV MANAGED and or Designated routes and the Best Management Practices to address dust issues. These will have a bearing on OHV use in the PM 10 areas of your RMP.

Comment Number: LSFO-SDNM-DRMP--1-18211-1
Commenter: Angela Roach

Comment Excerpt Text:
Please ensure that OHV vehicle routes are located well-away from I-8 and other State Highways. OHV activities can generate dust which may limit the visibility of drives on major roads. Thank you.

Summary

Commenters recommended additional analysis of several impacts related to air resources, including (1) impacts of livestock grazing, (2) impacts to Class I airsheds, and (3) impacts from route designations and travel management.

Response

Section 4.2 of the DRMP/DEIS identifies potential impacts from livestock grazing on air quality, including negligible short-term, localized dust emissions from livestock movement and from surface disturbance related to rangeland improvements. Impacts from all action alternatives except for Alternative D were determined to be similar in magnitude to baseline conditions. Additional information has been added to the impacts analysis in **Section 4.2** of the Proposed RMP/Final EIS to describe potential indirect dust impacts that could result from removal of vegetative cover and destruction of soil crusts by livestock.

An analysis has been conducted to determine if the Proposed RMP (Alternative E) is in conformance with state implementation plans for air quality. The results of this analysis have been included in **Section 4.2** of the PRMP/FEIS.

Best management practices (BMPs) and standard operating procedures (SOPs) for soil resources and livestock grazing described in **Appendix H** and guidelines for grazing administration described in **Appendix L** would be followed to minimize erosion impacts from livestock grazing.

6.2.11 CLIMATE CHANGE

Comment Number: 100121-8
Organization: Sierra Club
Commenter: Jim Vaaler

Comment Excerpt Text:
The DRMP/DEIS does not demonstrate how the BLM will manage these lands within the broader landscape to promote ecological connectivity and resilience in the face of climate change and as directed in Secretarial Order 3289.[Footnote 4] This order requires that the BLM "consider and analyze potential climate change impacts when undertaking long range planning exercises…[and] developing multi-year management plans…." The DRMP/DEIS does not contain an analysis of the cumulative carrying capacity for the region and how the Monument fits into that picture. There are also no decisions regarding managing the landscape during periods of stress so that the Monument objects and ecological function and condition will not be irreversibly harmed. All of this should be addressed in the RMP.

Comment Number: 100123-2
Organization: Friends of the Sonoran Desert National Monument
Commenter: Thomas Hulen

Comment Excerpt Text:
Passive restoration of degraded resources should be used when appropriate. Unfortunately there are areas in the Sonoran Desert National Monument such as the Vekol Valley Grassland, areas around North Tank and Gap Well as well as all the livestock waters located in the Sonoran Desert National Monument that have suffered considerably from activities such as unsustainable grazing and irresponsible OHV use. The Bureau of Land Management should develop and implement a plan that will put the restoration of these and other areas on a faster track for recovery. The Bureau of Land Management has been directed through the Omnibus Public Land Management Act to "conserve, protect and restore nationally significant landscapes for the benefit of current and future generations." By engaging in a more aggressive restoration program the Bureau of Land Management will fulfill their duty to manage for climate change as outlined in Secretarial Order (S.O.) 3289 which unequivocally mandates all agencies within the Department of Interior to "analyze potential climate change impacts when undertaking long-range planning exercises, setting priorities for scientific research and investigations, developing multi-year management plans, and making major decisions regarding potential use of resources under the Department's purview." S.O. 3289, incorporating S.O. 3226. This planning process falls squarely under this guidance and Bureau of Land Management must assess impacts from the proposed actions that may directly, indirectly, or cumulatively result in exacerbating climate change within this document.

Comment Number: 100126-90
Organization: The Wilderness Society
Commenter: Phil Hanceford

Comment Excerpt Text:
BLM must analyze greenhouse gas (GHG) emissions in the planning area as part of the RMP revision. In determining what levels of GHG emissions to measure as "significant" under NEPA, the agency should look at the relative percentage of GHG emissions reductions that an alternative could produce compared to the baseline carbon performance for the planning area. This is the approach taken in the President's Executive Order 13514.

Setting an actual numerical threshold of significance is ill-advised as it is against the current policy trends of CEQ and other agencies and because it ignores the cumulative nature of climate change.

As a general approach, BLM should first assess and, wherever possible, quantify or estimate GHG emissions by type and source by analyzing the direct operational impacts of their proposed actions. Assessment of direct emissions of GHG from on-site combustion sources is relatively straightforward. For many projects, energy consumption will be the major source of GHGs. The indirect effects of a project may be more far-reaching and will require careful analysis. Within this category, agencies should evaluate, inter alia, GHG and GHG-precursor emissions associated with construction, electricity use, fossil fuel use, downstream combustion of fossil fuels extracted or refined by the project, water consumption, water pollution, waste disposal, transportation, the manufacture of building materials, and land conversion.

Because failure to conserve carbon sinks results in direct and quantifiable GHG emissions as well as indirect effects from reduction in carbon sequestration, the GHG effects of destruction of carbon sinks should be analyzed as part of the EIS. The GHG effects of destruction of carbon sinks should be analyzed both in terms of carbon already stored in the landscape and soil itself and in terms of the landscape's ongoing carbon-capturing properties. Such an analysis requires that an initial inventory of carbon storage potential be conducted for each landscape. The environmental review should assess and where possible quantify all the various component carbon pools – live trees, other vegetation, dead trees or vegetation (coarse, woody debris and snags), logs, litter, duff, and mineral soil – and the fluxes of carbon to and from these pools, due to natural processes like decay and fire, and those associated with management, harvest and/or manufacture of extracted resources, including the burning of fossil fuels needed to remove, transport, and process those materials. In conducting this assessment, fluxes associated with fire management and the restoration of the resilient native ecology should be accounted for separately. Net fluxes from terrestrial pools to the atmosphere may occur from management activities, such as prescribed and natural fire management, but may be considered beneficial, if they enhance the long-term carbon storage ability of the ecosystem and enhance ecosystem integrity.

Comment Number: 100126-91
Organization: The Wilderness Society
Commenter: Phil Hanceford

Comment Excerpt Text:
general statements that BLM will conduct monitoring are also not an appropriate form of mitigation. Simply monitoring for expected damage does not actually reduce or alleviate any impacts. Instead, a vigilant science-based monitoring system should be set out in the RMP in order to address unforeseeable shifts to the ecosystem. A detailed monitoring approach is also required under the BLM's planning regulations:

Comment Number: 100140-5
Organization: US Environmental Protection Agency
Commenter: Kathleen Goforth

Comment Excerpt Text:
The BLM should consider whether a quantitative comparison of projected GHG emissions for the preferred alternative, as well as the other alternatives, would be useful to decision-makers and the public, and, if so, include this information in the Final EIS. The PEIS should also identify options for minimizing and mitigating greenhouse gas emissions.

Comment Number: 100140-6
Organization: US Environmental Protection Agency
Commenter: Kathleen Goforth

Comment Excerpt Text:
The BLM should include a climate change mitigation and adaptation plan in the adaptive management plan for the Lower Sonoran and Sonoran Desert National Monument RMP.

Summary

Commenters expressed concern that the DRMP/DEIS did not adequately analyze impacts related to climate change or describe how the BLM would address these impacts. Commenters recommended that the RMP/EIS include (1) a cumulative carrying capacity analysis for the region, (2) management strategies to reduce impacts on SDNM objects and ecological function during periods of stress, (3) institute a more aggressive restoration program to manage for climate change, and (4) develop an adaptive management plan that addresses climate change.

Commenters requested quantitative analyses of greenhouse gas (GHG) emissions in the planning area and recommended utilizing methods stipulated in Executive Order 13514 to analyze the significance of GHGs pursuant to NEPA.

Response

Per current BLM guidance, including Secretarial Order 3289, **Section 3.2.3** of the RMP/EIS discusses climate change, including global and regional trends, the effects of climate change on Federal land and water resources in general, and the effects on resources within the RMP planning area. **Section 3.2.3** includes a discussion of the effects that climate change may have in the planning area, including increased temperatures, reduced water availability, longer and more intense fire seasons, increased air pollution, and changing vegetation regimes and subsequent effects on species. A regional carrying capacity is not required and is beyond the scope of the RMP/EIS.

Additionally, the BLM has revised **Chapter 4**, Environmental Consequences to incorporate qualitative analysis for climate change. See **Section 4.3**, Climate Change. BLM has reviewed current climate change guidance alongside the management actions, and has found that air quality management, vegetation, wildland fire, livestock grazing, mineral resources, recreation, and travel management actions are the management actions that could contribute most to climate change in the Planning Area, though overall impacts would be minimal. Vegetation and wildland fire management actions could also mitigate climate change by creating healthy vegetation and soils that sequester greenhouse gases.

Due to the nature of GHG emissions into the atmosphere, it is impossible to link a specific GHG emission and a specific climate change indicator. Short- and moderate-term direct and indirect impacts on climate from any of the alternatives would be negligible in nature. Long-term cumulative GHG emissions from certain actions on public lands and other sources within the Planning Area do contribute to total global emissions. These, in turn, could contribute to future long-term, anticipated climate changes to a very minor degree. Overall, the contribution would be a very small portion of the total impact from other sources of a regional and global nature.

6.2.12 CULTURAL AND HERITAGE RESOURCES

6.2.12.1 Baseline Information

Comment Number: 100045-2
Organization: Hopi Tribe
Commenter: Leigh Kuwanwisiwma
Other Sections: 10.2

Comment Excerpt Text:
We understand only 4% of the Lower Sonoran Decision Area has been surveyed for cultural resources with almost 600 sites recorded, and only 6% of the Sonoran Desert National Monument has been surveyed with almost 300 sites discovered, suggesting there could be 13,000 archaeological sites in the Lower Sonoran and 5,000 within the Sonoran Desert National Monument Decision Areas. Therefore, we recommend the BLM make a priority of surveying the remaining 95% of the Decision Areas.

Comment Number: 100129-20
Organization: Center for Desert Archeology
Commenter: Andy Laurenzi

Comment Excerpt Text:
Page 265. It unclear why there is not quantified information on damage from intentional vandalism, OHV damage and artifact collecting. BLM participates in the Site Steward program and as a starting point an examination of Site Steward reports for a ten year period should provide some quantified information on site impacts. In addition, by your own estimate roughly 70-90 sites are visited each year so BLM has data over the last ten years for hundreds of sites. AZSITE and BLM site records often have some information on site condition. At a minimum, a summary of this information is necessary to provide at least some quantified data to better guide management decisions. We request that this information be reviewed and evaluated and reported on in the final plan documentation.

Comment Number: 100129-3
Organization: Center for Desert Archeology
Commenter: Andy Laurenzi

Comment Excerpt Text:
The narrative regarding cultural resources is an accurate depiction but is lacking in descriptive information. Some context on the nature of the known cultural resources (e.g. rock art sites, habitation sites, historic trails) and their prehistoric and current cultural affiliation is needed to get a better sense of the resources. More importantly, cultural resources are inherently diverse and as such are affected by decisions in different ways that require better articulation in the plan. For example, village sites and petroglyph areas, caves and rock shelters are more prone to vandalism impacts while artifact scatters and trails are more often damaged by off highway vehicles and road/route construction (Ahlstrom 1992; Williams 1978). A good example is provided in the Ironwood National Monument Final RMP page 3-32 through 3-35.

Comment Number: 100145-23
Organization: National Park Service
Commenter: Naomi Torres

Comment Excerpt Text:
p. 264 This section seems to infer that the Anza/Mormon/Butterfield trails follow the same route through the entire planning area. Please clarify that while these trails overlap in some locations, such as at Maricopa Pass, they may diverge in other areas while still being separate or parallel. For instance, along the lower Gila River Corridor we believe some trials were on different sites of the river. In striving to provide historically accurate interpretation to visitors, we should be careful not to leave the public the impression that all these different parties followed exactly the same route on the ground. However, it's certainly fine to interpret the area and build/identify a recreational trail on a combined route.

Comment Number: 100148-12
Commenter: Jon M Shumaker

Comment Excerpt Text:
263 Cultural and heritage resources are a major component of what is supposed to be protected in SDNM, yet this section only rates a scant four pages? This section is incomplete and not acceptable in its present form. BLM made no effort to adequately identify, describe, and analyze cultural resource situation in SDNM. You have had ten years to do this…% of types of sites doesn't add up (also p. 264).

Comment Number: 100148-14
Commenter: Jon M Shumaker

Comment Excerpt Text:
264 Table data meaningless. What do "Percentage of all surveys" and "Density (sites/mile)" mean?

Comment Number: 100148-3
Commenter: Jon M Shumaker

Comment Excerpt Text:
Cultural resources: the cultural analysis here is hopelessly defective and incomplete. There is no summary of existing work completed in either SDNM or the LS area. There isn't even a reference to the initial Class I overview done for the Monument in the bibliography. There is no evidence of any research done for this document re: archaeology. An AZSite check was reportedly done in 2003 (eight years ago!!!) without acknowledging the very serious problems with AZSite data and AZSite being out-of-date. For both LS and SDNM, there is no summary of sites, no summary of surveys, no review of what has been done for cultural resources over the past ten years in either management area

Comment Number: 100148-7
Commenter: Jon M Shumaker

Comment Excerpt Text:
Estimates are admittedly based on incomplete and ambiguous data. BLM has had ten years to get a handle on this. There is also no summary of sites, site types, their national Register eligibility, no summary of surveys done, reports, citations, etc. This section is woefully incomplete.

"Evaluating the significance of archaeological and historic sites recorded on public lands is an ongoing aspect of BLM's cultural resource management program." This is, to put it kindly, a bunch of hooey. BLM has done no systematic inventory, no Section 110, and work is totally undertaking-driven with an overburdened staff. And no one ever reviews the work.

Approx. 70% of sites are NR eligible? Based on what? Has BLM consulted with SHPO and tribes about this?

Summary

Commenters noted that the description of cultural resources was lacking some baseline text and recommended addition of information, including (1) context of known cultural resources, (2) prehistoric and current cultural affiliation, (3) the location, route, and overlap of historic trails, and (4) additional descriptive information on cultural resources in the SDNM.

Response

The CEQ regulations require an environmental impact statement to "succinctly describe the environment of the area(s) to be affected or created by the alternatives under consideration. The description shall be no longer than is necessary to understand the effects of the alternatives. Data and analyses in a statement shall be commensurate with the importance of the impact, with less important material summarized, consolidated, or simply referenced. Agencies shall avoid useless bulk in statements and shall concentrate effort and attention on important issues" (40 CFR 1502.15). EIS **Chapter 3**, **Section 3.2**, Resources, contains baseline data sufficient to support the decision being made in this EIS.

The requisite level of information necessary to make a reasoned choice among the alternatives in an EIS is based on the scope and nature of the actions under consideration. Background information for cultural resources in this RMP is summarized in documents currently available online on the BLM Web site at http://www.blm.gov/az/st/en/prog/cultural/cultural_pubs.html. BLM's information pertaining to vandalism and damage of cultural sites is only partial and qualitative. It is useful for management decisions on a site-specific basis, but not for landscape-level decisions such as those in an RMP. Site- specific cultural resources field inspections are required before any proposal is approved, and impacts on cultural resources are either avoided or mitigated.

The description of the Historic trails in the Planning Area in Chapter 3 (**Section 3.2.4**, Cultural and Heritage Resources) was not intended to be a comprehensive description of the trails, but a general description for purpose of a general understanding. More detail is (or will be some time in the future) provided in maps and brochures interpreting these trails.

Within the larger Planning Area (including all landownership), 94 percent of the cultural resources survey projects completed were conducted outside of the boundaries of SDNM (see **Table 3-1**, Estimated Extent of Cultural Resources Survey and Recorded Resources). Six percent of the survey projects were completed on land (regardless of ownership) within the boundaries of the SDNM. Within the Decision Areas (on BLM lands only), 55 percent of the survey projects were completed in the Lower Sonoran Decision Area and 45 percent were completed on the SDNM Decision Area.

Density has been edited to read sites per square mile in **Table 3-1**.

6.2.12.2 Impacts and Threats

Comment Number: 100045-2
Organization: Hopi Tribe
Commenter: Leigh Kuwanwisiwma
Other Sections: 10.1

Comment Excerpt Text:
We understand only 4% of the Lower Sonoran Decision Area has been surveyed for cultural resources with almost 600 sites recorded, and only 6% of the Sonoran Desert National Monument has been surveyed with almost 300 sites discovered, suggesting there could be 13,000 archaeological sites in the Lower Sonoran and 5,000 within the Sonoran Desert National Monument Decision Areas. Therefore, we recommend the BLM make a priority of surveying the remaining 95% of the Decision Areas.

Comment Number: 100073-1
Organization: Arizona State Historic Preservation Office
Commenter: Ann Valdo Howard

Comment Excerpt Text:
Please note that scientific archaeological/historical site mitigation performed by professional archaeologists in the form of excavation or any type of data recovery (including surface collection) does NOT reduce impacts to these heritage resources. As per the Section 106 regulations, data recovery is an adverse effect and cannot be "mitigated down" to a lesser effect or impact. Thus, the text references on pages 429 and 432 stating that scientific data recovery is a "minor" or "negligible" impact need to be corrected.

Comment Number: 100126-30
Organization: The Wilderness Society
Commenter: Phil Hanceford

Comment Excerpt Text:
As stated in the Draft RMP, only around 6% of the Sonoran Desert National Monument has been surveyed for cultural resources. PRMP at 264. Given the recognized impacts to cultural resources and the fact that these resources have priority status as Monument Objects, BLM should have a more complete inventory before allowing uses that impact these resources to continue. BLM should prioritize the most sensitive, important, and at-risk areas for cultural resources and commit to performing surveys before making final resource allocations in the RMP. This includes areas in close proximity to routes proposed for designation in the RMP.

Comment Number: 100126-31
Organization: The Wilderness Society
Commenter: Phil Hanceford

Comment Excerpt Text:
In this particular case, BLM failed to undertake cultural resource inventories in association with proposed route designations as required by BLM Instruction Memorandum (IM) 2007-030 and also failed to consider information provided by Peter Bungart, an archaeologist with particular archaeological expertise in this area, concerning historic properties within the national monuments.

By neglecting to inventory proposed route designations for cultural resources pursuant to IM 2007-030, BLM failed to make a reasonable and good faith effort to identify historic properties in the Monuments. IM 2007-030 provides

guidance to BLM on implementing the requirements of Section 106 for ORV designations and travel management. BLM IM 2007-030. A 100 percent survey of the planning area is not required by the IM. See Proposed Plan, p. 5-66. Rather, BLM must inventory only those areas potentially affected by two specific types of designations: 1) new routes; and 2) existing routes when a "reasonable expectation" exists that proposed decisions will shift, concentrate, or expand travel into areas likely to have cultural resources. BLM IM 2007-030. Consistent with the regulations implementing Section 106, the IM requires a cultural resources inventory prior to designation of routes for ORV use. Id.

Recommendation: BLM must satisfy its obligation to identify and inventory cultural resources within the area of potential effects associated with each proposed road. Such information is vital to BLM's ability to adequately meet their responsibilities under Section 106 of the NHPA. BLM IM 2007-030 supports the requirement that BLM complete an identification and inventory process prior to issuing records of decision for the RMPs.

Comment Number: 100129-15
Organization: Center for Desert Archeology
Commenter: Andy Laurenzi

Comment Excerpt Text:
We also believe that some targeted survey efforts are needed to better inform decision-making in the plan. This is especially true in the Monument where a higher standard of management is required for Monument objects, such as cultural resource sites. At a minimum we propose that in the Sonoran Desert National Monument surveys be conducted within .5 mile either side of the road/route centerline to more fully inform travel management decisions. With little quantified information in the plan, it is unclear how decisions have been made with respect to protection of these Monument objects. In areas outside the Monument, we urge that a site condition assessment be conducted on all NRHP listed properties within .5 miles of the centerline of a known road/route to develop a better understanding of impacts to cultural sites.

Comment Number: 100129-16
Organization: Center for Desert Archeology
Commenter: Andy Laurenzi

Comment Excerpt Text:
3. Impacts on Cultural & Heritage Resources 4.4

This section lacks even minimal information upon which to assess impacts. We are left with vaguely worded, generalized statements and little to no documentation to evaluate the adequacy of the analysis nor how to evaluate differences in impacts among alternatives. Given that there is a fair amount of information in hand as discussed earlier and that targeted surveys in sensitive areas is not unreasonable we believe the impact assessment presented herein is totally inadequate. This is especially problematic for lands within the Sonoran Desert National Monument since cultural resource sites are Monument objects.

Comment Number: 100129-17
Organization: Center for Desert Archeology
Commenter: Andy Laurenzi

Comment Excerpt Text:
Page 908. 4.25.2. From Table 30 it appears that many analysis areas of the National Monument were not analyzed at all with respect to Archaeological and Historical Sites. This is not acceptable and the analysis performed should

occur Monument-wide. The first assumption states that the APE considered is .25 mile either side of all routes. This is a good step forward in travel management impact assessment but given that the literature varies on this distance threshold, a more expansive approach would extend the APE to .5 mile either side of all routes. Since cultural resource sites are Monument objects and their long-term protection is paramount, an expansive approach is justified at least for purposes of analysis. Sixth assumption should make reference to motorized uses facilitating access such that decisions on travel management can have a direct bearing on reducing impacts to Monument objects.

Comment Number: 100129-18
Organization: Center for Desert Archeology
Commenter: Andy Laurenzi

Comment Excerpt Text:
Page 909. First paragraph draws attention to the lack of inventory information. For all of the reasons stated above this is unacceptable, and using the example of Ironwood National Monument, we request that all routes/roads that are currently proposed open to motorized use be surveyed within 1/2 miles of the route/road center line to inform final travel management decisions on the Monument. We would be willing to discuss helping to organize volunteer assistance in this effort.

Comment Number: 100129-4
Organization: Center for Desert Archeology
Commenter: Andy Laurenzi

Comment Excerpt Text:
Page 265. Specific reference should be made to vandalism in and of itself as a significant threat especially for petroglyph areas which are often subject to spray painting, target shooting and occasionally removal by chipping, or if the rocks are small enough, theft.

Comment Number: 100129-5
Organization: Center for Desert Archeology
Commenter: Andy Laurenzi

Comment Excerpt Text:
Page 265. The impacts attributed to ATV use or motorized vehicle uses are understated. In particular, there is solid documentation that the proximity of sites to routes open to motorized use typically experience higher rates of vandalism than sites that are farther from routes open to motorized use. These indirect impacts are discussed by Schroeder on pages 15-16 of the Apache-Sitgreaves Cultural Resource Specialist report (2010) prepared in support of Forest wide Travel Management Planning for the Apache-Sitgreaves National Forest and in Chapter 3 of the Coconino National Forest Final Environmental Impact Statement for Travel Management pages 95-107 (2011). In both cases the discussions are directly relevant to public lands managed by BLM. These reports specifically reference Ahlstrom 1992, Lightfoot et a1. 1978, Nickens 1981 and Plog et a1. 1978. We include three of these reports for your review along with our own research on the Tonto National Forest (Center for Desert Archaeology 2010). We did not enclose Ahlstrom et al. 1992 since this was a Bureau of Land Management study that involves lands managed by the BLM in the Phoenix District and we assumed you have ready access to this report. Each of these studies demonstrates a significant relation between site proximity to routes open to motorized use and vandalism, including looting and casual surface artifact collection. Our research on the Tonto National Forest found that sites closer to roads open to motorized uses were classified in poor condition in greater frequency than sites classified in fair or good condition.

Williams (1978) provides an overview of types of damages, causes of site damage and site management recommendations. Other than outright removal, road closure was identified by surveyed land managers as the most effective protection strategy for sites subject to vandalism. His recommendation was that roads be closed within .5 mile of sensitive sites. Absent compelling information to the contrary, we strongly recommend this standard be applied to roads/routes in the Sonoran Desert National Monument.

Comment Number: 100129-6
Organization: Center for Desert Archeology
Commenter: Andy Laurenzi

Comment Excerpt Text:
Page 403. 5th paragraph BLM states: "Many uses e.g. LUAs and livestock facilities, may have secondary effects because they create new vehicle ways, which often lead to inadvertent damage from vehicle traffic and increases in the threat of vandalism (emphasis added) of fragile cultural resources". This indicates to us that BLM is aware of the indirect impacts of motorized road access. It stands to reason that if new roads increase the threat of vandalism, than existing roads pose an existing threat from vandalism. This would then suggest that travel management decisions must take this into account as part of the decision-making on motorized route/road designation.

Comment Number: 100129-7
Organization: Center for Desert Archeology
Commenter: Andy Laurenzi

Comment Excerpt Text:
Page 405. 1st complete paragraph. We strongly disagree with this statement regarding quantification of impacts. There are Site Steward reports, BLM internal inventories, and the need to actually conduct targeted surveys as part of the planning effort. In addition, there are numerous AZSITE and BLM records that provide some measure of quantification with respect to site type, location and potential relationship to impacts (i.e. proximity to roads).

Comment Number: 100129-9
Organization: Center for Desert Archeology
Commenter: Andy Laurenzi

Comment Excerpt Text:
Page 431. 3rd complete paragraph. We strongly object to the lack of inventory statement as it relates to travel management and route designation for the SDNM. Compliance with cultural resource management objectives requires that a reasonable effort be made to inventory .5 mile either side of the centerline of a route/road in areas where there is a high likelihood of encountering cultural resource sites subject to vandalism and looting including casual surface artifact collecting. BLM acknowledges this impact earlier in this section as it relates to new roads and as we point out in our comments above, the same rationale should necessarily apply to existing roads.

Summary

1) Commenters expressed concerns about the description of certain threats and impacts on cultural resources in the DRMP/DEIS and requested additional analysis and documentation to support the BLM's conclusions. Specifically, commenters noted that the BLM did not use findings from existing studies to evaluate potential impacts on sites, and BLM did not conduct additional studies in accordance with the Section 106 process.

2) In addition, commenters requested that vandalism be considered as a threat to cultural resources.

3) Commenters suggested that BLM did not accurately describe the magnitude of impact associated with data recovery.

4) BLM is out of compliance with IM 2007-030 and the area of potential effect (APE) should be expanded to 0.5 mile rather than 0.25 mile.

5) "BLM must satisfy its obligation to identify and inventory cultural resources within the area of potential effects associated with each proposed road" (per IM 2007-030). Commenters stated that the APE should be expanded to .5 mile rather than .25 mile.

6) Commenter disagrees that cultural resources cannot be quantified.

Response

1) The DRMP/DEIS for cultural resource actions within the Lower Sonoran Field Office contains only planning actions and does not include any implementation actions; therefore, the impacts analysis is more generalized. As the planning actions for the SDNM Decision Area are more specific, the BLM has augmented the analysis to better clarify the nature, intensity, and context of anticipated impacts (see **Section 4.5**, Impacts on Cultural and Heritage Resources) resulting from these decisions, including revising impacts associated with data recovery, vandalism, and the travel management decisions.

2) The BLM considers actions to address vandalism on archaeological sites to be administrative and outside the scope of an RMP.

3) BLM has clarified the difference between evaluation of impacts under Section 106 of the NHPA and NEPA in **Chapter 4**, **Section 4.5**, in the introductory discussion of the Impacts on Cultural and Heritage Resources.

4) BLM's analysis is in compliance with IM 2007-030, which does not require surveys unless impacts along specific routes are expected to affect sites. Analysis used Bungart road survey results, Air Force UXO road survey results in the SDNM, as well as BLM inventories and AZ Site information. BLM has clarified the methodology description to outline procedures used in analysis. Upon implementation of the RMP, site-specific inventories would be conducted for any activity proposal that would potentially affect cultural resources. Potential impacts on sites would be avoided or mitigated before any activity was approved. Surveys would continue in the Monument as funds and staffing allow, and would be prioritized based on the management questions the survey is intended to explore.

5) BLM has reviewed the reports presented by the commenter and has made route recommendations based on direct observations in the SDNM.

6) The data available for cultural resources site locations and types remain insufficient to develop reliable predictive or sensitivity models. This means that the impacts related to cultural resources resulting from landscape-level decisions normally made in an RMP cannot be quantified. Targeted surveys would be conducted, primarily within the SDNM, as funding and staffing allow. However, enough is known about sites and site locations to make decisions appropriate to RMP-level planning.

6.2.12.3 Management Actions

Comment Number: 100121-7
Organization: Sierra Club
Commenter: Jim Vaaler

Comment Excerpt Text:
We do not agree that restricted motorized access would limit monitoring of archaeological sites, as indicated on page 427. Such monitoring can be accomplished via non-motorized access, and the benefits of reducing public access to these sites outweigh limited monitoring and scientific access.

Comment Number: 100129-11
Organization: Center for Desert Archeology
Commenter: Andy Laurenzi

Comment Excerpt Text:
Page 56. We do not support identification of Butterfield West as a Public Use allocation. Alternatively, we recommend that portion of the Butterfield Overland Stage Route east of the Painted Rocks Campground site. It's proximity to the main paved road will facilitate Public Use as opposed to the proposed area which is remote and in close proximity to sensitive petroglyph sites.

Comment Number: 100129-12
Organization: Center for Desert Archeology
Commenter: Andy Laurenzi

Comment Excerpt Text:
Page 56. We request that the following management actions be included in the final preferred alternative:

"Complete Class II (sample) field inventories to identify cultural resource sites and evaluate their eligibility for listing on the National Register of Historic Properties in accordance with Section 110 of the NHPA. Priority shall be given to the Lower Sonoran Desert National Monument, and the Saddle Mountain and Lower Gila Terraces and Historic Trails ACECs."

"Follow guidance developed by the BLM_SHPO Cultural Resources Data Sharing Partnership (CRDSP). Ensure that cultural resources information is provided in an acceptable format for entry into the AZSite database."

Comment Number: 100129-13
Organization: Center for Desert Archeology
Commenter: Andy Laurenzi

Comment Excerpt Text:
Page 57. We request that the following management actions be included in the final preferred alternative: "Maintain and expand annual monitoring program that focuses on condition assessment of listed and eligible NRHP cultural resource sites with priority given to Lower Sonoran Desert National Monument, and the Saddle Mountain and Lower Gila Terraces and Historic Trails ACECs."

Comment Number: 100129-8
Organization: Center for Desert Archeology
Commenter: Andy Laurenzi

Comment Excerpt Text:
Page 405. 5th complete paragraph please add that motorized use of routes/roads fosters public access to sites.

Comment Number: 100159-16
Commenter: Roy Pierpoint

Comment Excerpt Text:
We need a cherry stem from S. Enterprise Road up to the Red Rock Canyon Archaeological Site so that we can check it for vandalism; the site has been hit hard by vandals in years past.

Summary

Commenters recommended several revisions and additions to management actions to increase protection of cultural resources, including (1) following SHPO Cultural Resources Data Sharing Partnership guidance, (2) initiating an expanded annual monitoring program for cultural resources and historic trails, (3) designating a portion of the Butterfield Overland Stage Route east of Painted Rocks as a public use allocation instead of Butterfield West, (4) completing Class II inventories to identify cultural resource sites and evaluate their eligibility for listing on the National Register of Historic Properties, and (5) add "motorized access to sites fosters public access to sites" to EIS.

Response

The DRMP/DEIS considered a range of alternatives designed to meet the BLM's legal duties and purpose and need for action. The purpose and need section in the DEIS clearly states that the purpose of the agency action includes compliance with applicable laws for both decision areas, including the SDNM Proclamation and the National Historic Preservation Act (see **Section 1.1**, Purpose and Need for the RMP).

1) The BLM would continue to follow the guidance and procedures outlined in the National Programmatic Agreement and Protocol for Arizona. The BLM followed guidance for Section 106 consultation as prescribed in IM-2007-030 for Travel Management decisions. See **Section 5.3.3** of the PRMP/FEIS for a full discussion regarding BLM's consultation with the Arizona SHPO.

2 & 4) The BLM's range of alternatives for cultural resources management represented a full spectrum of options. Alternatives analyzed include a No Action Alternative, three action alternatives, and the preferred alternative. For cultural resources management, the range of alternatives includes setting use allocations for known cultural resource sites, and protections against destruction or damage due to other actions/uses in the alternatives. However, as the actions being considered as part of this RMP are planning-level actions, the BLM is not making cultural resources determinations for implementation-level actions, standard operating procedures and administrative actions (e.g., changes to the existing site stewardship and monitoring program), and requirements for cultural resource surveys (Class II or III level surveys). Conducting inventories and monitoring are not RMP-level management decisions. They are considered administrative actions. BLM would continue to conduct cultural inventories in conformance with Section 110 of the NHPA as funds and staffing allow. Monitoring would also continue.

3) This portion of the Butterfield Overland Stage Route is interpreted at Painted Rock Petroglyph Site, which is currently allocated for public use. The Butterfield West site meets the criteria for a public use allocation (see **Appendix B**, Applicable Laws, Regulations, and Policies, for criteria), and gives BLM the ability to develop the site for interpretation.

5) Known cultural resources within the SDNM were taken into consideration when designating routes as open, limited, or closed to motorized use during development of the SDNM Travel Management Plan, and the associated impacts are disclosed in the FEIS (see **Section 4.5**, Impacts on Cultural and Heritage Resources). BLM has noted in **Section 4.5** that increased access to sites can increase the risk from vandalism.

The travel management planning decisions for the Lower Sonoran did not include route designations, and therefore did not include the same level of detail as provided for the SDNM designations. However, the impacts analysis did discuss the impacts of motorized use on cultural resources in a general sense (see **Section 4.5**). Once the ROD for the Lower Sonoran RMP is signed, the Lower Sonoran Field Office would follow up with specific route designations in a Travel Management Plan that would specifically consider the impacts of open and limited motorized routes on the known cultural resources that occur on or near the routes.

6.2.12.4 Section 106

Comment Number: 100126-29
Organization: The Wilderness Society
Commenter: Phil Hanceford

Comment Excerpt Text:
BLM has not complied with the requirements of Section 106 of the National Historic Preservation Act (NHPA), 16 USC § 470f, for the designation of roads and route in the Proposed Plan. A federal "undertaking" triggers the Section 106 process, which requires the lead agency to identify historic properties affected by the action and to develop measures to avoid, minimize, or mitigate any adverse effects on historic properties. 16 USC § 470f; 36 C.F.R. §§ 800.4, 800.6. Because the designation of roads and routes in a resource management plan is an "undertaking," Section 106 review must occur prior to approving these designations in the record of decision.

1. Designation of roads and routes for off-road vehicle use in a resource management plan is an "undertaking"

Prior to authorizing a proposed action, BLM must determine whether the proposed action is an undertaking under the NHPA. 36 C.F.R. § 800.3; Mont. Wilderness Ass'n v. Fry, 310 F. Supp. 2d 1127, 1152 (D. Mont. 2004). The Draft RMP contains no evidence that BLM undertook the analysis required by 36 C.F.R. § 800.3 nor does it reveal that BLM made a finding as required by this regulation.

Comment Number: 100126-69
Organization: The Wilderness Society
Commenter: Phil Hanceford

Comment Excerpt Text:
In accordance with NHPA, BLM must initiate and complete the Section 106 process prior to the designation of roads and routes located within the National Monuments, which will occur through the approval of the RMP and Record of Decision. BLM should not designate any roads without a proper cultural survey along those roads. The

recommendations from the Bungart Report should be incorporated fully into the RMP for the Sonoran Desert National Monument. BLM should only designate the minimum road network necessary for the protection of the Monument objects.

Comment Number: 100129-10
Organization: Center for Desert Archeology
Commenter: Andy Laurenzi

Comment Excerpt Text:
Because of the sensitive nature of cultural resources and the corresponding lack of specific information about cultural resources in the plan, our comments to the proposed resource management plan do not meet the requirements under Section 106 to consult with interested parties. As such we request that formal consultation be initiated and completed before issuance of the Record of Decision.

Summary

Commenters expressed their opinion that the BLM did not comply with Section 106 of the National Historic Preservation Act (NHPA) regarding travel management and route designations.

Commenters also requested formal consultation with interested parties, including Tribal councils and governments pursuant to Section 106 of the NHPA prior to the completion of the document.

Response

Both Section 106 and Tribal consultation processes were initiated at scoping when the RMP/EIS project began in 2002. The BLM consulted with the Arizona State Historic Preservation Office (SHPO) and Tribal governments throughout development of the DRMP/DEIS, and the SHPO and several tribes submitted comments on the DRMP/DEIS. Consultation is ongoing and would be completed as part of the planning process. Documentation of BLM's consultation processes and results are described in the new **Chapter 5**, Consultation and Coordination, in the PRMP/FEIS. **Section 5.3.3** describes the Section 106 process, and **Section 5.3.2** describes tribal government-to-government consultation. With regard to Travel Management decisions, BLM followed guidance for Section 106 consultation as prescribed in IM 2007-030. The Bungart Report was taken into consideration in the transportation analysis and in the route network designated in the SDNM.

6.2.13 PALEONTOLOGICAL RESOURCES

6.2.13.1 Edit

Comment Number: 100121-23
Organization: Sierra Club
Commenter: Jim Vaaler

Comment Excerpt Text:
On page 434, under 4.5 IMPACTS ON PALEONTOLOGICAL RESOURCES, it states, "In the Lower Sonoran, the Sentinel Plain lava flow is considered geologically significant. No other geologically significant areas have been identified in the Decision Areas; however, locally significant areas may be present." As a side note, we think that unique volcanic geological features should have a separate section rather than being listed under paleontological

resources. While fossils are sometimes found in volcanic ash flows, they are never found in basalt rock that was once hot magma.

Summary

One commenter requested that unique volcanic geological features have a separate section rather than being listed under paleontological resources since fossils are not found in basalt rock.

Response

The Geological and Paleontological Resources section has been reorganized in the FEIS to clarify the separate information for the two programs. See **Section 3.2.5**, Geological and Paleontological Resources, for the affected environment clarifications, and **Section 4.6**, Impacts on Geological and Paleontological Resources, for impact analysis clarifications.

6.2.14 WILDLIFE, INCLUDING SPECIAL STATUS ANIMAL SPECIES

6.2.14.1 Data Issues

Comment Number: 100142-27
Organization: Arizona Game and Fish Department
Commenter: Josh Avey

Comment Excerpt Text:
Section - 276
Page - Line 13-17
Line - 3.2.6.3

Comment/Suggestion
Change: "including the water retention dikes in the Vekol Valley" to "including the water retention spreader dikes in the Vekol Valley"

After "such as the Sonoran green toad (*Bufo retiformis*)," Add "lowland burrowing treefrog (*Smiliscafodiens*)," -- This species is one of the most important members of the Vekol Valley amphibian assemblage and should be mentioned in particular.

Change "including the non-native bullfrog" to "including the invasive American bullfrog"

Comment Number: 100142-28
Organization: Arizona Game and Fish Department
Commenter: Josh Avey

Comment Excerpt Text:
Section -279
Page - Line 10 - 11
Line - 3.2.6.4

Comment/Suggestion
Remove Mediterranean geckos (*Hemidactylus turcicus*) from this list. There is no evidence to suggest that they are invasive. In fact, there is no evidence to indicate that they are able to survive outside of human-made structures.

The crayfish Orconectes virilis is far more widespread than P. clarki

Comment Number: 100142-29
Organization: Arizona Game and Fish Department
Commenter: Josh Avey

Comment Excerpt Text:
Section - 344
Page - Vekol Valley Grassland
Line - 3.4.3.2

Comment/Suggestion

Change "The dike system also provides valuable Grassland resting areas for migrating waterfowl and shorebirds. "

To: "The dike system also provides valuable resting areas for migrating waterfowl and shorebirds, and essential breeding habitat for a community of seven species of desert anurans."

Comment Number: 100142-30
Organization: Arizona Game and Fish Department
Commenter: Josh Avey

Comment Excerpt Text:
Other than the Jones et al. (1983) report, there is Grassland no evidence to suggest Bulo debilis occurs in the Vekol Valley. The Jones et al. (1983) report is quite likely in error (although a specimen exists, its collection data are in doubt). Years of extensive surveying of anurans in Vekol Valley have never produced another record. See papers by Enderson and Bezy (2005. Amphibians of the Vekol Valley. Sonoran Herpetologist 18: 74-79; 2011. Herpetofauna of the 100-Mile Circle, Anaxyrus debilis (Girard 1854). Sonoran Herpetologist 24: 82-85).

Also, it is not necessarily rare to find B. retiformis and G. olivacea together, and it is relatively common on the Tohono O'odham Reservation. However, the fact that the Vekol sites support 7 species of desert anurans is notable. B. retiformis are also known from Organ Pipe Cactus National Monument; the Vekol sites are not the only occurrence on public lands.

Therefore:
Change: "The deep clay/loam soil and grass cover provide a relatively mesic environment for Sonoran green toads (Bufo retiformis), green toads (Bufo debilis), and Great Plains narrow-mouthed toads (*Gastrophryne olivacea*) (Jones et al. 1983). It is extremely rare to find these toad species occurring together, and it is the only known occurrence of the Sonoran green toads on public lands.

To: "The deep clay/loam soil and grass cover provide a relatively mesic environment for Sonoran green toads (Bufo retiformis), green toads (Bufo debilis), and Great Plains narrow-mouthed toads (*Gaslrophryne olivacea*) (Jones et al. 1983). It is extremely rare to find seven anuran species occurring together and it is the only known occurrence of burrowing tree frogs (Smiliscafodiens) on public lands.

Comment Number: 100142-31
Organization: Arizona Game and Fish Department
Commenter: Josh Avey

Comment Excerpt Text:
Section - 1246
Page - RA-8
Line - Appendix K

Comment/Suggestion
If possible, Rio Grande leopard frogs (*Lithobates berlandieri*) should be added to this list of nonnative species.

Comment Number: 100142-33
Organization: Arizona Game and Fish Department
Commenter: Josh Avey

Comment Excerpt Text:
Make the following changes to Appendix J (and elsewhere), including adding SGCN tiers 1A and 1B into the 4th column.

Great Plains narrow-mouthed toad; Gastrophryne olivacea; BS; - ; - ; v

Lowland burrowing treefrog; Smilisca fodiens; BS; SGCN-1B; - ; v

Lowland leopard frog; Lithobates yavapaiensis; BS; SGCN-1A; - ; v

Sonora mud turtle; Kinosternon sonoriense sonoriense; BS; SGCN-1B: - ; v

Sonoran desert tortoise; Gopherus morafkai; C; SGCN-1A; - ; v

Sonoran green toad; Bufo retiformis; BS; SGCN-1B; - ; v

Tucson Shovel-nosed snake; Chionactis occipitalis klauberi; C; SGCN-1A; - ; v

Sonoran desert toad; Dufo alvarius; BS; SGCN-1B; - ; v

Gila Monster; Heloderma suspectum ; - ; SGCN-1A ; - ; v

red-backed whiptail ; aspidoscelis xanthonota ; - ; SGCN-1B ; - ; v

Arizona mud turtle ; Kinosternon arionese ; - ; SGCN-1B ; - ; v

Goode's horned lizard ; Phrynosoma goodei ; - ; SGCN-1B ; - ; v

regal horned lizard; Phrynosoma solare; - ; SGCN-1B; - ; v

Mexican rosy boa; Lichanura trivirgata trivirgata; - ; SGCN-1B; v

Saddle leaf-nosed snake; Phyllorhynchus browni; - ; SGCN-1B; V

Sonoran Coralsnake; Micruroides euryxanthus; - ; SGCN-1B; V

variable sandsnake; Chilomeniscus stramineus; - ; SGCN-1B; V

Sonoran whipsnake; Masticophis bilineatus; - ; SGCN-1B; - ; h

tiger rattlesnake; Crotalus tigris; - ; SGCN-1B; - v

Summary

Commenters recommended several specific corrections and revisions to various wildlife sections and the alternatives, including addition of certain species to text and species lists, revision of species range and occurrence, and other clarifications and corrections.

Response

Text has been revised where appropriate to BLM sensitive species lists and known occurrences of species, including but not limited to the addition of certain species to the text and species lists, and revision of species range and occurrence (see **Section 3.2.13**, Wildlife and Special Status Species). Revised text is highlighted in the PRMP/FEIS. BLM policy (BLM Manual 6840; IM No. AZ-2011-005) does not recognize state species, so these were not included in the analysis. Species names are in accordance with US Fish and Wildlife Service (USFWS) standards.

6.2.14.2 Edits

Comment Number: 100136-102
Organization: Western Watersheds Project
Commenter: Greta Anderson

Comment Excerpt Text:
The DRMP/DEIS states that there are five special status species and two candidate species under the ESA within the planning area. DRMP/DEIS at 269. The Sonoran desert tortoise is also a candidate species, and this error should be corrected in the final RMP.

Comment Number: 100142-14
Organization: Arizona Game and Fish Department
Commenter: Josh Avey

Comment Excerpt Text:
Appendix I
Section -
Page - throughout

Comment/suggestion - Change "Sonoran population of the desert tortoise" to "Sonoran desert tortoise"___ For each reference to the Sonoran desert tortoise, change "Gopherus agassizii" to "Gopherus morafkai"

Comment Number: 100142-15
Organization: Arizona Game and Fish Department
Commenter: Josh Avey

Comment Excerpt Text:
Section - liii
Page - Priority Wildlife Species and Habitat
Line - Executive Summary

Comment/Suggestion
To: Change "As of December 2010, the Sonoran desert tortoise has been federally listed as an endangered species

candidate. The population deemed vulnerable and declining over much of its range due to habitat loss, degradation, and fragmentation; genetic contamination; collection; and disease (AGFD 1996)."

"As of December 2010, the Sonoran desert tortoise is a candidate for listing under the Endangered Species Act. The USFWS considers the species to be vulnerable and declining over much of its range due to habitat loss, degradation, and fragmentation; genetic contamination; and collection (USFWS 2010)."

Comment Number: 100142-19
Organization: Arizona Game and Fish Department
Commenter: Josh Avey

Comment Excerpt Text:
Section - 2.7.6.2
Page - 87
Line - SL 1.1.16

Comment/Suggestion
Water catchment facilities for developing or redeveloping wildlife waters may be developed in washes or 100 year floodplains

Comment Number: 100142-21
Organization: Arizona Game and Fish Department
Commenter: Josh Avey

Comment Excerpt Text:
Section 267
Page - Line 17-20
Line - 3.2.6

Comment/Suggestion
Replace sentence beginning with, "Instead of maintaining ..." with the following:

The AGFD has a list of Threatened Native Wildlife in Arizona (AGFD 1988) that has not been updated in recent years. However, the Arizona State Wildlife Action Plan provides a treatment of priority species called Species of Greatest Conservation Need (SGCN), each of which meets one or more vulnerability criteria and is priority ranked as Tier IA or IB (AGFD 20 II draft).

Comment Number: 100142-22
Organization: Arizona Game and Fish Department
Commenter: Josh Avey

Comment Excerpt Text:
Section - 269
Page - 18-29
Line - 3.2.6.2

Comment/Suggestion
Update reference to USFWS website due to changes since June 2009.

Remove bald eagle from species listed under the ESA.

Change last sentence in second paragraph to "Three species occurring or potentially occurring ... (Coccyzus americanus}, and the Tucson shovel-nosed snake (Chionactis occipitalis klauberi), and the Sonoran desert tortoise (Gopherus morakai)

Comment Number: 100142-23
Organization: Arizona Game and Fish Department
Commenter: Josh Avey

Comment Excerpt Text:
Section - 271
Page -
Line - 3.2.6.2

Comment/Suggestion
Modify the bald eagle section to reflect its change in status

Comment Number: 100142-24
Organization: Arizona Game and Fish Department
Commenter: Josh Avey

Comment Excerpt Text:
Section - 274
Page-
Line - 3.2.6.2

Comment/Suggestion
Change: "There are two populations of desert tortoise: the Mojave and the Sonoran. The Mojave population is federally listed as a threatened species and inhabits the area north and west of the Colorado River. The Sonoran population includes tortoises south and east of the Colorado River in Arizona and extends south into Mexico (Arizona Interagency Desert Tortoise Team 2000."

To: "Two species of desert tortoise are now recognized: the Mojave and the Sonoran. The Mojave desert tortoise (Gopherus agassizii) is federally listed as a threatened species and inhabits the area north and west of the Colorado River. The Sonoran desert tortoise (G. morakai) includes tortoises south and east of the Colorado River in Arizona and extends south into Mexico (Murphy et al., 2011)."

Comment Number: 100142-25
Organization: Arizona Game and Fish Department
Commenter: Josh Avey

Comment Excerpt Text:
Section - 274
Page-
Line - 3.2.6.2

Comment/Suggestion
Change: Only the Sonoran population occurs in the Planning Area, and in December of 2010, the Sonoran population was added to the USFWS's candidate species list (FR Vol. 75, No. 239, page 78094). The Sonoran population is vulnerable to habitat loss and degradation, habitat fragmentation, genetic contamination, collection,

and disease (AGFD 1996). The BLM has a disproportionate responsibility for the conservation of desert tortoise because the agency manages the majority of desert tortoise habitat across the species' entire range (BLM 1990).

To: Only the Sonoran desert tortoise occurs in the Planning Area, and in December of 20 1 0, the Sonoran population was added to the USFWS's candidate species list (FR Vol. 75, No. 239, page 78094). Sonoran desert tortoises are vulnerable to habitat loss and degradation, habitat fragmentation, genetic contamination, and collection (USFWS 2010). The BLM has a disproportionate responsibility for the conservation of desert tortoise because the agency manages the majority of desert tortoise habitat across the species' Arizona range (BLM 1990)

Comment Number: 100142-26
Organization: Arizona Game and Fish Department
Commenter: Josh Avey

Comment Excerpt Text:
Note: this section differs from the sentence on p. liii (above); here it says tortoises are 'vulnerable" rather than "declining." AGFD would not dispute the vulnerability.

Comment Number: 100142-32
Organization: Arizona Game and Fish Department
Commenter: Josh Avey

Comment Excerpt Text:
Section - 1251
Page - Reptiles
Line - Appendix k

Comment/Suggestion
Change "Implement management actions for the Desert Tortoise, Sonoran population, as appropriate as developed by the Rangewide Strategy."

To: "Implement management actions for the Sonoran Desert Tortoise as appropriate as developed by the Arizona Interagency Desert Tortoise Team, draft State Conservation Agreement. "

Summary

Commenters noted that catchment facilities may be developed in washes or 100-year floodplains, which misinterprets the management action in the soils section.

Commenters requested text corrections related to species range and distribution for desert tortoise and Sonoran pronghorn, revision of sensitive species lists and classifications, and clarification of different populations of sensitive species (e.g., Mojave versus Sonoran desert tortoise).

Response

The soils section (**Section 4.7**, Impacts on Soil Resources) has been revised to include an exception for floodplains. Management actions under wildlife (**Section 2.10.12**, Wildlife and Special Status Species) have been revised for consistency with soils management actions (see **Table 2-18**, Management Actions and Allowable Uses for Wildlife and Special Status Species).

Revisions regarding species range and distribution for desert tortoise and Sonoran pronghorn, and number of special status species and candidate species, have been completed as appropriate. Species names have been checked to ensure they are in accordance with USFWS standards. Revised text is noted with grey highlighted in the PRMP/FEIS.

BLM policy (BLM Manual 6840; IM AZ- AZ-2011-005) does not recognize state species, so these were not included in the analysis.

6.2.14.3 Impacts

Comment Number: 100136-80
Organization: Western Watersheds Project
Commenter: Greta Anderson

Comment Excerpt Text:
Desert bighorn sheep have a social intolerance for livestock. Nearly three decades ago, the BLM recognized this and planned to, "Decrease cattle densities in bighorn habitat to relieve competition between bighorn and livestock for space, water and browse." Lower Gila North Framework Plan of 1983; DRMP/DEIS at 65. On the SDNM, where bighorn sheep are a Monument object to be protected, the BLM has acknowledged no such need, and the preferred alternative makes no such adjustments. DRMP/DEIS at 79. In fact, the BLM doesn't even analyze the requirements for "space" or "water," just minor consideration of forage availability. Instead, the plan authorizes additional waters in high elevations. The agency failed to analyze or disclose whether this might actually increase competition with livestock (which are known to use high elevation areas of the SDNM in times of forage scarcity).

Comment Number: 100136-91
Organization: Western Watersheds Project
Commenter: Greta Anderson

Comment Excerpt Text:
Distribution of Sonoran desert tortoise in the LSFO and SDNM is not limited to rocky outcroppings. This makes them vulnerable to trampling by livestock and increases the need for monitoring forage competition. Desert tortoise preferentially select for annual native vegetation. Jennings 1997. Annual livestock authorizations are based on this same ephemeral forage production, meaning that that boom years of vegetation production that would otherwise benefit the tortoise result in higher competition with livestock. The DRMP/DEIS does not analyze or disclose the effects of the permitted levels of livestock grazing on this imperiled species.

Roads and non-native species are also known to impact the desert tortoise. Non-native species are spread by livestock (see below) and cause direct and indirect harm to tortoise. Averill-Murray and Averill-Murray 2002, Heaton 2007. On the SDNM and in the LSFO, the preferred alternative keeps many roads open for administrative use, including for the maintenance of range developments and ranching activities. Therefore, the indirect effects of livestock grazing on roads and invasive species and to desert tortoise are cumulatively substantial and must be analyzed. The DRMP/DEIS fails to analyze these impacts.

Comment Number: 100136-92
Organization: Western Watersheds Project
Commenter: Greta Anderson

Comment Excerpt Text:
The BLM claims, "Very few livestock grazing practices fragment wildlife habitat." DRMP/DEIS at 452. This is not true. Wildlife habitat is affected in myriad ways by livestock grazing, from infrastructure altering landscape use patterns to predator control measures affecting food webs to wholesale alteration of vegetation communities. Where BLM would like to believe that wildlife and livestock grazing can peacefully coexist, there is a wide range of evidence to the contrary, including Hall and others (2005), which was provided to the agency and is a comprehensive review of the impacts of livestock grazing on species within the planning area.

Summary

1) Commenters indicated that the BLM did not adequately analyze the effects on bighorn sheep and their habitat from cattle grazing.

2) Commenters expressed concern that the DRMP/DEIS did not adequately analyze impacts on sensitive species, including the Sonoran pronghorn and desert tortoise.

3) Commenters recommended including the SDNM as a potential reintroduction site for Sonoran pronghorn.

4) Commenters disputed BLM's finding that very few livestock grazing practices fragment wildlife habitat.

Response

As required by 40 CFR 1502.16, the Draft EIS provides a discussion of the environmental impacts of the alternatives including the proposed action, any adverse environmental effects that cannot be avoided should the proposal be implemented, the relationship between short-term uses of man's environment and the maintenance and enhancement of long-term productivity, and any irreversible or irretrievable commitments of resources that would be involved in the proposal should it be implemented. It presents the decision maker with detailed information to aid in determining whether to proceed with the RMP or make a reasoned choice among other alternatives in a manner such that the public could have an understanding of the environmental consequences associated with the alternatives, in accordance with 40 CFR 1502.1.

1 & 2) BLM reviewed the sections regarding impacts from livestock grazing on bighorn sheep, Sonoran pronghorn, and desert tortoise and made revisions, where appropriate (see **Section 4.14**, Impacts on Wildlife and Special Status Species).

3) As discussed in **Section 3.2.13**, Wildlife and Special Status Species, the SDNM is outside the current range of Sonoran pronghorn. The BLM has coordinated with the Sonoran pronghorn recovery team regarding management of the species and potential habitat. It is not within BLM's authority to determine where endangered species would be released to create 10J populations. That is the authority of the USFWS.

4) References to fragmentation of habitat due to livestock grazing have been removed from the PRMP/FEIS because BLM does not have data to support this conclusion.

6.2.14.4 LHE Data Analysis

Comment Number: 100136-2
Organization: Western Watersheds Project
Commenter: Greta Anderson

Comment Excerpt Text:
Using the LHE to determine whether livestock grazing is compatible with the protection of Monument objects such as desert tortoise, gray fox, or red-backed whiptail lizards is insufficient, unscientific, and contrary to law. BLM claims that the evaluation of vegetation communities addresses suitable habitat for these species. DRMP/DEIS at 1066. This methodology is insufficient to measure direct impacts to Sonoran desert tortoise from livestock including crushing and trampling, impacts that the BLM should be well aware of. Hall, et al. 2005, at 8.10. Nothing in the DRMP/DEIS evaluates this impact or otherwise determines that having cows crush tortoises is compatible with the protection of this Monument object. (More on desert tortoise, below.) Other impacts to small mammals and ground-dwelling creatures were also not considered, such as impacts to dens, burrows, or on predation behavior. Because BLM doesn't even identify which data sets in the LHE are relevant to many of the species found on the SDNM, the analysis and disclosure is insufficient under NEPA.

Comment Number: 100136-29
Organization: Western Watersheds Project
Commenter: Greta Anderson

Comment Excerpt Text:
The DRMP/DEIS dismisses any evaluation of impacts of livestock grazing on Sonoran pronghorn by stating, "Does not occur in the Monument." DRMP/DEIS at 1097. The purpose of Endangered Species Act protection is to conserve and recover species, and the Monument Proclamation specifically lists this species as an object to be protected. As such, the BLM should be considering how livestock grazing affects the potential habitat for this species.

Comment Number: 100136-3
Organization: Western Watersheds Project
Commenter: Greta Anderson

Comment Excerpt Text:
Using the LHE to evaluate the impacts of livestock grazing on birds is also insufficient, particularly where the data are incomplete. As noted below, many of the study plots failed to evaluate vegetation composition and only reported on cover. This incomplete data was considered by BLM as sufficient to determine whether Land Health Standards were being achieved, which in tum is used to claim there are no harms to Monument objects including birds. Vegetation composition has an impact on which species of birds will be abundant in a given area. Hall, et al. 2005 at 8.14. The BLM does not evaluate this in the Compatibility Determination and nothing in the DRMP/DEIS evaluates the specific vegetation composition impacts of grazing on these Monument objects.

Comment Number: 100136-4
Organization: Western Watersheds Project
Commenter: Greta Anderson

Comment Excerpt Text:
Using the LHE to determine the impacts of livestock grazing on raptors is likewise insufficient because raptors rely on prey communities that differ compositionally in response to grazing. Hall, et at. 2005 at 8.16. BLM did not identify the prey communities of the SDNM and did not assess grazing impacts on these species, which makes the claims regarding raptors unsupportable. Moreover, raptors like elf owls and western screech owls (specific Monument objects) are impacted by range infrastructure, including fencing, something utterly ignored in the Compatibility Determination and in the LHE.(7) The DRMP/DEIS does not enumerate the miles of fencing or other range developments that affect these species and the Compatibility Determination ignores these impacts in its conclusion.

Comment Number: 100136-42
Organization: Western Watersheds Project
Commenter: Greta Anderson

Comment Excerpt Text:
Using the LHE to determine compatibility with the protection of desert bighorn sheep is in sufficient because there is nothing in the LHE that evaluates either the overlapping habitat of bighorn and cattle. DRMP/DEIS at 1064. Conflict between bighorn and livestock is not strictly an issue of forage competition, but also social intolerance, rangeland developments including waters and fences, and subsequent genetic isolation of remote populations (such as the Maricopa and Sierra Estrella Mountains). Hall, et at. 2005, at 8.24. The BLM has been told that livestock use the high elevation areas of the SDNM when forage is scarce in the lowlands; nothing in the Compatibility Determination or the DRMP/DEIS discusses this effect, and none of the key area data are collected from high elevation parts of the Monument.

Comment Number: 100136-81
Organization: Western Watersheds Project
Commenter: Greta Anderson

Comment Excerpt Text:
The DRMP/DEIS doesn't take a hard look at the effects of livestock grazing on the Sonoran desert tortoise (Gopherus morafkai). In its description of the affected environment, BLM's description of the desert tortoise-specially-protected Monument object amounts to recounting Wikipedia. It does not discuss the Maricopa Mountains monitoring plot that has been studied for decades on the Big Horn allotment. Exhibit E. It does not admit that the quantitative monitoring conducted by the tortoise researchers on the granitic hills within tortoise habitat shows the area fails to meet the vegetation objectives BLM lays out in the DRMP/DEIS. Exhibit E at 59-60, DRMP/DEIS at 1115

Comment Number: 100136-83
Organization: Western Watersheds Project
Commenter: Greta Anderson

Comment Excerpt Text:
The greatest percentage of desert tortoise diets is composed of annual forbs and perennial forbs. The LHE doesn't differentiate the species of annual forbs and simply lumps them all together in the monitoring data it reports.

DRMP/DEIS at I 154-I 166. This makes it impossible to evaluate whether sufficient standing cover of desert tortoises' preferred food sources is actually available, and conclusions about the impacts to desert tortoise from livestock grazing are unsupported. The usefulness of the data presented by the BLM in support of its decision is highly questionable, and do not indicate that the agency took a sufficient hard look at the proposed action. Given the scant data included in the plan, the BLM has not and apparently cannot demonstrate that it is meeting the resource objective for desert tortoise habitat management (DRMP/DEIS at 1187) or protecting and preserving this important Monument object.

The only mitigation measure for this species in the DRMP/DEIS is the plan to "address" on a case-by-case basis the construction of livestock waters in Category I and Category II habitat. DRMP/DEIS at 147. This is insufficient to protect the desert tortoise-a Monument object and a species at risk of extinction.

Summary

1) Commenters felt that the DRMP/DEIS did not take a hard look at, or adequately analyze, how livestock grazing on the Monument affects desert tortoise and Sonoran pronghorn. Commenters indicated that the affected environment section for desert tortoise needed to be expanded. Commenter also felt the Maricopa Mountain tortoise monitoring plot was not appropriately used.

2) Commenter suggests the LHE is unsuited to analyze the direct impacts of livestock grazing on a number of wildlife species, including whiptail lizards, birds, raptors, tortoise, and others.

3) Commenter suggests that BLM did not adequately analyze the effects of livestock grazing on the movements and social intolerance of bighorn sheep.

4) Commenter suggested that BLM's lack of detail monitoring data on annual forbs does not assure sufficient forage availability for desert tortoise.

Response

1) Federal regulation directs the authorized officer to take appropriate action to ensure that the Fundamentals of Rangeland Health, as identified in the grazing regulations, are being met (43 CFR § 4180.1). Within the SDNM, the objectives to achieve standards have been designed to measure the Monument objects as described in **Appendix E**, Compatibility Analysis: Livestock Grazing on the Sonoran Desert National Monument, **Table E-2**, Monument Objects Specific to the SDNM. Standard 3 addresses desired future conditions for upland sites, which includes all the species mentioned in the comments. Plant community objectives are determined with consideration for all multiple uses, including wildlife and habitat, such that if an area is meeting land health standards, then the habitat would be sufficient to maintain Sonoran pronghorn, Sonoran desert tortoise, and other species. The Maricopa Mountain desert tortoise monitoring plot was established to monitor Sonoran desert tortoise populations and not the vegetative component within the plot. There is no information that would indicate that any vegetation changes on the plot are caused by livestock. Use of vegetation data collected by researchers on the plot is not applicable to determining if vegetation is meeting objectives.

2) As described in **Table 1-3**, Sonoran Desert National Monument Objects, of the EIS, the protection criteria for the "Wildlife" object is "Maintain viable populations of wildlife species, focusing, as appropriate, on foraging habitat, hiding cover, nesting/roosting habitat, escape cover, and thermal cover. Prevent avoidable loss of special status species." The emphasis in the Proclamation is on protection of

habitat. The LHE is a suitable method of examination to determine if habitat objectives are being met. The "wide variety" of habitats is reflected in the objectives of the LHE. The LHE does not measure direct impacts of livestock (crushing, trampling) on desert tortoise. The LHE was used to satisfy the requirement of the SDNM Proclamation to determine the extent of grazing compatible with protection of the Monument's objects. Analysis of direct impacts of livestock to desert tortoise was not conducted because BLM has no evidence that those impacts are significant or have an effect on tortoise populations.

3) Livestock use of the "high country" is light to negligible because of the steep, rugged and rocky terrain. In addition, most of the "high country" is a great distance from available water, a severe limitation to livestock use. For these reasons, impacts of social intolerance were not analyzed in the EIS because social interactions are expected to be rare.

There are no rangeland developments in the "high country" to interfere with bighorn movement, and developments in the "lowlands" have been designed to allow wildlife movement consistent with BLM policy.

4) Annuals are not appropriate species for long-term monitoring because: a) annuals complete their life cycle in one year and production fluctuates year to year based on precipitation levels, and b) cover data collection is often complicated by the presence of annuals that are live plants early in the season, only to become litter later in the season. Cover data from perennial plants is more reliable for measuring changes in cover over time.

BLM sets utilization targets that are intended to assure sufficient forage availability for all wildlife. The LHE and the Utilization/Use Pattern Mapping provide a means to determine where those targets have been met and sufficient forage is available for desert tortoise and other wildlife species.

6.2.14.5 Management Actions

Comment Number: 100126-37
Organization: The Wilderness Society
Commenter: Phil Hanceford

Comment Excerpt Text:
As mentioned above, pursuant to the Proclamation and other laws and policies, BLM must inventory for all Monument objects, including wildlife, and manage for the protection of those objects above all other uses. For example, BLM should map the habitat for all Monument species and restrict uses that have a known impact on that species or its habitat.

Recommendations: The Draft RMP fails to prioritize and protect wildlife and habitat under the Proclamation and other laws and policies. The RMP should restrict all uses that damage Monument objects, including wildlife species listed in the Proclamation, including off-road vehicle use, designated routes, livestock grazing, and other uses that may lead to the damage of the wildlife resources in the Monument.

Comment Number: 100142-11
Organization: Arizona Game and Fish Department
Commenter: Josh Avey

Comment Excerpt Text:
Section 2.8.2.2, Goal 11 prohibits the grazing of domestic goats and sheep within 9 miles of bighorn sheep habitat in Alternative B. The Department recommends adding this prohibition to Alternative E. This will be consistent with management in the LS region.

Comment Number: 100142-16
Organization: Arizona Game and Fish Department
Commenter: Josh Avey

Comment Excerpt Text:
Section - 2.3.3.5
Page - 39

Comment/Suggestion
Bullet 1 - Modify to include maintain, redevelop existing

Bullet 2 - Modify 'When appropriate passive restoration ...' to When necessary active restoration will be used to restore or enhance Monument resources

Comment Number: 100142-18
Organization: Arizona Game and Fish Department
Commenter: Josh Avey

Comment Excerpt Text:
Section - 2.7.5.2 Priority Wildlife Species
Page - 83
Line - Bullet 5

Comment/Suggestion
Add provision to remove fencing when fencing is no longer needed or other options meet need

Summary

Commenters indicated that the RMP should restrict all uses that damage Monument objects, including wildlife species listed in the Proclamation. Specifically, commenters requested that BLM restrict off-road vehicle use, designated routes, livestock grazing, and other uses that may lead to damage of wildlife resources in the Monument.

Commenters suggested revisions to wildlife management actions, including: 1) Arizona Game and Fish Department's request that domestic goat prohibition in Section 2.8.2.2, Goal 11 (PS-11.1.2) be included in Alternative E, 2) changing the restoration approach from passive to active, and 3) adding a provision to remove fencing when no longer needed.

Response

The Sonoran Desert National Monument Presidential Proclamation (included as **Appendix A** in the RMP/EIS), Presidential Proclamation 7397, created the Monument to protect an array of scientific, biological, archaeological, geological, cultural, and historical objects. Purpose and significance of the Monument, as well as management vision and overarching goals, are presented in **Section 1.4.2**, Sonoran Desert National Monument Decision Area Planning Guidance. The EIS considered a range of alternatives designed to meet the BLM's legal duties and purpose and need for action. The purpose of the agency action includes compliance not only with the Presidential Proclamation, but with all applicable laws. The range of alternatives reflect these multiple purposes, including Alternative A, the No Action Alternative; Alternative B, emphasizing the widest potential array of uses and opportunities for those uses; Alternative C, an attempt to balance resource protection with human use and influence; Alternative D, which would place the greatest emphasis on resource protection/conservation; and Alternative E, the BLM's proposed plan for protection of objects of the Monument, balanced with continued appropriate levels of multiple use.

Revisions to wildlife management actions have been applied where appropriate, including changing the restoration approach from passive to active when necessary, and adding domestic goat prohibition to **Section 2.10.12**, Wildlife and Special Status Species, Goal 11, Objective 11.1, Management Action WL-11.1.2 (see **Table 2-18**, Management Actions and Allowable Uses for Wildlife and Special Status Species).

Removal of fencing within the SDNM is an implementation level decision and would be analyzed by BLM after the RMP is completed. BLM owns all livestock waters, corrals, and fencing south of Interstate-8.

6.2.14.6 Priority Species

Comment Number: 100056-1
Organization:
Commenter: Carol Millette

Comment Excerpt Text:
Desert Tortoise Habitat is categorized as Category II. Desert Tortoises are present and healthy on Saddle Mountain as witnessed by several people who have hiked the Mountain during 2011. We would like this upgraded to Category I.

Comment Number: 100119-2
Organization: Friends of Saddle Mountain
Commenter: Chris Meachum

Comment Excerpt Text:
- Desert Tortoise Habitat in the preferred alternative E, lists Saddle Mountain and the Palo Verde Hills as being categorized as "level 2". While we do not have much data for the Palo Verde Hills, the FoSM has found the tortoise population at Saddle Mountain to be intact, abundant and healthy. In recent inventories, we have found and photographed numerous Desert Tortoises and as a result would like to see the Saddle Mountain area upgraded to Category I to aid in their management and further protection. Documentation of our findings is available upon request.

Comment Number: 100120-17
Organization:
Commenter: Bill Broyles

Comment Excerpt Text:
14. Bring back Sonoran pronghorn. The Monument is part of their historic grounds –we even have Antelope Peak. With livestock grazing gone, the pronghorn should have a good habitat (certainly better than the southern Kofa).

Comment Number: 100123-11
Organization: Friends of the Sonoran Desert National Monument
Commenter: Thomas Hulen

Comment Excerpt Text:
In addition the Bureau of Land Management should include management prescriptions for rare species such as, Lowland burrowing tree frogs, Sonoran desert green toads, Sinaloan narrow mouth toads, and Arizona mud turtles found in the Sonoran Desert National Monument but not identified in the Draft Management Resource Plan.

Comment Number: 100123-3
Organization: Friends of the Sonoran Desert National Monument
Commenter: Thomas Hulen

Comment Excerpt Text:
The endangered Sonoran pronghorn is listed in the Monument Proclamation as a Monument object even though Sonoran pronghorn are not currently found on the Sonoran Desert National Monument. It was intended by the framers of the Proclamation to include the Sonoran pronghorn so that future Bureau of Land Management activities should include this species in management plans.

The endangered Sonoran pronghorn's historic range includes the Sonoran Desert National Monument and the interagency committee responsible for the Sonoran pronghorn's recovery has identified the Sonoran Desert National Monument as a site for future reintroductions of this important animal.

Currently there are two distinct populations of Sonoran pronghorn free ranging in the world. The Cabeza Prieta National Wildlife Refuge in the United States and one population in the northern Mexican state of Sonora. Both of these populations are suffering from the effects of climate change and border issues facing United States and Mexico such as human and drug smuggling.

Several wildlife managers in the United States responsible for Sonoran pronghorn recovery claim they are unduly restricted by Wilderness Act regulations on the Cabeza Prieta National Wildlife Refuge to meet their recovery goals under the Endangered Species Act.

By establishing a Sonoran pronghorn herd in non-wilderness areas on the Sonoran Desert National Monument wildlife managers will have greater flexibility in recovering the Sonoran pronghorn and will allow the BLM to comply with the intent of the Omnibus Public Land Management Act to "conserve, protect and restore nationally significant landscapes for the benefit of current and future generations."

Comment Number: 100153-1
Organization:
Commenter: Fred Goodsell

Comment Excerpt Text:
Please check your plan on page 73, Vol. I, PS-3.1.3. Please add SDNM as a potential reintroduction site.

Please also include in your plan, language to allow the construction, on SDNM, of a pen for Sonoran Pronghorn familiarization with the area. Additionally, please include language that would encourage an invitation by BLM for Arizona Game and Fish and the U.S. Fish and Wildlife Service to initiate a reintroduction of Sonoran Pronghorn to SDNM as soon as possible.

Comment Number: 100159-13
Organization:
Commenter: Roy Pierpoint

Comment Excerpt Text:
Reference: Map 3-3, "Wildlife & Plant Federally Protected Species." Historically, the area on the east side of the Gila Bend Mountains has been "tortoise territory." (We arc submitting a photo of a tortoise from the Ft. Pierpoint Archaeological Site, on the east side of the mountains). For that reason, we feel that since tortoises are still able to exist here, along with the big homed sheep, Gila monsters, borrowing owls, herds of mule deer, and the intention to reintroduce the Sonoran pronghorn, the area should be raised to a Category 1.

Comment Number: 100159-14
Organization:
Commenter: Roy Pierpoint

Comment Excerpt Text:
For some reason, the plight of the Gila monster has been ignored in this study. We see them on or near our property rarely, and everyone needs to remember that their habitat area is very small; this is the only area of the world where they exist

Summary

Commenters recommended several specific revisions to management, management actions, analysis, and other text associated with sensitive species, including the Sonoran Desert tortoise, Sonoran pronghorn, and the Gila monster. Specifically, commenters, 1) requested parts of the Gila Bend Mountains and Saddle Mountain be designated Class I tortoise habitat, 2) asked that a Sonoran pronghorn antelope herd be reintroduced in the SDNM and identified for reintroduction on page 73 of the DRMP/DEIS, and 3) requested that the plight of the Gila monster be addressed in the Draft EIS/RMP.

Response

1) As described in **Table 2-18**, Management Actions and Allowable Uses for Wildlife and Special Status Species, habitat categories and boundaries were determined using the criteria in the 1988 Rangewide Plan (BLM 1988b). The Gila Bend Mountains and Saddle Mountain did not meet these criteria for Category I.

2) The SDNM is included in the 10-J area for Sonoran pronghorn, as delineated by the USFWS, and BLM supports their eventual release. BLM is responsible for managing the habitat within a portion of the 10-J area. However, release of Sonoran pronghorn into the 10-J area is under the jurisdiction of the USFWS, since that agency is responsible for managing the species. If the USFWS proposes reintroduction to BLM then BLM would comply, assist and would manage the habitat accordingly.

3) The Gila monster is a BLM sensitive species and is managed as such according to BLM Manual 6840, Special Status Species. The DEIS provided sufficient analysis for this species in accordance with BLM's Manual 6840. Although it is not considered a management issue within the planning area, the management actions described in **Chapter 2**, **Section 2.10.12**, are designed to maintain their populations throughout the planning area.

4) BLM's management for rare and sensitive species centers on maintaining the health of the habitat. The management actions developed in **Chapter 2** for Wildlife and Special Status Species (**Section 2.10.12**), although not specifically mentioning the species referenced, are designed to maintain the health and vitality of their populations.

6.2.14.7 Wildlife Waters

Comment Number: 100121-17
Organization: Sierra Club
Commenter: Jim Vaaler

Comment Excerpt Text:
The DRMP/DEIS fails to address the impacts of the development of artificial waters on wildlife, nor does it make the case for additional construction of water developments. Studies have shown that artificial waters may have negligible or even negative effects on wildlife species. [Footnote 6] This document must include a full explanation of not only how water has been demonstrated to increase any bighorn sheep numbers, but also how these bighorn population increases will affect other flora and fauna, including bighorn, over the long-term. It should also include bighorn population trend data for all other Sonoran Desert mountain ranges in Arizona.

Comment Number: 100121-18
Organization: Sierra Club
Commenter: Jim Vaaler

Comment Excerpt Text:
Moreover, the RMP should include a case-by-case description and evaluation of each existing, maintained, and newly proposed artificial water source. This description and evaluation should include, at a minimum which species use the source, how many animals use each source, in which seasons this use occurs, the effect on these species and individuals, an outline of each source's maintenance schedule and requirements, an analysis of whether each source should be retained or decommissioned, and a discussion of whether data regarding these individual sources could be gathered either remotely or by air. After collecting the foregoing data, the RMP should also address whether any of the existing individual water catchments should be either abandoned or removed.

Comment Number: 100121-20
Organization: Sierra Club
Commenter: Jim Vaaler

Comment Excerpt Text:
The RMP should include a site-specific analysis of the use of, the need for, and the environmental impacts of each individual existing, upgraded, and/or potential future water development. The existing catchments and the environment surrounding each one should be examined in detail. Such an assessment of the individual catchments would go a long way toward ensuring that subsequent project-level decisions regarding these catchments are made in keeping with sound management practices

Comment Number: 100148-15
Organization:
Commenter: Jon M Shumaker

Comment Excerpt Text:
There are various discussions regarding developing wildlife waters. There has been no research or analysis of this topic in the current document—it is extremely controversial and should not be allowed within the boundaries of SDNM as it would violate the Presidential Proclamation and the purpose of the Monument.

Summary

Commenters recommended management actions for wildlife waters and requested additional analysis associated with development of artificial water sources for wildlife, including impacts on bighorn sheep and evaluation of each existing, maintained, and proposed artificial water source.

One commenter requested the RMP address whether any of the existing individual water catchments should be abandoned or removed.

Response

Section 4.14, Impacts on Wildlife and Special Status Species, includes reference to Rosenstock et al. 2004. Evaluation of each water source would be a site-specific implementation action. Implementation-level decisions regarding wildlife waters are outside the scope of this planning effort. Implementation-level decisions will be made after the Approved RMP/ROD and will require site-specific NEPA.

The decision to install, abandon, or modify an individual catchment would not be a planning-level decision but a site-specific issue, based on cooperation with the AGFD for the removal of existing catchments. Catchments are strategically placed in areas based on recommendations from the AGFD. AGFD proposes the placement and type of catchment to the BLM, and BLM completes NEPA for these site-specific projects.

6.2.14.8 Wildlife Corridors

Comment Number: 100001-12
Organization:
Commenter: Jim Vaaler

Comment Excerpt Text:
Your future desired condition for this WMC should be to preclude uses that would render it more difficult for wildlife to use.

Comment Number: 100001-7
Organization:
Commenter: Jim Vaaler

Comment Excerpt Text:
Why are wildlife movement corridors not designated as ACEC's? The WMC that connects the Sierra Estrella Wilderness Area to the SDNM is the most critical WMC in the Decision Area. Innovative ways need to be utilized to make sure this WMC retains its viability.

Comment Number: 100119-3
Organization: Friends of Saddle Mountain
Commenter: Chris Meachum

Comment Excerpt Text:
Wildlife Corridors as shown on Map 2.2 D are preferred by the FoSM. While we understand the BLM is not able to manage State Trust lands, we feel that showing and/or at least acknowledging corridor "C" shown on this map is crucial even if the majority of lands are managed in corridor C is the responsibility by other agencies. FoSM has documented and continues to monitor Bighorn Sheep and Mule Deer Movement through this linkage as well as a host of other species. We feel that keeping this linkage open is crucial to the long term survival of Saddle Mountain's Bighorn sheep and is the sole remaining corridor north of Saddle Mountain.

Comment Number: 100121-10
Organization: Sierra Club
Commenter: Jim Vaaler

Comment Excerpt Text:
In order to prevent degradation of the WMCs and ensure their use and viability in the long term, every effort must be made to keep them in a natural condition. Converting state trust land and private land into the public domain must be made a priority for these areas in order to maintain these areas' natural condition and to enhance their viability as WMCs.

Comment Number: 100121-11
Organization: Sierra Club
Commenter: Jim Vaaler

Comment Excerpt Text:
The WMC that extends from the Sierra Estrella Wilderness Area through Seven Mile Mountain and eventually connects with the SDNM is one of the most at risk WMCs in the decision area due to potential developments in the area. Innovative ideas and strong protections will be necessary to ensure that this WMC remains viable for

wildlife. One possibility would be to close the redundant route between the existing Sierra Estrella Wilderness Area and Seven Mile Mountain and to expand the Sierra Estrella Wilderness Area to include Seven Mile Mountain. The remainder of this WMC from Seven Mile Mountain to the SDNM could be designated as an ACEC

Comment Number: 100121-9
Organization: Sierra Club
Commenter: Jim Vaaler

Comment Excerpt Text:
We endorse the WMCs offered in Alternative D as depicted on Map 2-2d and appreciate that these corridors utilize existing wilderness areas or areas that contain wilderness characteristics as their termini. Activities that have the potential to damage these areas must be limited in order to provide for adequate wildlife movement. Such activities include utility-scale renewable energy development and exploration sites and all locatable and leasable mineral exploration and development sites. All WMCs must be withdrawn from mineral entry. Further, all linear and nonlinear land use allocations such as power lines and their attendant right of ways, communication sites, underground pipelines, freeways and parkways, and all new road construction need to be prohibited in these corridors. Existing gravel roads should be maintained at the status quo level with no widening or re-routing permitted.

Comment Number: 100126-81
Organization: The Wilderness Society
Commenter: Phil Hanceford

Comment Excerpt Text:
BLM should reexamine the limitation for 3 miles of road per section or less within the wildlife movement corridors to focus instead on route densities for all priority wildlife in the planning area. We recommend that BLM commit in the RMP to calculating road density within the WHAs and WMCs as well as transportation effect zones in accordance with scientific literature and evaluate the likely impacts of potential route networks on wildlife species, habitat, and migration corridors. Overall goals of the transportation plan should include reductions in road density and edge effects and increases in core areas to provide greater habitat security.

Comment Number: 100142-10
Organization: Arizona Game and Fish Department
Commenter: Josh Avey

Comment Excerpt Text:
The 6 proposed staging areas in the Buckeye Hills East RMZ conflict with wildlife connectivity goals for the area and specifically with wildlife corridors "D" and "E". The Department proposes to work with BLM to locate the staging areas to minimize the conflicts with wildlife connectivity.

Comment Number: 100166-4
Organization:
Commenter: Steve Saway

Comment Excerpt Text:
Comment: Table 2.5 reflects that the Preferred Alternative E would allocate 255,700 acres in the Gila Bend Mountains as a wildlife habitat area (WHA). No other WHAs are proposed. As shown on Map 2-2e, this is a very large area that encompasses much of the Lower Sonoran decision area. My concern is that together with the

proposed wildlife movement corridors (WHCs) A, B, C, and D, this may create an unbalanced and concentrated focus on wildlife habitat management for the Gila Bend Mountains. This could overly complicate and restrict multiple use activities such as grazing, recreation, and off-highway vehicle (OHV) travel in the Gila Bend Mountains. Why not designate WHAs and wildlife movement corridors in or adjacent to the SDNM which provides a more protected setting for wildlife habitat management? Or why not designate multiple WHAs in the Lower Sonoran decision area instead of one huge WHA for the Gila Bend Mountains? Recommend BLM reconsider the amount of lands to be allocated for a wildlife habitat area and wildlife movement corridors in or adjacent to the Gila Bend Mountains. This area is also important for other values and uses.

Comment Number: 100166-5
Organization:
Commenter: Steve Saway

Comment Excerpt Text:
Comment: Management Action PS-12.1.5 states that road density would be limited to 3 miles of road per section or less within the wildlife movement corridors in accordance with the Habitat Guidelines for Mule Deer (Mule Deer Working Group 2006). I have two concerns here. One, the travel management process should be the exclusive methodology for determining the status of existing or proposed new roads. In my view, a road density restriction is somewhat arbitrary and does not consider the multiple factors that must be considered during a travel management evaluation.

Comment Number: LSFO-SDNM-DRMP--1-18563-2
Organization: Sustainable Arizona
Commenter: John Neville

Comment Excerpt Text:
Include the Priority Wildlife Areas and Wildlife Movement Corridors in the plan to help facilitate the recovery of imperiled species and maintain important landscape linkages between mountain ranges.

Summary

Several commenters recommended management to maintain and protect Wildlife Management Corridors (WMCs), including:

1) land acquisitions to maintain WMCs,

2) limiting destructive activities such as energy and minerals development in WMCs,

3) withdrawing WMCs from mineral entry, and

4) prohibiting widening or re-routing of roads in WMCs.

5) Commenters also recommended reexamining the limitation for 3 miles of road per section or less within WMCs and focusing instead on route densities for all priority wildlife in the planning area.

6) To protect WMCs, one commenter recommended closing the redundant route between the existing Sierra Estrella Wilderness Area and Seven Mile Mountain and expanding the Sierra Estrella Wilderness Area to include Seven Mile Mountain.

7) Commenters questioned why WMCs are not designated as ACECs and one commenter noted that a portion of the WMC that extends from the Sierra Estrella Wilderness Area through Seven Mile Mountain and eventually connects with the SDNM should be designated as an ACEC.

8) Commenters noted that management of some resource programs conflict with WMCs, including proposed staging areas in the Buckeye Hills East RMZ. Commenters also recommended BLM reduce the amount of land allocated for WMCs in or adjacent to the Gila Bend Mountains and manage for more multiple uses in this area.

Response

1, 2, 3 & 4) WMCs were created to allow BLM flexibility to work with partners to allow ingress and egress of species as related to human occupation and development. The WMCs are a starting point for BLM to cooperate with private, state, and other federal agencies to facilitate movement of wildlife in a relatively safe manner. The BLM has no mechanism for designating WMCs, as there is no policy for allocation or designation. However, as part of setting the desired future condition for the wildlife program within BLM, the RMP has defined the goals, objectives, and management actions for WMCs in **Chapter 2**, **Sections 2.10.12** (see Goal 12 and Objective 12.1 in **Table 2-18** and associated management actions). Implementation of the RMP would require that activities authorized in WMCs must be in conformance with the goals and objectives of the RMP.

5) BLM does not have data regarding appropriate road densities for all priority wildlife species. Therefore, it would be inappropriate to establish target road densities in a blanket approach across the planning area in the RMP. BLM has established goals and objectives for sensitive species in **Chapter 2**, **Section 2.10.12** that would guide travel and transportation planning, as well as other potential habitat alterations.

6) These suggestions are outside the scope of the Lower Sonoran RMP. Travel Management Planning and route designation for the Lower Sonoran Decision Area would be completed within five years of plan completion. In addition, BLM does not have authority to either establish or change Wilderness designation or Wilderness boundaries.

7) BLM has no information indicating that the subject area has significant historic, cultural, or scenic values; fish or wildlife resources, including threatened or endangered species; or natural hazards satisfying the relevance and importance criteria required for designation as an ACEC.

8) After reviewing the comments, the BLM has revised management actions to eliminate any potential conflicts between management actions of other programs on the wildlife corridor management actions.

6.2.15 SOIL

6.2.15.1 Management Actions

Comment Number: 100166-7
Organization:
Commenter: Steve Saway

Comment Excerpt Text:
Comment: Management Action SL-2.1.2 (for Lower Sonoran decision area) states that the density of roads and trails would be reduced during route designation within areas known to have sensitive soils. In my view, road density should be based on the travel management process and site-specific conditions. Road density is one factor to consider but should not be the exclusive reason to determine a travel management designation. Recommend the wording of the management action be revised to reflect that approach. Or change the word "would" to "may" in the first sentence of the management action.

Comment Number: 100166-8
Organization:
Commenter: Steve Saway

Comment Excerpt Text:
Comment: Management Action SL-2.1.5 (for SDNM decision area) states that vehicle parking and camping would be limited to 25 feet from the road centerline or designated sites in areas determined to have sensitive soils. Recommend that the wording of SL-2.1.5 be the same as SL-2.1.4, i.e., change the restriction from 25 feet to 100 feet from the road centerline. Rationale is as follows. From a user perspective, it is very difficult if not impossible to pick a campsite that is only 25 feet or less from the road centerline. One can view existing campsites in the SDNM and see that people who camp there want a buffer from the road to provide some measure of privacy and to avoid vehicle noise and dust. If a management action is too restrictive, it will not encourage compliance. The restriction of 100 feet from the road centerline would be more consistent throughout the Lower Sonoran and SDNM decision areas and easier to administer. Ideally, BLM should designate suitable campsites using existing sites so that new areas do not need to be disturbed.

Summary

Commenters expressed concern that management actions to protect sensitive soils were too restrictive and recommended they be based on site-specific conditions rather than uniformly applied to the entire planning area.

One commenter stated that Management Action SL-2.1.5 addressing the SDNM decision requiring that vehicle parking and camping in sensitive soil areas would be difficult to apply, is too restrictive for the user and is inconsistent with the Lower Sonoran Decision Area.

Response

The BLM acknowledges that additional site-specific information on sensitive soils would aid analysis for soil resources. The FEIS has been revised to include additional location-specific information for sensitive soils in the planning area, including a sensitive soils map to identify regions of the planning area that would be impacted by management decisions specific to sensitive soils (see **Section 4.7**, Impacts on Soil

Resources). Soil resources are fundamental to all other resources and resource uses. Additional information has been presented to link protective measures for soil resources with other resource decisions, including but not limited to measures for water quality, vegetation health, and special status species protection.

Management actions such as SL-2.1.5 are intended to consider a range of alternatives designed to meet the BLM's legal duties to protect soil resources and satisfy the purpose and need for action. BLM has revised SL-2.1.5 to state that "Vehicle parking and camping would be limited to reasonable use of the shoulder or adjacent area. Designated sites in such locations would be inventoried, mapped and signed. If monitoring results show effects that exceed limits of acceptable change, motorized vehicles would not be allowed to pull off a designated route." (See **Table 2-8**.)

Campsites would eventually be designated in the SDNM as deemed necessary per management action RM-3.2.6. In the interim, visitors would use existing campsites and park/camp along designated roads per SL-2.1.5.

Section 2.11.5, Travel Management, was reviewed to ensure consistency with Instruction Memorandum AZ-2005-007, which notes in "National Monuments, National Conservation Areas and along National Trails, motorized use shall keep within the designated route with reasonable use of the shoulder and immediate roadside, allowing for vehicle passage, emergency stopping, or parking unless otherwise posted."

6.2.15.2 Grazing LHE

Comment Number: 100136-19
Organization: Western Watersheds Project
Commenter: Greta Anderson

Comment Excerpt Text:
The LHE's analysis of soils is spotty and incomplete, and doesn't quantify levels of erosion, compaction, disturbance, or destruction caused by livestock. The BLM claims that meeting LH Standard 1 is sufficient to ensure against erosion of Monument soils. However, the BLM only has a single monitoring episode for key area data. Standard 1 is "Signs of accelerated erosion are minimal or diminishing for the ecological site as determined by monitoring over an established period of time." Thus, conclusions about soil health on the Monument are not supported by the data BLM apparently ignored expert reviewers who had the same concerns. Ruyle 2009 at 6.

The BLM then ignored the data it did have and selectively included only summaries of the ground cover conditions in the DRMP/DEIS.

- On the Bighorn allotment, transect BH-2 saw a 100 percent increase in bare ground between 2004 and 2009, a reduction in cover by cryptogams from 18 percent to 5 percent between 2004 and 2009, and a reduction in vegetation canopy from 7 percent to 5 percent. Exhibit Bat 27.
- BH-3 had a 150 percent increase in bare ground between 2004 and 2009. Ibid.
- BH-4 had a 40 percent increase in bare ground between 2004 and 2009 and a 2/3rds reduction in cryptogams. Ibid.
- BH-5 saw a 2/3rds reduction in cryptogams between 2004 and 2009. Ibid.

- BH-7 saw a nearly 30 percent reduction in cover by cryptogams between 2004 and 2009. Ibid.
- On the Beloat allotment, transect B-4 went from 0 percent bare ground to 8 percent bare ground, with a reduction in vegetation canopy from 42 percent to 13 percent between 2004 and 2009. Ibid.
- On the Hazen allotment, BLM only has a single year of monitoring data pertaining to ground cover. Id. at 28.
- On the Lower Vekol allotment, transect LV-2 went from 0 percent to 4 percent bare ground between 2004 and 2009; vegetation canopy decreased by over 1/3fd. Ibid.
- Transect LV-3 saw nearly 100 percent increase in bare ground. Ibid.
- Transect LV-4 increased bare ground and decreased cryptogams between 2004 and 2009. Ibid.
- On the Arnold allotment, cover by cryptogams decreased from 25 percent to 16 percent between 2004 and 2009. Ibid.

BLM did not include these data in the DRMP/DEIS but should have. They are quite revealing and undermine the conclusions of the agency that all allotments are meeting Rangeland Health Standard 1. Guidelines for Standard 1 say, "Management activities will maintain or promote ground cover. . ." DRMP/DEIS at 1265. Here, it is apparent that on many key areas, ground cover is not being maintained or promoted, but is obviously experiencing grave declines.

Summary

Commenters expressed their belief that the Land Health Evaluation of soils was not adequate and the conclusions about soil conditions on the Monument and Rangeland Health Standards on allotments were not supported by the data. Commenters specifically noted that the DRMP/DEIS: 1) did not quantify impacts on soils as a result of erosion, compaction, and disturbance from livestock grazing, and 2) did not appropriately characterize ground cover conditions and trends on several allotments.

Response

The CEQ regulations require an environmental impact statement to "succinctly describe the environment of the area(s) to be affected or created by the alternatives under consideration. The description shall be no longer than is necessary to understand the effects of the alternatives. Data and analyses in a statement shall be commensurate with the importance of the impact, with less important material summarized, consolidated, or simply referenced" (40 CFR 1502.15).

1) Following the CEQ regulation, data for soil resources were collected in greater detail than presented in the EIS. As discussed in detail in **Appendix F**, Arizona Land Health Evaluation for the Sonoran Desert National Monument Management, data collected to determine planning area existing conditions and adherence to Rangeland Health Standards were extensive and followed established guidelines for determining rangeland condition and trends.

Data collected included the following:

1. Rangeland soil and vegetation survey utilizing the BLM's rangeland inventory method and the Natural Resources Conservation Service (NRCS) methods was collected for all allotments from 1979 to 1981.

2. Monitoring for key sites used methodology described in Technical Reference-1734-4, "Sampling Vegetation Attributes" (USDA, Forest Service and BLM 1996).

3. Rangeland and health assessment methods as described in Technical Reference 1734-6, Version 4, "Interpreting Indicators of Rangeland Health" (BLM 2005f).

4. Pacific Biodiversity Institute (PBI) study plots starting in 2002. Data include estimates of vegetative canopy cover by species in relation to disturbance location.

5. Reference sites closed to livestock grazing since the 1940s, and correlated to ecological sites present in both the Barry M. Goldwater Range and Area A.

2) Quantitative assessment of ground cover condition and trends are just some of the variables that may be examined to determine site conditions. For the soil series in the project area, cover data (i.e., bare ground, gravel, litter) were determined to be highly variable for the soil series present. In addition, the type of ecological sites that were evaluated have large interspaces between plants. Therefore, bare ground, gravel, and litter cover data in the planning area was not found to be a good indicator of site conditions. Cover data was collected and is available in allotment site monitoring files at the BLM Phoenix District Office. Overall cover data was not summarized in the EIS, as vegetation canopy cover (canopy cover data) was determined to be the most appropriate measure for future monitoring.

The 2009 transects did not follow the same methodology as either the 2004 or the 1980 transects; therefore, the data is not comparable for a long-term trend analysis.

6.2.16 VEGETATIVE COMMUNITIES

6.2.16.1 Data and Analysis Issues

Comment Number: 100126-38
Organization: The Wilderness Society
Commenter: Phil Hanceford

Comment Excerpt Text:
BLM is currently drafting a rapid ecoregional assessment (REA) of the Sonoran Desert ecoregion, which will cover the entire planning area and beyond. Information on the REA is available at: http://www.blm.gov/wo/st/en/prog/more/climatechange/reas/sonoran.html. One of the "change agents" that will be addressed in the Sonoran Desert REA is invasive species. We understand that BLM will be publishing the REA in early 2012. This is timely and significant information that BLM should incorporate into the RMP, changing management prescriptions as necessary to respond to this data. BLM should also incorporate the information into its EIS for the planning area and allow for a supplemental comment period on the RMP/EIS to respond.

Summary

Commenters requested that information from the 2012 rapid ecoregional assessment (REA) be considered and incorporated into the RMP/EIS upon release.

Response

The BLM's Rapid Ecoregional Assessments (REAs) are currently under development. The latest document available for the Sonoran Desert REA is the Final Work Plan, which presents the management questions, identification of data needs, and definition of the methods and models that would be used in the analysis. Information about the REAs is available on the REA Web site at: http://www.blm.gov/wo/st/en/prog/more/climatechange/reas.html. The BLM may incorporate information from the REA analysis and findings into the FEIS if it is available and appropriate to EIS analysis prior to publication of the FEIS.

6.2.16.2 Grazing LHE Data and Analysis Issues

Comment Number: 100136-50
Organization: Western Watersheds Project
Commenter: Greta Anderson

Comment Excerpt Text:
b. The limy upland is also an important ecological site for saguaros, making the integrity of these data critically important to Monument object protection. An earlier version of the LHE set the objective for young saguaro per plot based on the PBI study that showed this level of recruitment in areas currently open to livestock grazing. Exhibit A, Draft LHE at 39. The current version of the LHE downgrades the occurrence to 0.96 young saguaros per plot (and doesn't mention that this is set to the status quo conditions of grazed plots). DRMP/DEIS at 1114. The cover data in the LHE do not explicitly quantify the number of young saguaros, only cover by saguaros, which is insufficient to ensure recruitment in saguaro forest. BLM's key area plot data does not demonstrate that the agency actually measured this parameter for these plots.

Comment Number: 100136-56
Organization: Western Watersheds Project
Commenter: Greta Anderson

Comment Excerpt Text:
The BLM is simply ignoring the perennial grass component of Sandy Wash ecological sites in order to avoid admitting the near-absence of perennial grasses in the in the northern portion of the Monument. While it is true that the subset of plots selected by BLM for comparison have a relatively low grass component, it does not explain why BLM didn't either assess more sites or admit to these widespread deficiencies in the northern portion of the Monument.

Comment Number: 100136-57
Organization: Western Watersheds Project
Commenter: Greta Anderson

Comment Excerpt Text:
Similarly, the BLM ignored the evidence that it gathered regarding the decrease in key components of rangeland health: ground cover, including vegetation copy, vegetation basal cover, and cryptograms. The BLM claims that quantitative cover data for vegetative and "microbiotic crust cover areas are appropriate across the majority of the ecological sites assessed," but the DRMP/DEIS does not contain the data to support this. DMRP/DEIS at 1055.

Comment Number: 100136-77
Organization: Western Watersheds Project
Commenter: Greta Anderson

Comment Excerpt Text:
The DRMP/DEIS claims, "The results of the PBI saguaro study indicate that recruitment of saguaros is occurring within the grazed portion of SDNM north of I-8 at appropriate rates compared to Area A and BGR." DRMP/DEIS at 1056, 1067. "Appropriate" is not defined, and the statement contradicts what the PBI report actually says.

In fact, what the PBI 2002 report says is, "We recommend further analysis of the saguaro demographic data and the relationship of the saguaro population demographics to the natural community cluster groups, environmental gradients, and disturbance gradients. Our hypothesis developed during field observations is that the distribution of small saguaros is closely associated with certain cluster groups and is influenced by the level of livestock activity." Morrison, et at. 2002 at 104. In fact, those observations indicated that there were fewer small saguaros (less than 1 m in height) in areas with intensive livestock activity than in areas without signs of livestock grazing. See Declaration of Peter Morrison, attached as Exhibit D at 17. BLM's statement in the DRMP/DEIS is unsupported and blatantly disregards (or worse, intentionally misconstrues) the reality of livestock grazing and saguaro recruitment.

Comment Number: 100136-84
Organization: Western Watersheds Project
Commenter: Greta Anderson

Comment Excerpt Text:
The DRMP/DEIS lists but does not analyze or disclose impacts of specific at risk plant species. DRMP/DEIS at 286-287. In particular, we note the absence of even general location information for the Tumamoc globeberry. Ibid. This species has been adversely affected by livestock grazing on the SDNM and may be at risk in the sandy washes in the northern portion of the Monument. The key area monitoring is insufficient to assess threats to this species, and the DRMP/DEIS fails to provide special monitoring plans or protocols to ensure its survival.

Comment Number: 100155-1
Organization:
Commenter: Hans Smith

Comment Excerpt Text:
I would like to state for the record that Pacific Biodiversity Institute never conducted a "Saguaro Study" within the Sonoran Desert National Monument between 2002 and 2006.

The assertion contained within Appendix F of the August 2011 version of the Lower Sonoran/SDNM DRMP/DEIS that Pacific Biodiversity Institute conducted any type of "Saguaro Study", and or published data or tables of the nature contained in F.22. Attachment 5 is completely false and misleading.

I would appreciate the Bureau of Land Management work to correctly cite the source of the data currently being attributed to a non-existent Pacific Biodiversity Institute 2004 Saguaro Study.

Comment Number: 100161-11
Organization: Pacific Biodiversity Institute
Commenter: Peter Morrison

Comment Excerpt Text:
PBI never produced the statistical analysis shown in the DRMP/DEIS and I demand that you remove our name from Table F.22. Any conclusions derived from this data are solely those of the BLM and do not reflect my empirical observations, statistical conclusions, or represent in any other way the work of PBI or any of our staff. In fact, BLM appears to be using these data to support the opposite conclusion than the one I reached in my four years of study of the Monument's ecosystems, stating instead that grazing is not having an adverse effect on small saguaros. This is untrue and unproven, and goes against all the other scientific reports that have studied such things and what we observed in the field.

Comment Number: 100161-2
Organization: Pacific Biodiversity Institute
Commenter: Peter Morrison

Comment Excerpt Text:
One of the most blatant issues that I have become aware of in the DRMP/DEIS is that some of the work that we did do is distorted and misapplied and that other statements and information included in the DRMP/DEIS is incorrectly attributed to PBI when it has no resemblance to the work we did and the reports that we published and distributed to TNC and the BLM. In one glaring example of this, on page 1186, the BLM attributes Table F.23 to "Pacific Biodiversity Institute Saguaro Study," In truth, PSI was never contracted for a saguaro study and explicitly told the BLM in our 2003 report, "We recommend further analysis of the saguaro demographic data and the relationship of the saguaro population demographics to the natural community cluster groups, environmental gradients, and disturbance gradients. Our hypothesis developed during field observations is that the distribution of small saguaros is closely associated with certain cluster groups and is influenced by the level of livestock activity." We noted fewer small saguaros in areas proximate to intensive livestock grazing, but explicitly clarified that we could not make any definitive statements because our study was not focused specifically on saguaro recruitment.

Summary

A) Commenters expressed several concerns regarding the data and analysis for vegetation in the DRMP/DEIS. Specifically, commenters noted that additional information is needed for: 1) the Land Health Evaluation for young saguaros, 2) baseline information for perennial grasses in the northern portion of the SDNM, and 3) data quantifying decreases in key components of rangeland health.

B) Commenters also noted that the DRMP/DEIS did not provide baseline information or analyze impacts to specific at-risk plant species, including the Tumamoc globeberry, and did not include monitoring plans or protocols to protect this species.

C) Several commenters noted inappropriate uses of Pacific Biodiversity Institute (PBI) data and reports in the DRMP/DEIS. Commenters indicated that BLM inaccurately attributed a "Saguaro Study" of the SDNM cited in the DRMP/DEIS to the PBI and requested the source be correctly identified. Commenters also noted that conclusions related to livestock grazing and saguaro recruitment in the DRMP/DEIS contradicted information in reports prepared by the PBI.

Response

A) The CEQ regulations require an environmental impact statement to "succinctly describe the environment of the area(s) to be affected or created by the alternatives under consideration. The description shall be no longer than is necessary to understand the effects of the alternatives. Data and analyses in a statement shall be commensurate with the importance of the impact, with less important material summarized, consolidated, or simply referenced" (40 CFR 1502.15).

Following the CEQ regulation, data for vegetation resources was collected in greater detail than presented in the EIS. Vegetation data collected to determine planning area conditions and adherence to Rangeland Health Standard 6 was extensive and followed established guidelines for determining rangeland condition and trends. This is discussed in detail in **Appendix F**, Arizona Land Health Evaluation for the Sonoran Desert National Monument (LHE). Data collected to determine planning area existing conditions and adherence to Rangeland Health Standards were extensive and followed established guidelines for determining rangeland condition and trends. Data quantified in the LHE includes, but is not limited to, plant frequency, plant cover (including saguaro cover), composition, relative production diversity, and utilization.

Comparison of transect data collected over several years in the key areas by BLM was not analyzed in this case, for assessments of long-term trend. The 2009 data were the most recent data for the area. The 2004 and 1980 transects used different study designs and therefore were not comparable to 2009 and could not be used to measure trends in the LHE.

Data collected and information compiled included the following:

- Rangeland soil and vegetation surveys utilizing the BLM's rangeland inventory method and NRCS methods were collected for all allotments from 1979 to 1981 (described in **Section F.6**, Inventory and Monitoring Methodology, Range Survey subsection of the LHE).
- Monitoring of key areas using methodology is described in Technical Reference-1734-4, "Sampling Vegetation Attributes" (USDA, Forest Service and BLM 1996) (described in **Section F.6**, Key Areas subsection and **Attachment 3**, Key Area Data of the LHE).
- Land health assessment methods as described in Technical Reference 1734-6, Version 4, "Interpreting Indicators of Rangeland Health" (2005) (described in **Section F.6**, Land Health subsection of the LHE).
- Applicable PBI study plots starting in 2002 (described in **Section F.6**, Pacific Biodiversity Institute Site Data subsection, and **Map F-4**, SDNM Grazing Allotments & Monitoring Sites, of the LHE). Data include estimates of vegetative canopy cover by species in relation to disturbance location.

- Use pattern mapping and utilization measurements (described in **Section F.6**, Utilization Studies subsection, and **Map F-5**, SDNM Grazing Allotments and Use Pattern Mapping, of the LHE).
- Saguaro Cover and Stem Count Information (**Table F-23**).
- Landscape-level vegetative communities (described in detail in **Section 3.2.7**, Vegetation Resources, **Appendix E**, Compatibility Analysis: Livestock Grazing on the Sonoran Desert National Monument, and **Appendix F**, and illustrated in **Map E-1**, SDNM Grazing Allotments and Vegetation Communities, of **Appendix E**).

Reference sites closed to livestock grazing since the 1940s, and correlated to ecological sites present in both the Barry M. Goldwater Range and Area A.

B) According to a BLM botanist, Tumamoc globeberry only occurs south of Interstate-8 where livestock grazing has been eliminated.

Tumamoc globeberry is a BLM sensitive species. Baseline information has been updated and provided for all special status plant species (federally listed, federal candidate, and BLM sensitive) with the potential to occur in the Decision Area (see **Section 3.2.7**, Vegetation Resources). Under all alternatives, surface-disturbing activities would be required to protect special status plants, so monitoring and protocols were not deemed necessary at the planning level. Monitoring plans would be required for site-specific actions after the planning effort as necessary and appropriate.

C) According to the Pacific Biodiversity Institute report: *The Natural Communities and Ecological Condition of the Sonoran Desert National Monument and Adjacent Areas*, "…significant demographic data were collected on the number of saguaros in each natural community plot and their height" (PBI 2004:104).

BLM contracted The Nature Conservancy (who in turn contracted PBI) to collect data within the SDNM for the purposes of providing BLM data to determine ecological conditions within the Monument. BLM used PBI plots to increase the number of key areas, where appropriate. See **Section F.6**, Pacific Biodiversity Institute Site Data subsection**,** of Appendix F.

While PBI's method for collecting the vegetation attributes was acceptable, many of the plot locations did not fit BLM's criteria for selection of key areas. Several of the plots overlapped multiple ecological sites, and soil survey mapping units and some plots were located too close to livestock waters, which are not representative of the overall landscape-level conditions within the Monument. For these reasons, BLM was unable to use some of the analysis that was provided. In addition, the majority of the plots were located south of Interstate-8 on the allotments that were closed to livestock grazing as required under the SDNM proclamation and within the Barry M. Goldwater Range on ecological sites that do not occur north of Interstate-8.

PBI's study was of limited use because it did not address the intensity, frequency, timing, class of livestock, season of use, ecological sites, precipitation patterns, and other variables the BLM needs to address the effects of current livestock grazing practices on the objects of the Monument. However, BLM did use some of PBI's plot data (where applicable) to address vegetation attributes when defining Ecological Site and Key Area desired plant community (DPC) objectives.

6.2.16.3 Invasive Species

Comment Number: 100121-15
Organization: Sierra Club
Commenter: Jim Vaaler

Comment Excerpt Text:
Buffel grass has invaded the Monument but is still vulnerable to extirpation. Buffel grass removal efforts should have high priority. Every effort should be made to keep other exotic plants from entering or spreading within the Monument. Removal of non-native invasive species programs should focus on non-toxic methods that will not damage Monument water tables, wildlife, or native plants.

Comment Number: 100136-101
Organization: Western Watersheds Project
Commenter: Greta Anderson

Comment Excerpt Text:
The DRMP/DEIS entirely neglects to take a hard look at invasive plant species. The description of, "Affected environment, Vegetation resources," fails to mention the current conditions regarding native/non-native/invasive species on the SDNM, which deprives the reader and the decision-maker of an understanding of the context in which the land use decision is being made. While the, "Environmental consequences," section briefly discusses the various land use impacts that cause the spread and infestation, the discussion here does not constitute a "hard look" either. The BLM did not in elude the data it does have on invasive/non-native species in the SDNM or how this relates to roads, livestock waters, or other disturbance. The BLM did not discuss individual invasive species that are spread by livestock and have the potential to increase their abundance as a result of the preferred alternative. This entire section is lacking and needs revision before the final.

Comment Number: 100136-93
Organization: Western Watersheds Project
Commenter: Greta Anderson

Comment Excerpt Text:
The DRMP/DEIS does a grossly inadequate job of assessing the effects of livestock grazing on invasive species for both the LFSO and the SDNM. Livestock promote the spread and colonization of alien plants, which can increase fire frequencies. Billings 1990, Billings 1994, Rosentreter 1994, Belsky and Gelbard 2000. Disturbance is a reliable indicator of alien dominance in vegetation composition, and livestock grazing is a significant disturbance to desert ecosystems. Brooks and Berry 2006.

This is particularly important in the low deserts of the planning area because, often, forage estimates for ephemeral authorizations include non-native species, which thereby exacerbates the on-the-ground situation. To use non-native species as forage ensures that disturbance in colonized areas will continue, that seeds will be spread through coats and feces, and that relative productivity estimates will be skewed towards a changed desert. Further, weed invasions are strongly associated with livestock watering sites. Brooks et al. 2006. The DRMP/DEIS contains no discussion of this impact on the vegetation communities, subsequent effects to wildlife, or the changes in fire regimes that this can create.

Catastrophic wildfires in Arizona and California's desert have been linked to weed invasions, including weeds present in the planning area. Altered fire regimes and weed invasions have deleterious effects on wildlife habitat,

especially for the desert tortoise, which relies on native species as preferential forage. Desert tortoise have a strong preference for native species of annual plants even where non-natives are abundant, and desert tortoise preferentially select ten native plant species even in areas where these species are uncommon or rare. Jennings 1997. Weed composition and the subsequent diminished forage availability is serious threat to the recovery of the species.

When weeds dominate biomass production in both wet and dry years, it can be assumed that weeds will more successfully colonize new areas over time. Brooks and Berry 2006. The dominance of weeds during even exceptionally dry years indicates that drought disproportionately increases competition between wildlife and livestock for native annuals in these seasons. The DRMP/DEIS's failure to address any of these issues for either the LFSO or the SDNM is a major failure of the plan.

Summary

Commenters requested additional information and analysis related to invasive species in the SDNM. Information requested included description of current conditions and analysis of management and land uses that lead to establishment, infestation, and spread of invasive species, especially livestock grazing.

Response

Existing information is presented in **Section 3.2.7**, Vegetation Resources, and the goals and objectives of the RMP were developed to reduce invasive species on a planning level. Additional information regarding existing conditions for invasive weed species has been added to **Section 3.2.7**, Vegetation Resources. During implementation, site-specific NEPA analysis will include more detail regarding the potential for spread and introduction of invasive species. Prevention actions and measures would also be incorporated into all project plans and as terms and conditions in contracts and special use permits and authorizations, particularly with surface-disturbing activities. Text in **Chapter 4** has been clarified (**Section 4.8**, Impacts on Vegetation Resources) to include the methods of weed transportation associated with the weed vectors mentioned under each alternative.

In addition, the SDNM grazing analysis has been revised to clarify the role of livestock grazing and other vectors in invasive species spread. These vectors may include livestock, wildlife (deer, bighorn sheep, rabbits, rodents, etc.), and humans.

BLM cooperates with other partners in the established cooperative weed management areas. Additionally, we use an integrated approach to contain and treat the spread of noxious weeds. BLM methods include: 1) education/awareness, 2) prevention/detection, 3) inventory, 4) treatment, 5) cultural methods (practice modification), 6) monitoring, and 7) rehabilitation.

6.2.16.4 Livestock Impacts

Comment Number: 100121-13
Organization: Sierra Club
Commenter: Jim Vaaler

Comment Excerpt Text:
The comments on pages 512 and 514 that indicate that the impacts to vegetation from eliminating livestock grazing would generally be small is indefensible. Livestock have a significant impact on vegetation, including on annuals,[Footnote 5] which is not really addressed in the DRMP/DEIS

Comment Number: 100121-14
Organization: Sierra Club
Commenter: Jim Vaaler

Comment Excerpt Text:
The comments regarding fire are also questionable. Elimination of livestock grazing primarily will affect native plant species. However, it is the non-native grasses that contribute to unnatural fire conditions. Eliminating livestock grazing can help reduce the spread of non-native species and provide a greater opportunity for native species to recover. Non-natives should be eliminated where possible, and their spread to a wider area must be carefully managed. Spot removal of species such as buffel grass can be very effective.

Summary

Commenters disagreed with the BLM's analysis of impacts on vegetation as a result of eliminating livestock grazing, noting several potential positive impacts on vegetation from eliminating grazing. Commenters indicated that grazing has a significant impact on vegetation and eliminating grazing would provide opportunity for recovery of native species and would also reduce non-native grasses that contribute to unnatural fire conditions.

Response

As required by 40 CFR 1502.16, the Draft EIS provided a discussion of the environmental impacts of the alternatives, including the proposed action, any adverse environmental effects that cannot be avoided should the proposal be implemented, the relationship between short-term uses of man's environment and the maintenance and enhancement of long-term productivity, and any irreversible or irretrievable commitments of resources that would be involved in the proposal should it be implemented. As part of this discussion, the BLM analyzed the impacts of livestock grazing on vegetative communities under the various alternatives. As a result of the comments, BLM has revisited the analysis of the impacts from eliminating grazing on vegetative communities. See **Section 4.8.6** for a discussion of vegetation impacts under Alternative D from eliminating grazing.

BLM has no information supporting the premise that eliminating livestock grazing would reduce nonnative species, thereby reducing fire risk. Recently produced fuel models (USDA Forest Service General Technical Report RMRS-GTR-153, 2005) show that livestock grazing can shift grassland fuel models from high fire-spread models to a GR-1. Fires in GR-1 have low intensity and low spread rates.

The analysis presents the decision maker with detailed information to aid in determining whether to proceed with the PRMP or make a reasoned choice among the other alternatives in a manner such that the public could have an understanding of the environmental consequences associated with the alternatives, in accordance with 40 CFR 1502.1.

6.2.16.5 Out of Scope

Comment Number: 100161-12
Organization: Pacific Biodiversity Institute
Commenter: Peter Morrison

Comment Excerpt Text:
The GIS data provided by BLM on the DRMP/DEIS website on vegetation does not match the vegetation map that is included in the DEIS.

Summary

Commenters indicated GIS data provided by the BLM on the DRMP/DEIS Web site does not match the vegetation map in the DRMP/DEIS.

Response

The issue has been resolved so that the FEIS maps appearing on the BLM Web site correctly correspond to the maps appearing in the printed FEIS.

6.2.17 VISUAL RESOURCES

6.2.17.1 Allocations

Comment Number: 100159-3
Organization:
Commenter: Roy Pierpoint

Comment Excerpt Text:
The Monument land was chosen to begin with because of its unspoiled character and therefore should command a class I rating. The Gila Bend Mountains is a viewscape directly across the valley on the northwest side of the Monument and therefore should receive at least a classification of II as indicated in Alternate D. The Woolsey Peak Wilderness area is part of the Gila Bend Mountains; the eastern portion of the mountains should be considered part of the viewscape for this wilderness area also.

Summary

Commenters suggested changes to VRM decisions in the alternatives, including VRM Class I management in the SDNM and the eastern part of the Gila Bend Mountains (as part of the Woolsey Peak Wilderness area) and VRM Class II management in the Gila Bend Mountains.

The Monument land was chosen to begin with because of its unspoiled character and therefore should command a Class I rating. The Gila Bend Mountains is a viewscape directly across the valley on the

northwest side of the Monument and therefore should receive at least a classification of II as indicated in Alternate D. The Woolsey Peak Wilderness area is part of the Gila Bend Mountains; the eastern portion of the mountains should be considered part of the viewscape for this wilderness area also.

Response

The BLM considered a reasonable range of alternatives during the Lower Sonoran and SDNM planning process, in full compliance with NEPA. The CEQ regulations (40 CFR § 1502.1) require that the BLM consider reasonable alternatives, which would avoid or minimize adverse impacts or enhance the quality of the human environment. While there are many possible alternatives or actions to manage public lands in the Lower Sonoran and SDNM planning area, the BLM used the Proclamation, Interim Guidance, and scoping process to determine a reasonable range of alternatives. As a result, four alternatives were analyzed in detail in the RMP/EIS that best addressed the issues and concerns identified by the affected public.

The BLM performed a visual resource inventory, which takes into account scenic quality, viewer sensitivity, and distance zones. The visual resource inventory classification provides an indicator of the existing landscape. The BLM then assigns a VRM classification to all lands based on the desired future condition for the land, including the need to manage certain areas for other uses such as recreation, energy development, and livestock grazing. As such, the VRM class assigned in the RMP may be different from the identified VRI class where the BLM would manage the landscape for either a lower or higher level of acceptable change to the landscape.

The Proclamation for the SDNM does not specifically identify scenic resources as a value to be protected. However, the visual quality of the Monument's landscapes inherently contributes to the natural and cultural resources for which the Monument was established. In Alternative D, more than 94 percent of the SDNM acreage would be managed as Class I. The remaining acreage would be designated Class II.

The Gila Bend Mountains were analyzed as a Class II area under Alternative D. The BLM analyzed a reasonable range of alternatives for the eastern portion of the Gila Bend Mountains.

6.2.17.2 Impacts

Comment Number: 100136-27
Organization: Western Watersheds Project
Commenter: Greta Anderson

Comment Excerpt Text:
There is no analysis of the impacts of livestock grazing under the preferred alternative on the visual resources of the SDNM. DRMP/DEIS at 535. The only discussion of the impacts of livestock grazing on the visual resources on the SDNM claims that impacts are expected to be minor. Id. at 525.

Summary

One commenter noted that the BLM did not adequately consider potential impacts on visual resources as a result of livestock grazing activities in the SDNM under the preferred alternative.

Response

The Lower Sonoran/SDNM PRMP/FEIS assesses and discloses the environmental consequences of the Proposed Plan and alternatives in **Chapter 4**, as required by 40 CFR § 1502.16. In **Section 4.9**, Impacts on Visual Resources, the BLM discusses impacts from livestock grazing in the SDNM on visual resources as it applies to all alternatives. The discussion also incorporates the analysis of impacts from livestock grazing on visual resources described for the Lower Sonoran planning area and applies it to livestock grazing practices north of I-8 under Alternatives A, B, C, and E.

Developments associated with livestock grazing management (e.g., fences, windmills, wells, earthen dams, corrals, access roads, and stock tanks) would be required to meet VRM objectives. The analysis in Section 4.9 has been augmented to better convey the impacts.

6.2.17.3 Management Actions

Comment Number: 100121-16
Organization: Sierra Club
Commenter: Jim Vaaler

Comment Excerpt Text:
Dark-sky-friendly technologies should be required within the planning area. Current installations that do not meet dark-sky-friendly technology should be converted to dark-sky friendly standards whenever possible

Summary

A commenter suggested adding new stipulations requiring the use of "Dark-Sky-Friendly" technology.

Response

The following statement is in Chapter 2 (**Section 2.10.7**, Visual Resources): All permitted actions on public land are evaluated to minimize impacts on visual contrast with the landscape, including impacts on the night sky. VRM classes acknowledge existing visual contrasts, and more restrictive requirements would not be retroactively applied to existing projects.

The following action is considered in Alternative B (**Table 2-11**, Management Action VR-2.1.2): The use of dark-sky-friendly technology would be emphasized when placing facilities on public lands. Measures may include, but not be limited to: directing all light downward, using shielded lights, using only the minimum illumination necessary, using lamp types such as sodium lamps (less prone to atmospheric scattering), using circuit timers, using motion sensors, or using flight proximity detectors.

The following action is considered in all alternatives (**Table 2-11**, Management Action VR-2.1.1): Permanent outdoor lighting would not be allowed in VRM Class I areas.

The following action is considered in Alternatives C, D, and E (**Table 2-11**, Management Action VR-2.1.3): Development on public lands would be required to use dark-sky-friendly technologies in VRM classes I through IV and in the Sentinel Plain area to provide opportunities for stargazers and amateur astronomers and to maintain conditions favorable to nighttime military operations. Measures may include, but not be limited to: directing all light downward, using shielded lights, using only the minimum

illumination necessary, using lamp types such as sodium lamps (less prone to atmospheric scattering), using circuit timers, using motion sensors, or using flight proximity detectors.

BLM cannot mandate the conversion of existing facilities to meet dark-sky-friendly standards unless an authorization expires. Upon expiration, the BLM could apply the aforementioned standards as new conditions for the authorization.

6.2.18 WATER

6.2.18.1 Impacts

Comment Number: 100136-89
Organization: Western Watersheds Project
Commenter: Greta Anderson

Comment Excerpt Text:
We note that the preferred alternative is expected to have the same effect as the "No Action" alternative on water resources in the planning area. DRMP/DEIS at 559. The Gila Bend Basin has high levels of organic matter impairing water quality.(32) The DRMP/DEIS should have taken a hard look at how the authorized livestock grazing on public lands in the LSFO and SDNM is contributing to this problem

Summary

One commenter requested the BLM further analyze how authorized livestock grazing on public lands in both the Lower Sonoran and SDNM Decision Areas is contributing to high levels of organic matter that is impairing water quality in the Gila Bend Basin.

Response

The requisite level of information necessary to make a reasoned choice among the alternatives in an EIS is based on the scope and nature of the proposed decision. The baseline data provided in Chapter 3 and various appendices in the DRMP/DEIS supports the environmental impact analysis resulting from the management actions presented in the RMP/EIS.

The Lower Sonoran-SDNM DRMP/DEIS water baseline data was reviewed and revised to include information about factors contributing to impaired water quality in the Gila Bend Basin. Within the decision areas, the Environmental Protection Agency (EPA) listed the Gila River (from the Sand Tanks to Painted Rocks Reservoir) as a Category 5 impaired water for pollutants, including DDT, toxaphene, and chlordane (in fish tissue). There are no known waters in the decision areas listed as impaired for organic matter as a result of livestock grazing activities (see **Section 3.2.9**, Water Resources.

6.2.19 WILD HORSES AND BURROS

6.2.19.1 Out of Scope

Comment Number: 100115-5
Organization:
Commenter: Ralph Hudson

Comment Excerpt Text:
The Ajo block has a large and growing population of feral burros untended by their owners. These less regulated BLM areas also need protection to allow the viability of the same native species. This area is in many ways similar to the SDNM. Burros do not belong here and they could be moved by their owners, or auctioned or given away to clear the Block and allow deer, sheep, and other native species to survive. The herd of burros has grown to the point they are wandering into town from the surrounding BLM lands. Some controls need to be included in the plan

Comment Number: 100160-6
Organization: Tonopah Area Coalition
Commenter: Craig Weaver

Comment Excerpt Text:
Wild Burro(s) Recent review of Saddle Mountain by T AC has raised concerns about wild burro(s) now being within the SM-PVH area (N33.428983 W113.031048 wga84). This is not a herd area and should not be allowed to become dominated by wild burros.

Summary

Commenters expressed concern regarding growing populations of wild burros in certain areas, including the Ajo Block and the Saddle Mountain area and recommended controls to manage the location and abundance of wild burros.

Response

The only wild horse and burro Herd Area in the Planning Area is the Painted Rocks Herd Area, west of Gila Bend. Any burros in the Ajo area are trespass domestic livestock treated as unauthorized livestock and removed following guidance in the grazing regulations (43 CFR 4140 - Prohibited Acts and 43 CFR 4150 - Unauthorized Grazing Use).

Any wild burros found in the Saddle Mountain area are likely from the Harquahala Herd Area and, because they are outside the designated Herd Area boundaries, are considered nuisance wild burros. Nuisance wild burros are handled according to the BLM's Wild Horse and Burro policy (43 CFR 4720).

Both situations outlined above are covered by regulation and standard operating procedures and do not require RMP-level decisions.

6.2.20 WILDERNESS CHARACTERISTICS

6.2.20.1 Impacts

Comment Number: 100121-26
Organization: Sierra Club
Commenter: Jim Vaaler

Comment Excerpt Text:
Regarding both of these comments, is there any research that indicates that there is less hunting in areas that are designated wilderness areas or areas managed as wilderness characteristic areas? Many wilderness areas are rough topographically, and this may be a reason for less hunting in some wilderness areas. The conclusion that a special land classification tends to preclude hunting is questionable. It does mean less impact, however, due to the limits on motorized travel.

Summary

Commenters questioned some of the BLM's conclusions regarding impacts from managing lands as wilderness characteristics, including a conclusion in the RMP that less hunting would occur in areas managed for wilderness characteristics.

Response

BLM lands managed for protection of wilderness characteristics do not preclude or limit hunting. The biggest change in the hunting experience would be the degree of change in motorized access to or within areas managed to protect wilderness characteristics. Motorized access gradations vary within the range of alternatives for wilderness characteristic management.

The BLM Phoenix District has had wilderness areas designated by Congress for over 20 years. In conversations with hunters, BLM recreation specialists have found that hunting activities may be conducted differently in areas designated as wilderness and managed for wilderness characteristics due to reduced motorized access and increased difficulty of access. Protecting lands with wilderness characteristics could mean some areas or motor routes would be closed to vehicular travel. This would constrain hunter access to such lands. Individuals more willing to hike or ride stock for longer distances in order to hunt more remote locations would not be impacted. Some hunters actively seek out more remote lands with fewer hunters and less motorized access, while other hunters may prefer to hunt in front country or passage settings, which are landscapes with greater motorized access.

6.2.20.2 Inventories

Comment Number: 100121-12
Organization: Sierra Club
Commenter: Jim Vaaler

Comment Excerpt Text:
The protection of natural quiet has been recognized as a land resource for many years. In 1949, President Harry Truman issued an executive order establishing an airspace reservation for certain areas of the national forests. The order prohibited flights over specified regions of the forest below certain altitudes. Congress later incorporated

this executive order into the Boundary Waters Canoe Area Wilderness Act. Congress first took specific action concerning natural quiet at Grand Canyon National Park (GCNP) in the Grand Canyon National Park Enlargement Act of 1975. In 1987, President Reagan signed a much stronger law – The National Parks Overflights Act, which called for "substantial restoration of the natural quiet" at GCNP (Public Law 100-91). We recommend that BLM address natural quiet as a resource to be protected within the Monument and any lands with wilderness characteristics

Comment Number: 100121-31
Organization: Sierra Club
Commenter: Jim Vaaler

Comment Excerpt Text:
All six of the wilderness characteristic areas mentioned above were never properly inventoried by the BLM. We ask the BLM to include these areas as lands with wilderness characteristics in the final RMP. Generic reasons such as views of land disturbed by farming or solar installations or the visibility of cars, trucks, and trains on infrastructure corridors are not acceptable reasons for not listing these as areas that contain wilderness characteristics. These reasons have been used in the past by the BLM to exclude areas that are now officially designated wilderness areas. Areas being managed for their wilderness characteristics should be managed in such a way as to preclude practices that would compromise their wilderness potential.

Comment Number: 100121-65
Organization: Sierra Club
Commenter: Jim Vaaler

Comment Excerpt Text:
The lands listed in Alternative D represent an incomplete inventory of lands that contain wilderness characteristics, however. Perhaps that is due to the fact that BLM has not updated its wilderness inventory since the early 1980s. In developing the RMP, BLM should inventory and protect all lands with wilderness characteristics.

Comment Number: 100125-1
Organization:
Commenter: George Alderson

Comment Excerpt Text:
We would like to see BLM do a wilderness study of the Sand Tank Mountains as part of this RMP project. The area is now part of the Sonoran Desert NM but was under the Defense Department during the original BLM wilderness inventory in 1978-80, so it was never considered for wilderness. A wilderness inventory and study should be completed, and suitable areas should be recommended for wilderness designation. Margies Peak and Butterfield Stage wilderness units should also be included in the SDNM wilderness inventory.

Summary

1) Commenters expressed concerns that inventories of lands with wilderness characteristics were incomplete and requested the inventories be updated in the final RMP.

2) Commenters specifically indicated lands with views of farmland, solar installations, or transportation corridors were not appropriate for exclusion from the inventories and should be managed to protect their wilderness potential.

3) Commenters also requested the BLM conduct a wilderness study of the Sand Tank Mountains and include the Margie's Peak and Butterfield Stage units in the SDNM wilderness inventory.

4) Commenters recommended the BLM address natural quiet as a resource to be protected in the SDNM and in lands with wilderness characteristics and requested the BLM include linear land use allocations to protect lands with wilderness characteristics.

Response

1) Based on public comments received and in compliance with BLM Instruction Memoranda 2011-154, Requirement to Conduct and Maintain Inventory Information for Wilderness Characteristics and to Consider Lands with Wilderness Characteristics in Land Use Plans (July 25, 2011), the BLM conducted wilderness characteristics inventories. The PRMP/FEIS has been revised to reflect wilderness inventory information updated by BLM in 2004, 2011, and 2012. Summarized results of the inventories can be found in **Section 3.2.11**, Wilderness Characteristics, of the PRMP/FEIS. Individual unit assessments are available from the Phoenix District Office upon request.

2) Views of human development and outside sights and sounds were not considered as over-riding criteria when determining the degree of a unit's naturalness or the potential quality of its solitude opportunities. However, outside sights and sounds noticeable within an inventory unit are described in the unit's inventory findings.

3) BLM conducted a wilderness study of the Sand Tank Mountains, White Hills, Margie's Peak, and Butterfield Stage Memorial units within the SDNM in 2004, 2011, and 2012. The findings are summarized in this RMP/EIS.

4) Natural quiet conditions are not a wilderness characteristic attribute presented in the Wilderness Act of 1964 or BLM Instruction Memorandum-2011-154.

6.2.20.3 Management Actions

Comment Number: 100121-28
Organization: Sierra Club
Commenter: Jim Vaaler

Comment Excerpt Text:
Closed vehicle routes within wilderness characteristic areas could be converted to equestrian and hiking trails but will not be used for bicycles or wheeled game carrier devices. We find it odd that such an option was not offered in the block diagrams seen on pages 110–113.

Comment Number: 100121-33
Organization: Sierra Club
Commenter: Jim Vaaler

Comment Excerpt Text:
We believe that it is essential that minor and nonlinear land use allocations (LUA) be managed as exclusion areas for lands containing wilderness characteristic areas. We do not believe there should be any exceptions granted as these areas represent potential future wilderness areas. Linear land use allocations such as high voltage

transmission lines and the attendant right of ways must absolutely be excluded from any lands that are to be managed for their wilderness characteristics. We do not understand why linear land use allocations are not included in the block diagram on page 110.

Comment Number: 100121-50
Organization: Sierra Club
Commenter: Jim Vaaler

Comment Excerpt Text:
We cannot imagine any instance in which commercial, organized group and competitive activities and other activities that may require a special recreation permit would be allowed in wilderness characteristic areas. This would include vending operations and concession leases, as well. Such activities run counter to the very concept of wilderness. We cannot overemphasize the need to manage wilderness characteristic areas as wilderness to protect the wilderness qualities until a day when Congress acts to provide permanent wilderness protection. Future desired conditions for wilderness characteristic areas need to be the same as areas already designated as official wilderness areas.

Summary

Commenters noted the BLM did not consider a full range of management actions to protect areas with wilderness characteristics. Specifically, commenters recommended that 1) wilderness characteristics areas be allocated as land use authorization exclusion areas, and 2) closed vehicle routes be converted to equestrian and hiking trails. 3) Commenters also indicated that SRPs should not be allowed in areas managed for wilderness characteristics.

Response

1, 2, 3) The BLM Lower Sonoran and SDNM considered these in the range of alternatives and ultimately developed a range of scenarios addressing the three possible outcomes discussed previously. On some lands with wilderness characteristics, other multiple uses would be a priority over protecting wilderness characteristics and areas, emphasizing other multiple uses while applying management restrictions (conditions of use, mitigation measures) to reduce impacts to wilderness characteristics. In other areas, the protection of wilderness characteristics would be a priority over other multiple uses. This is supported by the goal and objective of managing lands with wilderness characteristics, which are as follows (See **Section 2.10.10**):

> *Goal 1: Areas to be managed to protect wilderness characteristics should retain a high degree of naturalness where the imprint of humans on lands and resources is substantially unnoticeable. Furthermore, outstanding opportunities for solitude and primitive or unconfined types of recreation should be maintained or enhanced.*
>
> *Objective 1.1: Manage lands to protect wilderness characteristics to maintain a high degree of naturalness and offer outstanding opportunities for solitude or primitive, unconfined recreation by reducing impacts to these values while considering manageability and competing resource demands.*

6.2.20.4 Recommendations/Support

Comment Number: 100001-6
Organization:
Commenter: Jim Vaaler

Comment Excerpt Text:
There are areas in the Painted Rock Mountains and one Sentinel Plain north of Interstate 8 that are large enough (over 5000 acres) to be considered as areas that contain wilderness characteristics. Sentinel Peak itself, plus the Gila River Canyon are 2 areas in the Sentinel Plain that need to be looked at. There is an existing route that bisects the painted Rock mountains. Both areas north and south of this existing route may contain areas over 5000 acres and thus qualify as areas containing wilderness characteristics.

Comment Number: 100078-1
Organization:
Commenter: Judith C Shaw
Other Sections: 24.3

Comment Excerpt Text:
3. ACEC. Having visited south side of Saddle Mountain many times, I know that that area contains Wilderness Characteristics; the ACEC should be expanded to approximate 20,000 acres as outlined in Tonopah Area Coalition proposal of 2005 and Arizona Wilderness Coalition recommendations.

I have seen many saguaro cacti damaged and/or killed as a result of being shot. To better protect ACEC values target shooting should not be allowed in the ACEC area. Likewise, there are many places where OHVs have left designated trails and created new trails damaging vegetation. OHV travel should be stopped completely in this ACEC area.

Comment Number: 100110-7
Organization:
Commenter: Tyler Kokjohn

Comment Excerpt Text:
Tracts with Wilderness Characteristics The agency preferred alternative fails to adequately protect tracts known to possess wilderness attributes. This contradicts statements in the Executive Summary which indicate that not only do previously surveyed lands harboring wilderness character still exist within the planning area, more acres now warrant inclusion in this category (page li). More areas and total acreage should be managed to conserve wilderness features.

Comment Number: 100119-1
Organization: Friends of Saddle Mountain
Commenter: Chris Meachum

Comment Excerpt Text:
- In regard to "Lands Managed to Protect Wilderness Characteristics", we feel that the preferred alternative showing Saddle Mountain on Map 2-4E is too small. The land mass allotted does not adequately protect the wildlife and cultural resources found at Saddle Mountain. In particular Desert Bighorn Sheep and Desert Tortoise are found at Saddle in considerable numbers outside of the area preferred as is several natural water catchments being used by them. FoSM would like to see the land area increased to reflect what has been suggested in the current

Sonoran Desert Heritage Campaign proposals and/or the proposal submitted to BLM by the Arizona Wilderness Coalition in 2004 and being used by the BLM in alternative D.

Comment Number: 100121-29
Organization: Sierra Club
Commenter: Jim Vaaler

Comment Excerpt Text:
The Sentinel Plain Complex meets all the requirements for protection under the Wilderness Act of 1964 and deserves the protection that only a wilderness designation can bestow. The unique geologic landscape is "untrammeled" by human use and contains the wilderness characteristics that qualify it for consideration and protection as wilderness, including providing tremendous opportunity for solitude and remoteness. Sentinel Plain also offers great opportunities for research for those who are focused on geology, plus it is an area that offers the history of human use through the historic period.

Central Unit: The Southern Pacific Railway and Interstate 8 infrastructure corridor make up the southern boundary of this unit. The western boundary is formed by state trust lands and the gravel access road from I-8 to Oatman Flat. The eastern boundary from state trust land is the gravel access road from I-8 to the Painted Rocks Campground. The northern boundary is a gravel connector road between the Painted Rocks campground road and the access road to Oatman Flat.

Northeast Unit: A gravel access road from I-8 to Painted Rocks Dam Campground forms the eastern boundary. The southern boundary utilizes the gravel connector road from I-8 to Painted Rocks Campground and the gravel access road from I-8 to Oatman Flat. The northern boundary is where public land joins private and state trust lands, and the western boundary is private land, the I-8 to Oatman gravel access road, and its extension north across the Gila River. This is the Wild Horse Canyon area and has an intricate complex of shallow canyons eroded into the shield volcano. These shallow canyons flow northwest into the Gila River.

Northwest Unit 1: The eastern boundary is formed by the power line from I-8 to the gravel road at the base of Oatman Mountain. The northern boundary is a heavily used gravel road at the base of Oatman Mountain. The western boundary was principally determined to be where public lands meet state and private lands, and the southern boundary was largely determined to avoid two large state trust land parcels.

Northwest Unit 2: The eastern boundary is formed by the gravel access road from I-8 to Oatman Flat. The northern boundary is a heavily used gravel road at the base of Oatman Mountain. The western boundary is the power line that runs north from I-8 to the gravel road at the base of Oatman Mountain, and the southern boundary was largely determined to avoid two large state trust land parcels. This area has numerous historical artifacts that are associated with the Juan Batista de Anza National Historic Trail corridor, as well as numerous prehistoric artifacts along the Gila River corridor.

There are approximately 30 miles of recommended route closures, all of which receive light use and, due to the surface topography, will be relatively easy to reclaim. There is one cherry-stemmed road in the Northeast Unit.

All of these areas meet the minimum 5,000 acre requirement for wilderness.

Comment Number: 100121-30
Organization: Sierra Club
Commenter: Jim Vaaler

Comment Excerpt Text:
Painted Rock Mountains

The Painted Rock Mountains wilderness characteristic areas are divided into two approximately equal-sized areas by an existing route. Southern Painted Rock Mountains:

The southern Painted Rock Mountains wilderness characteristic area is bounded by I-8 and state trust land. To the west, this area is bounded by inventoried route 8231. To the north, this area is bounded by the aforementioned existing route. To the east, this area is bounded by private land and state trust land. This area is characterized by highly tilted fault blocks that dip generally to the west with steep east-facing escarpments. There are panoramic views of the Sentinel Plain lava field. This area has at a minimum the 5,000 acre requirement for a potential wilderness area.

Northern Painted Rock Mountains: The northern Painted Rock Mountains wilderness characteristic area is bounded to the south by an existing route. To the north, this area is bounded by the Painted Rock Dam Road and state trust land. To the east, this area is bounded by private land. To the west, this area is bounded by inventoried route 8231 and the camping areas associated with the Painted Rock Park. This area is more gentle in nature than the southern unit and is characterized by numerous isolated peaks. It has excellent views of the Sentinel Plain lava field. There is what appears to be the remains of an ancient volcanic caldera in the southern part of this unit; however, this needs to be independently verified. The "Painted Benchmark peak" located at the north end of this unit has a small structure on its summit and two communication towers that were built in 1947 that have now fallen over. All of it has been out of use for many decades and now represents the historical past in this area and, as such, does not compromise the idea of wilderness. We have been unable to determine the purpose for these structures.

Comment Number: 100121-32
Organization: Sierra Club
Commenter: Jim Vaaler

Comment Excerpt Text:
There is an opportunity to expand the Sierra Estrella Wilderness Area by closing an existing but unmaintained route between Seven Mile Mountain and the Sierra Estrella Wilderness Area. This would make Seven Mile Mountain a part of the Sierra Estrella Wilderness Area. We recommend that BLM include this area as an area with wilderness characteristics to protect its "untrammeled" nature and unique values and to further protect the wildlife linkage in that area

Comment Number: 100121-67
Organization: Sierra Club
Commenter: Jim Vaaler

Comment Excerpt Text:
the Yellow Medicine Butte area needs to be broken down into two separate units. There is a heavily roaded corridor running down the approximate center of this unit. Inventoried routes 8223 and those portions of 8221 that are not located in desert washes have compromised the integrity of this area. We are proposing that the area

east of inventoried route 8223 be listed as a separate area containing wilderness characteristics and that it be called the Dixie Peak wilderness characteristic area.

Comment Number: 100126-100
Organization: The Wilderness Society
Commenter: Phil Hanceford

Comment Excerpt Text:
[Sentinel Plain Wilderness Complex Citizens' Proposal]

#6: This route is not accessible from the Route #1, which is the major access route to the Sentinel Plain area. Route is being reclaimed by natural processes as evidenced from satellite photos and should be closed because of lack of use and to protect the roadless core of this area.

Comment Number: 100126-101
Organization: The Wilderness Society
Commenter: Phil Hanceford

Comment Excerpt Text:
[Sentinel Plain Wilderness Complex Citizens' Proposal]

The wilderness proposal is situated in the main body of the SAVF located south of the Gila River and west of the Painted Rock Mountains ~25km west of the Town of Gila Bend, primarily within Maricopa County, Arizona (Figure 1). The public lands within the Sentinel Plain are bordered to the south by the Barry M. Goldwater Air Force Range. Interstate 8 bisects the lower third of the main body of the SA VF and northern area is roughly defined by the Gila River channel where columnar basalt cliffs line the river from just west of the Dendora Valley downstream to the Maricopa County line.

Comment Number: 100126-102
Organization: The Wilderness Society
Commenter: Phil Hanceford

Comment Excerpt Text:
[Sentinel Plain Wilderness Complex Citizens' Proposal] The Sentinel Plain proposed wilderness units "generally appear to have been affected primarily by the forces of nature, with the imprint of man's work substantially unnoticeable" as outlined in The Wilderness Act of 1964 and IM 2011-154. A major contributing factor to lands within Sentinel Plain meeting this minimum qualification for wilderness is that much of the area has experienced limited human use due to its remote nature, limited topographic relief, low mineral potential and scant vegetation resources suitable for livestock grazing.

Comment Number: 100126-103
Organization: The Wilderness Society
Commenter: Phil Hanceford

Comment Excerpt Text:
[Sentinel Plain Wilderness Complex Citizens' Proposal]

The wilderness proposal is broken into 5 contiguous units, termed Sentinel Plain_South, Sentinel Plain_Central, Sentinel Plain _ NorthwestA, Sentinel Plain_NorthwestB and Sentinel Plain_Northeast. Recent route inventories

by the BLM (BLM 2011) indicate that only 55 miles of routes are located within the roughly 80,000 acre complex and all of these are lightly used (BLM 2011).

Wilderness Characteristics

All five units meet the size criteria as set out in BLM Instruction Memorandum (IM) 2011-154 as all are "roadless areas with over 5,000 acres of contiguous BLM Lands."

Central Unit - 18646 acres
Northeast Unit - 10555 acres
NorthwestA Unit - 8197 acres
NorthwestB Unit - 9570 acres
South Unit- 32348 acres
Total – 79316 acres

Comment Number: 100126-104
Organization: The Wilderness Society
Commenter: Phil Hanceford

Comment Excerpt Text:
[Sentinel Plain Wilderness Complex Citizens' Proposal]

Solitude

The BLM's IM 2011-154 and Wilderness Inventory and Study Procedures Handbook H-63 10-1.22 section (b)(1) gives direction on the assessment of solitude in inventory units. In this section five features for evaluating solitude are given.

a. Size and configuration: The units meet the 5,000-acre size criteria, and it is not long and narrow and does not have irregular extensions or cherry-stems.

b. Topographic screening: There are no significant topographic features in this unit other than Sentinel Peak and one other unnamed shield volcano which provide slight undulation in the terrain. However there are many, small shallow basins that can easily screen overnight campers. Wildhorse Canyon in the Northeast is bordered by irregular basalt cliffs and provides excellent opportunities in its upper end for solitude. Visitors can experience solitude from others simply from the fact that there are no topographic features to provide views of the surrounding terrain; the flatness is the topographic feature that provides isolation. In many ways the sparseness of the landscape coupled with the lack of any evidence of human use across large vistas are significant factors in providing a sense of remoteness and isolation.

c. Vegetative screening: In the flats and on the lava fields vegetation is sparse, not providing for a high degree of vegetative screening, but in and around small basins and drainages, microphyllous woodland is better developed and vegetative screening increases. The areas found along the Gila River provide complete solitude given the density of shrub and tree canopy throughout the Gila River floodplain in this area.

d. Ability of user to find a secluded spot: seclusion on the Sentinel Plain starts immediately with the feeling of vastness that is all encompassing when walking in the wide open flats with little topography to provide reference for travelers and except at the edges no sign of human uses. Visitors must use their orienteering skills to effectively navigate this vast plain.

e. Presence of outside sights and sounds: The Barry M. Goldwater Air Force Range creates noise impacts from their training maneuvers, but this is a disturbance for all southwestern AZ wilderness areas. Many desert wilderness travelers call this, "The sound of fascism". The other noise disturbance present in the southern portion is that of the highway traffic on Interstate 8, which provides the southern boundary of the Central Unit and northern boundary of the Southern Unit. The Endangered American Wilderness Act of 1978 addressed the issue of "purity" and how Congress did not intend for wilderness designation to be completely isolated from the "sights and sounds" of man (H. R. 95-540).

Comment Number: 100126-105
Organization: The Wilderness Society
Commenter: Phil Hanceford

Comment Excerpt Text:
[Sentinel Plain Wilderness Complex Citizens' Proposal]

Primitive and Unconfined Recreation

The Sentinel Plain allows a variety of primitive and unconfined recreational activities as required and described in IM 2011-154. Various levels of hiking, backpacking, hunting, horseback riding, photography, bird watching, and sightseeing for botanical, zoological, and especially cultural and geological features are all possible as well as primitive and unconfined recreational opportunities within the Sentinel Plain.

Comment Number: 100126-106
Organization: The Wilderness Society
Commenter: Phil Hanceford

Comment Excerpt Text:
[Sentinel Plain Wilderness Complex Citizens' Proposal]

Geologic Values:

The geology of the Sentinel Plain is unique and distinctive in character. The striking SAVF is one of the youngest displays of volcanism in Arizona. Its basalt lavas date from the Pliocene to the middle Miocene, making them just a few million years old. Geological studies undertaken at Arizona State University (Cave 2007) suggest that the SAVF, lightly mantled by aeolian dust and basaltic rubble, is similar to surfaces seen in Mars imagery. The SAVF also represent basaltic plains-style volcanism, an emplacement style of volcanism intermediate between classic flood volcanism and large shield-building volcanism which has been previously recognized on Mars. This clearly qualifies as unique geologic values.

Comment Number: 100126-107
Organization: The Wilderness Society
Commenter: Phil Hanceford

Comment Excerpt Text:
[Sentinel Plain Wilderness Complex Citizens' Proposal]

Wildlife Values:

The Sonoran pronghorn (*Antilocapra americana sonoriensi*) is federally listed as endangered and is wildlife of special concern in Arizona according to the Arizona Game & Fish Department Heritage Data Management System. This

species is a historic inhabitant of southwest Arizona. They require a variety of habitats for forage and migration. Some of these habitats include open creosote-bursage areas, allowing for expansive views to locate and escape predators. The Sonoran pronghorn populations are quickly decreasing due to habitat fragmentation and loss. Protection of any population in the state is crucial to their survival. Habitat protection is the only way this species will not be extirpated from Arizona. On two separate occasions Sonoran pronghorn tracks and scat have been observed in the Southern Unit, once in 2000 and another time during a road inventory in 2005.

Comment Number: 100126-108
Organization: The Wilderness Society
Commenter: Phil Hanceford

Comment Excerpt Text:
[Sentinel Plain Wilderness Complex Citizens' Proposal]

Archeological/Cultural Values:

One of the most significant values associated with the Sentinel Plain is in the Northwest A&B and Northeast Units along the basalt cliffs that line the southern and northern banks of the river and on flat mesa-like areas immediately adjoining the cliffs. Here the river forms a "narrows" of sorts and at several locations are significant and extensive petroglyph assemblages of prehistoric Patayan and Hohokam cultures. Three sites in this area have been reported in the literature and speak to significance of these sites in both size, time depth (Archaic period through to the Historic period) as well as stylistic element of two major prehistoric cultures (Hedges 1993). Additionally are the historic inscriptions that bear witness to some of the earliest Euro-American travelers in the area. Many of the petroglyphs sites found farther upstream have been irrevocably damaged by inundation from Painted Rocks reservoir and extensive vandalism. Wilderness will provide a significant level of long-term protection to these sites.

Comment Number: 100126-15
Organization: The Wilderness Society
Commenter: Phil Hanceford

Comment Excerpt Text:
BLM fails to fully document the rational for its decisions regarding the management of lands with wilderness characteristics in the Draft RMP. We understand and appreciate that BLM is planning on compliance with IM 2011-154 before the release of the Proposed RMP/Final EIS. BLM should provide this information and allow for a supplemental comment period to address the agency's decisions.

Comment Number: 100126-16
Organization: The Wilderness Society
Commenter: Phil Hanceford

Comment Excerpt Text:
1. Black Mountain: We fully support the inclusion of the entire area for protection of its wilderness characteristics. BLM has not provided a documented determination of its rationale for excluding the area from its preferred alternative for managing to protect this area as lands with wilderness characteristics as required under IM 2011-154. In fact, the report for identification of this area's wilderness characteristics states the following:

On-the-ground OHV route inventories and associated travel management actions, and all other considered land use allocations, may have significant influence on the final determinations of lands managed, or not managed, to

protect or maintain wilderness character. BLM must update its wilderness character inventory and complete a thorough ground assessment of the area to determine the presence or absence or wilderness character attributes.

It is clear that BLM has not even given this area's wilderness characteristics due consideration, let alone document its rational for not protecting those wilderness characteristics. We recommend that BLM acknowledge the wilderness characteristics as provided in the AWC proposal and protect the entire area as managed to protect wilderness characteristics.

Comment Number: 100126-17
Organization: The Wilderness Society
Commenter: Phil Hanceford

Comment Excerpt Text:
2. Cuerda de Lena Wash: We fully support the inclusion of the entire area for protection of its wilderness characteristics. BLM has not provided a documented determination of its rationale for excluding the area from its preferred alternative for managing to protect this area as lands with wilderness characteristics as required under IM 2011-154. In fact, the report for identification of this area's wilderness characteristics states the following:

On-the-ground OHV route inventories and associated travel management actions, and all other considered land use allocations, may have significant influence on the final determinations of lands managed, or not managed, to protect or maintain wilderness character. The area appears to contain over 20 miles of vehicle or OHV route.

It is clear that BLM has not even given this area's wilderness characteristics due consideration, let alone document its rational for not protecting those wilderness characteristics. We recommend that BLM acknowledge the wilderness characteristics as provided in the AWC proposal and protect the entire area as managed to protect wilderness characteristics.

Comment Number: 100126-18
Organization: The Wilderness Society
Commenter: Phil Hanceford

Comment Excerpt Text:
5. Sentinel Plain Complex: We support the protection of the entire Sentinel Plain Complex as lands with wilderness characteristics. This includes the Northwest, Northeast and Central units as provided in the proposal submitted by the Arizona Wilderness Coalition and Center for Desert Archaeology in Attachment 2. Also included in Attachment 2 is updated information on routes within the AWC proposed unit. This includes maps, photographic documentation and detailed descriptions of the current conditions of some of the routes within the proposal. We urge BLM to carefully consider this information when it is updating its own data for the Sentinel Plain unit.

BLM has not provided a documented determination of its rationale for excluding the area from its preferred alternative for managing to protect this area as lands with wilderness characteristics as required under IM 2011-154. In fact, the report for the Sentinel Plain unit as proposed (south of I-8) states the following:

BLM also needs to complete a ground assessment of the uninventoried western area and reassess it with the two combined initial inventory units, 2-123 and 2-153.

It is clear that BLM has not even given this area's wilderness characteristics due consideration, let alone documented its rational for not protecting those wilderness characteristics.

In its original 1979 inventory, BLM split the unit into 2 areas and finding that one area was too small to qualify as wilderness and that the other was too large to be able to manage without difficulty. These rationales must be reassessed given proposal to combine the two units to manage as one and BLM's modern day management policy with regard to lands with wilderness characteristics.

With regard to the Northwest, Northeast and Central units as proposed in Attachment 2, we are unaware of any past or current information or inventory performed by BLM for these areas. BLM lists "Painted Rocks South" on its list of inventoried units in 1980. We do not have enough information to know if there is significant overlap with the areas being proposed. Regardless, BLM seriously consider the areas proposed for wilderness characteristics protection as required under IM 2011-154 in order to maintain a current inventory.

Comment Number: 100126-19
Organization: The Wilderness Society
Commenter: Phil Hanceford

Comment Excerpt Text:
6. Yellow Medicine Butte: We fully support the inclusion of the entire area for protection of its wilderness characteristics. BLM has not provided a documented determination of its rationale for excluding the area from its preferred alternative for managing to protect this area as lands with wilderness characteristics as required under IM 2011-154. In fact, the report for identification of this area's wilderness characteristics states the following:

An inventory will be conducted by BLM and public comments will be received on the draft land use plan. The on-the-ground OHV route inventories and associated travel management actions, and all other considered land use allocations, may have significant influence on the final determinations of lands managed, or not managed, to protect or maintain wilderness characteristics

It is clear that BLM has not even given this area's wilderness characteristics due consideration, let alone document its rational for not protecting those wilderness characteristics. Also, the original BLM inventory combined the Yellow Medicine Butte and Dixie Peak areas. BLM should take this into consideration when it reinventories the area for wilderness characteristics.

We recommend that BLM acknowledge the wilderness characteristics as provided in the AWC proposal and protect the entire area as managed to protect wilderness characteristics.

Comment Number: 100126-20
Organization: The Wilderness Society
Commenter: Phil Hanceford

Comment Excerpt Text:
7. Face Mountain: We fully support the inclusion of the entire area for protection of its wilderness characteristics. BLM has not provided a documented determination of its rationale for excluding the area from its preferred alternative for managing to protect this area as lands with wilderness characteristics as required under IM 2011-154. In fact, the report for identification of this area's wilderness characteristics states the following:

On-the-ground OHV route inventories and associated travel management actions, and all other land use allocations, may have significant influence on the final determinations of lands managed, or not managed, to protect or maintain wilderness characteristics.

It is clear that BLM has not even given this area's wilderness characteristics due consideration, let alone document its rational for not protecting those wilderness characteristics. We recommend that BLM acknowledge the wilderness characteristics as provided in the AWC proposal and protect the entire area as managed to protect wilderness characteristics.

Comment Number: 100126-21
Organization: The Wilderness Society
Commenter: Phil Hanceford

Comment Excerpt Text:
8. Saddle Mountain: We fully support the inclusion of the entire area for protection of its wilderness characteristics. BLM has not provided a documented determination of its rationale for excluding the area from its preferred alternative for managing to protect this area as lands with wilderness characteristics as required under IM 2011-154. In fact, the report for identification of this area's wilderness characteristics states that BLM did not complete well-documented or detailed wilderness inventories for areas outside the former Saddle Mountain WSA and in the Palo Verde Hills area directly to the east. The Saddle Mountain wilderness inventory was an accelerated inventory completed in 1978 to accommodate the demand for the Palo-Verde/Devers power transmission line. BLM states that it will perform a field inventory and on-the-ground OHV inventories.

It is clear that BLM has not even given this area's wilderness characteristics due consideration, let alone document its rational for not protecting those wilderness characteristics. We recommend that BLM acknowledge the wilderness characteristics as provided in the AWC proposal and protect the entire area as managed to protect wilderness characteristics.

Comment Number: 100126-22
Organization: The Wilderness Society
Commenter: Phil Hanceford

Comment Excerpt Text:
9. Gila Bend Mountains: We fully support the inclusion of the entire area for protection of its wilderness characteristics. BLM has not provided a documented determination of its rationale for excluding the area from its preferred alternative for managing to protect this area as lands with wilderness characteristics as required under IM 2011-154. In fact, the report for identification of this area's wilderness characteristics states that BLM will reassess the area to complete a final determination and ascertain if conditions have modified or if motorized routes have been naturally reclaimed.

It is clear that BLM has not even given this area's wilderness characteristics due consideration, let alone document its rational for not protecting those wilderness characteristics. We recommend that BLM acknowledge the wilderness characteristics as provided in the AWC proposal and protect the entire area as managed to protect wilderness characteristics.

Comment Number: 100126-23
Organization: The Wilderness Society
Commenter: Phil Hanceford

Comment Excerpt Text:
10. Oatman Mountains: We fully support the inclusion of the entire area for protection of its wilderness characteristics. BLM has not provided a documented determination of its rationale for excluding the area from its

preferred alternative for managing to protect this area as lands with wilderness characteristics as required under IM 2011-154. We recommend that BLM acknowledge the wilderness characteristics as provided in the AWC proposal and protect the entire area as managed to protect wilderness characteristics.

Comment Number: 100126-24
Organization: The Wilderness Society
Commenter: Phil Hanceford

Comment Excerpt Text:
11. Cortez Peak: We fully support the inclusion of the entire area for protection of its wilderness characteristics. BLM has not provided a documented determination of its rationale for excluding the area from its preferred alternative for managing to protect this area as lands with wilderness characteristics as required under IM 2011-154. We recommend that BLM acknowledge the wilderness characteristics as provided in the AWC proposal and protect the entire area as managed to protect wilderness characteristics.

Comment Number: 100126-25
Organization: The Wilderness Society
Commenter: Phil Hanceford

Comment Excerpt Text:
12. Margie's Peak: We fully support the inclusion of the entire area for protection of its wilderness characteristics. BLM has not provided a documented determination of its rationale for excluding the area from its preferred alternative for managing to protect this area as lands with wilderness characteristics as required under IM 2011-154. In fact, the report for identification of this area's wilderness characteristics states that BLM will reassess the area to complete a final determination and ascertain if conditions have modified or if motorized routes have been naturally reclaimed.

It is clear that BLM has not even given this area's wilderness characteristics due consideration, let alone document its rational for not protecting those wilderness characteristics. We recommend that BLM acknowledge the wilderness characteristics as provided in the AWC proposal and protect the entire area as managed to protect wilderness characteristics.

Comment Number: 100126-26
Organization: The Wilderness Society
Commenter: Phil Hanceford

Comment Excerpt Text:
13. Butterfield Stage Memorial: We fully support the inclusion of the entire area for protection of its wilderness characteristics. BLM has not provided a documented determination of its rationale for excluding the area from its preferred alternative for managing to protect this area as lands with wilderness characteristics as required under IM 2011-154. In fact, the report for identification of this area's wilderness characteristics states that vehicle management and target shooting issues would have to be addressed to maintain solitude and naturalness and that "on-the-ground OHV route inventories and associated travel management actions, and all other land use allocations, may have significant influence on the final determinations of lands managed, or not managed, to protect or maintain wilderness characteristics."

It is clear that BLM has not even given this area's wilderness characteristics due consideration, let alone document its rational for not protecting those wilderness characteristics. BLM states that AWC did not submit a detailed

narrative that shows how information significantly differs from info in prior inventories. We respectfully disagree and submit the AWC proposal for the area for BLM's reconsideration (Attachment 3).

We recommend that BLM acknowledge the wilderness characteristics as provided in the AWC proposal and protect the entire area as managed to protect wilderness characteristics.

Comment Number: 100126-27
Organization: The Wilderness Society
Commenter: Phil Hanceford

Comment Excerpt Text:
15. Sand Tank Mountains East: We fully support the inclusion of the entire area for protection of its wilderness characteristics as proposed in Alternative D. BLM has not provided a documented determination of its rationale for excluding some of the area from its preferred alternative for managing to protect this area as lands with wilderness characteristics as required under IM 2011-154. We also recommend the route network for this area as shown in Alternative D. We recommend that BLM acknowledge the wilderness characteristics as provided in the AWC proposal and protect the entire area as managed to protect wilderness characteristics.

Comment Number: 100126-28
Organization: The Wilderness Society
Commenter: Phil Hanceford

Comment Excerpt Text:
16. Sand Tank Mountains West: We fully support the inclusion of the entire area for protection of its wilderness characteristics as proposed in Alternative D. BLM has not provided a documented determination of its rationale for excluding some of the area from its preferred alternative for managing to protect this area as lands with wilderness characteristics as required under IM 2011-154. We also recommend the route network for this area as shown in Alternative D. We recommend that BLM acknowledge the wilderness characteristics as provided in the AWC proposal and protect the entire area as managed to protect wilderness characteristics.

Comment Number: 100126-95
Organization: The Wilderness Society
Commenter: Phil Hanceford

Comment Excerpt Text:
[Sentinel Plain Wilderness Complex Citizens' Proposal]

Routes recommended to remain open

1: Provides access to the BLM land to the west, the Sentinel Plain proposed wilderness to the east, and the Barry Goldwater Range to the south. Route is in excellent condition, is well-maintained and bladed. It is the route south of the Sentinel exit off Interstate 8.

Comment Number: 100126-96
Organization: The Wilderness Society
Commenter: Phil Hanceford

Comment Excerpt Text:
[Sentinel Plain Wilderness Complex Citizens' Proposal]

Routes recommended for closure

#2: This route traverses a large lava field and there are several archeological and cultural resources along it. This route is being reclaimed and eventually disappears (see last photo point along the route). It does not lead to other routes or to the Range. Therefore, because it does not provide access to any features or destination and it encourages continuing incursions into the roadless core of this area, it should be closed to protect the biological, archeological, and cultural resources of this landscape. Just south of the junction of this route and route #1 is Hill 849, which provides a scenic overlook of the entire Sentinel Plain area. The spur that leads to this elevated feature would make an excellent trail to the overlook.

Comment Number: 100126-97
Organization: The Wilderness Society
Commenter: Phil Hanceford

Comment Excerpt Text:
[Sentinel Plain Wilderness Complex Citizens' Proposal]

#3: This route heads south and then southeast to the Range. Unfortunately, the road crosses large areas of fragile biological soil crusts. Damage to these crusts from off-route vehicle travel as well as trash dumping has occurred along this route. This route should be closed to protect the roadless core of this area and protect the other biological, archeological, and cultural resources of this landscape.

[Photo #38: Biological soil crusts along route #3]

Comment Number: 100126-98
Organization: The Wilderness Society
Commenter: Phil Hanceford

Comment Excerpt Text:
[Sentinel Plain Wilderness Complex Citizens' Proposal]

#4: This route heads southeast into to the Range but is being reclaimed by natural processes and vegetation as shown in the photo below. Therefore, this route should be closed to allow the area to completely re-vegetate and to protect the roadless core of this area.

[Photo SP-34: Route is being reclaimed by vegetation]

Comment Number: 100126-99
Organization: The Wilderness Society
Commenter: Phil Hanceford

Comment Excerpt Text:
[Sentinel Plain Wilderness Complex Citizens' Proposal]

#5: Northern half of this route has eroded and is being reclaimed by natural processes. The southern half of this route crosses areas of fragile biological soil crusts. It should be closed protect the roadless core of this area and protect the other biological, archeological, and cultural resources of this landscape.

[Photo #48: Route dies off at Northern end]

Comment Number: 100129-14
Organization: Center for Desert Archeology
Commenter: Andy Laurenzi

Comment Excerpt Text:
In addition, we request that lands within the Sentinel Plain area north and south of Interstate 8 be managed for wilderness characteristics in the final preferred alternative (Figure 1). A proposal that we assisted in preparing for this area is included in comments submitted by The Wilderness Society. To the best of our knowledge the lands identified in Figure 1 have not been inventoried by BLM at any time in the past.

Comment Number: 100160-8
Organization: Tonopah Area Coalition
Commenter: Craig Weaver

Comment Excerpt Text:
Consider adding Sentential Peak (SP) area to list of Wilderness Characteristics areas - like Sentential Plain. This volcanic vent defines part of a vast flow that stretches northeast and south. Henry Hunt (Hidden Trails of the Sonoran Desert) states this is one of the most fragile areas in lower Colorado Sonoran desert due to a lack of rain. But SP also provides excellent open and easy hiking, isolation and solitude, plus it is a ' land that changes so slowly you have no trouble seeing the past'. Protecting this area is needed to avoid it being forever damaged by a trash dump, energy project, gravel/decorative rock mine, or cell telephone tower. This small peak defines the horizon and is a key to the region but its Wilderness Characteristics are vulnerable and need special designation.

Comment Number: 100160-9
Organization: Tonopah Area Coalition
Commenter: Craig Weaver

Comment Excerpt Text:
Columbus Peak is another area we know that contains the qualities that deserve consideration outlined in Protecting Wilderness Characteristics Alterative D.

Comment Number: LSFO-SDNM-DRMP--1-18563-1
Organization: Sustainable Arizona
Commenter: John Neville

Comment Excerpt Text:
We suggest that the Margies Peak and Butterfield Stage wilderness units are also included in the Monument's wilderness inventory. Please increase the number and size of areas managed for wilderness characteristics in non-Monument lands to 270,000 acres of wilderness lands, including Face Mountain, Columbus Peak, and Yellow Medicine Butte. It is important to limit motorized vehicles to only designated routes. This is a critical step in reducing the proliferation of roads across the landscape.

Summary

Commenters indicated the BLM did not fully document its rationale for its decisions regarding wilderness characteristics and specifically noted the RMP was not in compliance with IM 2011-154.

1) Commenters expressed concern that several areas were not included as areas managed to protect wilderness characteristics. Commenters submitted recommendations, along with supporting

documentation, of areas for the BLM to consider managing for wilderness characteristics, including: Black Mountain, Cuerda de Lena Wash, Sentinel Plain Complex, Yellow Medicine Butte, Seven Mile Mountain, Face Mountain, Saddle Mountain, Gila Bend Mountains, Oatman Mountain, Cortez Peak, Margie's Peak, Butterfield Stage Memorial, Sand Tank Mountains East, Sand Tank Mountains West, Dixie Peak, Sentinel Peak, Columbus Peak, South Painted Rock Mountains, and North Painted Rock Mountains.

2) Several commenters supported wilderness characteristic management and protection for Columbus Peak, the Eagletail Mountains additions, and the East Clanton hills.

Response

The BLM conducted a wilderness characteristics assessment or inventory as part of the planning process. Per Instruction Memorandum 2011-154, Requirement to Conduct and Maintain Inventory Information for Wilderness Characteristics and to Consider Lands with Wilderness Characteristics in Land Use Plans, the inventory evaluated wilderness characteristics as defined in Section 2(c) of the Wilderness Act and incorporated in FLPMA. In order for an area to qualify as lands with wilderness characteristics, it must possess sufficient size, naturalness, and outstanding opportunities for either solitude or primitive and unconfined recreation. In addition, it may also possess supplemental values.

IM 2011-154 Attachment 2, directs BLM to "Consider a full range of alternatives for [lands with wilderness characteristics] when conducting land use planning." The RMP explores the full range of alternatives from managing no lands to protect wilderness characteristics in Alternative A, to managing all lands with wilderness character to protect wilderness characteristics in Alternative D. The decision regarding whether or not to protect wilderness characteristics must consider all resource objectives.

1) The BLM has considered the nominated areas in accordance with Instruction Memorandum 2011-154. The summary results of the assessments by inventory unit can be found in **Section 3.2.11** of the PRMP/FEIS. Copies of the reports required by IM-2011-154 are available upon request from the Phoenix District Office. The alternatives for managing to protect wilderness characteristics in **Chapter 2** (**Section 2.10.10**), and the description of the current baseline condition in **Chapter 3** (**Section 3.2.11**) have been revised to reflect the results of that inventory.

2) The suggested inventory units requested for protection of wilderness characteristics are in the Colorado River district, so are out of scope of this RMP.

6.2.21 LANDS AND REALTY

6.2.21.1 Land Tenure

Comment Number: 100075-1
Organization:
Commenter: Shirley Ann Hartman

Comment Excerpt Text:
It has been brought to our attention that BLM lands suitable for disposal will be for sale. In planning for disposal of these lands Native American tribal communities must have guidelines in order to purchase BLM land. The Native American communities must agree not to change the land into Trust land with sovereign rights.

Comment Number: 100102-1
Organization: Superstition Area Land Trust
Commenter: Roy Fuerherm

Comment Excerpt Text:
We are a 501c3 non-profit all-volunteer land trust conserving lands since 1992. Our mission is to conserve and protect land around the Superstition Mountains of Arizona. We have been particularly interested in the following parcel:

Township 1 South, Range 10 East of the Gila and Salt River Meridian, Pinal County Arizona:

Section 6: Lots 6-7, E2SW;

Section 7: Lots 1-2, E2NW, NE.

This parcel is located in the vicinity of the land designated as Open Space in the Superstition Area Land Plan published by SALT in 2002, and later incorporated into Pinal County's Comprehensive Land Plan. It has come to our attention recently that this land is ready for disposal by BLM.

This letter is to inform you that SALT would like to obtain all or a portion of this parcel for conservation. This property is shown as a Regional Park in the Pinal County Parks and Trails Master Plan. We believe that one way for our land trust to acquire this parcel or a portion of it would be through the Recreation and Public Purposes Act.

Comment Number: 100111-5
Organization: National Park Service
Commenter: Lee Baiza

Comment Excerpt Text:
The NPS currently advocates for an expansion of OPCNM to include a portion of the BLM Ajo Block. NPS acquisition of such a parcel could help alleviate a number of issues within OPCNM that are shared by numerous other agencies. These issues regard access limitations, critical housing shortages, a safer environment for staff and families away from the border, reduced commuting time, and others. Part of the Ajo Block is adjacent to utilities and infrastructure in Why, AZ and expanding OPCNM to include this area would greatly reduce the cost of infrastructure development and facilitate a means to address access issues described below. The NPS is concerned that the proposed Land Use Authorizations would preclude further development of needed infrastructure should the BLM continue to manage the Ajo Block under its current configuration.

Comment Number: 100120-14
Organization:
Commenter: Bill Broyles

Comment Excerpt Text:
8. Acquire private inholdings. The public deserves the full use of the Monument, and those land owners deserve fair payment for their lands. The parcels along I-8 will be especially important to add to the Monument pronto before they become truck stops or solar farms.

Comment Number: 100134-1
Organization: Maricopa County Parks and Recreation
Commenter: Teresa Retterbush

Comment Excerpt Text:
• San Tan Mountains is identified for all disposal methods. It should be noted that Maricopa County and Pinal County currently have an agreement for the management of San Tan Mountains; disposal should be limited to these government agencies.

Comment Number: 100137-24
Organization: Fennemore Craig P.C.
Commenter: Dawn Meidinger

Comment Excerpt Text:
It appears that Alternative E proposes certain land not previously identified for disposal near Ajo and Miami and that other land south of Ajo that was previously eligible for disposal would no longer be available. Notwithstanding, because the Map 2-6 series is not supplemented with any specific legal descriptions, it is not possible to provide detailed comment on the determination that the parcels are suitable for disclosure. To the extent legal descriptions are available, Freeport encourages publication of that data for supplemental public review and comment.

Comment Number: 100145-11
Organization: National Park Service
Commenter: Naomi Torres

Comment Excerpt Text:
Lands Suitable for Disposal and Acquisition (p.123.)

NPS requests that public lands within the Anza NHT corridor or lands identified on a draft or adopted plan as being within the alignment for the Anza Recreational Trail (retracement route) be excluded from transfer from federal ownership. We also request that lands meeting these criteria be identified for acquisition, or be protected through other suitable protection means.

Comment Number: 100160-5
Organization: Tonopah Area Coalition
Commenter: Craig Weaver

Comment Excerpt Text:
Section 2N 8W Section 34 of BLM land north of Saddle Mountain should also be removed from disposal category considering new information regarding wildlife linkage and wildlife habitat in significant Basque that has formed along County 'Saddleback' retention damn

Comment Number: LSFO-SDNM-DRMP--1-18665-1
Organization:
Commenter: Cyndi Ruehl

Comment Excerpt Text:
The Pinal County Open Space and Trails Master Plan, adopted in 2007, shows the intention of implementing several regional parks throughout the county, all of them currently BLM land. This land use strategy is based on

Maricopa County's model of developing and establishing a regional park district through the partnership and RPPA with BLM. It looks as though all the planned regional parks in your district is being proposed as "suitable for disposal". This alternative may be detrimental for ever the hope of Pinal County ever establishing open spaces for its children and residents. While the Pinal County citizens are moving forward with the fortitude to implement the county's open space and trails plan, we may be too late if some of the regional park parcels are sold off. I would like to see BLM's continued presence, management and partnership potential continue to be available to the citizens of Pinal County particularly for these parcels designated as regional parks on the Pinal County Open Space and Trails Master Plan

Summary

Commenters requested several adjustments to land tenure classifications, including: 1) retaining and acquiring all public lands along the Anza NHT corridor or within the alignment for the Anza Recreational Trail, 2) removing BLM-administered land north of Saddle Mountain from the disposal category, 3) the inclusion of lands suitable for disposal north of the Organ Pipe National Monument, 4) identifying private inholdings for acquisition to add to the SDNM, and 5) the retention of certain parcels in Pinal County to be consistent with local plans in that area.

Commenters also requested clarification regarding the information on legal descriptions for lands that were identified as being suitable for disposal and regarding the use of disposed lands once they are removed from Federal ownership.

Response

Public lands selected for disposal typically are those lands that meet the following criteria:

- Isolated and fragmented from larger tracks of BLM-managed lands,
- Adjacent to urbanizing private and state lands, which could be subject to future development,
- Currently leased under the R&PP Act and are eligible to be patented, and/or
- Present an economic and management challenge to retain under public ownership.

Properties north of Saddle Mountain have been analyzed and all action alternatives retain ownership due to potential cultural resource conflicts.

The lands north of Organ Pipe National Monument were reviewed for disposal potential and determined to be retained by BLM due to the fact that BLM plans to meet the management objectives set forth for managing the Cuerda de Lena ACEC, which borders the northern boundary of the Organ Pipe National Monument. Also, the BLM lands north of the Organ Pipe National Monument are not isolated and fragmented from larger tracks of BLM-managed lands; therefore, they do not meet the criteria for being identified for disposal. Additionally, the request for these lands north of Organ Pipe National Monument came from another federal agency; transfer of land to another federal agency is beyond the scope of the Lower Sonoran-SDNM RMP (this type of transfer requires an act of Congress).

See response to Lands and Realty – Consistency with Other Plans regarding consistency with Pinal County land use plans.

The parcels within the National Historic Trail corridor are not identified for disposal and, therefore, would be retained in public ownership. The EIS has been revised to include a management action to enable acquisition of properties that display appropriate National Historic Trail character within both trail corridors from willing sellers.

Proper legal descriptions for all disposal lands will be included in an appendix in the ROD.

6.2.21.2 Out of Scope

Comment Number: 100104-3
Organization:
Commenter: Tom Taylor

Comment Excerpt Text:
3. map 2-7d offers more excluded areas for utility and renewable energy placements. i would go on to say that i believe blm, other gov agencies should look at buildings to place solar panels. instead of developing raw landscape for alt energy why not look at areas already developed, or buildings already built to place alt energy ... utilizing areas/buildings already in use or abandoned saves that much more habitat for wildlife needs.

Summary

Commenters requested the BLM identify locations for distributed renewable energy facilities (such as on rooftops), and avoid development on undeveloped land.

Response

This issue has been discussed in the BLM Solar Programmatic EIS; documents including the Draft PEIS and Supplement to the Solar PEIS are available online at: http://solareis.anl.gov/documents/index.cfm. As noted in **Chapter 2**, **Section 2.5.1**, Distributed Generation, of the Draft Solar PEIS, the BLM has no authority or influence over the installation of distributed generation systems, other than on its own facilities.

6.2.21.3 Renewable Energy

Comment Number: 100126-43
Organization: The Wilderness Society
Commenter: Phil Hanceford

Comment Excerpt Text:
We appreciate the BLM completing an analysis of resource sensitivity to renewable energy development and the identification of areas as Prohibited/High sensitivity/Moderate sensitivity/Low known sensitivity for development. "Zoning" for renewable energy development in such a manner is critical for protection of wildlands and wildlife habitat and facilitation of permitting and construction of responsible projects with limited conflicts, controversy and delay.

While limited information regarding the exact process by which the screening was completed is included in the DRMP/DEIS or Appendix N, which is devoted to this issue, the list of screens used and the resulting areas identified under Alternative E appear reasonable overall.

It is not clear whether the BLM incorporated bighorn sheep habitat or movement corridors data into their analysis. If this has not been done, the BLM should do so for the Final EIS/RMP, and if it has, the BLM should indicate so in the Final EIS/RMP.

Comment Number: 100126-44
Organization: The Wilderness Society
Commenter: Phil Hanceford

Comment Excerpt Text:
We also analyzed overlap of the Arizona Game and Fish Department (AGFD) Gila Bend-Sierra Estrella wildlife linkages and the proposed renewable energy zoning under Alternative E.14 While most of the AGFD identified linkages on BLM land are properly classified as Prohibited for renewable energy, there are three areas totaling 843 acres identified as Low sensitivity. BLM should change the sensitivity level for these three areas to Prohibited.

Comment Number: 100126-85
Organization: The Wilderness Society
Commenter: Phil Hanceford

Comment Excerpt Text:
A GIS analysis of overlap between Arizona Wilderness Coalition's Citizens' Wilderness Inventory (CWI) units and the proposed renewable energy zoning under Alternative E produced the following results:

- Prohibited: 267,544 acres of overlap
- High sensitivity: 132,108 acres of overlap
- Moderate sensitivity: 3,198 acres of overlap
- Low sensitivity: 863 acres of overlap

Renewable energy development is not appropriate in CWI units, and the BLM should also classify as Prohibited areas all CWI units.

Comment Number: 100140-11
Organization: US Environmental Protection Agency
Commenter: Kathleen Goforth

Comment Excerpt Text:
It is unclear in the DEIS, however, what the renewable energy development scenario is for the Lower Sonoran Decision Area. In the Executive Summary (page Iii of the DEIS), is the comment that "the Lower Sonoran Decision Area has the potential to support utility-scale renewable energy development; however no suitable locations for such developments exist in the Decision Area." Page 316 of the DEIS, however, states that "as of spring 2011, there were seven pending applications for utility-scale solar-energy developments in the Lower Sonoran." Later, on the same page, is a reference to nine applications for solar.

Comment Number: 100140-4
Organization: US Environmental Protection Agency
Commenter: Kathleen Goforth

Comment Excerpt Text:
The EPA recommends that the BLM provide additional information in the FEIS detailing the suitability of renewable energy projects in the Lower Sonoran Planning Area, anticipated renewable energy and transmission projects (both pending, and reasonably foreseeable), and how changes resulting from the Solar Programmatic EIS and the Arizona Restoration Design Energy Project will be incorporated into the Lower Sonoran and Sonoran Desert National Monument RMP.

Comment Number: 100145-10
Organization: National Park Service
Commenter: Naomi Torres

Comment Excerpt Text:
Map 2-7e Alternative E (the Agency Preferred Alternative), Utility Scale Renewable Energy Conflict Areas designates nearly all the Planning Area as Avoidance Areas with High and Moderate Sensitivity. While NPS appreciates this designation near high sensitivity and Prohibited areas such as the Wilderness Areas, ACECs, and the SDNM, we understand that "Avoidance" does not equal "Prohibited." Therefore, it must be assumed that utility scale renewable energy development could occur in any of the Avoidance Areas. We do not feel that designating Avoidance Area provides adequate protection to the Anza Trail historic corridor. NPS is currently a cooperating agency with BLM in the preparation the Hyder Valley Solar Project EIS. The 325 MW concentrating solar trough project is proposed on 2,750 acres about 1 mile north of the Anza NHT corridor, west of Oatman Mountain, in what appears to be a proposed Avoidance Area under the Agency's Preferred Alternative.

Comment Number: 100162-7
Organization: The Anza Trail Foundation
Commenter: Elizabeth Stewart

Comment Excerpt Text:
Map 2-7 e Alternative E, ATF requests that the SDNM and the Lower Historic Trails SCRMA and the viewshed of both be designated a Prohibited Area (instead of an Avoidance Area) for Utility Scale Renewable Energy development.

Comment Number: 100166-14
Organization:
Commenter: Steve Saway

Comment Excerpt Text:
However, there is a credibility issue here because the Draft Programmatic Environmental Impact Statement for Solar Energy Development (Solar PEIS) has proposed the establishment of a solar energy zone (SEZ) within BLM lands in the Lower Sonoran decision area that are included in the "high and moderate sensitivity" conflict areas. The Solar PEIS was apparently prepared with input from the Arizona BLM, yet the proposed Gillespie SEZ would pose significant conflicts with the Draft LS/SDNM RMP. The Gillespie SEZ is located along the proposed Agua Caliente Backcountry Byway and within 2 to 3.5 miles respectively of the Woolsey Peak and Signal Peak Wilderness areas. The SEZ would adversely affect wilderness values of these areas, and would also degrade the scenic viewshed of the Saddle Mountain area (which is proposed for a WC designation). Another major concern is

that the Gillespie SEZ would result in closure of inventoried OHV routes that provide the primary access to the Woolsey Peak and Signal Peak Wilderness areas as well as to other destinations within the Gila Bend Mountains. In my view, the BLM must address this disconnect and explain to the public (1) how the Gillespie SEZ is considered compatible with the Draft LS/SDNM RMP, (2) what mitigation actions will be required to resolve the conflicts, or (3) what action will be taken to better inform the Solar PEIS and resolve the conflicts by relocating or eliminating the Gillespie SEZ

Summary

Commenters recommended several revisions to renewable energy-related management, which would include the extension of utility-scale renewable energy development prohibition areas for: 1) bighorn sheep habitat, 2) wildlife movement and linkage corridors, 3) Citizens Wilderness Inventory Units, 4) the Anza Trail historic corridor, 5) SDNM, and 6) the Lower Gila Historic Trails SCRMA and their viewsheds.

Commenters requested several text additions related to renewable energy in the RMP, including a description of anticipated renewable and associated transmission projects in the Decision Area and a description of how decisions in the Solar PEIS and the Arizona Restoration Design Energy Project will be incorporated into management in the Decision Area.

Response

Numerous federal and state BLM initiatives are currently underway to promote renewable energy development. The Solar Energy Development Programmatic EIS (PEIS), currently being prepared by the US Department of Energy and BLM, assesses environmental impacts associated with the development and implementation of agency-specific programs that would facilitate environmentally responsible utility-scale solar energy development in six western states, including Arizona. On the basis of the analyses presented in the Solar PEIS, the BLM anticipates making land use planning decisions that would establish the foundation for a comprehensive Solar Energy Program. The Record of Decision for the Solar Energy Development Program is anticipated for September 2012.

The Arizona BLM is preparing an EIS for the Restoration Design Energy Project (RDEP) to identify which lands across Arizona are most suitable for the development of renewable energy and consider establishing a baseline set of environmental protection measures that would apply to such projects on public lands (see **Section 1.6.1** for a description of the RDEP).

These plans are identifying lands for renewable energy development that are disturbed and/or have low resource sensitivity. Lands with low resource sensitivity are areas that are unlikely to contain resources protected by statute or policy, that currently do not have special designations or uses, that are unlikely to contain other recognized values, or for which impacts from development cannot be mitigated. The BLM collected relevant information from BLM datasets, cooperating agencies, stakeholders, universities, and other public sources. The data were loaded into a geographic information system (GIS) and analyzed to geographically identify low sensitivity lands that could be suitable for renewable energy development.

BLM land use plans in Arizona, including the Lower Sonoran-SDNM RMP, would be amended to adopt the findings and measures in both the Solar PEIS and RDEP EIS.

Management decisions related to the authorization of utility-scale renewable energy developments were guided by the Analysis for Renewable Energy Sensitivity (**Appendix N**), which used GIS data to depict varying degrees of resource sensitivity to utility-scale renewable energy development on federal lands. The Analysis for Renewable Energy Sensitivity characterizes public lands in one of four sensitivity categories used to make decisions on where to permit utility-scale renewable energy developments on federal lands. These sensitivity categories include: prohibited, high, moderate, and low known sensitivity. The categories were then use to identify utility-scale renewable energy development exclusion and avoidance areas.

Section 4.1.6, Reasonably Foreseeable Development Scenarios, discusses the increased demand for infrastructure in the future. There would be an increase of approximately three to four major linear land use authorizations (LUAs), including ROWs for high-voltage power lines, large pipelines, and solar power plants every year. Other minor linear and nonlinear LUA requests, such as for roads, or smaller voltage transmission lines, would increase to an additional seven to eight proposals per year.

6.2.21.4 Transportation Corridors

Comment Number: 100106-1
Organization: Maricopa Association of Governments
Commenter: Tim Strow

Comment Excerpt Text:
MAG has completed several transportation studies in the past few years including the Interstate 10/Hassayampa Valley Transportation Framework Study and the Interstate 8/10 Hidden Valley Transportation Framework Study that has identified transportation networks that will be needed to accommodate the future growth and travel demand in Maricopa County.

None of the transportation recommendations that were included in the MAG studies are included or illustrated in the draft RMP/EIS,

Comment Number: 100106-2
Organization: Maricopa Association of Governments
Commenter: Tim Strow

Comment Excerpt Text:
The travel management section of the draft EIS also does not accurately reflect the existing transportation networks of the cities or towns that are located in the draft RMP/EIS study area. When proposing alternatives to the public for comment, MAG would recommend that you accurately illustrate the existing and future transportation networks in Maricopa County

Comment Number: 100106-3
Organization: Maricopa Association of Governments
Commenter: Tim Strow

Comment Excerpt Text:
1. Map 3-24, Travel Management: Please include existing and future transportation plans for the cities and towns located within or in close proximity to the DRMP/EIS study area. This also includes but not limited to the following transportation plans:

- Interstate 10/ Hassayampa Valley Transportation Framework Study (http://www.bqaz.org/)
- Interstate 8/10 Hidden Valley Transportation Framework Study (http://www.bqaz.org/)
- Maricopa Association of Governments Regional Transportation Plan (http://www.azmag.gov)
- Hidden Waters Parkway Feasibility Study (http://www.mcdot.maricopa.gov)

Comment Number: 100106-4
Organization: Maricopa Association of Governments
Commenter: Tim Strow

Comment Excerpt Text:
2. Map 3-24, Travel Management: Please add the Hassayampa Freeway as a "proposed transportation corridor"

Comment Number: 100106-5
Organization: Maricopa Association of Governments
Commenter: Tim Strow

Comment Excerpt Text:
3. Map 3-24, Travel Management: In addition to roadways, please identify the all Union Pacific Rail lines in the study area. This includes the union pacific sunset line, wellton branch, phoenix subdivision etc.

Comment Number: 100112-1
Organization: Arizona Department Of Transportation
Commenter: Justin White

Comment Excerpt Text:
The north-south corridor from US 60 in Apache Junction to I-10 near Eloy may impact an area of BLM land included in the RMP. Information regarding this project can be found at hnp://www.azdot.gov/northsoulhcorridorstudy/. Currently, this new alignment is not designated as a transportation corridor in the draft RMP. However, the project team has been in discussion with BLM staff regarding resource needs and alternative selection.

Comment Number: 100112-2
Organization: Arizona Department Of Transportation
Commenter: Justin White

Comment Excerpt Text:
Also, in the planning process are the SR 303L which will connect to I-10 in the east valley near Cotton Lane and continue south to meet up with the planned SR 30 which will run south and parallel to I-10. These corridors and the interchange at the SR 303L and SR30 may impact BLM lands depending on the final preferred location. These highway corridors were not identified in the draft RMP, but the project teams have been in contact with BLM staff in the planning process. For more information regarding alternative selection of these corridors please visit http://www.azdot.gov/Highways/vpmJindex.asp for project information and maps depicting corridor locations. It should be noted that the development of these and any other improvements to existing roadways or new highways on BLM land will be planned, designed and constructed according to the ADOT Guidelines/or Highways on BLM and US Forest Service Land - 2008.

Comment Number: 100112-4
Organization: Arizona Department Of Transportation
Commenter: Justin White

Comment Excerpt Text:
The ADOT Multimodal Planning Division is also working on several long range framework studies that may impact lands within the draft RMP in the long term. The I-10 Hassayampa Study and the I-8 and I-10 Hidden Valley Study consider lands for future transportation corridors near BLM lands and may need to be considered within the draft RMP. Further information on these and future framework studies can be found at http://www.bqaz.gov/.

Comment Number: 100116-1
Organization:
Commenter: Harold Shull

Comment Excerpt Text:
An important point missed by both your RMP and EIS is ...mention of the NAFTA highways which will connect Mexico to Canada. Puerto Vallarta, Guyamoas, and Hermosillo are ports and a staging area that are part of a proposed system to move goods through Nogales and Duartzsita, Arizona. These NAFTA "roads" will be multiland highways, railroads, power lines, pipelines, and fiberoptic communications in a 400 yard wide swath across the US. There are 80 of them proposed, 2 to 3 through Arizona's deserts.

Summary

Commenters noted that the DRMP/DEIS did not consider or identify all of the existing and proposed transportation corridors or regional transportation plans relevant to the area, including: 1) Hassayampa Freeway, 2) north-south corridor from US 60 in Apache Junction to I-10 near Eloy, 3) corridors and the interchanges at State Route 303 (Loop 303) and State Route 30, 4) I-10/Hassayampa Valley Transportation Framework Study, 5) I-8/I-10 Hidden Valley Transportation Framework Study, 6) Maricopa Association of Governments Regional Transportation Plan, 7) Hidden Valley Parkway Feasibility Study, and 8) several NAFTA "roads," including highways, railroads, power lines, pipelines, and fiber optic communications.

Commenters also requested that Map 3-24 identify all Union Pacific rail lines in the study area, including the Sunset Line, Wellton Branch, and Phoenix Subdivision.

Response

Section 3.3.5, Travel Management, acknowledges that the Maricopa Association of Governments (MAG), Maricopa and Pinal counties transportation departments, and ADOT all are studying additional freeway, parkway, and arterial connectors throughout the Planning Area. Many of these would bisect public lands. **Section 4.25** discusses cumulative impacts on travel management. When analyzing cumulative impacts on travel management, the study area would extend beyond the planning area so that connectivity to regional centers beyond the planning area's boundaries (such as Yuma, Arizona and Quartzite, Arizona) are analyzed. Therefore, the general nature of cumulative impact analysis on travel management considered these types of existing and proposed transportation projects.

The scope and nature of the specific proposed action drives what level of analysis must be done to comply with the requirements of NEPA. Environmental analyses of RMPs are used to evaluate broad

policies and provide an analytical foundation for subsequent project-specific NEPA documents. The cumulative analysis in the DRMP/DEIS considered the present effects of past actions, to the extent that they are relevant, and present and reasonably foreseeable (not highly speculative) federal and non-federal actions, taking into account the relationship between the proposed action and these reasonably foreseeable actions. This served as the determining factor as to the projects selected for the cumulative impact scenario, and the level of analysis performed and presented. Therefore, the BLM has complied fully with the requirements of 40 CFR § 1508.7 in preparing a cumulative analysis based on the broad nature and scope of the proposed management options under consideration at the RMP stage.

Multi-use utility corridors (which may include transportation facilities) are designed to constrain where utilities or other linear facilities would be placed. The purpose of these corridors is to reduce impacts on natural resources by limiting the location to places deemed suitable for this type of use. BLM has not identified corridors for all of these transportation studies to allow for maximum flexibility in siting.

Map 3-25, Travel Management (Map 3-24 in the DRMP/DEIS) illustrates current principle highways used to reach public lands in the Planning Area, not all modes of transportation (e.g., trains). The BLM also revised and corrected the map to remove routes that are speculative at this time.

6.2.21.5 Utility Corridors

Comment Number: 100122-1
Organization: Tucson Electric Power Company
Commenter: Shannon Breslin

Comment Excerpt Text:
TEP has reservations related to Alternatives C, D, and the Preferred Alternative E. These alternatives do not recognize TEP's existing 345kV line and approval for a future 345/500kV line as a utility corridor through the Sonoran Desert National Monument (SDNM). In order for TEP to support these alternatives, they would need to recognize TEP's existing land use authorizations and allow for their renewal. These are state regulated transmission lines, authorized through the Arizona Corporation Commission (Line Siting Case #15). In addition, TEP has maintained and paid for a valid land use authorization (Grant 7274) from BLM since July 1975.

TEP's facilities were authorized and constructed well before the SDNM was established, and only after a thorough environmental impact study and public process had been conducted. It is understood that the management objectives of the SDNM are to protect the biological, scientific, and historic resources and objects located within the Monument, however these objectives cannot be met to the detriment of all else, including the availability and affordability of energy resources.

Comment Number: 100122-3
Organization: Tucson Electric Power Company
Commenter: Shannon Breslin

Comment Excerpt Text:
The utility corridor illustrated and described between Ajo and Why is not associated with Tucson Electric Power.

Comment Number: 100122-4
Organization: Tucson Electric Power Company
Commenter: Shannon Breslin

Comment Excerpt Text:
In short, a utility corridor has already been created through what is now known as the Sonoran Desert National Monument. Considerable financial investment has been made and environmental impacts have been addressed. Recognizing TEP's transmission line easements as a utility corridor will minimize any future impacts to the very resources this plan is trying to protect

Comment Number: 100122-6
Organization: Tucson Electric Power Company
Commenter: Shannon Breslin

Comment Excerpt Text:
As you will see from our attachments, the existing transmission system components and the plans for future system enhancements paralleling those components were pre-approved well before the contemplation of the Monument designation for the area (See ACC Case 15 and Case 50). TEP, therefore recommends that the final Phoenix South/SDNM Resource Management Plans include retention of both the existing system components and the plans for system enhancements that were previously approved by the United States Department of Interior (BLM) and the Arizona Corporation Commission.

Comment Number: 100122-7
Organization: Tucson Electric Power Company
Commenter: Shannon Breslin

Comment Excerpt Text:
More recently TEP has been working as a participant with the Central Arizona Transmission Study (CATS) Committee to coordinate plans for future EHV transmission lines. As an alternative to their Palo Verde to Saguaro 500 kV transmission line, TEP is considering a Pinal West to Saguaro 500 kV line. In addition TEP is also planning both Southeast Valley to Winchester and Saguaro to Winchester 500 k V transmission lines to meet future growth in Southern Arizona. Winchester Substation located in Section 28 Township 14 South, Range 21 East in northeast Cochise County, has been approved by the State of Arizona Power Plant and Transmission Line Siting Committee and is scheduled to be in service in the spring of 2004.

It is imperative that the Phoenix South Resource Management Plan also include these more recently planned lines as they are a necessary part of the future electric service to areas adjacent to the Phoenix South Project boundary.

Comment Number: 100137-15
Organization: Fennemore Craig P.C.
Commenter: Dawn Meidinger

Comment Excerpt Text:
Alternative E the Gila Bend to Ajo corridor, the Tucson Electric Power corridor and the El Paso Natural Gas corridor. Absent non-compliance with the terms of an existing LUA, BLM has no authority to terminate prior existing rights in these corridors through land use planning. Accordingly, the notion of "elimination" of corridors must be re-considered. Critical backbone infrastructure supplying power, water and natural gas to the communities of Gila Bend, Ajo and Why is located within these corridors and they cannot simply be "eliminated."

If the termination of existing rights and/or the prohibition against locating new utilities in these corridors is actually intended, the economic impact would be extremely significant and analysis of those impacts would be mandated pursuant to NEPA, along with the identification of potential mitigation measures. No such consideration is present in the DRMP/EIS.

Comment Number: 100145-9
Organization: National Park Service
Commenter: Naomi Torres

Comment Excerpt Text:
Alternatives A & B, Maps 2-5a-b include two utility corridors within the SDNM along Highway 238 (G: Gila Bend – Santa Rosa) and Interstate 8. Alternative C, Map 2-5c would permit only an underground multiuse utility corridor along Hwy 238 through SDNM.

Alternatives D & E, Maps 2-5 d-e, exclude utility corridors along Highway 238 and Interstate 8 from within SDNM. NPS would prefer one of these alternatives to protect viewsheds within SDNM from disruption by large electrical transmission lines or other significant alterations from to the landscape.

Comment Number: 100147-2
Organization: Arizona Public Service Company
Commenter: Michael Neal

Comment Excerpt Text:
The proposed RMP/EIS should clearly address and analyze the needs of BLM ROW holders including APS, as facilities currently exist within these areas and must be continuously inspected, upgraded, and maintained.

Summary

Commenters requested that the RMP/EIS modify and recognize existing and approved transmission and utility corridors and several recently planned EHV (Electric High Voltage) transmission lines.

Commenters also requested that at least one of the alternatives manage utility corridors to protect viewsheds in the SDNM from disruption by large transmission lines.

Response

Section 3.3.1, Lands and Realty, acknowledges major utility systems such as transmission lines greater than 230kV, pipelines greater than 10 inches in diameter, and primary paved roads, as defined by the BLM's Planning and Conducting Route Inventories Technical Reference Guide 9113-1, that have been authorized within these corridors. Where planning decisions have previously been made that still apply, those decisions would be carried forward into the RMP (see **Section 1.5.1**, General Planning Criteria Common to Both Decision Areas). Under the Proposed RMP, eight of the existing multiuse corridors would be designated in which all compatible major linear utility LUAs would be allowed unless otherwise specified by the authorizing official (see LR-1.2.4, Table 2-22, Management Actions and Allowable Uses for Lands and Realty). **Section 4.25** discusses cumulative impacts on utility corridors (lands and realty section). Therefore, the general nature of cumulative impact analysis on transmission and utility corridors considered these types of existing and proposed transmission and utility projects.

The scope and nature of the specific proposed action drives what level of analysis must be done to comply with the requirements of NEPA. Environmental analyses of RMPs are used to evaluate broad policies and provide an analytical foundation for subsequent project-specific NEPA documents. The cumulative analysis in the DRMP/DEIS considered the present effects of past actions, to the extent that they are relevant, and present and reasonably foreseeable (not highly speculative) federal and non-federal actions, taking into account the relationship between the proposed action and these reasonably foreseeable actions. This served as the determining factor as to the projects selected for the cumulative impact scenario, and the level of analysis performed and presented. Therefore, the BLM has complied fully with the requirements of 40 CFR § 1508.7 in preparing a cumulative analysis based on the broad nature and scope of the proposed management options under consideration at the RMP stage.

Management action LR-1.2.8 (Alternative C) designates two ½-mile wide multiuse utility corridors in the SDNM which all compatible major linear LUAs would be allowed unless otherwise specified by the authorizing official (see **Table 2-22**, Management Actions and Allowable Uses for Lands and Realty). This action would provide protections to viewsheds in the SDNM from utility corridors.

6.2.21.6 Consistency with Other Plans

Comment Number: 100144-1
Commenter: Gina D'Abella

Comment Excerpt Text:
Upon viewing the alternatives as presented in your proposed draft, I was concerned with the lack of acknowledgement and connectivity with the existing plans from the Pinal County Comprehensive Plan, Pinal County's Open Space & Trails Master Plan and the City of Maricopa's Parks, Trails & Open Space Master Plan - specifically in Western Pinal County. The areas for which your draft management plan affect Pinal County's plans, relate to: 1) Travel Management (motorized vs non-motorized vehicle), 2) Recreational Management, and 3) Lands Suitable for Disposal.

Summary

Commenters expressed concern that the DRMP/DEIS did not fully consider local and regional plans, including the Pinal County Comprehensive Plan, Pinal County's Open Space and Trails Master Plan, and the City of Maricopa's Parks, Trails and Open Space Master Plan.

Response

The FLPMA section 202 (c)(9), 43 USC Section 1712(c)(9); 43 CFR Section 1610.3-2(a) instruct BLM to "to the extent consistent with the laws governing the administration of the public lands, coordinate the land use inventory, planning, and management activities of or for such lands with the land use planning and management programs of other Federal departments and agencies and of the States and local governments within which the lands are located. However, BLM land use plans must also be consistent with the purposes, policies, and programs of FLPMA and other federal laws and regulations applicable to public lands. To this end, the Lower Sonoran-SDNM DRMP/DEIS makes reference to and complements, to the maximum extent, many other federal, state, and local plans and policies.

The BLM has worked closely with state and local governments during preparation of the Lower Sonoran-SDNM DRMP/DEIS (see **Chapter 5**, Consultation and Coordination). Because it may not be

possible for the BLM to be consistent with the plans and policies of all state and local agencies, the statutory guidance to the BLM is to provide consistency to the maximum extent. The BLM works to find a balance among uses and needs as reflected in these local and state government plans, and has done so in the preparation of the RMP/EIS. The BLM has developed **Chapter 5.3.7**, Local Government, and revised **Appendix C**, State, County, Local and Other Related Agency Plans, to include discussions of the Pinal County Comprehensive Plan, Pinal County Open Space and Trails Master Plan, and the City of Maricopa's Parks, Trails and Open Space Master Plan.

The BLM's land use plans, including the Lower Sonoran-SDNM RMP, are designed to balance the public demands for various land uses while ensuring appropriate levels of resource protection. While there may be times when the BLM cannot meet the needs of all segments of public land users concurrently, the BLM strives to address concerns. The Lower Sonoran-SDNM RMP/EIS, to the maximum extent, is consistent with state and local plans, thereby meeting the intent and purpose of the FLPMA.

6.2.22 LIVESTOCK GRAZING

6.2.22.1 Lower Sonoran RMP Analysis Issues

Comment Number: 100121-35
Organization: Sierra Club
Commenter: Jim Vaaler

Comment Excerpt Text:
The conclusion that the elimination of cattle from the Decision Area will result in a greater fire hazard is also open to serious debate, as noted in our comments previously. In fact, the opposite argument has strong foundations in science. When the soil surface is disturbed and native vegetation is removed by cattle grazing, it provides more opportunities for non-native species to gain a foothold. There is clear evidence that cattle grazing helps spread non-native invasive species.[Footnote 8]

Comment Number: 100136-32
Organization: Western Watersheds Project
Commenter: Greta Anderson

Comment Excerpt Text:
If the BLM is claiming that the areas potentially affected by livestock use are limited, it fails to parse with the preferred alternative to keep 930,200 acres open to grazing in the LFSO. If the DRMP/DEIS is attempting to reference table 3.2, it should say so. The sensitive soil distribution should be identified to allotment or at least geographic region. Otherwise, this information does not help to analyze or disclose the impacts of livestock grazing on soils.

Comment Number: 100136-33
Organization: Western Watersheds Project
Commenter: Greta Anderson

Comment Excerpt Text:
For the lands of the LFSO, the analysis of effects of livestock grazing on vegetation is inadequate. The BLM analysis of the preferred alternative is limited to a brief mention of reduced plant vigor, alteration of plan communities and cover, reduction of individual plant species, and increased soil instability. DRMP/DEIS at 515, 499. A review of

scientific literature specifically pertinent to livestock grazing in Arizona found significant impacts, including the decreased abundance of perennial grasses and native shrubs. Fleischner 1994. The removal of livestock increases species richness as well as canopy cover in some vegetation classes, and reduces herbaceous vegetation by more than half. Id. These effects are not analyzed or disclosed in the DRMP/DEIS.

Comment Number: 100136-88
Organization: Western Watersheds Project
Commenter: Greta Anderson

Comment Excerpt Text:
Grazing livestock compact the soil, so instead of rainfall soaking down toward the aquifer it flows faster and in greater volume overland. Belsky et at. 1999, Jones 2000. The RMP does not identify livestock watering sites, or "biospheres" where impacts are the greatest. Brooks, et al. 2006. The BLM's qualitative S&G process does not capture all of these impacts, even where the BLM has S&G evaluations. Land Health Standard 1 requires multiple visits to monitoring sites; it is not clear from the DRMP/DEIS the BLM has visited the LFSO allotments even once. By failing to address these impacts, the BLM has failed to take a "hard look" at the preferred grazing alternative

Comment Number: 100136-90
Organization: Western Watersheds Project
Commenter: Greta Anderson

Comment Excerpt Text:
Desert dry wash corridors may have significantly more grass in the absence of cattle grazing. Halvorson and Gebow 2000. Livestock exclusion is the probable cause of increased in composition and density of perennial grasses and shrubs at some sites in the Sonoran Desert. Blydenstein, et al. 1957. The long-term exclusion of livestock from Organ Pipe Cactus National Monument is also considered to be one of the reasons for this area's exceptional beauty and vegetation abundance and diversity. 34 All of these results are highly relevant to the analysis of the proposed action in the DRMP/DEIS, but BLM failed to incorporate such evidence of the benefits of livestock exclusion.

Summary

Commenters requested additional analysis and information on livestock impacts associated with 1) vegetation, 2) washes, 3) soils, and 4) fire.

Response

A land use planning-level decision is broad in scope and, therefore, does not require an exhaustive gathering and monitoring of baseline data. Although the BLM realizes that more data could always be gathered, the baseline data provides the necessary basis to make informed land use plan-level decisions. Land use plan-level analyses are typically broad and qualitative rather than quantitative or focused on site-specific actions (BLM Land Use Planning Handbook H-1601-1). The BLM would conduct subsequent project-specific NEPA analyses for projects proposed for implementation under the land use plan (40 CFR 1502.20, 40 CFR 1508.28). As required by NEPA, the public would have the opportunity to participate in the NEPA process for site-specific actions.

Programmatic or RMP-level analysis addresses impacts from RMP-level decisions, which are decisions set forth to achieve the goals and objectives of a specific program area within the RMP. Analyses for these

decisions are broad in scale and focus on the scope of the individual alternatives and environmental effects. Programmatic analysis is typically regional in scope and accounts for differing land use scenarios, including cumulative effects from multiple activities and future projects (of which the location and details are not yet known). Refer to **Sections 4.2 through 4.24** for RMP-level impact analysis.

At this programmatic level, impacts from livestock grazing on vegetation, washes, soils, and fire were analyzed and can be found in **Sections 4.8, 4.10, 4.7,** and **4.13** of the RMP/EIS, respectively. Impacts on livestock grazing from livestock exclusion are addressed in **Section 4.16**.

6.2.22.2 Planning Area-wide Data Issues: General

Comment Number: 100018-2
Organization: Sierra Club
Commenter: Don Steuter

Comment Excerpt Text:
The Final RMP should detail how in the future data will be collected so actual use can be known. Apparently such information has not been collected in the past, especially regarding ephemeral grazing.

Comment Number: 100136-31
Organization: Western Watersheds Project
Commenter: Greta Anderson

Comment Excerpt Text:
The DRMP/DEIS never identifies how many forty-four allotments have been evaluated thus far and/or what the schedule will be for completion of the evaluations. This defies NEPA's guidance to provide relevant information to the public and decision-maker.

Summary

1) Commenter requested to know if actual use information was going to be collected by BLM in the future.

2) Commenter requested evaluation status and completion schedule for all 44 allotments.

Response

1) BLM regulations allow for collection of actual use data. However, most existing permits within the Lower Sonoran and SDNM Decision Areas do not require the permit holders to provide this information. As permits are reissued, terms and conditions may be added to the permits to require actual use information to be provided.

2) The rangeland health evaluation status and completion schedule for the allotments is outside the scope of an RMP decision. Instead, these would be addressed on a case-by-case basis through the permit renewal process, in consultation, coordination, and cooperation with the permittees, stakeholders, and the interested public, as required by BLM and CEQ regulations.

6.2.22.3 Planning Area-wide Edits

Comment Number: 100136-103
Organization: Western Watersheds Project
Commenter: Greta Anderson

Comment Excerpt Text:
It is not clear how this list was derived, or whether BLM created it from the extant data set. Without supporting references, it is impossible for the decision-maker or reader to evaluate whether these objectives make sense.

Comment Number: 100136-45
Organization: Western Watersheds Project
Commenter: Greta Anderson

Comment Excerpt Text:
It is also unclear, since the DRMP/DEIS doesn't specify, how ongoing use will be altered to ensure against future failures. Given the extent to which management decisions regarding harms to Monument objects hinge on meeting the land health standards, this section needs further clarification and elaboration.

Comment Number: 100136-65
Organization: Western Watersheds Project
Commenter: Greta Anderson

Comment Excerpt Text:
Additionally, the description of alternatives included in the DRMP/DEIS is confusing. For example, under the preferred alternative, portions of the Santa Rosa and Big Horn allotments outside of the SDNM would need to be fenced in order to facilitate future use. DRMP/DEIS at 145. It is unclear why the BLM is encouraging additional range infrastructure given its plans to continue grazing use on these allotments inside the SDNM. This should be explained in the final RMP/EIS and an analysis of the impacts of this kind of infrastructure should be provided.

Summary

Commenters identified editorial issues associated with livestock grazing information, including unclear content, alternative numerical discrepancies, vague statements, and inconsistencies.

Response

The PRMP/FEIS document has gone through a complete review for quality assurance and quality control to check for numerical and textual inconsistencies. All discrepancies found during this review were rectified prior to release of the PRMP/FEIS.

6.2.22.4 Planning Area-wide Management

Comment Number: 100053-1
Organization: Arizona Public Lands Foundation
Commenter: Beau McClure

Comment Excerpt Text:
We question that it is necessary or appropriate to permit yearlong livestock grazing on the allotments shown as Perennial or Perennial/Ephemeral on Alternative E Livestock Grazing Map 2-8e of the Draft report. Most of the livestock use of these desert lands in the Lower Sonoran area and the Sonoran Desert National Monument occurs in the Spring, after winter rains have produced a lush, short-lived crop of annual vegetation. The Executive Order that established the Sonoran Desert National Monument, provided that livestock grazing would eventually be terminated on public lands south of Interstate-8, and there are continuing court actions over livestock use on Monument lands north of Interstate-8. BLM is managing prime Sonoran desert habitats on public lands adjacent to a major metropolitan area. Why would you want to have a few cows on these lands year-round to stir up the environmental controversies commonly associated with livestock grazing?

We strongly recommend that the Perennial Allotments and the Perennial/Ephemeral Allotments shown on Map 2-8e be re-designated as Ephemeral Allotments, and used for livestock grazing only when annual vegetation is present on the lands.

Comment Number: 100120-2
Organization:
Commenter: Bill Broyles

Comment Excerpt Text:
Your plan to allow grazing during productive times limits the public's ability to enjoy seasonal wildflowers, for those are precisely the times you propose to let cattle eat the flowers, leaves and all. Those "green-up" times are ecologically crucial, when the vegetation and seed bank restore themselves, when seeds and plants lay a store of food for all levels of the ecological chain, from ants to hawks, from cottontails to mountain lions.

Comment Number: 100120-5
Organization:
Commenter: Bill Broyles

Comment Excerpt Text:
Ephemeral grazing on degraded Sonoran Desert lands is exactly the wrong way to nurture recovery. Desert ecosystems need many years to recover. And that recovery may only happen during rare years of above-normal rainfall and without grazing. Ephemeral grazing – allowing grazing during those rare abundant rainfall years --- will inhibit and doom the ability to recover at all.

Comment Number: 100136-62
Organization: Western Watersheds Project
Commenter: Greta Anderson

Comment Excerpt Text:
There is no reason or explanation for why the BLM didn't consider the reasonable alternative of reclassifying the allotments as ephemeral and allowing use periodically rather than year after year.

Comment Number: 100137-19
Organization: Fennemore Craig P.C.
Commenter: Dawn Meidinger

Comment Excerpt Text:
One concern, however, is Management Action GR-I.1.19 which states that BLM will use the guidelines described in the "Not Likely to Adversely Affect" section of "Guidance Criteria for Determinations of Effects of Grazing Permit Issuance and Renewal on T&E Species" (BLM and USFS Arizona and New Mexico, 1999). DRMP/EIS at 146. These guidelines are outdated, inconsistent with the ESA, and to the extent BLM wishes to utilize them for purposes of permit decisions or permit updates, the guidelines must be promulgated as a rule under the Administrative Procedure Act. 5 USC § 553. At a minimum, they should be disclosed for public review and comment. Their guidelines expand the scope of the ESA to areas where members of listed species are not present and critical habitat does not exist. The determination of livestock grazing uses should be on a case by case basis involving the permittee. Prohibitions of use resulting from consultation under § 7 of the ESA should only arise where threatened and endangered species are present or critical habitat has been designated. 16 USC § 1533 (a)(2).

Summary

Commenters recommended several revisions to livestock grazing management in the DRMP/DEIS to support multiple uses, protect resources, and encourage recovery of vegetation. Specific recommendations included: 1) reclassifying allotments as ephemeral allotments, 2) establishing, analyzing, and disclosing meaningful management parameters for ephemeral use, 3) allowing only periodic grazing instead of year-round grazing, and 4) consultation with the permittee(s) and the interested public regarding livestock grazing on public lands with threatened, endangered, and/or special status species.

Response

The DRMP/DEIS considered a range of alternatives designed to meet the BLM's legal duties and purpose and need for action. The PRMP provides a rationale why some alternatives were considered but subsequently eliminated from further analysis (see **Section 2.5**, Alternatives Considered but not Further Analyzed). In accordance with NEPA, the public was given an opportunity to provide input on what issues should be addressed in the plan during the scoping phase of the planning process. Suggestions for alternatives that would not meet the purpose and need articulated in the plan were not given detailed consideration. All of the alternatives were designed to comply with BLM's resource protection and multiple use mandates as identified in FLPMA.

1) An alternative was considered regarding the potential conversion of some or all perennial and perennial/ephemeral livestock grazing allotments to strictly ephemeral use only (see **Chapter 2**, **Section 2.5.4**). This alternative was not evaluated further, as these decisions can be determined on an individual allotment basis. As stated in **Section 2.11.2**, Livestock Grazing, Management Action GR-1.1.14, allotments may be reclassified as ephemeral in accordance with the Special Ephemeral Rule published December 7, 1968 through Rangeland Health Evaluations. The Special Ephemeral Rule is described in **Section 3.3.2**, Livestock Grazing.

2) Management parameters for ephemeral use are established by BLM policy and regulation.

3) Periodic or year-round grazing are implementation-level decisions not normally made during resource management planning. However, the range of alternatives in the PRMP provides for season of use adjustments as needed, based on monitoring during the permit renewal process.

4) The management action referenced (GR-1.1.19) has been removed in the PRMP/FEIS. Relevant guidelines have been incorporated into management objectives in the RMP.

6.2.22.5 Lower Sonoran RMP and Planning Area-wide Out of Scope

Comment Number: 100111-4
Organization: National Park Service
Commenter: Lee Baiza

Comment Excerpt Text:
Fence breaks and associated maintenance and repair issues along with trespass livestock issues in wilderness and along unfenced portions of State Route 85 regularly occur in relation to the Ajo Block. The NPS currently spends considerable effort, numerous times a year, repairing fences in order to keep livestock out. Despite these efforts, the NPS continues to respond to trespass livestock issues. The draft document needs to fully consider the implications of continued livestock grazing in the Ajo Block within the framework today's border environment.

Comment Number: 100140-8
Organization: US Environmental Protection Agency
Commenter: Kathleen Goforth

Comment Excerpt Text:
EPA requests that the BLM provide additional information describing the resources it will commit to implementing and enforcing the grazing practices and strategies of the preferred alternative.

Comment Number: 100140-9
Organization: US Environmental Protection Agency
Commenter: Kathleen Goforth

Comment Excerpt Text:
Additionally, we recommend that the BLM staff commit to in-season monitoring, as well as in-season enforcement, when needed, to stem overgrazing and ensure functioning ecological conditions.

Summary

Commenters submitted several comments that were outside the scope of the RMP/EIS, including 1) requesting the RMP further analyze livestock grazing in the Ajo Block, and 2) requesting additional information regarding the resources the BLM would commit to enforcement and monitoring of grazing practices.

Response

A land use planning-level decision is broad in scope and, therefore, does not require an exhaustive gathering and monitoring of baseline data. Although the BLM realizes that more data could always be gathered, the baseline data provides the necessary basis to make informed land use plan-level decisions. Land use plan-level analyses are typically broad and qualitative rather than quantitative or focused on

site-specific actions (BLM Land Use Planning Handbook H-1601-1). The BLM would conduct subsequent project-specific NEPA analyses for projects proposed for implementation under the land use plan (40 CFR 1502.20, 40 CFR 1508.28). As required by NEPA, the public would have the opportunity to participate in the NEPA process for site-specific actions.

1) The Ajo Block falls within the Lower Sonoran Decision Area. Detailed, implementation-level analysis is outside the scope of the RMP and would be addressed during the permit renewal process.

2) Resource allocation for enforcement and monitoring is an administrative and budgetary issue that falls outside the scope of an RMP.

6.2.22.6 Lower Sonoran RMP Range Improvements

Comment Number: 100142-17
Organization: Arizona Game and Fish Department
Commenter: Josh Avey

Comment Excerpt Text:
Section - 2.7.5.2
Page - 82
Line - 14.1.2

Comment/Suggestion
Add provision that facilitates maintenance of livestock waters through cooperation with AGFD and/or a third party. BLM will consult with AGFD on viability of waters for removal.

Bullet 3 - Add provision to remove fencing when fencing is no longer needed or other options meet need

Summary

Commenter recommended provisions to benefit wildlife when livestock improvements are no longer needed.

1. BLM should consult with AGFD when considering removal of livestock waters;

2. BLM should maintain waters for wildlife use in cooperation with AGFD or other parties; and

3. BLM should remove fencing when no longer needed or when options, other than fencing, would meet livestock management needs.

Response

BLM would coordinate with AGFD on disposition and maintenance of developed waters when they are no longer needed for livestock use.

BLM has added a management action in Chapter 2 stating that when BLM and the livestock grazing permit holder agree, livestock fencing would be removed when no longer needed.

6.2.22.7 Lower Sonoran RMP Baseline Data Issues

Comment Number: 100136-34
Organization: Western Watersheds Project
Commenter: Greta Anderson

Comment Excerpt Text:
While the BLM claims that its studies show sufficient protection for saguaro forests on the SDNM, it has offered no such assurances for the LSFO, and no inventory of these resources is presented in the DRMP.

Summary

A commenter requested an inventory of saguaro forests for the Lower Sonoran Decision Area.

Response

An inventory of saguaro forests in the Lower Sonoran Decision Area is outside the scope of broad-scale RMP-level analysis. These kinds of analyses are conducted as a part of the Land Health Evaluations, which are allotment specific implementation actions.

6.2.23 MINERALS

6.2.23.1 Allocations

Comment Number: 100137-25
Organization: Fennemore Craig P.C.
Commenter: Dawn Meidinger

Comment Excerpt Text:
In addition, Freeport encourages the BLM to consider and evaluate an additional alternative that increases utilization of public land in the planning area for mineral development

Comment Number: 100137-28
Organization: Fennemore Craig P.C.
Commenter: Dawn Meidinger

Comment Excerpt Text:
Despite the abundance of mineral resources in the planning area and the high potential for development in certain areas, not a single alternative evaluated in the DRMP/EIS evaluates opportunities to promote the expansion of mineral resource development. Instead, every alternative proposes the closure of public land for mineral activities in varying degrees.

Comment Number: 100137-5
Organization: Fennemore Craig P.C.
Commenter: Dawn Meidinger

Comment Excerpt Text:
It is worthy of note that only one of the four alternatives identified (i.e., Alternative B) includes an increase in opportunity for utilization of public lands. Alternative B, however, primarily evaluates expanded recreation uses as

opposed to expanded opportunity for renewable energy or mineral development. This is in stark contrast to federal law and policy encouraging federal agencies to increase utilization and development of domestic mineral resources. For example, the Federal Mining and Minerals Policy Act (84 Stat. 1876; 30 USC § 21(a» and the Domestic Minerals Program Extension Act of 1953 (50 USC § 2181) set forth United States Congressional policy to foster and encourage mineral development, including mineral deposits located on public lands.

Comment Number: 100159-8
Commenter: Roy Pierpoint

Comment Excerpt Text:
Mining of surface and even subsurface minerals leaves permanent scars on the land. One of these scars has occurred quite recently with the mining of the red/orange sandstone in the Citrus Valley area (northwest side of the Gila Bend Mountains). There is also the danger of abandoned mine shafts left open here and throughout the state. The Monument and Gila Bend Mountain areas should be closed to preserve the area's "pristineness." Alternate E fails to adequately address this issue.

Summary

1) Commenters noted that the BLM did not include an alternative to promote the expansion of mineral resource development.

2) Commenters suggested that the Sonoran Desert National Monument be closed to mineral development.

3) Commenters suggested that the Gila Bend Mountains be closed to mineral development.

Response

1) Congress enacted FLPMA to provide BLM with a unified legislative mandate. In FLPMA, Congress defined the term "multiple-use" management for BLM as "management of the public lands and their various resource values so that they are utilized in the combination that would best meet the present and future needs of the American people." The intent of FLPMA's multiple-use mandate is not to promote any one resource or resource use, but rather to balance uses of the public land with productivity of natural resources.

The range of alternatives proposed in Chapter 2 meets goals and objectives outlined by each resource and resource use program. Alternatives A and B would have the least restrictions on mineral resource development.

2) The presidential proclamation that established the Sonoran Desert National Monument closed the area within the Monument to mineral development, subject to valid existing rights. As such, the Monument is closed to mineral development under all alternatives.

3) For the Lower Sonoran Decision Area, there is a full range of alternatives for mineral development, including closing the Gila Bend Mountains to all mineral development in Alternative D.

6.2.23.2 Impacts

Comment Number: 100137-17
Organization: Fennemore Craig P.C.
Commenter: Dawn Meidinger

Comment Excerpt Text:
Remarkably, the BLM concludes that the effects of the "Avoidance and Exclusions Areas" on future mineral development and other industries are "negligible." DRMP/EIS at 240. This result is due to the fact that the impacts were not properly considered. 11 [Footnote 11 An internal inconsistency in the DRMP/EIS is noted in that the executive summary of impacts classifies the range of intensities from impacts due to LUA restriction in Alternative E as "negligible -major." DRMP/EIS at lxii.] The direct effects analysis relative to the elimination/prohibition of LUAs identifies only a single impact which is that the few remaining multi-use utility corridors might "interfere with or eliminate mineral exploration and development" within their linear boundaries. DRMP/EIS at 678. This completely insufficient level of analysis demonstrates a fundamental misunderstanding about the impact of prohibiting the lifeblood of mining and industry from being allowed within the vicinity of the mineral resources that exist on public lands.

Comment Number: 100137-20
Organization: Fennemore Craig P.C.
Commenter: Dawn Meidinger

Comment Excerpt Text:
The lack of any meaningful direct, indirect or cumulative effects impact analysis in the DRMP/EIS resulting from the proposed closure of public lands to mineral entry for locatable, leasable and saleable minerals is disconcerting and fails to comply with the fundamental requirements of NEPA. See 40 C.F.R. § 1502. 16(a) and (b).

Summary

Commenters pointed out that the impacts from other program areas (specifically land use authorizations) on mineral development were not properly considered and analyzed.

Response

The creation of "Avoidance and Exclusions Areas" applies to actions approved under the Lands and Realty regulations, not mining. Per BLM's Land Use Planning Handbook 1601-1, land and realty allocation decisions include identifying right-of-way avoidance or exclusion areas. An avoidance area is "to be avoided but may be available for location of right-of-ways with special stipulations" and an exclusion area is "not available for location of right-of-ways under any conditions." The impact analysis discussed the effects of these allocation actions on other resources and programs, including mineral resources within the decision areas. BLM found that these land use authorizations do not, by definition, preclude mineral development; therefore, they would have negligible impacts on mineral development (see **Section 4.17** for detailed discussion).

With regard to impacts on mineral development from other resource program goals, objectives, and management actions, the level of resource information detail for minerals precludes a quantitative analysis, and even qualitative analysis could be considered speculative.

6.2.24 RECREATION

6.2.24.1 Camping

Comment Number: 100098-1
Organization:
Commenter: Gerry Bruder

Comment Excerpt Text:
Specifically, in Chapter 2, RR-1.2.18 through RR-1.2.27 the reference to "provided the campground does not remain at 100 percent capacity for thee (3) consecutive nights." In a campground without designated sites this is an unenforceable, unknowable criterion. Even more so if there is no stated distance between rigs required.

Comment Number: 100098-4
Organization:
Commenter: Gerry Bruder

Comment Excerpt Text:
RVers could be limited to designated sites. But a managed campground would ruin the uniqueness of Gunsight Wash. Site designation can be done inexpensively and with very low impact. In fact we are already using vertical mulching techniques to improve the soil and discourage driving in places around the campground.

Comment Number: 100098-5
Organization:
Commenter: Gerry Bruder

Comment Excerpt Text:
We also currently need a designated distance between units. Because many other campgrounds with undesignated sites have a lower level of shrubbery than Gunsight Wash, people can park as close to each other as they like. A minimum rig distance (10 meters) would serve two purposes. It would prevent newcomers from parking on top of campers until their two weeks is up thereby intimidating them into leaving (we've seen it happen). It would also protect the vegetation around a site from being chipped away at by trying to get too many rigs into a spot (also a first-hand experience).

Comment Number: 100098-6
Organization:
Commenter: Gerry Bruder

Comment Excerpt Text:
A workable alternative is to allow campers to stay at the camp for as long as they want, but insist that they change sites every two weeks.

We can use our current system of two week registrations to manage it.

It keeps the current level of fairness for everyone, but also allows people to spend more time and money in the area. There are already low-priced, season-long, stay-in-one-place alternatives in the community. The economy needs neither another managed campground nor an LTVA. These are already existing options. The community will appreciate having a unique camping opportunity that will bring other, different campers into the area.

Comment Number: 100120-7
Organization:
Commenter: Bill Broyles

Comment Excerpt Text:
By the same token, BLM needs to develop a plan that accommodates campers who need tables and fire grates. The day may come when visitation exceeds our predictions and we campers can't just pitch a tent or park the truck anywhere. The agency needs to monitor, set thresholds, design campgrounds, and begin to budget for them. I think this is what you intend in section 4.17. We have seen what growing valley populations have meant in the Ussery Mountains, White Mountains, and certainly South Mountain.

Comment Number: 100121-2
Organization: Sierra Club
Commenter: Jim Vaaler

Comment Excerpt Text:
BLM must also carefully plan and manage recreation opportunities that do not conflict with the protection of the Monument objects, including the Sonoran Desert ecosystem itself. Camping should be limited to designated, dispersed, undeveloped sites. Clear interpretive signing should inform all visitors of the transportation plan and designated campsites, as well as any other restrictions

Comment Number: 100134-2
Organization: Maricopa County Parks and Recreation
Commenter: Teresa Retterbush

Comment Excerpt Text:
- Overnight camping is prohibited within the Buckeye Hills East SRMA. Overnight camping should be allowed in designated campgrounds or areas.

Comment Number: 100164-1
Organization:
Commenter: Everett Huddleson

Comment Excerpt Text:
A suggestion that would be more feasible and cost effective, would be to allow a longer use time than the 14 days, allowing for a one time 14 day extension, with the requirement, however, to relocate your camp site to another spot of at least 300 ft. from the original location. This would lessen the impact on the land, as returning campers tend to migrate back to their "favorite " spot.

Comment Number: 100166-27
Organization:
Commenter: Steve Saway

Comment Excerpt Text:
Management Action RR-1.3.8: Standard camping amenities, interpretive displays, and improved access would be constructed at the Sundad public use site to facilitate visitation.

Comment: See my comment pertaining to Management Action RR-1.3.1. Recommend the Management Action RR-1.3.8 be deleted as it would be incompatible with a Dispersed Use RMZ in an Undeveloped SRMA

Comment Number: LSFO-SDNM-DRMP--1-18361-1
Organization: Offroading and off road racing
Commenter: Douglas Martin

Comment Excerpt Text:
I would like to see the length of stay extended for camping. There are winter visitors that would stay longer than that.

Comment Number: LSFO-SDNM-DRMP--1-18361-6
Organization: Offroading and off road racing
Commenter: Douglas Martin

Comment Excerpt Text:
Also, I don't understand the "move 25 miles or off public land" part. It seems to me these lands are public and belong to the citizens. I'm not sure anyone should telling them to leave an area designated as multi use, camping, or any unrestricted use.

Comment Number: LSFO-SDNM-DRMP--1-18762-2
Organization: National Park Service
Commenter: Catherine Bradley

Comment Excerpt Text:
Close to home camping opportunity
Comment Number: 2
Cited Content: RR-1.2.51: Overnight camping would be prohibited unless specifically authorized.
Cited Section ID: 2.8.4.2 Action Alternatives for Recreation Management (RM)
Comment Title: Close to home camping opportunity
Issue: 10756

Comment:
It could be a great benefit to provide close-to-home camping experience opportunities in the Buckeye Hills RMZ to foster youth outdoors and as future stewards of the resources.

Summary

Commenters expressed concerns regarding camping at Gunsight Wash, Buckeye Hills SRMA, and Sundad and recommended new and revised management actions to address issues. Recommendations for management included: 1) a minimum distances for rigs/units at campgrounds, 2) extending camping timeframes, 3) limiting camping to designated, dispersed, undeveloped sites, and 4) installing amenities at campsites, including tables and fire grates.

Commenters recommended designating campsites in the SDNM and suggested interpretive signage to inform visitors of the location of designated campsites, additional amenities, vehicle restrictions, and other restrictions. Commenters also suggested that the agency develop an activity-level plan for camping management, including monitoring and adaptive management.

Commenters also requested changes in BLM's general camping policy, including the 14-day stay limit and the 25-mile-radius rule.

Response

Establishing minimum distances between rigs and installing amenities at campgrounds are implementation-level decisions outside the scope of this RMP effort. Likewise, designating campsites and developing activity plans are implementation-level decisions outside the scope of this RMP effort.

The dispersed camping policy for public lands in the Phoenix District was established in 1989 and the 14-day stay limit is standard for most public lands in the western states. The 25-mile radius rule is BLM Arizona-wide and is the same or similar to those established in other western states as well. This camping policy would remain in place.

The camping stay limit for Gunsight Wash Campground has been revised back to the 14-day stay limit for the proposed alternative. BLM can make adjustments as needed as long as recreation objectives are being met. (see Management Actions RM-1.1.2, RM-2.1.2, RM-2.1.3, RM-2.1.4, RM-2.1.17, and RM-2.2.3 in **Table 2-31**, Management Actions and Allowable Uses for Recreation Management).

Camping in the SDNM has been revised. See **RM-5.2.3, RM-5.2.4, RM-5.2.5 and RM-5.2.6** in Chapter 2 for clarification (see **Table 2-31**). An activity plan would be developed to determine how camping would be managed. This plan would include provisions for monitoring and adaptive management.

6.2.24.2 Edits

Comment Number: 100134-3
Organization: Maricopa County Parks and Recreation
Commenter: Teresa Retterbush

Comment Excerpt Text:
Under Recreation Management actions and allowable uses, Buckeye Hills West is identified as 100% front country in RR-1.2.36 but in RR-1.2.37 it is identified as 40% front country, 58% back country and 2% passage zone.

Comment Number: LSFO-SDNM-DRMP--1-18311-6
Organization: Competitive racing (whiplash, ATR, AMRA, etc.)
Commenter: Douglas Martin

Comment Excerpt Text:
Not clear what is meant on this one.
Comment Number: 6
Cited Content: RR-2.1.17: Except as otherwise provided, motorized competitive speed events would not be permitted.
Cited Section ID: 2.8.4.2 Action Alternatives for Recreation Management (RM)
Comment Title: Not clear what is meant on this one.
Issue: 10758

Comment:
"Except as otherwise provided". I'm not clear as to the meaning of this.

Summary

Commenters requested several edits to the recreation management actions in the DRMP/DEIS, including requests 1) to clarify the meaning of "except as otherwise provided" in relation to BLM's decision to not permit speed events, and 2) to clarify a discrepancy in recreation setting information.

Response

1) To clarify, motorized speed events would be prohibited in certain areas such as ACECs, Special Cultural Resource Management Areas, and areas being managed for wilderness characteristics, as allocated in the Lower Sonoran and SDNM RMPs. In the areas where motorized speed events are not specifically prohibited, the events may be considered during the site-specific travel management plans developed when BLM begins implementing the decisions in the RMPs. Suitability for this activity would be based on soils, vegetation, public safety, community support, air quality, and BLM's ability to manage and sustain this activity.

2) Recreation Objective 2.3 of the FEIS has been revised to include this clarification: The physical, social and administrative recreation settings would be managed for 100% Community Interface in Alternatives B and E, and 100% Front Country in Alternatives C and D (see **Table 2-31**).

6.2.24.3 Firewood

Comment Number: 100142-7
Organization: Arizona Game and Fish Department
Commenter: Josh Avey

Comment Excerpt Text:
Section 2.7.7.2, Objective 4.2 prohibits the collection of dead, down and detached wood for personal campfire use on the SDNM in front country and passage zones. The Department supports prohibitions when use levels of the dead, down and detached wood is demonstrated to have negative impacts on this resource. The Department recommends that the prohibition objective be replaced with an adaptive management objective that prohibits use when monitoring indicates that negative impacts are occurring.

Comment Number: 100142-8
Organization: Arizona Game and Fish Department
Commenter: Josh Avey

Comment Excerpt Text:
The Department also recommends clarification as to whether bringing firewood into the SDNM for campfires is an allowable action.

Comment Number: 100166-28
Organization:
Commenter: Steve Saway

Comment Excerpt Text:
Management Action RR-2.1.12: Collection of dead, downed, and detached ironwood and mesquite for any use would be limited to three pieces at any one time unless otherwise restricted.

Comment: I don't believe the management action as worded is appropriate or realistic for managing vegetation impacts in an undeveloped, backcountry setting. A better option in my view is to use the limits of acceptable change (LAC) method to monitor impacts and establish a management action as needed. Thus, recommend the management action RR-2.1.12 be re-worded to reflect use of the LAC method to monitor vegetation impacts of firewood usage

Comment Number: 100166-9
Organization:
Commenter: Steve Saway

Comment Excerpt Text:
Comment: Management Action VM-4.2.2 states that the collection of dead, down, and detached wood for personal campfire use while camping on public lands would be prohibited in the passage and front country recreation settings. From a user perspective, the recreational setting of camping on the SDNM should include the opportunity to have a campfire. Most camping occurs in the winter months when a campfire is most needed. Is it realistic to impose this restriction on campers in the passage and front country recreation settings? I think this restriction is unnecessary and would degrade the recreational experience that folks expect when they visit the SDNM. A better option in my view is to use the limits of acceptable change (LAC) method to monitor impacts and establish a management action as needed. Thus, recommend the management action VM-4.2.2 be re-worded to reflect use of the LAC method to monitor vegetation impacts of firewood usage

Summary

Commenters expressed concern over the prohibition on collecting dead, down, and detached wood for personal campfire use and suggested different management strategies to address the issue, including establishing limits of acceptable change and adaptive management strategies. One commenter noted that firewood collecting should only be prohibited when use levels demonstrate negative impacts in front country and passage zones.

Commenters also requested clarification as to whether bringing firewood into the SDNM would be allowed.

Response

Management actions and analysis for firewood collection have been revised to improve clarity, lessen restrictions in the Lower Sonoran Decision Area, and allow for adaptive management (see Management Actions RM-1.1.8, RM-1.1.24, RM-2.1.15, and RM-2.2.13 in **Table 2-31**).

BLM would allow firewood to be brought into the SDNM and the Lower Sonoran Decision Areas for personal use and campfire burning. Burning wooden pallets would be prohibited.

6.2.24.4 Management Actions

Comment Number: 100072-3
Organization:
Commenter: Barry Krayer

Comment Excerpt Text:
The ban on racing appears to just be laziness on this field office's part, the Hassayampa field office has two areas of approximately 30,000 acres each where motorized racing is allowed. The Buckeye Hills, east of Hwy 85, Saddle Mtn, Ajo and Gila Bend have been areas where racing was allowed. You could at least allow the areas furthest from Phoenix, Ajo and Gila Bend to remain open to racing. The terrain in much of your field office is very similar to the Lake Havasu Field Office which hosts the Parker 400 race annually.

Comment Number: 100119-4
Organization: Friends of Saddle Mountain
Commenter: Chris Meachum

Comment Excerpt Text:
Travel Management. Map 3-24 of alternative E shows Road 8201 to remain open and encircling Saddle Mountain. The FoSM has made considerable effort over the years to close and manage this road at the half way point on both sides of Saddle Mountain per the recommendation of the BLM and AZGFD. Closing the southern portion of this road is needed to protect multiple cultural resources and archaeological sites just off the roadway and to keep motorized vehicles away from the water catchment placed by the Desert Bighorn Sheep Society and the AZGFD. FoSM would like to see this particular road remain closed on the southern half of the loop per AZGFD's recommendations. Exact closure points would remain where the BLM has already placed closure signage.

Comment Number: 100119-5
Organization: Friends of Saddle Mountain
Commenter: Chris Meachum

Comment Excerpt Text:
The Community Interface shown on Map 2-12E at the north side of Saddle Mountain is of concern to the FoSM. As our group moves forward with trying to gain wilderness protection for Saddle Mountain as outlined in the Sonoran Desert Heritage Campaign, we feel that further development in this area would be detrimental in our protection efforts. The FoSM would like to see this area removed from the draft in order to keep the lands at Saddle Mountain as natural and free of human building as possible.

Comment Number: 100126-36
Organization: The Wilderness Society
Commenter: Phil Hanceford

Comment Excerpt Text:
The BLM Handbook on Recreation Permit Administration (H-2930-1) clearly states that field offices can and should develop guidelines for issuing SRPs. The Handbook states: "Field Offices are encouraged to develop thresholds through land use planning for when permits are required for organized groups and events for specific types of recreation activities, land areas, or resource settings" H-2930-1 at 13. While the preferred alternative for the SDNM establishes that organized groups of more than 25 participants will require an SRP (DRMP 177), no such threshold is established for the Lower Sonoran Decision Area. In addition to establishing a threshold number

of participants that would require an SRP, BLM should establish other types of thresholds that would trigger the need for an SRP, such as environmental impacts, area size and duration of use.

Comment Number: 100126-80
Organization: The Wilderness Society
Commenter: Phil Hanceford

Comment Excerpt Text:
The RMP should put more meaningful management prescriptions in place to ensure that RMAs designated for quiet recreation activities such as hiking, hunting and wildlife viewing truly protect those experiences. RMAs and RMZs that primarily emphasize non-motorized recreation opportunities should be rights-of-way exclusion areas and closed to surface occupancy to preserve the natural landscape and associate viewsheds and soundscapes.

Comment Number: 100151-19
Organization: Arizona Off Highway Vehicle Coalition
Commenter: Jeff Gursh

Comment Excerpt Text:
Your own sister field office, the Hassayampa field office, has only two other areas of approximately 30,000 acres each where motorized racing is allowed.

The terrain in much of your field office RMP is very similar to the Lake Havasu Field Office which hosts the Parker 400 race annually. They are able to sustainably allow trucks, buggies an smaller vehicles to participate in these events. They only race once per year, use some county roads to connect trails and it's an benefit to the local and state economy. The Buckeye Hills, east of Hwy 85, Saddle Mtn, Ajo and Gila Bend have been areas where racing was allowed.

We ask you to consider allowing these areas furthest from Phoenix, Ajo and Gila Bend to remain open to racing on a limited number of events per year basis.

Comment Number: 100162-10
Organization: The Anza Trail Foundation
Commenter: Elizabeth Stewart

Comment Excerpt Text:
ATF requests that recreational target shooting, paintball, and firewood gathering be prohibited in the Gila Trail SRMA

Comment Number: 100166-31
Organization:
Commenter: Steve Saway

Comment Excerpt Text:
Management Action RR-3.2.7: The designated non-motorized travel system would consist primarily of existing vehicle routes; however, construction of short segments of new vehicle routes to provide experience opportunities consistent with the outcome objective(s) of management zones would be allowed.

Comment: This management action is confusing. I believe the intent would be more clear by deleting the word "non-motorized" in the first sentence

Comment Number: LSFO-SDNM-DRMP--1-17313-2
Organization: RSD Racing
Commenter: Douglas Martin

Comment Excerpt Text:
The trails we wish to use are existing trails. A permit should be allowed on existing trails. Nobody I know of in our sport is against the "no new trails" rule. Each permit should be evaluated on an individual basis, and reasons given if rejected. This is the best way to get the off roading community on board with new regulations. You cannot simply say "none are allowed".

Comment Number: LSFO-SDNM-DRMP--1-18311-4
Organization: Competitive racing (whiplash, ATR, AMRA, etc.)
Commenter: Douglas Martin

Comment Excerpt Text:
Special Recreation Permit
Comment Number: 4
Cited Content: RR-1.2.66: SRPs would not be authorized for motorized or non-motorized competitive events.
Cited Section ID: 2.8.4.2 Action Alternatives for Recreation Management (RM)
Comment Title: Special Recreation Permit
Issue: 10756

Comment:
I feel this is not part of a planning process.

Comment Number: LSFO-SDNM-DRMP--1-18311-7
Organization: Competitive racing (whiplash, ATR, AMRA, etc.)
Commenter: Douglas Martin

Comment Excerpt Text:
I believe placing a moratorium on speed events should not be part of the planning process at all. It would be more suited in the implementation process. However, I'm against it completely and I appreciate the opportunity to explain why.

I realize there can be issues with racing. I also realize the crash in Johnson valley Ca. was a terrible experience for everyone involved, including the BLM. But to place a moratorium on "all events having an element of speed" is just not the right course of action. There are many racing organizations that do very well in controlling their spectators, staging areas, and trash. The ATR (Arizona Trail Riders) and the non-profit clubs of the AMRA (Arizona Motorcycle Racing Association) are very good at what they do. They have minimally evasive courses with great control in their staging areas. Whiplash Off-Road Racing also understands these concerns and is in the process of making changes to their program. In the past, many issues have been settled through mitigation. I've seen ranchers paid to move their cattle, and were happy to do so. Damage to lands and plants have also been corrected through mitigation. Off Road racing, and other events, bring a lot of money to the surrounding towns. As long as mitigation is possible, these events should be allowed to continue.

Comment Number: LSFO-SDNM-DRMP--1-18311-8
Organization: Competitive racing (whiplash, ATR, AMRA, etc.)
Commenter: Douglas Martin

Comment Excerpt Text:
All areas of public lands should be open for SRP's with each evaluated on a case by case basis. Competitive events do not always cause damage and injury. Most serious and fatal injuries to OHV users on public lands happen because of head on collisions. This doesn't happen in competitive events with courses marked.

Comment Number: LSFO-SDNM-DRMP--1-18311-9
Organization: Competitive racing (whiplash, ATR, AMRA, etc.)
Commenter: Douglas Martin

Comment Excerpt Text:
But since it sounds like no competitive events allowed, I'll comment on it. The entire process of allowing competitive events is covered in a SRP. Each should be considered on a case by case basis. There are areas near Painted rock where private lands border BLM lands giving these land owners possible opportunities to rent their lands as staging areas for events. That kind of thinking and planning minimizes the damage to public lands. Please do not forbid SRP's in relation to competitive events.

Comment Number: LSFO-SDNM-DRMP--1-18361-5
Organization: Offroading and off road racing
Commenter: Douglas Martin

Comment Excerpt Text:
Also, any trail system on public land that is open to motorized travel should be available to SRP, including competitive events.

Comment Number: LSFO-SDNM-DRMP--1-18762-1
Organization: National Park Service
Commenter: Catherine Bradley

Comment Excerpt Text:
Need description (size) of buffer zone between motorized and non-motorized
Comment Number: 1
Cited Content: RR-1.2.30: The Buckeye Hills East RMZ would be established (25,800 acres) for a balanced mix of motorized and non-motorized recreation opportunities adjacent to the communities of Buckeye, Avondale and Goodyear.
Cited Section ID: 2.8.4.2 Action Alternatives for Recreation Management (RM)
Comment Title: Need description (size) of buffer zone between motorized and non-motorized
Issue: 10756

Comment:
Successful balance of providing for motorized and non-motorized recreation in this area will depend on the size of the buffer zone between them and how/where the access points are for each user group.

Summary

1) Commenters recommended revisions and additions to recreation and travel management prescriptions, including a) balancing motorized and non-motorized vehicle use, b) protecting non-motorized opportunities through land use authorizations, c) clarifying management associated with motorized vehicles in recreation management areas, including buffer sizes in Buckeye Hills East RMZ, d) prohibiting target shooting, paintball, and firewood collection in Gila Mountain RMZ, e) closing routes in Saddle Mountain SRMA, and f) removing the Community Interface area on the north side of Saddle Mountain shown on Map 2-12e, Alternative E Recreation Management.

2) One commenter requested the BLM comply with the BLM Handbook for recreation permit administration (H-2930-1) by establishing thresholds to manage organized group and event activities.

3) Commenters expressed concern with management in the RMP to close the planning area to racing and other competitive events without adequately considering all available information and options. Commenters suggested the BLM consider mitigation strategies and methods used by other Arizona BLM field offices to manage these activities and, rather than close the planning area, the BLM should evaluate allowing competitive events through the Special Recreation Permit process on a case-by-case basis. Commenters also requested that certain areas remain open to racing, including areas in Ajo and Gila Bend.

4) Commenters expressed their opinion that closing public land to competitive events is an implementation decision and should not be addressed during the planning process.

Response

The Draft EIS considered a range of alternatives designed to meet the BLM's legal duties and purpose and need for action. The purpose and need section in the Draft EIS clearly stated that the purpose of the agency action included compliance with applicable laws, including FLPMA and the SDNM Proclamation (see **Section 1.1**). According to the CEQ regulations and the Department of the Interior NEPA regulations, "[t]he range of alternatives includes those reasonable alternatives (paragraph 46.420(b)) that meet the purpose and need of the proposed action, and address one or more significant issues (40 CFR 1501.7(a)(2–3)) related to the proposed action. Since an alternative may be developed to address more than one significant issue, no specific number of alternatives is required or prescribed" (43 CFR 46.415(b)).

Since the preparation of the DRMP/DEIS, the BLM has issued a new recreation policy (IM 2011-004). This policy provides new definitions and requirements for RMA allocation. After reviewing the RMAs in the DRMP/DEIS, the recreation allocations have been modified consistent with the IM; revisions may be found in **Section 2.11.4** and in **Appendix R**, Special and Extensive Recreation Management Area Worksheets. Several of the SRMAs have been changed to ERMAs to support the multi-resource management emphasis for those areas. For instance, the Buckeye Hills SRMA has been changed to the Buckeye Hills East SRMA and the Buckeye Hills West ERMA and the objectives adjusted accordingly.

1a-c, f) The BLM's range of alternatives in the DRMP/DEIS represented a full spectrum of recreation and travel management options that included emphasizing motorized travel in one alternative to emphasizing non-motorized travel in another alternative, with a couple of alternatives presenting a mix of both motorized and non-motorized objectives and management actions. Revisions in management actions and

prescriptions have been made in some RMAs to better clarify intended outcomes. Many of the requested actions would be addressed through subsequent implementation planning such as how motorized and non-motorized recreation uses in the RMAs would be planned for and managed.

1d) Under the revised recreation RMAs, the Lower Gila Historic Trails SRMA would be defined as ERMA and managed commensurate with other resources and resource uses. In accordance with current BLM policy, target shooting and firewood collection would be prohibited within any recreational site developed in the ERMA. These uses in the dispersed areas have not been identified as concerns and therefore are not prohibited. If conflicts arise in the future, adaptive management strategies would be implemented and addressed in subsequent implementation planning.

1e) **Map 3-25**, Travel Management, is an inventory map showing the existing routes under current management, and presents a travel management map of existing roads that would remain available until further site-specific travel management planning has been completed. Under BLM policy (BLM Land Use Planning Handbook 1600-1), routes in the Lower Sonoran Decision Area, outside the SDNM, would be designated in a travel management plan within five years of RMP approval. Public participation would be an integral part of that process. Inventory maps have been revised, as appropriate, to reflect current management decisions.

2) Although the BLM Handbook for Recreation Permit Administration (H-2930-1) encourages offices to set thresholds during land use planning, only a few thresholds were warranted and have been established for organized group activities. Threshold for SRPs is set for the SDNM as groups numbering 25 or greater. This threshold may be reevaluated and revised during subsequent implementation planning and analysis, as warranted by land management prescriptions and management actions established by this plan.

3) The BLM has revised the RMA management actions and allowable use alternatives to include a broader range of actions for competitive speed events (see Management Actions RM-1.1.13, RM-2.1.14, RM-2.2.12, RM-2.3.6, RM-2.3.12, RM 2.5.8, RM-2.5.13, RM-3.1.15, RM-3.1.17, RM-3.2.8, RM-3.2.11, and RM-3.4.8, which have been revised with clarifying language). Revisions may be found in **Table 2-31** of **Section 2.11.4** in the SRP section, in the individual sections for the SRMAs and ERMAs, and in **Appendix R**.

Additionally, BLM has included the rationale for prohibiting competitive speed events in RMZs, where applicable.

4) Any management action that proposes closing large geographic areas of BLM land to a certain type of activity needs to be addressed in a land use plan. However, it is recognized that the decision whether to leave an area open or closed to SRPs or certain types of SRPs is best addressed by RMA; therefore, RMA management actions and allowable use alternatives have been revised to include a range of alternatives for competitive speed events.

6.2.24.5 Out of Scope

Comment Number: 100001-4
Organization:
Commenter: Jim Vaaler

Comment Excerpt Text:
There have been citizen proposals for National Conservation Area (NCA) designations within the SDNM and the Lower Sonoran Decision Area. Why are these NCA proposals not been recognized in any of the listed alternatives?

Comment Number: 100061-1
Organization:
Commenter: Gordon

Comment Excerpt Text:
To fully achieve this vision it is necessary to rethink the park's funding and management. A park district needs to be implemented. In close proximity to the park are residents of the San Tan Foothills (5,000 people), San Tan Valley (80,000 people) and Queen Creek (25000 people). The park district should include all these areas (110,000 people). If capital expenses are tied to impact fees, Friends of the Park events and voluntary donations, and if the operational budget were substantially increased to $500,000 and if 4 people/household is assumed the tax per household would be about $18/yr. Admittedly, this is off the top of the head stuff, but it is likely realistic. Park management would be directed by a governing board made up of representatives from Pinal and Maricopa Counties, Queen Creek, San Tan Valley and the San Tan Foothills and guided by BLM requirements.

Comment Number: 100120-19
Organization:
Commenter: Bill Broyles

Comment Excerpt Text:
15. For better protection of Lower Gila lands, consider creation of a National Conservation Area for major portions. This could improve cooperation and work with neighboring agencies and private-owner stakeholders, facilitate wildlife corridors, and encourage a regional conservation ethic.

Comment Number: 100126-34
Organization: The Wilderness Society
Commenter: Phil Hanceford

Comment Excerpt Text:
The Lower Sonoran and SDNM Draft RMP fails to implement IM 2011-004, and instead prescribes recreation management based on "benefits based" management, recreation-tourism markets and the two-category system of Recreation Management Areas wherein all public lands are designated as an SRMA or ERMA. The Draft RMP acknowledges the updated guidance and states that required changes will be included in the Proposed RMP. Draft RMP at 1. We appreciate the LSFO's commitment to update the recreation management alternatives for this RMP and adhere to the new guidance; however, postponing those changes to the Proposed RMP does not allow for adequate public review and comment. BLM should issue the revised recreation alternatives as a supplement to the Draft RMP for the LSFO and provide an opportunity for public comment.

Comment Number: 100126-77
Organization: The Wilderness Society
Commenter: Phil Hanceford

Comment Excerpt Text:
For the Lower Sonoran Decision Area, BLM must entirely revise the recreation management discussion and alternatives to comply with the guidance. The recreation management language in chapters 2 and 3 of the DRMP must be updated to reflect the revised Recreation and Visitor Services Land Use Planning Guidance. While much of the analysis informing the recreation management alternatives may still be applicable, BLM must use the new SRMA and ERMA templates instead of the Benefits Based Recreation Worksheets included in Appendix R, and also evaluate Recreation Management Area designations using the new three-category system in which ERMAs require robust objectives, management actions, and implementation decisions, and some lands are not designated as RMAs. Attached are excerpts from the management framework for proposed SRMAs and ERMAs from the Colorado River Valley Draft RMP, which utilize the new guidance and templates. (Attachment 4).

Because the SDNM is fully contained in an SRMA through the range of alternatives, BLM could minimally update the recreation management plan for the Monument by replacing the RMZ Worksheets for the SDNM Planning Area (Appendix R) with the new SRMA template provided with IM 2011-004. The new templates reflect changes to the Land Use Planning Handbook resulting from the new guidance, including outcomes based management and elimination of market strategies.

Recommendations: BLM must update the recreation management analysis and alternatives to reflect the guidance set forth in IM 2011-004. The BLM should offer a supplemental comment period on the revised recreation alternatives prior to releasing the Proposed RMP for the LSFO.

Comment Number: 100126-79
Organization: The Wilderness Society
Commenter: Phil Hanceford

Comment Excerpt Text:
While we agree that recreation impacts to Monument objects should not exceed 2001 levels, the Recreation Impacts report indicates that in some areas the 2001 levels do not match desired conditions for the Monument. The RMP should therefore also commit to identifying recreation sites where baseline conditions indicate unacceptable impacts and taking action to reduce those impacts, regardless of the 2001 levels. The RMP should also establish a specific monitoring program for recreation impacts to Monument objects using the baseline physical data and management recommendations developed for the Recreation Impacts report.

Comment Number: 100126-89
Organization: The Wilderness Society
Commenter: Phil Hanceford

Comment Excerpt Text:
In order to effectively preserve the natural soundscape in wilderness and other quiet recreation areas, BLM must quantitatively measure (1) the decibel (dB) levels of the natural soundscape; and (2) ORV dB levels on the natural soundscape. Quantification of ORV traffic volume, duration, and frequency are thus necessary components of soundscape analysis.

There are many tools available to BLM to adequately measure noise impacts and set prescriptions to prevent negative impacts. The Wilderness Society recently created a GIS model based on the System for the Prediction of Acoustic Detectability (SPreAD), a workbook issued by the Forest Service and Environmental Protection Agency for land managers to "evaluate potential … acoustic impacts when planning the multiple uses of an area." The Wilderness Society adapted the SPreAD model to a GIS environment so that potential noise impacts could be integrated with other variables being considered in the planning process. We can provide the most up-to-date version of this software at your request. The SPreAD-GIS model can be implemented in your existing ArcGIS software at no additional cost. The SPreAD-GIS model was developed for the Forest Service, but its applicability extends seamlessly to BLM lands, as the inputs include vegetation and topography.

We encourage BLM to use the SPreAD-GIS model to determine what sounds will impact visitors in each segment of the planning area, and what steps must be taken to mitigate these impacts. It is important to note that the original SPreAD operates under the premise that in wilderness and other primitive recreation areas, no noise should be audible above the natural soundscape.

Recommendations: We recommend BLM conduct a soundscape analysis to guide formulation of intended user experiences, for example by analyzing how topography and vegetation might reflect or propagate vehicular sound and how that might affect quiet users, neighboring homeowners and wildlife habitat effectiveness. We ask that the alternatives specifically compare impacts of, and the potential for the increase of ORV noise on natural sound and other resources, consistent with the BLM's regulations.

Comment Number: 100158-1
Organization:
Commenter: Bob Bryant

Comment Excerpt Text:
My big concerns with the Coffee Pot Mountains area is that the drug and human smuggling are at an all-time high in this area. During the hunting seasons over the last two years hunters who camped out along the pipeline road have experienced illegal immigrants showing up in their camps at night. There were Vehicle driving down the roads in the dark of night without lights on try to avoid detection and Border Patrol helicopters lighting up their camps in the middle of the night. Restricting camping to only the Pipeline Road you are putting the campers in the main path of the smuggling which occurs in the area.

Comment Number: LSFO-SDNM-DRMP--1-17412-1
Organization:
Commenter: Steve Franklin

Comment Excerpt Text:
I have not seen in any land use management studies any surveys by BLM whereby they have attempted to identify who uses our public trust land in the SDNM area and for what purpose do they use it for. By knowing what percentage use is typically seen within SDNM then BLM can better manage the area for that use.

Summary

Several commenters noted that the BLM did not implement the revised guidance for Recreation and Visitor Services per BLM Instruction Memorandum 2011-004, and requested that the BLM develop and provide revised recreation alternatives and allow for public comment before the Proposed RMP is issued.

1) Commenter recommended that BLM conduct a soundscape analysis to guide formulation of intended user experiences.

2) Commenter questioned whether the BLM has recreation visitor studies in the SDNM and how those studies are used to better manage the area for that use.

3) Commenters noted that in the Coffee Pot Mountains area, restricting camping to only the pipeline road puts campers in the main path of smuggling, which occurs in the area.

4) Commenter suggests the RMP commit to identifying recreation sites within the SDNM where baseline conditions indicate unacceptable impacts. They also recommend BLM take action to reduce those impacts and establish a monitoring program.

5) Commenters requested that BLM consider designating a National Conservation Area (NCA) within the SDNM and modify funding amounts and boundaries to the San Tan Regional Park.

Response

Since the preparation of the DRMP/DEIS, the BLM has issued new recreation policy (IM 2011-004) that provides new definitions and requirements for RMA allocation. After reviewing the RMAs in the DRMP/DEIS, the SRMAs have been modified consistent with the IM and revisions may be found in **Section 2.11.4** and **Appendix R**.

The requisite level of information necessary to make a reasoned choice among the alternatives in an EIS is based on the scope and nature of the proposed decision. The baseline data provided in **Section 3.3.4**, Recreation Management, have been updated and revised to address comments; these data, along with **Appendix Q**, Recreation Settings and Descriptions, and **Appendix R**, Special and Extensive Recreation Management Area Worksheets, support, at the general land use planning-level of analysis, the environmental impact analysis resulting from the management actions.

1) BLM used a variety of factors to guide recreation management actions in the alternatives, including user experience related to soundscape (see **Appendices Q** and **R**). These factors are appropriate for land use planning-level decision making.

2 & 4) A land use planning-level decision is broad in scope and, therefore, does not require an exhaustive gathering and monitoring of baseline data. Although the BLM realizes that more data could always be gathered, the baseline data provides the necessary basis to make informed land use plan-level decisions. Land use plan-level analyses are typically broad and qualitative rather than quantitative or focused on site-specific actions (BLM Land Use Planning Handbook H-1601-1, Chapter II, A-B at 11-13 and Chapter IV, B at 29). The BLM would conduct subsequent project-specific NEPA analyses for projects proposed for implementation under the land use plan. Recreation visitor studies are ongoing in SDNM, but final analyses are not yet available for use in planning. BLM has engaged researchers to develop methods for identifying and monitoring recreation impact areas.

3) Camping is allowed throughout the Coffeepot-Batamote ACEC area. There are several passage roads into the area (Map 2-14e, Alternative E Travel Management) that provide access for camping away from the pipeline road.

5) Both of these requested actions are beyond BLM's authority. An NCA is designated by Congress. The establishment of a park district to fund a recreation park is beyond BLM's authority and under the purview of state and/or local governments. In addition, since the park is on BLM-administered lands, it would have to be authorized under a BLM R&PP lease agreement before any such proposal could occur.

6.2.24.6 Recreational Shooting Alternatives

Comment Number: 100052-2
Organization: National Rifle Association
Commenter: Susan Recce

Comment Excerpt Text:
The only engagement that BLM intends to take regarding recreational shooting is to use its authority under the Federal Lands Policy Management Act to sell land or through its authority under the Recreation and Public Purposes Act to patent land. However, the BLM says that in neither case can this be done because it would not be "compliant with the provisions provided under the Monument proclamation or management goals and objectives identified in the DRMP." Thus BLM did not present or analyze these as alternatives in developing the DRMP.

Comment Number: 100052-7
Organization: National Rifle Association
Commenter: Susan Recce

Comment Excerpt Text:
Not only is it evident in two of the four alternatives that would close the SDNM to shooters, but it is clear that the treatment of recreational shooting in Alternatives B and C is nothing more than a throw away proposal which is designed to recognize the long history of recreational shooting on these public lands and the need for places to shoot, but provides no analysis that supports either management proposal. Alternative B would allow shooting on over 96,000 acres, but the BLM's GIS analysis eliminated all but two sites as highly suitable for recreational shooting because of the presence of Monument objects, desert tortoise habitat, the Anza Historic trail, and unsuitable terrain. Thus, Alternative B has limited to no serious viability as an alternative for public consideration as it pertains to shooting.

Comment Number: 100052-1
Organization: National Rifle Association
Commenter: Susan Recce
Other Sections: 22.7

Comment Excerpt Text:
The DRMP has failed to identify an acceptable and responsible management plan for the continuation of recreational shooting in the SDNM; an activity which the DRMP acknowledges is a traditional and historic use of the area. The DRMP is deficient because:

1. It fails to provide sound justification for closing the SDNM to recreational shooting activities as proposed in Alternatives D and E (the BLM's preferred alternative);

2. It fails to frame recreational shooting in Alternative B and C as viable and realistic proposals for the public's consideration;

3. It fails to provide a reasoned analysis for areas opened for shooting in Alternatives B and C, suggesting that the sites are an arbitrary decision;

4. BLM has preconditioned the outcome of the NEPA process by stating that the recreational shooting is not an appropriate public use in the SDNM;

5. It has ignored the need for access and opportunity by the surrounding community for safe places to shoot; and,

6. It proposes closure as the only response to solving problems associated with recreational shooting and dismisses measures that would effectively reduce and/or eliminate the vast majority of resource impacts.

Comment Number: 100113-2
Organization: Archery Trade Association et al.
Commenter:

Comment Excerpt Text:
This policy contradicts BLM's admission that Arizona has "broad public demand for places to shoot .... Even in light of this clear need, the DRMP gives only cursory consideration and no analysis to the Alternatives that would continue recreational shooting on the SDNM. It clearly indicates that the BLM has every intention of proceeding with the closure of the SDNM to shooters.

Comment Number: 100113-4
Organization: Archery Trade Association et al.
Commenter:

Comment Excerpt Text:
The BLM needs to take a proactive position of finding suitable sites from the 63 sites that have been used by shooters and commit resources to that purpose, as well as working with the local community of shooters to keep sites clean and promote responsible shooting.

Comment Number: 100113-5
Organization: Archery Trade Association et al.
Commenter:

Comment Excerpt Text:
It fails to acknowledge that there are ways in which impacts can be mitigated.

Comment Number: 100120-11
Organization:
Commenter: Bill Broyles

Comment Excerpt Text:
5. Disallow target shooting. Licensed hunting is a legitimate activity within the Monument, but there must be other places outside of the Monument suitable for target shooting. The general public needs to be able to visit an area in relative safety, not wondering who might be plinking over the next hill or bend in the road. Suitable sites should be available in other BLM Lower Gila or private lands, especially for the rapid-fire and long-range arms currently available.

Comment Number: 100142-2
Organization: Arizona Game and Fish Department
Commenter: Josh Avey

Comment Excerpt Text:
The Department continues to support the allowance of dispersed recreational shooting opportunities on public lands. Further, the Department notes that a target shooting suitability analysis (Appendix G) identified the Gap Tank B and Hidden Valley C sites to be highly suitable for recreational target shooting within the Monument. With projected population increases in the area surrounding SDNM, target shooting opportunities would become more limited over time. The Department recommends BLM reconsider the prohibition on the SDNM and, at a minimum, allow target shooting in the areas determined to be suitable. The Department also recommends adding language allowing the formation of partnerships to effectively manage these sites.

Summary

Several commenters disagreed with management that would close the SDNM to recreational shooting. Commenters expressed their opinion that the BLM did not offer a valid full range of alternatives regarding recreational shooting. They stated that the DRMP/DEIS:

1) Did not identify an acceptable and responsible management plan for the continuation of recreational shooting in the SDNM and is deficient because it fails to frame recreational shooting in Alternative B and C as viable and realistic proposals for the public's consideration;

2) Has ignored the need for access and opportunity by the surrounding community for safe places to shoot;

3) Gives only cursory consideration and no analysis to the alternatives that would continue recreational shooting on the SDNM;

4) Needs to reconsider allowing shooting within sites found to be suitable;

5) Needs to find suitable places outside of the Monument where the public can safely shoot firearms and be away from rapid-fire and long-range arms; and

6) Dismisses measures that would effectively reduce and/or eliminate the vast majority of resource impacts.

Response

1) The BLM considered a range of alternatives designed to meet the BLM's legal duties and purpose and need for action. The purpose and need section in the DRMP/DEIS clearly states that the purpose of the agency action includes compliance with all applicable laws including the Sonoran Desert National Monument Proclamation (see **Section 1.1**). To be reasonable, all alternatives in the Monument must satisfy the paramount purpose of the establishment of the Monument: protection of the objects of the Monument. According to the CEQ regulations and the Department of the Interior NEPA regulations, "[t]he range of alternatives includes those reasonable alternatives (paragraph 46.420(b)) that meet the purpose and need of the proposed action, and address one or more significant issues (40 CFR 1501.7(a)(2–3)) related to the proposed action. Since an alternative may be developed to address more

than one significant issue, no specific number of alternatives is required or prescribed" (43 CFR 46.415(b)).

The BLM acknowledges many variations of alternatives could be included in the RMP analysis process. However, the BLM is not required to analyze in detail each variation, including those variations determined not to meet the RMP's purpose and need or those determined to be unreasonable given BLM mandates, policies, and programs. CEQ states that only a reasonable number of examples covering the full spectrum of alternatives must be analyzed and compared in the EIS (Forty Most Asked Questions Concerning CEQ's NEPA Regulations, 46 Fed. Reg. 18,026, 18, 03 [March 23, 1981]).

The RMP/EIS provided a reasonable range of alternatives regarding target shooting within the SDNM (see **RM-5.2.14, RM-5.2.15 and RM-5.2.16** in Chapter 2), including allocations that would allow shooting in areas suitable for this activity.

2) Under all action alternatives for the Lower Sonoran Decision Area, shooting opportunities would be provided (see **RM-3.1.11** in Chapter 2). Even though the action alternatives for the SDNM includes one that would close it to target shooting, the proposed RMP would maintain the Monument open to recreational target shooting (consistent with the No Action Alternative) subject to Management and Administrative Actions designed to protect Monument objects. Supplementary rules would be promulgated to provide law enforcement authority to enforce actions deemed necessary to protect Monument objects, other natural resources, and visitor safety.

3, 4 & 6) Current policy guidance provides two methods for allocating public lands for target shooting: direct sale under Section 203 of FLPMA or through patents issued under the R&PP Act of 1926 (Washington Office Instruction Memorandum No. 2008-074). Neither approach is appropriate within the SDNM. Current BLM policy does not allow for designating and managing shooting areas under any other method. The shooting analysis in **Appendix G**, Sonoran Desert National Monument Recreational Target Shooting Analysis, indicated that the measures needed to manage shooting in smaller, more concentrated areas (as in Alternatives B and C) in a manner that protects Monument objects, would require building structures such as backstops and berms that would not be appropriate within the Monument.

3 & 5) The BLM has presented sufficient information (**Appendix G** in DRMP/DEIS) and analysis to reach informed decisions concerning the impacts of target shooting on specific resources such as vegetation (**Section 4.8**), cultural resources (**Section 4.5**), sensitive plant species (**Section 4.14**), and wilderness characteristics (**Section 4.12**). BLM has also revised and updated the impact analysis to describe impacts on the shooting community under Alternative D and the indirect impacts on the Lower Sonoran and other surrounding public lands. This analysis is included in the discussion of recreation management impacts on recreation management, **Section 4.19**.

The PRMP/FIES was revised to make the Proposed Alternative for recreational target shooting in the SDNM the same as current management. The change in the Proposed Alternative and the rationale for making the change are described in Chapter 1, section 1.7.

6.2.24.7 Recreational Target Shooting Analysis and Criteria

Comment Number: 100052-1
Organization: National Rifle Association

Commenter: Susan Recce
Other Sections: 22.6

Comment Excerpt Text:
The DRMP has failed to identify an acceptable and responsible management plan for the continuation of recreational shooting in the SDNM; an activity which the DRMP acknowledges is a traditional and historic use of the area. The DRMP is deficient because:

1. It fails to provide sound justification for closing the SDNM to recreational shooting activities as proposed in Alternatives D and E (the BLM's preferred alternative);

2. It fails to frame recreational shooting in Alternative B and C as viable and realistic proposals for the public's consideration;

3. It fails to provide a reasoned analysis for areas opened for shooting in Alternatives B and C, suggesting that the sites are an arbitrary decision;

4. BLM has preconditioned the outcome of the NEPA process by stating that the recreational shooting is not an appropriate public use in the SDNM;

5. It has ignored the need for access and opportunity by the surrounding community for safe places to shoot; and,

6. It proposes closure as the only response to solving problems associated with recreational shooting and dismisses measures that would effectively reduce and/or eliminate the vast majority of resource impacts.

Comment Number: 100154-10
Organization: Tucson Rod and Gun Club
Commenter: Don Saba

Comment Excerpt Text:
'The second aspect of this issue identified in the assessment was the potential development of a "criteria for appropriate zones for formal and informal shooting opportunities. " Subcommittee dialog and discussion initially focused on determining whether this concept could be addressed. After significant debate, the subcommittee participants determined that a general criteria would not be useful to help the various agencies locate and manage shooting locations on public land. '

Unfortunately the BLM through the DRMP/EA chose to ignore this finding and proceeded to develop a series of flawed criteria that were then used to exclude practically all of the SDNM from recreational target shooting.

Comment Number: 100154-3
Organization: Tucson Rod and Gun Club
Commenter: Don Saba

Comment Excerpt Text:
The GIS analysis rationale using "criteria" for finding suitable sites for shooting is defective because it excludes recreational target shooting from all areas that:

- are habitat for certain cacti and other trees
- are habitat for desert tortoises

- do not meet certain arbitrary (and invalid) criteria (created by BLM) for safe shooting

This analysis is flawed because:

- The available evidence shows that recreational target shooters are not shooting cacti or other trees or otherwise endangering people or wildlife.
- The DRMP/EA cites no evidence that recreational target shooters are injuring or killing tortoises
- The criteria for finding suitable shooting sites are flawed (see below)

Comment Number: 100154-4
Organization: Tucson Rod and Gun Club
Commenter: Don Saba

Comment Excerpt Text:
Furthermore, the assumption that Monument objects will be damaged or destroyed and desert tortoises will be injured or killed if target shooting is allowed in certain areas of the Monument is contradicted by the fact that game shooting will still be permitted unrestricted in these same areas. The DRMP/EA makes no effort to explain this contradiction

Comment Number: 100154-5
Organization: Tucson Rod and Gun Club
Commenter: Don Saba

Comment Excerpt Text:
The DRMP/EA completely misses the fact that, since shotguns have very short range, that none of the shooting slope, backstop, shooting fan and downrange features criteria could possibly apply to shotgun shooting. In addition, since .22 caliber firearms and pistols are far less powerful than high powered hunting rifles, the same safety criteria for high powered rifles cannot be applied to pistols and .22 caliber firearms.

Comment Number: 100154-9
Organization: Tucson Rod and Gun Club
Commenter: Don Saba

Comment Excerpt Text:
The DRMP/EA states that hunting will be allowed throughout the SDNM whereas target shooting will be restricted or prohibited, even though there is very little practical difference between recreational game shooting and recreational target shooting, as both are practiced by ethical and responsible shooters.

There is a major inconsistency and contradiction in the treatment of hunting compared to recreational target shooting. According to the DRMP/EA, vast tracts of land are deemed unsuitable for recreational target shooting where:

- There are Monument objects
- There are desert tortoises
- Certain arbitrary (and invalid) criteria (created by BLM) for safe shooting are not met

Yet all of these same areas are deemed suitable for shooting when such shooting is done by hunters.

Summary

Commenters questioned and disputed some of BLM's analysis and criteria used for recreational shooting.

One commenter felt the DRMP/DEIS is deficient because:

1) It failed to provide sound justification for closing the activity as proposed in Alternatives D and E;

2) It failed to provide a reasoned analysis for areas opened for shooting in Alternatives B and C; and

3) BLM has preconditioned the outcome of the NEPA process by stating that the recreational shooting is not an appropriate public use in the SDNM.

Another commenter identified several reasons the DRMP/DEIS is flawed, including:

4) Presenting an assessment that identified the potential development of a "criteria for appropriate zones for formal and informal shooting opportunities," which the DRMP/DEIS ignored and used flawed criteria;

5) Defective GIS analysis rationale;

6) It did not address the contradiction between impacts caused by game hunting and those by target shooters; and

7) The same criteria should not be applied for shotguns, pistols, and 22-caliber rifles versus high-powered rifles.

Response

CEQ regulations require an environmental impact statement to "succinctly describe the environment of the area(s) to be affected or created by the alternatives under consideration. The description shall be no longer than is necessary to understand the effects of the alternatives. Data and analyses in a statement shall be commensurate with the importance of the impact, with less important material summarized, consolidated, or simply referenced. Agencies shall avoid useless bulk in statements and shall concentrate effort and attention on important issues" (40 CFR 1502.15).

The BLM complied with these regulations in writing its affected environment section. The requisite level of information necessary to make a reasoned choice among the alternatives in an EIS is based on the scope and nature of the proposed decision. The baseline data provided in **Section 3.3.4**, Recreation Management, and **Appendix G** is sufficient to support the environmental impact analysis resulting from management actions presented in the Draft RMP/FEIS. For example, **Appendix G** in the DRMP/DEIS provided a complete description of the criteria and methodology used for analyzing the areas that would be appropriate for recreational target shooting.

1, 2, 3, 4 & 5) These criteria, developed from discussions with subject matter experts in range management, guidelines published by national shooting organizations, and published surveys of target shooters' attitudes, represented the best information available to BLM. Additionally, an analysis of impacts observed at sites used for target shooting, in contrast to sites not used for target shooting,

found significant impacts on features of the landscape determined to be "objects" of the SDNM at sites used predominantly for target shooting. The GIS analysis used these findings to appropriately describe the potential impacts from target shooting that might be expected to accrue to Monument objects across the SDNM. Nowhere in the document did BLM say that target shooting is an inappropriate use.

6) The BLM does not have data comparing the relative impacts of recreational target shooting to those from hunting; however, the BLM believes the two are distinctly different recreational pursuits. Evidence collected in the Monument has demonstrated that there are areas that have had vegetation removed or destroyed by concentrated target shooting, trash, and litter left by target shooters, such as inappropriate targets (computer terminals, refrigerators) and large quantities of spent ammunition. While hunting also involves discharge of a firearm, the activity is dispersed, involves fewer users, and results in many fewer weapons discharges. It is not unusual for a recreational target shooter to fire more shots in a few minutes than a hunter might fire all hunting season. Impacts on Monument objects resulting from recreational target shooting alternatives are described in **Section 4.26**, Implementation Level Analysis.

7) Although the safety guidelines for shotguns, handguns, and small caliber rifles may in theory be less than for high-powered rifles, in practice a uniform criterion appropriate for all types of weapons must be applied unless management restrictions are enforced on allowable types of weapons. Current BLM policy does not allow for designating and managing shooting areas.

6.2.24.8 Recreational Target Shooting Impacts

Comment Number: 100001-11
Organization:
Commenter: Jim Vaaler

Comment Excerpt Text:
Recreational target shooting threatens the objects listed in the Monument proclamation. User created shooting galleries that have been utilized over a long period of time are visible from a long way off because the desert varnish and outer surface of the rocks have been removed, generally leaving an area that is lighter in color and noticeably devoid of vegetation.

Comment Number: 100052-4
Organization: National Rifle Association
Commenter: Susan Recce

Comment Excerpt Text:
The DRMP does not provide any information as in the effect of closure of the 63 areas within the SDNM on access (travel distance) and opportunities available to those displaced shooters on other public lands. It does not analyze the impact of forcing shooters from SDNM onto other public land, nor how the increase in shooters will affect the safe use of sites elsewhere.

Summary

Commenters provided several comments related to recreation impacts, including 1) target shooting threatens objects listed in the Monument proclamation, and 2) the DRMP/DEIS does not adequately address the impacts from closing the 63 areas within the SDNM to displaced shooters, or the indirect impacts on the surrounding public lands.

Response

As required by 40 CFR 1502.16, the DRMP/DEIS provided a discussion of the environmental impacts of the alternatives including the proposed action, any adverse environmental effects that cannot be avoided should the proposal be implemented, the relationship between short-term uses of man's environment and the maintenance and enhancement of long-term productivity, and any irreversible or irretrievable commitments of resources that would be involved in the proposal should it be implemented.

The BLM has presented sufficient information (**Appendix G** in DRMP/DEIS) and analysis to reach informed decisions concerning the impacts of target shooting on specific resources such as vegetation (**Section 4.8**), cultural resources (**Section 4.5**), sensitive plant species (**Section 4.14**), and wilderness characteristics (DRMP/DEIS at page 4-575). BLM has also revised and updated the impact analysis to describe impacts on the shooting community under Alternative D and the indirect impacts on the Lower Sonoran and other surrounding public lands. This analysis is included in the discussion of recreation management impacts on recreation management, **Section 4.19**.

6.2.24.9 Recreational Target Shooting Out of Scope

Comment Number: 100022-1
Organization:
Commenter:

Comment Excerpt Text:
Has there been an analysis of who is leaving trash behind, i.e. is it illegal immigrants? Drug traffic related? Or locals dumping instead of using landfills?

Comment Number: 100022-2
Organization:
Commenter:

Comment Excerpt Text:
2) How does the spent ammunition left behind by target shooting affect the environment?

Comment Number: 100096-1
Organization:
Commenter: Scott Bergman

Comment Excerpt Text:
I think that the best approach here is to offer incentive to shooters and OHV users that spot a violator and trash (or other) so that BLM can be notified and the criminals brought up on charges, as they should be. Something similar to "Operation Game Thief" would be a good way to go.

Comment Number: 100097-1
Organization:
Commenter: Shelly Bergman

Comment Excerpt Text:
When I go fishing or hunting, if I witness someone breaking the law I can turn them in and get a reward from the Game and Fish Department. Why not transition this program over to our deserts and let US report the bad guys

and take it from there? You could post signs stating so at the entrances to these areas you are so concerned about.

Comment Number: 100113-1
Organization: Archery Trade Association et al.
Commenter:

Comment Excerpt Text:
This statement, coupled with BLM's decision to close Ironwood Forest National Monument to recreational shooters, suggests that BLM is adopting a policy that is contrary to decades of BLM management, has no basis in law, and could lead to the closing of millions of acres of public land to recreational shooting. The designation of national monuments does not preclude recreational shooting. BLM is justifying this policy based on protection of Monument "objects."

Comment Number: 100132-5
Organization: Tread Lightly! Inc.
Commenter: Lori McCullogh

Comment Excerpt Text:
I am curious to know, before deciding to shut the entire SDNM down to recreational shooting, how long the specific issues related to recreational shooting sports have been a problem for land managers at the SDMN? And exactly what has been done over that period of time to protect the resource and inform/educate the public on appropriate/responsible behaviors before deciding to shut the entire National Monument down to recreational shooting?

Comment Number: 100132-9
Organization: Tread Lightly! Inc.
Commenter: Lori McCullogh

Comment Excerpt Text:
I am writing regarding the BLM's proposed closure of the entire 486,499 acre Sonoran National Monument (SDNM) to recreational shooting. This action is completely contradictory to the Department of Interior's priority to protect recreational shooting opportunities on public lands. See the attached memorandum dated November 23, 2011 and signed by Secretary Ken Salazar himself.

To close the SDNM off to recreational shooting also contradicts the DOI & BLM's commitments to enhance recreational access and opportunities for activities like hunting, fishing and the shooting sports through The Recreational Hunting and Wildlife Conservation Plan as directed by Executive Order 13443.

Then there is the Federal Lands Hunting, Fishing, and Shooting Sports Roundtable Memorandum of Understanding, of which the BLM is a signatory on. Its statement of mutual interests and benefits to all parties is to "provide public access to federal lands and enhance opportunities on federal lands to fish, hunt and engage in shooting sports activities."

Furthermore, not only does closing SDNM to recreational shooting hurt efforts to enhance recreational access and opportunities throughout America, it also hurts the concerted efforts at both the federal and state levels to retain and recruit new recreational shooters, hunters and anglers.

Comment Number: 100154-2
Organization: Tucson Rod and Gun Club
Commenter: Don Saba

Comment Excerpt Text:
A third false assumption is that the illegal dumping at some shooting sites was being done by the shooters. Many illegally dumped items found at target shooting sites are clearly not brought there by shooters. Such items include palm fronds, large pieces of broken concrete, newspapers, foam couch cushions, etc. The fact that other household trash items have been shot does not prove that the shooters dumped them there in the first place. The ready proximity of many shooting sites to civilization unfortunately makes these sites ideal for illegal dumping.

Comment Number: 100154-6
Organization: Tucson Rod and Gun Club
Commenter: Don Saba

Comment Excerpt Text:
Other alternatives that the DRMP/EA failed to consider is the use of law enforcement to cite those who violate the law. If there is a lack of sufficient law enforcement personnel to enforce the law, then the case should be made for increased law enforcement funding, not for a total ban on shooting.

Illegal dumping and resource damage especially, should be vigorously cited and stiff fines should be assessed at a level commensurate with all law enforcement and cleanup costs incurred. The BLM has the power to request such action through the executive branch. It should do so immediately.

Comment Number: 100154-7
Organization: Tucson Rod and Gun Club
Commenter: Don Saba

Comment Excerpt Text:
An additional alternative would be to clear, enhance and make hospitable a number of readily accessible areas for shooting so that the damage of the lawless element is minimized. Such enhancements could also include areas where law enforcement could observe the shooting areas without being seen themselves, in order to facilitate catching lawless individuals.

Comment Number: 100154-8
Organization: Tucson Rod and Gun Club
Commenter: Don Saba

Comment Excerpt Text:
A major false assumption propagated throughout the DRMP/EA is the idea that recreational target shooters routinely commit illegal acts and degrade the environment.

The DRMP/EA defines Recreational target shooting on page 978 as:

The discharge of any firearm for any lawful, recreational purpose other than the lawful taking of a game animal. Recreational target shooting does not include firearms use employed in accordance with state hunting regulations and policy regarding recreational target shooting does not apply to hunters in pursuit of game with firearms that are being employed in accordance with such regulations.

Then, in direct contradiction to this definition, the DRMP/EA proceeds to accuse Recreational target shooters of a long list of illegal activities including:

- Intentional shooting of saguaro cactuses
- Shooting trees
- Shooting petroglyphs
- Illegal dumping
- Littering
- Shooting at wildlife
- Killing wildlife
- Committing acts of vandalism
- Shooting signs
- "Drive-by shotgunning"
- shooting restroom doors
- Shooting through block walls of rest rooms
- Destroying BLM trailhead cultural facilities, including interpretive signs and register boxes
- Endangering people

The DRMP/EA then claims that these illegal acts will be alleviated by banning recreational target shooting.

Comment Number: LSFO-SDNM-DRMP--1-17811-1
Organization:
Commenter: Greg Gonnerman

Comment Excerpt Text:
This management plan not only overstates the problem, it misdirects the blame. It seems highly unlikely that target shooters are taking major home appliances to the desert for target practice. More likely people are going to the desert to dump trash and are attracted to these easily accessible areas frequented by target shooters. Banning target shooting would not significantly reduce littering.

Summary

1) Commenters indicated that closing the entire SDNM to recreational shooting was contrary to policy as well as DOI and BLM guidance that acknowledge the importance of providing locations for recreational shooting on public land.

2) Commenters indicated that the BLM did not provide adequate justification for prohibiting shooting in the SDNM and did not analyze alternative solutions such as increasing the use of law enforcement, designating shooting sites, rewards and programs for land users to better police shooting, and forming partnerships with various groups to keep sites clean and promote responsible shooting.

3) One commenter expressed their opinion that closure of recreational shooting on National Monuments could lead to future closing of millions of acres of public lands (not addressed in cumulative impacts) and designation of National Monuments does not preclude recreational shooting.

Response

1) Current policy guidance provides two methods for allocating public lands for target shooting: direct sale under Section 203 of FLPMA or through patents issued under the R&PP Act of 1926 (Washington

Office Instruction Memorandum No. 2008-074). However, these types of actions are not consistent with SDNM Proclamation 7397. Dispersed shooting could be allowed, provided it does not interfere with protection of the Monument objects.

2) The BLM has presented sufficient information (**Appendix G** in DRMP/DEIS) and analysis to reach informed decisions concerning the impacts of target shooting on specific resources such as vegetation (**Section 4.8**), cultural resources (**Section 4.5**), wildlife and special status species (**Section 4.14**), and wilderness characteristics (**Section 4.12**). These impacts are described at a level appropriate to an activity-level analysis. The impact analysis has been updated and revised to include additional analysis regarding alternative solutions for managing dispersed target shooting and the cumulative impacts from closing the SDNM to shooting. Although the presence of litter was cited by Appendix G as prevalent at sites used for recreational target shooting, the presence/absence of litter was not used as a criterion for determining the impacts of target shooting to Monument objects. Increased use of law enforcement, reward initiatives, programs for land users to better manage shooting, and partnerships with various groups are tools available to the BLM for managing public land and will be utilized to the extent practical to manage recreational target shooting and to protect the objects of the Monument.

3) Management proposed in this plan has been analyzed in the EIS. The RMP is not proposing closure of any other lands to recreational target shooting other than those in the alternatives presented in Chapter 2. Suggesting any shooting closures made in this EIS will lead to additional closures is speculative. NEPA requires analysis of actions reasonably expected to occur, but not to speculate on future actions.

6.2.24.10 SRMA Allocations

Comment Number: 100098-2
Organization:
Commenter: Gerry Bruder

Comment Excerpt Text:
Make the Gunsight Wash, the actual wash itself, off-limits to ATVs. The sites next to the wash take a terrible beating from erosion when riders drive their ATVs into the wash from the adjacent site. These sites tend to be the favorites for everyone and they suffer enough from over-use. Gunsight Wash, the camp area, with its designated roads for ATV use is a natural conduit to a community wide system of designated roads for the area. It is easy for the ATVs to get from here to there.

Comment Number: 100126-109
Organization: The Wilderness Society
Commenter: Phil Hanceford

Comment Excerpt Text:
Additionally, allowing for miles of motorized routes within back country areas by designating passage corridors along those routes does not adequately preserve or promote back country characteristics. The RMP should designate RMAs and/or RMZs that are completely closed to motorized vehicles to create unfragmented blocks of land for primitive, non-motorized recreation.

Comment Number: 100126-78
Organization: The Wilderness Society
Commenter: Phil Hanceford

Comment Excerpt Text:
Access to an undeveloped, backcountry experience should not promote the use of motorized vehicles as this use is most appropriate for passage or frontcountry recreation management zones. Both Alternatives D and E are flawed in that they list "four-wheel-drive touring" as a main activity for the undeveloped, backcountry areas of the Monument. BLM should consider an alternative that allocates these backcountry areas of the Monument as non-motorized destinations.

Comment Number: 100151-13
Organization: Arizona Off Highway Vehicle Coalition
Commenter: Jeff Gursh

Comment Excerpt Text:
Please adjust the appendix R sheet for West Buckeye Hills to include the possibility of single track motorcycle trails. For alternatives B, C and E, the described recreation activities include OHV, hunting, photography, wildlife viewing and sightseeing. This seems pretty tame and if OHV and these diverse activities are to get along, OHV will probably be marginalized. We thought the point of choosing the highest and best use was to make it rise to the top - not to choose all possible activities. We would suggest, either break the area into areas where OHV would be maximized, or remove the wildlife viewing, sightseeing and hunting activities from the targeted activities

Comment Number: 100151-18
Organization: Arizona Off Highway Vehicle Coalition
Commenter: Jeff Gursh

Comment Excerpt Text:
Proposal for a youth All-Terrain Vehicle and Motorcycle Park

Build a youth size motorcycle and ATV area at the Vulture Peak Landing strip on BLM land and or at the Buckeye hills County park. Sites would be approximately 10 acres. See the attached sample drawing. If these sites are not suitable, other sites would likely work. The 10 acre size makes this design portable to many other sites. Pairing up the Motorcycle Park with a trail system would be ideal.

Comment Number: 100151-5
Organization: Arizona Off Highway Vehicle Coalition
Commenter: Jeff Gursh

Comment Excerpt Text:
Buckeye Hills Trails SRMA - The recreation sheets for Buckeye Hills Trails SRMA in appendix R explain it being low intensity and lacks a description of single track motorcycle trails. This use is important and seems to be omitted. With a good partner like county parks, it could be managed well on the west side. The park would take the heavy uses like staging, kids riding area, maybe even trials or lower risk motocross.

Comment Number: 100151-6
Organization: Arizona Off Highway Vehicle Coalition
Commenter: Jeff Gursh

Comment Excerpt Text:
Please check the settings as front country and back country area shown as the settings on the appendix R sheet, however the Buckeye Hills East area is shown on map 2-12e as Community Interface, which I believe is a higher level of use than front country. The appendix R sheets should match the recreation setting allocations on map 2-l2e and they don't as written.

Comment Number: 100151-7
Organization: Arizona Off Highway Vehicle Coalition
Commenter: Jeff Gursh

Comment Excerpt Text:
8)East Buckeye Hills - By incorporating this dust permit information, Buckeye Hills East could be planned to include significant motorized use. The existing single track is almost exclusively motorcycle use. This is where most of the trails are today. If the trails are closed to motorized use, the demand won't go away, it will simply move and without replacement trails it may reappear in places you don't want it.

Comment Number: 100159-9
Organization:
Commenter: Roy Pierpoint

Comment Excerpt Text:
Alternative E as shown on Map 2-12e, "Recreation Management," would be a good plan so people can enjoy the viewing of animals in their natural environment (much superior to seeing them in a zoo) and enjoy the wilderness experience. The proposed "front country" located as a light green strip on the map across the southeast portion of the Gila Bend Mountains should be omitted. This divides the area and there is no justification, i.e. existing road, power corridor, or other structure present

Comment Number: 100166-20
Organization:
Commenter: Steve Saway

Comment Excerpt Text:
Management Action RR-1.2.28: The Buckeye Hills SRMA would be established (47,900 acres) with a "Community " market strategy for residents of western Maricopa County.

Comment: Based on the recreational values and attractions for both motorized and non-motorized recreational enthusiasts who reside outside of Maricopa County, the Buckeye Hills SRMA should also include a "Destination" market strategy. This is particularly relevant if recreation opportunities include family oriented motorized recreation.

Comment Number: 100166-21
Organization:
Commenter: Steve Saway

Comment Excerpt Text:
Comment: I believe the Buckeye Hills West RMZ should be established for a balanced mix of motorized and non-motorized recreation opportunities as is the proposal for the Buckeye Hills East RMZ. I also disagree with BLM managing this RMZ in partnership with Maricopa County and the Arizona Game and Fish Department. My rationale is that this will bias and constrain the recreation opportunities and policies. BLM managed public lands have a broader group of stakeholders and BLM should strive to provide a balanced mix to both motorized and non-motorized users. I believe BLM should manage these lands in coordination with the non-Federal agencies, but not be constrained by the more restrictive policies of these agencies.

Comment Number: 100166-22
Organization:
Commenter: Steve Saway

Comment Excerpt Text:
Management Actions RR-1.2.39 and RR-1.2.47: The RMZ would be established as a Special Management Area (SMA) and an Individual Special Recreation Permit (ISRP) program may be established to allow for special management and protection of the SMA in partnership with Maricopa County and the Arizona Game and Fish Department. Through a Cooperative Management Agreement, partners may be authorized to share in the collection and management of fees.

Comment: The need to designate these RMZs as SMAs with the potential for ISRPs and recreation fees should be re-evaluated. Is there a business case that supports this designation? Why is it necessary to manage these RMZs in partnership with Maricopa County and the Arizona Game and Fish Department? I recommend a more conservative approach that can be done within BLM capabilities and ramps up from there.

Comment Number: 100166-24
Organization:
Commenter: Steve Saway

Comment Excerpt Text:
Comment: The proposed Gila Bend Mountains SRMA is adjacent to the Yuma East Undeveloped SRMA that was established by the Yuma Record of Decision (ROD) and Approved RMP, dated January 2010. The character and recreational values of the Gila Bend Mountains SRMA match those of the Yuma East Undeveloped SRMA. Recommend the Gila Bend Mountains SRMA be managed similar to the Yuma East Undeveloped SRMA, i.e., establish a Gila Bend Undeveloped SRMA with a Dispersed Use RMZ, a Signal Peak Wilderness RMZ, and a Woolsey Peak Wilderness RMZ (see pages 2-117 and 2-118 of the Yuma ROD and Approved RMP). These distinct RMZs would allow management actions to be more precise and relevant to each RMZ. For example, the Dispersed Use RMZ could have management actions that support semi-primitive motorized recreation, OHV backcountry touring, dispersed camping, and other frontier-like, undeveloped activities in a remote backcountry setting. The Signal Peak and Woolsey Peak RMZs could have management actions that support hiking and other non-motorized dispersed activities in a remote backcountry setting

Comment Number: 100166-26
Organization:
Commenter: Steve Saway

Comment Excerpt Text:
Management Action RR-1.3.3: The Gila Bend Mountains RMZ would be established (253,700 acres) for visitors primarily seeking non-motorized dispersed recreation experiences in a remote backcountry setting.

Comment: See my comment pertaining to Management Action RR-1.3.1. The Gila Bend Mountains are also a destination for visitors seeking motorized recreation experiences. There should be multiple RMZs with distinct management actions for each.

Comment Number: LSFO-SDNM-DRMP--1-18311-3
Organization: Competitive racing (whiplash, ATR, AMRA, etc.)
Commenter: Douglas Martin

Comment Excerpt Text:
Converting Primitive motorized trails to non-motorized
Comment Number: 3
Cited Content: RR-1.2.46: Up to 50 percent of the primitive roads (approximately 63 miles) would be converted to non-motorized trails. Trails could be developed to provide connector and loop opportunities for non-motorized users.
Cited Section ID: 2.8.4.2 Action Alternatives for Recreation Management (RM)
Comment Title: Converting Primitive motorized trails to non-motorized
Issue: 10756

Comment:
I believe converting these trails will cause issues since there will inevitably be both on the same trail. If there is a need for more trails for non-motorized recreation, new trails would be best suited for this. If I'm going to go hiking in the desert or even riding my bike, I'd rather do it on a trail that is not already clapped out from motorized use. Plus, I feel pushing motorized people off their trails will only succeed in causing them to cut in new trails. Without the enforcement personnel in the area, this could not be prevented.

Comment Number: LSFO-SDNM-DRMP--1-18311-5
Organization: Competitive racing (whiplash, ATR, AMRA, etc.)
Commenter: Douglas Martin

Comment Excerpt Text:
OHV area?
Comment Number: 5
Cited Content: RR-1.3.11: The Arlington RMZ would be established (60,600) for visitors primarily seeking dispersed motorized recreation or a family oriented riding experience in a remote Sonoran desert landscape.
Cited Section ID: 2.8.4.2 Action Alternatives for Recreation Management (RM)
Comment Title: OHV area?
Issue: 10756

Comment:
If this area is being developed as an OHV area, then there should be mention of SRP for competitive events in this area.

Summary

1) Commenters recommended several revisions and additions to recreation SRMA and RMZ allocations, and to improve recreational experiences and opportunities for:

a) Buckeye Hills SRMA – requests emphasis of OHV uses;

b) Sonoran Desert National Monument SRMA – backcountry settings should be non-motorized; and

c) the Gunsight Wash RMZ – close washes to ATVs.

2) Commenters recommend new SRMA and RMZ allocations to match the Yuma East Undeveloped SRMA established in their recently approved ROD. Suggestion includes one new SRMA, the Gila Bend Undeveloped SRMA, and 3 RMZs: Dispersed Use, Signal Peak Wilderness, and Woolsey Peak.

3) Commenters also recommended additional OHV recreation areas in the Buckeye Hills and Gila Bend area and for a youth All-Terrain Vehicle and Motorcycle Park at the Vulture Peak Landing strip on BLM land and at the Buckeye Hills County Park.

4) One commenter indicated that management of the Arlington RMZ needs to address SRPs for competitive events.

Response

Since the preparation of the DRMP/DEIS, the BLM has issued new recreation policy (IM 2011-004). This policy provides new definitions and requirements for RMA allocation. After reviewing the RMAs in the DRMP/DEIS, the SRMAs have been modified consistent with the IM, and revisions may be found in **Section 2.11.4** and **Appendix R**.

1a) Buckeye Hills East – BLM has corrected errors found in the **Appendix R** worksheet. Management objectives have been written to balance competing recreational interests in this area. Specific locations of facilities and use decisions would be made during subsequent implementation planning.

b) SDNM SRMA – back country settings are non-motorized in all alternatives. Alternative D provides maximum allocation of the back country setting.

c) Gunsight Wash RMZ – the suggested management action change is an implementation action that is not part of the planning effort for this RMZ.

2) Wilderness areas included in the DRMP/DEIS are not allocated as RMZs because they already have separate Management Plans with specific prescriptions. The proposed Gila Bend Mountains SRMA opportunities and outcomes, as presented in the DRMP/DEIS, are essentially the same as in the Yuma East Undeveloped SRMA. In the PRMP, to conform to recreation planning policy in IM-2011-004, the Gila Bend Mountains are no longer an SRMA but retain the same management on-the-ground as in the DRMP/DEIS.

3) The objectives for the Buckeye Hills West area are being developed in concert with AGFD and Maricopa County Parks (**Appendix R**). A youth all-terrain vehicle and motorcycle park on this parcel would not be consistent with these objectives. The goal of planning is not to select the highest and best use, but the best combination of uses to meet the multiple use mandate of FLPMA.

4) Management actions for the Arlington RMZ would allow SRPs that are consistent with the objectives of the RMZ.

6.2.25 TRAVEL MANAGEMENT

6.2.25.1 Access to Gila Trails RMZ

Comment Number: 100166-15
Commenter: Steve Saway

Comment Excerpt Text:
Management Action RR-1.1.2: The Gila River RMZ would be established (42,300 acres) for regional and national visitors seeking to discover, tour, and learn about the Juan Bautista de Anza National Historic Trail, Arizona history, and natural history of the Sonoran desert.

Comment: I agree with the intent of this management action. However, I wonder how this can be accomplished when, to my knowledge, public access to this RMZ is virtually non-existent. I think the RMP should indicate what actions are proposed to resolve the lack of public access to this area.

Summary

One commenter expressed concern with the lack of management actions that resolve public access to the Gila River RMZ.

Response

While access is currently limited, BLM aims to secure legal access to public lands at all designated road entry points to public land within ten years of completing route designations (See **Chapter 2**, **Section 2.11.5**, Objective 1.4 and Management Actions TM-1.4.1 and TM-1.4.2).

6.2.25.2 Adaptive Management

Comment Number: 100121-42
Organization: Sierra Club
Commenter: Jim Vaaler

Comment Excerpt Text:
Only roads that are consistent with protection of the Monument objects should be maintained in the Monument. Temporary road closures that were implemented in order to protect areas from degradation, including destruction of monument objects, should be kept closed unless the BLM can clearly demonstrate that there will be no harm to the Monument objects and that off-road vehicle activities associated with those roads is no longer a problem.

Comment Number: 100126-58
Organization: The Wilderness Society
Commenter: Phil Hanceford

Comment Excerpt Text:
Alternative D would close 8.1 miles of route within this area. Closing large areas, with no or limited administrative access to important habitat areas for objects, could create new impacts by eliminating the ability to perform health and habitat assessments as they relate to objects and could result in minor to moderate impacts. DRMP at 923.

This statement overlooks the immense benefits to closing large areas to motorized vehicles that have been demonstrated in the planning area with the temporary closure in place. To the contrary, there is no evidence that BLM or others could not perform health and habitat assessments or other evaluations in closed areas with administrative access to the area or by using means other than a motorized vehicle.

Recommendations: BLM must keep the temporary closure within the Monument in place until it has demonstrated that the adverse effects from off-road vehicles are eliminated and that it has measures in place to prevent recurrence. The Draft RMP fails to make these showings.

Comment Number: 100142-3
Organization: Arizona Game and Fish Department
Commenter: Josh Avey

Comment Excerpt Text:
In Section 2.8.5, page 181 states the closure "is to remain in effect until the RMP is approved or when the damaged lands are restored-whichever is later." Nearly 3~ years later, the Department continues to be concerned with road closures and access restrictions associated with this temporary closure. The Department understands BLM has made progress in restoring these lands, and recommends adding language to clarify the next steps for restoring public access to the area and a commitment to finishing the project. To ensure this doesn't become a permanent closure, the Department also recommends identifying quantifiable measures that will be used to determine "when the damaged lands are restored".

Summary

Commenter recommends adding language to clarify the next steps and quantifiable measures for restoring public access and finishing restoration efforts for areas that were closed to motorized use in the SDNM.

Commenters indicated that the current SDNM route closure area should be kept closed unless the BLM can clearly demonstrate that there would be no harm to Monument objects and that off-road vehicle activities associated with those roads are no longer a problem.

Response

As a result of a court settlement, the BLM must complete the land management planning process through the signed ROD before further action may be taken (i.e., consideration of reopening areas closed to motorized travel and finishing restoration efforts). Additionally, the BLM would continue to follow the regulations at 43 CFR 8341.2, which allow the BLM to keep lands closed to off-highway vehicle traffic unless the authorized officer determines that the adverse effects have been eliminated and

measures implemented to prevent recurrence. Criteria for consideration of re-opening the area and managing the area for OHV use would be included in the Travel Management Plan as part of the Proposed RMP/Final EIS.

6.2.25.3 Allocations

Comment Number: 100044-2
Organization: Desert Protectors
Commenter: Fred Goodsell

Comment Excerpt Text:
Publishing your plan with the statement that there is a 40 acre play area for ATVs in Ajo and showing a map if it was - is - a disservice to the residents of Ajo and a threat to the resources of the Ajo block.

Comment Number: 100076-1
Commenter: William Perry

Comment Excerpt Text:
Volume 2, Chapter 4, Page 380 of your proposed resource management plan for the Lower Sonoran Desert describes a possible ATV recreation area near the town of Ajo. This is a terrible idea for many reasons:

1. This area is currently unknown to and little used by ATV's. Sanctioning and publicizing it will open up a whole new zone to destruction and enforcement problems.

2. A significant percentage of ATV owners scoff at the idea of Federal control of public lands and will flagrantly disregard any rules and boundaries, especially in a remote area.

3. Sanctioning an illegal track is a bad precedent because it rewards ATV outlaws and activists who seek to increase their play areas by making them useless for anything else.

4. There are Pre-Colombian trails in the desert still visible after 1,000 years. This habitat takes an eternity to heal and it will be a sad legacy for future generations if we keep adding to modern destruction.

Comment Number: 100077-1
Commenter: Dorothy Ruef

Comment Excerpt Text:
This proposal will make Ajo a destination for off-road riders who have currently never even heard of Ajo. The very act of legitimizing a previously illegitimate track will attract more ATVers to Ajo than the BLM can police or control. Why not set aside an ATV area in Glammis or Quartzite or Welton-places that have already lost their fight to off-road vehicles?

Comment Number: 100079-1
Commenter: Patricia Turinsky

Comment Excerpt Text:
We are writing this in regards to the new management plan for BLM which states that there will be a 40 acre OHV/ATV recreation area built in a previously disturbed area on the outskirts of Ajo, AZ.

The area that this is planned for is at the edge of Ajo neighborhoods and these residents (as well as the rest of the town) will be greatly impacted by the dust, the noise, the traffic and ultimate abuse of our precious desert

surroundings. This development will bring more of this type of riding to all of the fragile BLM land which surrounds Ajo and will encourage new trails and off road destruction.

How will the area surrounding this park be patrolled?

Comment Number: 100094-1
Organization: Arizona Game and Fish Department
Commenter: Daniel Urquidez

Comment Excerpt Text:
Also, what can we do now about bringing down the ghost fence. I can say the same below a year later.

We met with COE and I felt we had an agreement we would provide the sign and they would sign their appropriate borders and we would call it good. The ghost fence is not deterring access.

I remember you were trying to interpret the closure issue (camping vs traveling through) regarding the Painted Rock Mtn area. I did not find where this was addressed in the SDNM's RMP.

Comment Number: 100107-1
Commenter: Bruce Davis

Comment Excerpt Text:
the proposed OHV/ATV area in the Ajo Sector of your plan. There are, in my opinion, a fair number of reasons that this idea should not be carried forward.

1. This acreage, while already an illegal OHV area, is relatively small so publishing the fact that it is there will overcrowd this area with the result of it growing in size. Plus it looks like you are rewarding the persons who should have been cited for driving out there in the first place.

Comment Number: 100107-2
Commenter: Bruce Davis

Comment Excerpt Text:
There is an established venue for this activity off of Hwy 85 in the area north of the Lewis Prison which does not disturb residents because there aren't any. It is also closer to Phoenix and a four lane highway so the narrow Hwy 85 would not be overcrowded with trailers.

Comment Number: 100115-1
Commenter: Ralph Hudson

Comment Excerpt Text:
The 40 acre free-riding area proposed near Ajo town is a bad idea for some of the reasons mentioned above. The area may have been developed long ago but is an illegal use of government land and should not be legitimized. As proposed it would be the only free-riding OHV area on public lands in your jurisdiction. It will be advertised by your plan and by doing that, a seldom-used local riding area for our neighbors and youth may become a regulated and overused attraction for riders from away. It is close enough from Buckeye and Phoenix for groups to come with many quads, park some trucks and trailers, ride (we hope only inside the area), eat and drink at the site, and return home. Who picks up the trash? Who builds and monitors the perimeter fence, etc.? None of this has any benefit to us in Ajo. Please do not use this plan to drastically change our tiny town. Over time this riding area has

grown and it needs to be limited and controlled, not advertised. Please do not allow events in this area for the same reasons.

Comment Number: 100126-12
Organization: The Wilderness Society
Commenter: Phil Hanceford

Comment Excerpt Text:
Of particular concern is an area planned for a de-facto 40 acre off-road vehicle "race track" located in the Ajo SRMA at T12S, R6W, Sec r. DRMP at 155, 168, 185, 380, 398, 448, 476, 486, etc. It is inappropriate for BLM to plan to sanction an illegally created "race track" in the Lower Sonoran. As you can see from the satellite image of this area, it follows a dry wash, crossing numerous times. Sanctioning this illegal use of public lands will not only harm the dry wash habitat, but will also encourage and reward illegal activities on public lands. This area is also located within Sonoran pronghorn range. DRMP at 448.

Simply calling the area "previously disturbed" in the DRMP (at page 380) does not adequately inform the public that this area has been illegally created and used, nor does it inform the public about the significant and permanent losses of natural resources that has occurred.

The area description is in UTMs on NAD7:
NW corner is at approximately: 0322501
3588074
The SW corner is at approximately: 0322408
3587636
The SE corner is at approximately: 0322819
3587696
GPS locations for photo #3 below is at approximately:
0322606
3587970

This race course is very large with steep banked turns and a hundred or more tires delineating curves.

Our specific concerns about this are as follows:

1. This area was illegally built on BLM property and that illegal act should not be rewarded by the government agency charged with enforcing laws designed to protect natural resources.

2. The authorization of this area will greatly encourage an influx of ORV users who are, clearly, not inclined to stay on designated roads or trails.

3. This illegal area has not been publicized outside of the Ajo area. The simple act of showing this area in the Draft RMP will give its existence wide distribution. At present, few people even in Ajo know of it.

4. There is no mention of developing a parking area for this area if it is sanctioned.

5. The area is in wide open desert with no natural barriers. Enforcement in this area will be nearly impossible and is not consistent with Best Management Practices for managing ORVs.

Comment Number: 100128-1
Commenter: Sally Banks

Comment Excerpt Text:
3. If you feel it necessary to develop an OHV/ATV area in the Ajo Block then consider land with easy access off a major highway, rather than routing traffic past and through residential areas. Again, as part of a TMP, such areas might be better identified by the people who actually live here

Comment Number: 100128-3
Commenter: Sally Banks

Comment Excerpt Text:
Since there is no TMP for the Ajo Block, to designate 50 acres for unrestricted ATV use is putting the cart well before the horse.

C. My Specific Comments

1. Nothing of this size or nature should be considered until a Travel Management Plan has been developed, with full public input.

Comment Number: 100128-5
Commenter: Sally Banks

Comment Excerpt Text:
2. Should you decide to proceed with this area, with or without a TMP, detailed plans for monitoring and enforcement should be in place before any development occurs.

Comment Number: 100149-2
Organization: Desert Protectors
Commenter: Fred Goodsell

Comment Excerpt Text:
We find the plan to establish a 40 acre area for unrestricted ATV recreation activities near Ajo to be totally unacceptable. If you do this you are rewarding illegal activity. The area you plan to open already has a race course with over 100 tires implanted on curves that have been enhanced with heavy equipment, drainage patterns disrupted and trash spread around. Including this in your plan will advertise a previously unknown and rarely used area to the world. It will allow commercial events that would bring in an uncontrollable number of participants and open the flat, unprotected desert of the area to more illegal destruction.

Comment Number: 100151-17
Organization: Arizona Off Highway Vehicle Coalition
Commenter: Jeff Gursh

Comment Excerpt Text:
Project Concept

Continued growth of OHV recreation has renewed the interest in the Buckeye Hills and Gila Bend area.

Adding non-motorized and OHV staging / camping areas in County Park to access a managed trail system on both BLM and County property would be a good start in addressing a Managed trail system for this growing area. See Buckeye Hills Map

Comment Number: 100151-2
Organization: Arizona Off Highway Vehicle Coalition
Commenter: Jeff Gursh

Comment Excerpt Text:
We would suggest at least two more open areas and would suggest making them at least 1000 acres in size and dividing them into 250 acre sections where only one section would be open at a time to give the other 3 a chance to regrow plants and harden the soils after use. These two areas could be on the edge of the SRMA you've thoughtfully placed along Agua Caliente Rd.

Summary

Commenters expressed their opinion that the BLM did not properly consider the impacts of establishing a 40-acre OHV play area in Ajo, and provided several reasons why managing this area for OHV open use is not appropriate, including 1) lack of a monitoring or travel management plan, 2) potential damage to cultural resources, 3) impacts to wildlife habitat, 4) enforcement problems, and 5) impacts to nearby residents from noise, dust, and traffic. Commenters further noted the BLM did not address parking for the open use area in the DRMP/DEIS and requested the BLM develop detailed plans for monitoring and enforcement for the area.

One commenter suggested that BLM consider two OHV open areas of 1,000 acres in size divided into 250 acre blocks so use could be rotated and portions could be closed to reclaim.

One commenter questioned the OHV area and route closure issue in the Painted Rock Mountain area and noted that he could not find where it was addressed in the plan.

One commenter asked about the nature of the closure around the Painted Rocks Campground.

Response

Per 43 CFR 8342.1, all BLM-administered land should be designated as open, closed, or limited to designated routes for motorized vehicles. BLM would include a monitoring plan as part of the Travel Management Plan, as required in BLM Manual 1626, that would be completed when the ROD is signed for the Lower Sonoran Field Office RMP. It is consistent with policy to consider designating some lands as open for motor vehicle use in one or more alternative. A detailed plan for the OHV area, including locations for parking, would be developed during activity planning after signing the ROD when BLM begins implementing the decisions.

As required by 40 CFR 1502.16, the DRMP/DEIS provided a discussion of the environmental impacts of the alternatives including the proposed action, any adverse environmental effects which cannot be avoided should the proposal be implemented, the relationship between short-term uses of man's environment and the maintenance and enhancement of long-term productivity, and any irreversible or irretrievable commitments of resources that would be involved in the proposal should it be implemented. Based on the comments received, BLM has re-evaluated the alternatives for the 40-acre

open use area and agrees that designation of this area as an "Open" area for motorized use would not be appropriate and has therefore deleted it from the proposed action. The area would have an allocation of "Limited" and routes would be limited to designated roads, primitive roads and trails, same as the surrounding area. However, the 40-acre area would still be proposed to be managed for the motocross experience and local partners would be obtained to assist in on-site management of the area.

The Painted Rocks Mountains closure was incorrectly identified on the travel maps as a "Closed" OHV area instead of a "Limited" OHV area limited to designated and/or signed open roads, and closed to camping. BLM also failed to note that the decisions were from a Federal Register Notice published January 28, 1999 (Volume 64, Number 18) Notices Page 4461) that was carried forward into all Action Alternatives, including the Preferred (Alternative E). Therefore, the Proposed RMP/Final EIS was revised, in Chapter 2 and also on the travel and recreation maps, to note this clarification, and has created new management actions in the recreation section of Chapter 2.

The Arlington area, where the commenter suggests two OHV open areas, is considered a scenic Sonoran Desert area, enough so that the Agua Caliente Road that traverses the area is being considered as a Back Country Byway. Due to the very dry conditions in the Sonoran Desert, it is not very resilient in recovering from intensive traffic. Prehistoric trails over 1,000 years old remain visible in many places, and tracks from vehicular use 70 years or more also remain clearly distinguishable. For example, tracks from Patton's training in preparation for deployment in WWII are clearly visible in areas of southern Arizona and California. So, the idea of rotating use to allow recovery of vegetation and soils may require many generations to achieve. The area suggested is not within the PM_{10} nonattainment area, however it is down-wind and the potential removal of vegetation and disturbance of the soil surface could result in air quality issues in the Phoenix area, such as the haboobs of 2011. The soils in the area suggested are higher in silt content than in many areas, which make them especially vulnerable to wind erosion when the surface is disturbed. There is also an important wildlife movement corridor between Saddle Mountain and the Gila Bend Mountains which BLM and AGFD want to maintain, that could be adversely affected by the vehicle traffic and the disturbance of vegetation.

The RMP was unclear regarding the Painted Rocks Mountains use restrictions. The recreation and travel management area maps have been revised to clarify that the closure in this area is to camping. Vehicle use inside this area is limited to signed open routes until such time route designations are completed in the Gila Bend Mountains travel management plan. The revised PRMP/FEIS has been updated to clarify this distinction.

6.2.25.4 Designations

Comment Number: 100001-10
Commenter: Jim Vaaler

Comment Excerpt Text:
There are a number of short dead ending routes south of the gas pipeline road and north of the SDNM. These dead end routes access user created shooting galleries and need to post as closed and then barricaded.

Comment Number: 100001-15
Commenter: Jim Vaaler

Comment Excerpt Text:
Also, there have been a number of routes designated in this wilderness characteristic area that appear to follow desert washes. Some of these routes are dead end routes and others are redundant in nature. There should be only on designated route between Face Mountain and Yellow Medicine Butte Wilderness characteristic areas.

Comment Number: 100051-1
Organization: Town of Gila Bend
Commenter: Colby Turner

Comment Excerpt Text:
In general, the designations create the following issues: Lack of Handicap/Elderly/Youth Accessibility, Cultural Insensitivity, Lack of Interconnectivity, and Needless Waste of Finite Resources (cutting off connection points to complete loops). Other points of concern were the closing of bladed roads that have been in place since the early 1900's and the term "trail redundancy" used to explain some closings of trails. On a map, these trails can appear redundant, however in the field they provide connectivity to local residents miles apart from other trails, make shorter loops possible on long expeditions, and provide accessibility to views not possible by other trails.

Comment Number: 100051-3
Organization: Town of Gila Bend
Commenter: Colby Turner

Comment Excerpt Text:
Finally, some of the apparent reasoning behind certain closings are scientifically inaccurate. The closing of washes during the summer because wildlife use these areas to escape the heat is only partially correct. During the summer, desert animals either estivate or become nocturnal. During estivation these animals sleep for long periods of time, away from naturally disturbed areas. Washes during the summer are naturally disturbed by our monsoons and spring rains. Which brings us to the nocturnal wildlife. These animals do indeed seek cooler areas (vegetation, washes, mountains) to rest during the day, but are active at night.

Comment Number: 100051-4
Organization: Town of Gila Bend
Commenter: Colby Turner

Comment Excerpt Text:
I have included the following trails by number, a brief notation to support keeping them open or adjusting their hours of closure.

8008H- "Accessibility" "Cultural Sensitivity" "Historic" Sand Tank Well

8008I, 8009E- "Interconnectivity" "Accessibility" Game Catchment

8013A, 8019A- "Local Resident Interconnectivity" "Accessibility"

8013, 8017, 8018, 8019- "Interconnectivity" "Accessibility" Local Residents Use These To Access Points Of Interest "Scientifically Inaccurate" Estivation, Nocturnal Wildlife, Multiple Wash Availability (worst case scenario could adjust summer closures to night time use only)

8016A- "Interconnectivity"

8016B- "Interconnectivity"

8016C- "Interconnectivity" "Cultural Sensitivity" "Historic" Farley's Pass

Comment Number: 100112-6
Organization: Arizona Department Of Transportation
Commenter: Justin White

Comment Excerpt Text:
ADOT has four existing material source sites (see attached map) within the Lower Sonoran Field Office, two of which are in the boundaries of the Sonoran Desert National Monument. Continued use of these sources, including their designated access routes from the interstate highway system, should remain valid. Access control may include coordination with ADOT's encroachment permit group at the individual District Office and regional FHWA Engineer.

Comment Number: 100117-15
Commenter: Douglas Thomas

Comment Excerpt Text:
That being said, there are other factors for BLM to consider in evaluating the ultimate impact, effectiveness, and necessity of such closures by limiting public access to these routes.

Travel in washes offers a unique recreational experience with opportunities to view wildlife and xeroriparian vegetation that does not occur within the upland valley and bajada areas dissected by these washes. Driving in washes is a practice that is used by some hunters, and other visitors, to gain access to locations where game species are more likely to occur.

Comment Number: 100117-16
Commenter: Douglas Thomas

Comment Excerpt Text:
Washes are a traditional travel route and have been used extensively throughout time, Motorized travel in washes should actually be encouraged in certain circumstances as evidence of travel in washes gets 'erased' after even a small flood event.

Floods are part of the natural environment and washes are in a constant state of change because of the nature of floods. Floods have a far greater impact on wash vegetation than the impact of vehicles traveling in a wash. Traveling in washes helps contain fugitive dust and particulate emissions.

The surface of wash beds is of gravely and rocky material that is resistant to erosion, so there are generally no measurable impacts to soils that occur from driving in wash beds. Vehicle activity in washes is not associated with high levels of particulate emissions as the gravel cover in wash beds reduces the airborne suspension of underlying fine silt and sand particles.

Comment Number: 100117-17
Commenter: Douglas Thomas

Comment Excerpt Text:
The preferred alternative "E" proposes seasonal closure (April 15-September 15) of certain primitive roads/routes in the SDNM. The proposed seasonal closures include the Bender Wash (Route 8018, a branch of the bender wash (Route 8019). the Sand Tank Pass Wash (8013) and the cross-cut "Farley's Cabin Route" (8017) which connects to the west with Route 8013 & 8014.

It is recognized by this Citizen that "... Washes provide important habitat to wildlife as they function as wildlife corridors, provide den and ambush sites for carnivores, provide shade during hot periods, and provide habitat for a wide range of wildlife." That being said, there are other factors for BLM to consider in evaluating the ultimate impact, effectiveness, and necessity of such closures by limiting public access to these routes:

(1) What indicators are there as to the volume of travel and corresponding impacts that occur on these routes during the summer months and are there alternatives to travel on these closed routes?

Comment Number: 100117-18
Commenter: Douglas Thomas

Comment Excerpt Text:
(2) What volume of travel constitutes a "disturbance" to wildlife habitat by travel though these washes during summer months and what solutions (besides closure) would minimize the level of disturbance on these routes?

Comment Number: 100117-20
Commenter: Douglas Thomas

Comment Excerpt Text:
The Sand Tank Mountains create a natural barrier to route proliferation in the area. The "Sand Tank Pass Route" (Route 8013) is the only route through the mountains to the southern area of the range. The Sand Tank Wash (8013), The Bender Wash (8018), and Farley Cabin Route cross-cut route (8017) all connect Monument lands and routes west of the Sand Tank Mountains with Monument lands and routes east of the Sand Tank mountains without the necessity of round-about travel on Interstate 8. Closing these routes during any season may contribute to route proliferation and would undoubtedly contribute increased particulate emissions and road surface degradation due to increased mileage and travel on Big Horn Road (8011-not a wash) and the "Nine Mile Wash" road (8008- not a wash) in order for visitors to access remote areas south of the Sand Tank Mountains. This lack of connectivity and accessibility will be further exacerbated if the proposed closures of "direct access" to Interstate 8 at ranch gates becomes reality.

Comment Number: 100117-22
Commenter: Douglas Thomas

Comment Excerpt Text:
According to the "preferred plan", access to the SDNM will be restricted to the Nine Mile Wash Road (Butterfield), Freeman Road and Vekol Rd where existing freeway interchanges are available.

The elimination of direct access gates along both sides of Interstate 8 (in particular MM 124,127.7,133,2 & 136.4) will severely limit public access to the SDNM.

Comment Number: 100117-23
Commenter: Douglas Thomas

Comment Excerpt Text:
- Frequent requirements for Law Enforcement to utilize these direct access gates to interdict Illegal Alien and Drug Smugglers and for Search & Rescue.

Comment Number: 100117-24
Commenter: Douglas Thomas

Comment Excerpt Text:
- If the gates north of Interstate 8 at MM 124 and MM 127.7 are closed, there will be no way to access BLM land in this area.

Comment Number: 100117-25
Commenter: Douglas Thomas

Comment Excerpt Text:
- The proposed access route to the SDNM from the Nine Mile Wash Road where it intersects Route 8019A just happens to be at the confluence of the Sand Tank Wash, the Bender Wash, and all of their branches. Because of the amount of runoff this confluence experiences and the flat nature of the terrain, this area become impassable for days due to ponding in the Nine mile road.

Comment Number: 100117-26
Commenter: Douglas Thomas

Comment Excerpt Text:
- Closing off access to some of the most direct routes to recreational destinations on the SDNM may contribute to route proliferation and would undoubtedly contribute to increased particulate emissions and road surface degradation due to increased mileage and travel on Big Horn Road (8011-not a wash) and the "Nine Mile Wash" road (8008 mostly not a wash) in order for visitors to access remote areas south of the Sand Tank Mountains.

Comment Number: 100117-28
Commenter: Douglas Thomas

Comment Excerpt Text:
According to DRMP/EIS

"...Continuing ADOT's permits to mine and store gravel at two sites south of I-8 requires maintaining access from I-8 at two unimproved exits from the eastbound lane between the butterfield Trail exit and the Freeman Road exit. Gates providing access to the sites would need to remain in place. Continued public use of these gates might constitute a safety hazard because they could require evasive action for highway travelers to avoid vehicles entering or exiting from the breakdown lane. The loss of public access to these gates would have a moderate effect on access to SDNM south of I-8. Public access has been allowed historically, and the gates could be locked at any time.

It is possible that BLM, as part of their permit for access to the gravel site, could induce ADOT to provide the improvements necessary at the 124 gate so that it would be safe for both ADOT and the public to continue to use

this gate. This would not address the loss of the other "direct access" gates, but would provide and an additional I-8 access to BLM lands west of the Sand Tank Mountains.

ADOT has seen fit to partner with BLM on "Project Daylight" along Interstate 8. Perhaps they would be willing to partner with BLM to find a solution to this access issue.

Comment Number: 100121-45
Organization: Sierra Club
Commenter: Jim Vaaler

Comment Excerpt Text:
In an area just outside of the SDNM (along the gas pipeline road), there are a plethora of short roads that need to be posted as closed and then barricaded. It appears that some, if not all, of these roads are being used as access roads for user-created shooting galleries. The sights and sounds from these shooting areas impact the SDNM and also present a safety issue for other people who may be using that part of the Monument.

Comment Number: 100121-54
Organization: Sierra Club
Commenter: Jim Vaaler

Comment Excerpt Text:
The Anza-Butterfield Interpretive Trail in the SDNM, as well as the section of it at the Oatman massacre site and Gila River Canyon, should be closed to all motorized entry. Some off-road vehicle users have demonstrated in the past a complete disregard for staying on the designated road way, which was why a special closure order was necessary to protect resources in the SDNM.

Comment Number: 100121-68
Organization: Sierra Club
Commenter: Jim Vaaler

Comment Excerpt Text:
Short spur routes and routes located in desert washes need to be closed to vehicle use under all of the alternatives. Short spur routes most generally lead to user-created camp sites and/or user created shooting galleries, both of which represent undesirable land use allocations. Short spur routes may also be used as informal staging areas for off-road vehicle activities and, over time, these areas get expanded through inappropriate off-road vehicle activity.

Comment Number: 100123-7
Organization: Friends of the Sonoran Desert National Monument
Commenter: Thomas Hulen

Comment Excerpt Text:
The Friends of the Sonoran Desert does not wholly support any of the Bureau of Land Management's alternatives. Alternative D offers the greatest potential protection to the Monument's objects and other resources and alternative E the Bureau of Land Management's preferred alternative does not recommend closing enough routes to adequately protect the Monument's objects and resources. The Friends of the Sonoran Desert National Monument's recommendations are as follows:

Northern Half of SDNM near North Maricopa Mountains Wilderness Area

Current Signed Roads Recommended to Remain Open

8000: Main BLM road that parallels the El Paso Natural Gasoline Road
8000U: Provides access to North Maricopa Mountain Wilderness Area
8001: Provide Access to Margies Cove West Trailhead
8001C: Provides access to North Maricopa Mountain Wilderness Area
8001E: Provide Access to Margies Cove West Trailhead
8002: Provide Access to Margies Cove East Trailhead
8002A: Provide Access to Margies Cove East Trailhead
8003: Juan de Anza National Historic Trail-Butterfield Trail
8004: Provide Access to Margies Cove West Trailhead and 8003
8004A: Provide Access to Margies Cove West Trailhead

Current Signed Roads Recommended to be Closed

8000A: Illegal dumping and irresponsible target shooting.
8000C: Illegal dumping and irresponsible target shooting.
8000D: Illegal dumping and irresponsible target shooting.
8000E: Illegal dumping and irresponsible target shooting.
8000F: Illegal dumping and irresponsible target shooting.
8000G: Illegal dumping and irresponsible target shooting.
8000L: Illegal dumping and irresponsible target shooting.
8001A: Into proposed wilderness area.
8001B: Into proposed wilderness area.
8001D: Into proposed wilderness area.
8002B: Unnecessary road.
8002C: Into proposed wilderness area.
8003C: Unnecessary road
8004D: Unnecessary road
8004G: Unnecessary road
8005: Section of Anza Trail badly damaged by OHV use.
8005A: Unnecessary access to damaged section of Anza Trail. This section of Anza Trail will be closed to motorized vehicles.
8005D: Unnecessary access to damaged section of Anza Trail. This section of Anza Trail will be closed to motorized vehicles.
8006H: Into proposed wilderness area.
8006I: Into proposed wilderness area.
8039C: Into proposed wilderness area.
8039D: Into proposed wilderness area.

Comment Number: 100123-8
Organization: Friends of the Sonoran Desert National Monument
Commenter: Thomas Hulen

Comment Excerpt Text:
Area of SDNM between Interstate 8 and State Highway 238 near South Maricopa Mountain Wilderness Area

Current Signed Roads Recommended to Remain Open

8029: Provides access to South Maricopa Mountain Wilderness and AZ Game and Fish Wildlife Water. Administrative cherry stemmed road.

8030: Provides access to South Maricopa Mountain Wilderness and AZ Game and Fish Wildlife Water Administrative cherry stemmed road.
8030A: Provides access to South Maricopa Mountain Wilderness and AZ Game and Fish Wildlife Water Administrative cherry stemmed road.
8032: Main road west of South Maricopa Wilderness
8034: Provides access to Gila Bend
8035:
8036: Provides access to Gila Bend
8037: Provides access to northern and eastern portions of the South Maricopa Mountain Wilderness Area
8037A: Provides access to northern and eastern portions of the South Maricopa Mountain Wilderness Area
8037Q: Provides access to eastern portions of the South Maricopa Mountain Wilderness Area
8038: Provides access from Highway 238 to South Maricopa Mountain Wilderness Area
8038A: Provides access from Highway 238 to South Maricopa Mountain Wilderness Area
8038B: Provides access from Highway 238 to South Maricopa Mountain Wilderness Area
8038C: Provides access from Highway 238 to South Maricopa Mountain Wilderness Area
8039: Access along the rail road

Current Signed Roads Recommended to be Closed
8031: Into proposed wilderness area.
8033: Redundant road
8033A: Redundant road
8033B: Redundant road
8034A: Redundant road
8034E: Redundant road
8035A: Redundant road
8037: At railroad crossing. Dangerous!
8037B: Redundant road
8037C: Redundant road

Comment Number: 100123-9
Organization: Friends of the Sonoran Desert National Monument
Commenter: Thomas Hulen

Comment Excerpt Text:
Area South of Interstate 8

Current Signed Roads Recommended to Remain Open
8007: Vekol Road
8007C: Provides access to White Hills
8008: Provides access from Vekol Road to Sand tank Mtns.
8008J: Part of scenic loop
8009: Provide access to Javelina and Sand Tanks Mtns.
8009B: Freeman Road provides access to 8009: Freeman Road
8010: Provides access between Vekol and Freeman Roads
8011: Provides access to Sand tank Mtns.
8012: Getz Well Road provides access to Sand tank Mtns.

8013: Seasonal closure
8014: Provides access to road 8018
8015: Provides access to Javelina Mtns.
8016D: Part of scenic loop
8017: Seasonal closure
8018: Seasonal closure
8018C: Provides access to roads 8018 and 8013 from Gila Bend (A favorite route for locals.)
8019: Seasonal closure
8020: Provides loop between 8011 and
8012; leads to wildlife water
8022: Smith Road
8022A: Provides access to Table Top Wilderness Area
8022B: Provides access to Table Top Wilderness Area
8022C: Provides access to Table Top Wilderness Area
8022D: Provides access to southeast corner of the SDNM
8023: Provides access to eastern edge of SDNM
8023C: Provides access to eastern edge of SDNM
8023D: Provides access to eastern edge of SDNM
8023M: Provides access to eastern edge of SDNM
8023N: Provides access to eastern edge of SDNM
8024: Provides access to Lava Flow South Trailhead and Table Top Trailhead
8024A: Provides access to Lava Flow South Trailhead and Table Top Trailhead
8025: Provides access to southeast corner of the SDNM
8026: Provides access to Sand Tank Mtns.
8026A: Provides access to Sand Tank Mtns.
8026B: Provides access to Sand tank Mtns.
8026C: Provides access to Sand Tank Mtns.
8027: Provides access to Sand Tank Mtns.
8042: Access to Lava Flow North Trailhead
8042A: Provides access to Antelope Peak
8042B: Provides access to Antelope Peak
8044: Access to Lava Flow North Trailhead
8045: Access to Lava Flow North Trailhead
8046: Access to Lava Flow West Trailhead

Current Signed Roads Recommended to be Closed

8007B: Unnecessary-redundant
8007D: Unnecessary-redundant
8007E: Unnecessary-redundant
8007K: Unnecessary-redundant
8007F: Unnecessary-redundant
8008B: Unnecessary-redundant
8008H: Unnecessary-redundant
8009C: Unnecessary-redundant
8009D: Unnecessary-redundant
8009E: Unnecessary-redundant
8009F: Unnecessary-redundant

8011A: Unnecessary-redundant
8014: Unnecessary-redundant
8015A: Unnecessary-redundant
8016: Unnecessary-redundant
8018D: Unnecessary-redundant
8023B: Unnecessary-redundant
8023G: Unnecessary-redundant
8023J: Unnecessary-redundant
8023K: Unnecessary-redundant
8025A: Unnecessary-redundant
8027A: Unnecessary-redundant
8042B: Unnecessary-redundant
8042C: Unnecessary-redundant
8043: Unnecessary-redundant
8043A: Unnecessary-redundant

Comment Number: 100126-14
Organization: The Wilderness Society
Commenter: Phil Hanceford

Comment Excerpt Text:
1. Northern Half of SDNM near North Maricopa Mountains Wilderness Area

Routes Recommended to Remain Open
8000: Main BLM road that parallels the El Paso Natural Gasoline Road
8001: Provide Access to Margies Cove West Trailhead
8001C: Provides access to North Maricopa Mountain Wilderness Area
8001E: Provide Access to Margies Cove West Trailhead
8002: Provide Access to Margies Cove East Trailhead
8002A: Provide Access to Margies Cove East Trailhead
8003: Juan de Anza National Historic Trail-Butterfield Trail; recommend non-motorized as proposed in Alternative D.
8004: Provide Access to Margies Cove West Trailhead and 8003
8004A: Provide Access to Margies Cove West Trailhead

Routes Recommended to be Closed
8000A: Illegal dumping and irresponsible target shooting.
8000C: Illegal dumping and irresponsible target shooting.
8000D: Illegal dumping and irresponsible target shooting.
8000E: Illegal dumping and irresponsible target shooting.
8000F: Illegal dumping and irresponsible target shooting.
8000G: Illegal dumping and irresponsible target shooting.
8000L: Illegal dumping and irresponsible target shooting.
8000U: Unnecessary route.
8001A: Into proposed wilderness area.
8001B: Into proposed wilderness area.
8001D: Into proposed wilderness area.

8002B: Unnecessary road.
8002C: Into proposed wilderness area.
8003C: Unnecessary road
8004D: Unnecessary road
8004G: Unnecessary road
8005: Section of Anza Trail badly damaged by OHV use.
8005A: Unnecessary access to damaged section of Anza Trail. This section of Anza Trail will be closed to motorized vehicles.
8005D: Unnecessary access to damaged section of Anza Trail. This section of Anza Trail will be closed to motorized vehicles.
8006H: Into proposed wilderness area.
8006I: Into proposed wilderness area.
8039C: Into proposed wilderness area.
8039D: Into proposed wilderness area.

Comment Number: 100126-32
Organization: The Wilderness Society
Commenter: Phil Hanceford

Comment Excerpt Text:
As stated in the Draft RMP, the Anza, Butterfield, and Mormon Battalion NHTs are all named Monument objects. The BLM's transportation planning should prioritize protection of Monument objects. Proclamation 7397 obligates the BLM to develop a transportation plan "that addresses the actions, including road closures or travel restrictions, necessary to protect the objects identified in the proclamation." BLM has already demonstrated that damage to Monument objects has occurred and is likely to continue in the future within the temporary closure in place. Thus, the Draft RMP should not propose opening the routes in the area to motorized use.

In addition, in order for BLM to open up routes that are currently temporarily closed, the agency must make a showing that "the adverse effects are eliminated and measures implemented to prevent recurrence." 43 C.F.R. § 8341.2(a). The Draft RMP does not demonstrate that BLM has eliminated the adverse effects (i.e. abuse from ORVs) that caused damage and does not propose measures to prevent the recurrence of the damage.

Comment Number: 100126-66
Organization: The Wilderness Society
Commenter: Phil Hanceford

Comment Excerpt Text:
2. Area of SDNM between Interstate 8 and State Highway 238 near South Maricopa Mountain Wilderness Area

Routes Recommended to Remain Open
8029: Recommend administrative use only for access to AZ Game and Fish Wildlife Water
8030: Recommend administrative use only for access to AZ Game and Fish Wildlife Water
8030A: Recommend administrative use only for access to AZ Game and Fish Wildlife Water
8032: Main road west of South Maricopa Wilderness
8034: Provides access to Gila Bend
8036: Provides access to Gila Bend
8037: Provides access to northern and eastern portions of the South Maricopa Mountain Wilderness Area. Recommend following the same route as proposed in Alternative D.

8037A: Provides access to northern and eastern portions of the South Maricopa Mountain Wilderness Area
8037Q: Provides access to eastern portions of the South Maricopa Mountain Wilderness Area
8038: Provides access from Highway 238 to South Maricopa Mountain Wilderness Area
8038A: Provides access from Highway 238 to South Maricopa Mountain Wilderness Area
8038B: Provides access from Highway 238 to South Maricopa Mountain Wilderness Area
8038C: Provides access from Highway 238 to South Maricopa Mountain Wilderness Area
8039: Access along the rail road

Routes Recommended to be Closed
8031: Into proposed wilderness area.
8033: Redundant road
8033A: Redundant road
8033B: Redundant road
8034A: Redundant road
8034E: Redundant road
8035: Unnecessary route.
8035A: Redundant road
8037: Close at rail road crossing. Dangerous!
8037B: Redundant road
8037C: Redundant road

Comment Number: 100126-67
Organization: The Wilderness Society
Commenter: Phil Hanceford

Comment Excerpt Text:
3. Area South of Interstate 8

Routes Recommended to Remain Open
8007: Vekol Road. Recommend following proposed route in Alternative D.
8007C: Provides access to White Hills
8008: Provides access from Vekol Road to Sand tank Mtns. Recommend following proposed route in Alternative D.
8008J: Part of scenic loop
8009: Provide access to Javelina and Sand Tanks Mtns.
8009B: Freeman Road provides access to 8009: Freeman Road
8010: Provides access between Vekol and Freeman Roads
8011: Provides access to Sand tank Mtns.
8012: Getz Well Road provides access to Sand tank Mtns.
8014: Provides access to road 8018
8016D: Part of scenic loop
8018C: Provides access to roads 8018 and 8013 from Gila Bend (A favorite route for locals.)
8019: Seasonal closure
8020: Provides loop between 8011 and
8012; leads to wildlife water
8022: Smith Road

8022A: Provides access to Table Top Wilderness Area
8022B: Provides access to Table Top Wilderness Area
8022C: Provides access to Table Top Wilderness Area
8022D: Provides access to southeast corner of the SDNM
8023: Provides access to eastern edge of SDNM
8023C: Provides access to eastern edge of SDNM
8023D: Provides access to eastern edge of SDNM
8023M: Provides access to eastern edge of SDNM
8023N: Provides access to eastern edge of SDNM
8024: Provides access to Lava Flow South Trailhead and Table Top Trailhead
8024A: Provides access to Lava Flow South Trailhead and Table Top Trailhead
8025: Provides access to southeast corner of the SDNM
8026: Provides access to Sand Tank Mtns.
8026A: Provides access to Sand Tank Mtns.
8026B: Provides access to Sand tank Mtns.
8026C: Provides access to Sand Tank Mtns.
8027: Provides access to Sand Tank Mtns.
8042: Access to Lava Flow North Trailhead
8042A: Provides access to Antelope Peak
8042B: Provides access to Antelope Peak
8044: Access to Lava Flow North Trailhead
8045: Access to Lava Flow North Trailhead
8046: Access to Lava Flow West Trailhead

Routes Recommended to be Close
8007B: Unnecessary-redundant
8007D: Unnecessary-redundant
8007E: Unnecessary-redundant
8007K: Unnecessary-redundant
8007F: Unnecessary-redundant
8008B: Unnecessary-redundant
8008D: Unnecessary-redundant
8008F: Unnecessary-redundant
8008G: Unnecessary-redundant
8008K: Unnecessary-redundant
8008H: Unnecessary-redundant
8009C: Unnecessary-redundant
8009D: Unnecessary-redundant
8009E: Unnecessary-redundant
8009F: Unnecessary-redundant
8011A: Unnecessary-redundant
8013: Unnecessary-redundant
8014: Unnecessary-redundant
8015: Unnecessary-redundant
8015A: Unnecessary-redundant
8016: Unnecessary-redundant

8017: Seasonal closure
8018: Seasonal closure
8018D: Unnecessary-redundant
8023B: Unnecessary-redundant
8023G: Unnecessary-redundant
8023J: Unnecessary-redundant
8023K: Unnecessary-redundant
8025A: Unnecessary-redundant
8027A: Unnecessary-redundant
8042B: Unnecessary-redundant
8042C: Unnecessary-redundant
8043: Unnecessary-redundant
8043A: Unnecessary-redundant

Comment Number: 100129-19
Organization: Center for Desert Archeology
Commenter: Andy Laurenzi

Comment Excerpt Text:
Based on existing information in AZSITE, we enclose three maps of areas in Areas 11 and 18 that depict prehistoric habitation sites and/or petroglyph occurrences. These are sites that are highly prone to casual surface artifact collecting and vandalism, including looting. We recommend specific route/road closures to public use as shown on the attached maps. Given the well documented information on motorized access and site impacts for these types of sites and the lack of any documentation on these sites in the plan, it is unclear how these Monument objects are adequately protected by continuing to designate these routes as open to public use. Proclamation language specifically references the Vekol Valley as "an important prehistoric travel corridor" and that "Signs of large villages and permanent habitations sites occur throughout the area, and particularly along the bajadas of Table Top Mountains". These sites are representative examples of this Proclamation language.

An additional consideration is that two of the three routes "dead end" at the southern Monument boundary which inadvertently facilitates trespass onto the Tohono O'odham Nation and Barry Goldwater Bombing Range. Given reported concerns regarding use of this area by drug and human smugglers, we would support allowing these routes/roads to remain open for administrative use.

Comment Number: 100142-5
Organization: Arizona Game and Fish Department
Commenter: Josh Avey

Comment Excerpt Text:
The preferred alternative identifies 32.7 miles of primitive roads on the SDNM to be seasonally closed from April 1 to September 15. The routes are all located in the southwest corner of the SDNM. Through these closures the public loses vehicular access to a substantial portion of the SDNM for 5.5 months of the year. September 1 to 15 is the early dove season and the seasonal closures eliminate a substantial portion of the SDNM from dove hunting. The closures will also impact archery hunts. The Department recommends revaluating the seasonal closures and leaving at least one route open year round to provide year round public access to the southwest comer of the SDNM. We also recommend changing the end date to August 31 to accommodate the dove hunt.

Comment Number: 100142-9
Organization: Arizona Game and Fish Department
Commenter: Josh Avey

Comment Excerpt Text:
There are three routes designated closed on the Alternative E Route Designation Map that the Department recommends be designated open. The routes are circled on the included map. The first route is on the Northwest side of the SDNM. It provides the only access to the north side of Margies Peak area.

The second route is an extension of the Anza trail. This route provides the only access to a large area of the SDNM.

The third route is in the southeastern section of the SDNM. One of the circled routes should be designated open to provide access to the north side of the South Maricopa Mountains Wilderness

Comment Number: 100151-10
Organization: Arizona Off Highway Vehicle Coalition
Commenter: Jeff Gursh

Comment Excerpt Text:
Regarding ATV width trails:

While some OHV enthusiasts would advocate specifically for ATV trails, the difficulty in maintaining a 50" trail in desert environments makes them difficult to keep to 50". UTV/ROVs and jeeps blur the line between jeep roads and ATV width trails. A simple distinction between one track and two track trails is sufficient. If you develop new primitive roads, make them wide enough for 4wd, which would include ATVs, UTVs and motorcycles, too.

Summary

Commenters recommended specific routes in the SDNM be designated as open or closed to motorized vehicle use and provided rationale or documentation to support their position. For example, some commenters recommended that: 1) BLM close short dead end routes south of the gas pipeline, 2) BLM maintain route connectivity, and 3) specific routes were redundant and should be opened and/or closed.

Some commenters recommended closing desert washes to protect sensitive resources, while other commenters recommended desert washes remain open since they: 1) provide access to particular areas, 2) provide a unique recreation experience, and 3) have been used as traditional travel routes. Some commenters questioned if the rationale used for closing desert washes in summer to protect wildlife was scientifically accurate, or 4) commenters asked what volume of travel constitutes wildlife disturbance in washes.

Commenters expressed their opinion that seasonal closures of routes in the SDNM would: 1) limit public access to the Monument during the closure periods, 2) result in route proliferation, and 3) limit access during hunting and archery seasons. Commenters suggested keeping one route in the southwest corner open year round and changing the end date of the closure from September 15 to August 31.

Commenters expressed concerns regarding closing direct access to/from I-8 and restricting travel in the SDNM to those roads accessible from existing freeway interchanges. Commenters indicated this would: 1) reduce public access and connectivity, 2) hinder use by law enforcement related for apprehension and

search and rescue efforts, and 3) result in route proliferation and contribute to particulate emissions and surface degradation. Commenters requested coordinating with ADOT regarding maintaining access to two material source sites, and another commenter suggested improving one of the gates used by ADOT to maintain public access. Commenters noted that one of the access routes to the SDNM could be impassable due its location in an area where several washes converge.

One commenter notes that 50 inch wide trails for ATVs would be hard to maintain in the desert.

Response

The Proclamation's management mandates create an exception to the BLM's general management mandate as set forth in FLPMA. See BLM Instruction Memorandum, No. 2009-115. The Proclamation mandates the protection of the historic, cultural, natural, and scientific objects within the Monument as the highest priority. The BLM's range of alternatives are designed to provide actions that would manage the Monument in accordance with the provisions of the Proclamation and other authorities, such as FLPMA, the National Historic Preservation Act, Endangered Species Act, and the Minerals Leasing Act, where applicable.

The BLM developed the management goals, objectives, and actions under each action alternative with the purpose of protecting Monument objects (see **Section 1.1** for the purpose and intent of the SDNM RMP). The alternatives represent an effort to identify an optimum course of action to protect the Monument objects while allowing for compatible public uses as described in the Proclamation (see **Appendix A**, Sonoran Desert National Monument Presidential Proclamation). For example, the range of alternatives includes those where some washes would be open to motorized vehicles and another where all washes would be closed.

Per the BLM Land Use Planning Handbook H-1601-1 and BLM's Travel and Transportation Manual 1626and IM-2008-014), specific route designations (open, limited or closed) are implementation decisions rather than planning level-decisions made in an RMP. As the scope of the SDNM RMP includes making both planning-level (area designations for open, limited or closed to OHV use) and implementation-level (specific route designations) decisions, the BLM has considered all the comments regarding open and closed routes, and has reviewed the SDNM route network in light of those comments. The route network in the Proposed RMP reflects changes as a result of this review.

Where significant natural barriers to limit vehicle width are not present, it would be difficult to maintain a 50-inch width. Your comment is noted for guidance in preparing future route designations and travel management plans in the LSFO.

6.2.25.5 Edits

Comment Number: 100072-2
Commenter: Barry Krayer

Comment Excerpt Text:
There is an administrative action that should be a management action. It refers to how authorized actions would have to replace access routes. It can be found in the travel management section.

Comment Number: 100110-9
Commenter: Tyler Kokjohn

Comment Excerpt Text:
Route designation is a key process and is not adequately described in the draft.

Comment Number: 100121-39
Organization: Sierra Club
Commenter: Jim Vaaler

Comment Excerpt Text:
As we noted clearly in our scoping comments, it is critical that the RMP include a legal definition of "road." The transportation plan in the DRMP/DEIS should be revised to include a legal definition of a road and must prioritize protection of Monument objects. To do this, BLM must clearly define what is on-road travel and what is off-road travel as cross-country travel is prohibited in the Monument.

Comment Number: 100126-4
Organization: The Wilderness Society
Commenter: Phil Hanceford

Comment Excerpt Text:
For the purpose of protecting the Monument objects, Proclamation 7397 requires "all motorized and mechanized vehicle use off road will be prohibited, except for emergency or authorized administrative purposes." In the Draft RMP, BLM interprets this to mean that only "cross-country travel," or travel off of designated routes, is prohibited. DRMP at 339. While we agree that cross-country travel is prohibited in the Monument, BLM has not distinguished what use constitutes "on road" versus "off road" for the purpose of designating routes.

Comment Number: 100126-53
Organization: The Wilderness Society
Commenter: Phil Hanceford

Comment Excerpt Text:
The definition of "road" in the RMP violates both applicable law and agency guidance. The BLM must use a legal definition of a road.

Comment Number: 100151-12
Organization: Arizona Off Highway Vehicle Coalition
Commenter: Jeff Gursh

Comment Excerpt Text:
2)There is an administrative action that should be a management action. It refers to how authorized actions would have to replace access routes. It can be found in the travel management section. Though a "housekeeping" issue, it is important to note.

Comment Number: LSFO-SDNM-DRMP--1-18763-2
Commenter: James Newman
Commenter: Regina Newman
Commenter 3: James Newman

Commenter 4: Christopher Tosh
Commenter 5: Carolyn Newman

Comment Excerpt Text:
Vague statement with no specifics
Comment Number: 2
Cited Content: Emerging recreational activities, some based on recent technologies, has yielded new recreational equipment and increased use of public lands.
Cited Section ID: Executive Summary
Comment Title: Vague statement with no specifics
Issue: 10756

Comment:
This statement is unsupported by any facts or research and should not be considered in any decision unless supporting documentation is added

Summary

Commenters requested several editorial revisions, including: 1) changing an administrative action to a management action (i.e., authorized actions would have to replace access routes), 2) providing a clear definition of a "road," and 3) clarifying the difference between "on-road" and "off-road" for the purpose of route designation.

One commenter also indicated that route designation is a key process and is not adequately described in the draft.

Response

The BLM has revised the PRMP/FEIS for edits presented by the commenters. The route designation process is described in **Appendix S**, Route Evaluation Methodology and Impact Analysis, and has been revised for clarity.

1) The administrative action referred to by commenters has been changed to a management action, and BLM has clarified the statement to ensure that during project planning, BLM would take the designated Travel Management System into consideration whenever there is a project that may affect the system (see TM-5.1.6 in **Table 2-37**).

2) The glossary (**Chapter 7** of the PRMP/FEIS) provides the definition for "road" as found in BLM Manual 1626.

3) The glossary has been updated to include a definition for off-road and on-road; "Off-road" means cross country travel between designated routes. "On-road" means travelling on designated routes.

6.2.25.6 Management Actions

Comment Number: 100121-49
Organization: Sierra Club
Commenter: Jim Vaaler

Comment Excerpt Text:
All motorized, non-motorized, and mechanical vehicles, including wheeled game carriers, should be prohibited in wilderness characteristic areas and these areas designated as closed to off-road vehicle use. When removing game from wilderness characteristic areas, the minimum tool rule should be enforced. Vehicle routes within wilderness characteristic areas must be designated as closed, and this must be reflected in subsequent travel management plans.

Comment Number: 100142-6
Organization: Arizona Game and Fish Department
Commenter: Josh Avey

Comment Excerpt Text:
In Section 2.8.5.2, Goal 6 allows vehicles to pull off designated routes a distance of 25 feet from the centerline for purposes of camping. The Department believes this is not a safe distance and recommends allowing vehicles to pull off 100 feet from the centerline. The Department requests BLM reevaluate the restriction. Utilizing a 100 ft. restriction would also provide consistency between other RMP decisions throughout the state, such as those made for the Agua Fria National Monument related to Recreation Management Zones.

Comment Number: 100151-11
Organization: Arizona Off Highway Vehicle Coalition
Commenter: Jeff Gursh

Comment Excerpt Text:
Facilities to support the trail system:

Facilities don't appear to be proposed in this TMP. Although these facilities could be completed as part of a recreation activity plan, we suggest that you identify, programmatically at least, that new information kiosks and parking areas could be developed as needed to address, but not limited to, safety, legal compliance, visitor satisfaction. Consider providing a map in the TMP of likely places where such things might be placed.

Comment Number: 100151-14
Organization: Arizona Off Highway Vehicle Coalition
Commenter: Jeff Gursh

Comment Excerpt Text:
What was the criteria for proposing routes that cross private land?: Are there plans to secure all routes that cross private land, or simply wait for them to be closed, one by one? We would suggest acquiring the main route as an easement or simply acquiring the land if your plan allows. If access or easement cannot be acquired, consider rerouting these connectors on BLM lands similar to proposed relocated routes in the BLM Table Mesa OHV plans.

Game and Fish have worked well with AZOHVC and the Hassayampa FO on this issue at Table Mesa OHV area.

Comment Number: 100151-4
Organization: Arizona Off Highway Vehicle Coalition
Commenter: Jeff Gursh

Comment Excerpt Text:
Regarding the provision in the SDNM that would ban all vehicles with an OHV decal. This is overly restrictive and short sighted. Any street legal, licensed vehicle with a licensed driver should be allowed to access the SDNM. You assume that future changes to the OHV decal laws will not add full size vehicles needing the OHV decal or that as proposed this year (2012) that full size OHV vehicles (over 1800 lbs) can purchase the OHV decal and contribute to the OHV fund to help improve OHV recreation.

Similar protected areas such as the Cabeza Prieta National Wildlife Refuge and the Mojave National Preserve allow licensed vehicles used by licensed drivers.

Comment Number: 100166-34
Commenter: Steve Saway

Comment Excerpt Text:
Comment: Recommend that the wording of management action TM-6.1.1 be the same as management action TM-1.3.7, i.e., change the restriction from 25 feet to 100 feet from the road centerline. Rationale is as follows. From a user perspective, it is very difficult if not impossible to pick a campsite that is only 25 feet or less from the road centerline. One can view existing campsites in the SDNM and see that people who camp there want a buffer from the road to provide some measure of privacy and to avoid vehicle noise and dust. If a management action is too restrictive, it will not encourage compliance. The restriction of 100 feet from the road centerline would be more consistent throughout the Lower Sonoran and SDNM decision areas and easier to administer. Ideally, BLM should designate suitable campsites using existing sites so that new areas do not need to be disturbed

Comment Number: LSFO-SDNM-DRMP--1-18763-5
Commenter: James Newman
Commenter: Regina Newman
Commenter 3: James Newman
Commenter 4: Christopher Tosh
Commenter 5: Carolyn Newman

Comment Excerpt Text:
Prohibited use of Motorized Vehicle while hunting
Comment Number: 5
Cited Content: Hunters may not use motorized vehicles of any type to retrieve injured or killed animals, including hunters with Challenged Hunter Access/Mobility Permits. Outside of wilderness areas, the use of wheeled game carts is allowed and recommended.
Cited Section ID: H.2.4 Recreation
Comment Title: Prohibited use of Motorized Vehicle while hunting
Issue: 10756

Comment:
This restriction is discriminatory in its authority. It prohibits the disabled/challenged from effectively hunting in these areas by themselves due to the inability to access the area to retrieve their animal.

Summary

Commenters recommended several revisions and additions to travel management actions to protect resources, support multiple use management, and provide appropriate access. Recommended revisions included: 1) increasing pull-off distance along designated routes, 2) identifying locations of new travel management facilities (e.g., kiosks along routes) 3) acquiring easements across private lands, 4) banning vehicles with an OHV decal in the SDNM, 5) management of OHV closures that does not put disabled hunters at a disadvantage, and 6) closing all areas with wilderness characteristics to motorized, non-motorized, and mechanical vehicles.

Response

1) The pull-off distance was established based on BLM policy in AZ IM 2005-007, which directed that "In National Monuments, National Conservation Areas and along National Trails, motorized use shall keep within the designated route with reasonable use of the shoulder and immediate roadside, allowing for vehicle passage, emergency stopping, or parking unless otherwise posted." The management action prescribing a 25-foot distance was removed from Chapter 2 of the PRMP/FEIS and replaced with the language directly from the policy (see Management Action TM-6.1.1 in **Table 2-37**).

2-4) These are all components of travel management planning, which has been included as part of the SDNM Travel Management Plan and included in the SDNM PRMP/FEIS. These components would be considered during the travel management planning for the Lower Sonoran Travel Management Plan, which would be developed following the Approved RMP/Record of Decision as a part of the RMP implementation phase (see BLM Land Use Planning Handbook, Section IV. Implementation, for a description of the follow-on implementation phase of the planning process).

5) The range of alternatives presented for the SDNM travel management plan allow for reasonable access; criteria have been added to the alternatives in **Chapter 2** as well as in the SDNM Travel Management Plan. Additionally, BLM regulations at 43 CFR 8340.0-5(a) exclude emergency and military vehicles from the definition of an off-road vehicle therefore they are not subject to the travel management regulations.

6) Allocation and management actions for lands managed to protect wilderness characteristics are described in the RMP/EIS in **Section 2.10.10** and are consistent with WO IM 2011-154, Requirement to Conduct and Maintain Inventory Information for Wilderness Characteristics and to Consider Lands with Wilderness Characteristics in Land Use Plans and BLM Manual 1626 (Travel Management). The range of alternatives includes closing motorized use within lands managed to protect wilderness characteristics. Additionally, BLM has included alternatives with requirements for licensed drivers/vehicles and prohibitions on OHV plated and decaled vehicles. The requirement for licensed and "street legal" vehicles within the SDNM is common to all alternatives (see Management Action TM-3.2.3 in **Table 2-37**).

6.2.25.7 Out of Scope

Comment Number: 100001-13
Commenter: Jim Vaaler

Comment Excerpt Text:
You should close the road between the Sierra Estrella Wilderness Area and Seven Mile Mountain and make Seven mile Mountain a part of the Sierra Estrella Wilderness.

Comment Number: 100072-1
Commenter: Barry Krayer

Comment Excerpt Text:
A road in Dendora Valley is missing from the route inventory. It connects from Oatman Mtn repeaters road to Saddle Road (parallel to RR tracks on south side). It appears on 100k topo maps as well as 24k maps. It's easiest to find from the north end. This road is important because it is completely on BLM land and goes around the big farm in Dendora Valley. It makes hunting and camping in this area feasible.

Comment Number: 100111-3
Organization: National Park Service
Commenter: Lee Baiza

Comment Excerpt Text:
The Armenta Road (aka: 59.4 Road) on OPCNM for example, currently serves as an important access road for NPS and Custom and Border Protection's (CBP) along a narrow travel corridor through designated wilderness. Since the escalation of border issues throughout the region this road has deteriorated greatly, experiencing severe entrenchment. Armenta Road was originally a two-track across the desert to access ranching infrastructure, and was never engineered to sustain the current levels of traffic. The ability to rebuild the road on the Monument is limited by the wilderness boundary and soils unsuitable for road construction. Furthermore the condition of Armenta Road is impacting hydrological processes; having adverse impacts on the soils and vegetation. The next nearest available area to construct an access road is on the Ajo Block and if such a road were to be constructed, it could be properly engineered to mitigate impacts to natural and cultural resources.

Consequently, there is a need for all agencies to consider the potential benefits of road construction on the Ajo Block to facilitate improved access and reduce CBP response time to BLM lands, the western portions of Organ Pipe Cactus National Monument (OPCNM), and the eastern areas of Cabeza Prieta National Wildlife Refuge. Such a road could greatly enhance CBP effectiveness at interdicting illegal traffic which in tum would have numerous benefits to national security, threatened and endangered species, and wilderness.

Comment Number: 100121-46
Organization: Sierra Club
Commenter: Jim Vaaler

Comment Excerpt Text:
In the Lower Sonoran area within the Face Mountain area of wilderness characteristics, there appear to be a number of inventoried routes that appear to exclusively follow washes. Inventoried route 8230 should remain. All other inventoried routes within the Face Mountain wilderness characteristic area need to be declassified as routes as they are nothing more than desert washes. It is our understanding that a number of these route designations

were done by volunteers who had no BLM supervision and possibly had a predisposition to designate as many routes as possible.

Comment Number: 100121-47
Organization: Sierra Club
Commenter: Jim Vaaler

Comment Excerpt Text:
In the Lower Sonoran area within the Yellow Medicine Butte wilderness characteristic area, inventoried route 8221A needs to be declassified as a route as is nothing more than a dry wash. Also, that portion of inventoried route 8221 that is a dry wash needs to be declassified as an inventoried route. It is our understanding that these two route designations were done by volunteers who had no BLM supervision and possibly had a predisposition to designate routes in dry washes.

Comment Number: 100121-48
Organization: Sierra Club
Commenter: Jim Vaaler

Comment Excerpt Text:
The route that exists between the Sierra Estrella Wilderness Area and Seven Mile Mountain is redundant in nature and needs to be closed to all motorized use. An alternate route exists just to the west of Seven Mile Mountain that follows the power line corridor.

Comment Number: 100151-1
Organization: Arizona Off Highway Vehicle Coalition
Commenter: Jeff Gursh

Comment Excerpt Text:
There is an important road in Dendora Valley missing from the route inventory. It connects from Oatman Mtn repeaters road to Poco Dinero (parallel to RR tracks on south side). It appears on 100k topo maps as well as 24k maps. It's easiest to find from the north end. This road is important to OHV and recreation in general because it is completely on BLM land and goes around the big farm in Dendora Valley. It makes hunting and camping in this area feasible. It's been a few years since I've been there. Since all recreation gets to their uses by motorized vehicle, whether motorized or nonmotorized, these type of roads and connections are very important access routes.

Comment Number: 100151-9
Organization: Arizona Off Highway Vehicle Coalition
Commenter: Jeff Gursh

Comment Excerpt Text:
Please make a specially designated route that connects to Phoenix BLM. The Hassayampa BLM identified such routes in the Table Mesa area on a special map. WE have the same concerns on this RMP Please consider long distance access OHV routes between field offices. We worked to get long distance travel goals put into the Hassayampa BLM RMP and would like to see a recognition of long distance connectors such as these. You don't have to improve the road condition, just protect it from closure by things such as solar/wind/geothermal farms, wilderness proposals and large scale mines.

Comment Number: 100159-11
Commenter: Roy Pierpoint

Comment Excerpt Text:
Alternate D might be better, but this would close off a main road between our farm and the farm south of us (Fornes farm). This road (S. Enterprise) is the only way for the Fomesesi Accomazzos to get to their property when the river is running. There would definitely need to be a cherry stem if Alternative D was enacted

Comment Number: LSFO-SDNM-DRMP--1-18361-3
Organization: Offroading and off road racing
Commenter: Douglas Martin

Comment Excerpt Text:
Pipeline road- northeast out of AJO
Comment Number: 3
Cited Content: Eight one-mile-wide multiuse, utility corridors would be designated (a portion of the El Paso Natural Gas Corridor from Ajo to the Tohono O'odham Indian Reservation would be excluded).
Cited Section ID: 2.3.2 Summary of the Lower Sonoran Decision Area Alternatives
Comment Title: Pipeline road- northeast out of AJO
Issue: 10756

Comment:
Am I reading this wrong? This portion of pipe line road would be excluded from multiuse? The pipeline road has been used for years as a loop to enjoy the deserts. I, and many of my friends, use to teach our grandkids how to ride motorcycles on. It's the perfect ride for beginners as well as an after church ride in the desert. I hope this is not on the chopping block.

Comment Number: LSFO-SDNM-DRMP--1-18763-3
Commenter: James Newman
Commenter: Regina Newman
Commenter 3: James Newman
Commenter 4: Christopher Tosh
Commenter 5: Carolyn Newman

Comment Excerpt Text:
inaccurate statement
Comment Number: 3
Cited Content: Nothing in this proclamation shall be deemed to enlarge or diminish the jurisdiction of the State of Arizona with respect to fish and wildlife management.
Cited Section ID: Appendix A Sonoran Desert National Monument Presidential Procla
Comment Title: inaccurate statement
Issue: 10756

Comment:
The simple fact of closing all areas to OHV travel does in fact reduce the ability for Arizona's Game and Fish Department to manage wildlife effectively in these restricted areas due to their inaccessibility

Summary

Commenters recommended specific routes in the Lower Sonoran Decision Area be designated as open or closed to motorized vehicle use and provided rationale or documentation to support their position.

One commenter expressed concern that closing all areas to OHV travel would reduce the ability for the AGFD to manage wildlife effectively. Another comment suggested some routes should be closed because they are in washes, and were inventoried by volunteers.

Commenters requested that the BLM consider designating a long distance OHV route connecting BLM field offices.

One commenter noted that a road in the Dendora Valley was missing from the BLM's route inventory.

Response

The decision on delineating travel and transportation networks for the Lower Sonoran Decision Area is deferred in the land use plan to the implementation phase. This work would be completed within five years of the signing of the Record of Decision (ROD) for the RMP and the public would be given adequate notice and an opportunity to comment on the route delineation process and recommendations.

The route inventory in Chapter 3 would be updated to include the missing road in the Dendora Valley.

The route inventory data displayed for the LSFO and the SDNM and described in Chapter 3 was collected by BLM employees, Forest Service employees via interagency agreement and BLM-funded contractors. No volunteers collected data. BLM has a high confidence level on the route inventory. Washes that displayed intensive levels of vehicle, ATV or motorcycle use were documented. The availability of desert washes for travel would be addressed in site-specific travel management plans.

In reference to the comment about the "multiuse" of the pipeline corridor northeast of Ajo; the term applies to potential development of future utilities, not to travel and transportation planning. Designation of the route as open for public use, closed, or limited would be made a part of future, more site specific planning effort that is out of scope of the RMP.

BLM manages species habitat and not the wildlife itself. As a cooperating agency, the AZGFD has coordinated with LSFO and SDNM to ensure appropriate access. See Section 5.3.6, for a description of the coordination between BLM and the AZGFD.

The RMP would be updated to include a new management action stating that the BLM would consider opportunities for long range trails that provide connectivity to adjacent public lands. Designating individual routes in the LSFO would occur as part of a separate process after the signing of the ROD.

6.2.25.8 Planning Approach

Comment Number: 100117-14
Commenter: Douglas Thomas

Comment Excerpt Text:
There are other reasons for BLM to maintain an extensive network of designated routes though the SDNM.

- an extensive network of designated routes (even redundant) will tend to preclude route proliferation which could lead to closures of routes from misuse and over-use.

- an extensive network of designated routes (even redundant), can be used by Law Enforcement and reduce the necessity (and corresponding damage) of off-road travel.

- an extensive network of designated routes (even redundant) reduces higher concentrations of traffic on anyone route, and therefore reduces the potential for vehicular accidents and associated road degradation.

- an extensive network of designated routes (even redundant) reduces higher concentrations of traffic on anyone route thus decreasing the potential for fugitive dust. Because excessive dust can obscure visibility, this could increase the potential for vehicle accidents.

- an extensive network of designated routes (even redundant) reduces recreational miles traveled in order to access and return from recreational destinations. This reduction in miles traveled will result in a reduction in wildlife disturbance, particulate emissions, road degradation and increased opportunities for remote experience by providing direct and varied access points and routes.

Comment Number: 100121-41
Organization: Sierra Club
Commenter: Jim Vaaler

Comment Excerpt Text:
We are appalled that BLM is not providing greater protection to desert washes within the Monument. The washes provide important wildlife habitat and critical linkages and were recognized in the Monument proclamation as a Monument object. Driving in washes by motorized recreationists and the Border Patrol is especially egregious. Washes tend to have more cover and serve as areas where many animals, from quail to peccaries and deer, seek shelter to regulate their body temperatures and cover from predators. Stress caused by vehicles can impair their fitness. Mortality to tortoises that burrow along the banks of washes is yet another reason for closing washes to motorized and mechanized traffic. Washes are legally not roads, so vehicles should automatically be prohibited from using them. BLM must develop, consider, and choose an alternative that prohibits vehicles in the Monument's washes.

Comment Number: 100121-43
Organization: Sierra Club
Commenter: Jim Vaaler

Comment Excerpt Text:
BLM has an overarching responsibility to minimize the damage to any natural resources and to ensure that the Monument's objects are not degraded. To help ensure that BLM is meeting its obligations, BLM should conduct a

baseline inventory and analysis of the existing road network and density, plus evaluate impacts on wildlife and any fragmentation of wildlife linkages. BLM should consider current research on the effects of road densities on wildlife and include that in the RMP. In order to adequately conserve and restore wildlife and plant species, this will be an important and necessary step.

Comment Number: 100121-44
Organization: Sierra Club
Commenter: Jim Vaaler

Comment Excerpt Text:
In addition to considering the travel issues in the Monument, the BLM should be evaluating and designating a travel network for the Lower Sonoran Field Office concurrent with this RMP, in order to provide more comprehensive landscape-level management of these lands. There has been no demonstration by BLM as to why the agency cannot do this, and there are strong reasons for ensuring that it happens now.

Comment Number: 100125-2
Commenter: George Alderson

Comment Excerpt Text:
The new RMP should provide for a travel plan involving designation of specific routes, with adequate signage and enforcement to make sure vehicles stay on the designated routes. The routes designated should be those capable of withstanding the impacts of ORV traffic without damage to fish and wildlife habitat and without disturbing quiet recreational visitors such as anglers, hunters, wildlife-watchers, hikers and mountain bikers.

Comment Number: 100126-11
Organization: The Wilderness Society
Commenter: Phil Hanceford

Comment Excerpt Text:
A defined travel and transportation network (system of roads, primitive roads, and trails) should be delineated concurrently with the development of the land use plan, to the extent practicable (including a reasonable range of alternatives). If it is not practical to delineate a travel and transportation network (through the development of a travel management plan (TMP) during the land use planning process, then a map of the known network of transportation linear features must be developed and made available to the public and a process established to designate a final travel and transportation network within five (5) years. BLM Manual 1626.06B.

BLM has not made a demonstration that it is not practical to designate a transportation network while engaging in the Lower Sonoran Field Office RMP process.

For plans where BLM has made a threshold showing that it is impractical to designate a transportation network concurrently with the RMP, BLM must set out a "clear planning sequence for subsequent road and trail selection and identification, including the public involvement process (focusing on user groups and stakeholders), initial route selection criteria, and constraints" and "[p]rovide a schedule to complete the area or sub-area road, primitive road, and trail selection process." BLM Manual 1626.06B2d.

Comment Number: 100126-2
Organization: The Wilderness Society
Commenter: Phil Hanceford

Comment Excerpt Text:
The BLM's transportation planning should prioritize protection of Monument objects. Proclamation 7397 states that "[f]or the purpose of protecting the objects identified above, all motorized and mechanized vehicle use off road will be prohibited, except for emergency or authorized administrative purposes." As detailed below, the definition of "road" has important implications, necessitating a legal definition be used in this RMP. Furthermore, Proclamation 7397 obligates the BLM to develop a transportation plan "that addresses the actions, including road closures or travel restrictions, necessary to protect the objects identified in the proclamation." In order to comply with Proclamation 7397, the transportation plan set out in the Draft RMP should be revised to include a legal definition of a road and actually prioritize protection of Monument objects.

Comment Number: 100126-35
Organization: The Wilderness Society
Commenter: Phil Hanceford

Comment Excerpt Text:
In order to preserve the primitive, undeveloped character of the Monument, BLM must manage the Monument in a way that prohibits any further damage to Monument objects that has already occurred from traditional uses in the area. Objective 3.2 in the Draft RMP is: "Impacts to Monument objects resulting from recreation use do not exceed 2001 levels," which is the year the Monument was proclaimed (Draft RMP at 176). In 2005, Northern Arizona University and Sonoran Institute released a report analyzing impacts to the Monument objects from recreation activities. (Foti et al. 2005). The report documents baseline recreation impacts to natural and cultural resources in the Monument, and identifies sites that are heavily impacted and in need of managerial attention.

One of the findings that stands out from this report is that 73.7 % of the 410 sites visited were impacted by ATV use. Foti et al. 2005, at Table 21. This is second only to "Campsites" for the most prominent recreational use having impacts in the Monument. As demonstrated by the need to issue a temporary closure in a portion of the Monument, ATV use is increasing. BLM should only designate the minimum transportation network that is necessary for protecting the Monument objects in order to protect Monument Objects from further damage.

Comment Number: 100126-56
Organization: The Wilderness Society
Commenter: Phil Hanceford

Comment Excerpt Text:
If BLM has found impacts to Monument objects to be anything more than negligible, then it must take measures to close that route in the RMP. Any route that impacts Monument objects automatically cannot meet BLM's burden of proof to show how it contributes to the protection of Monument objects. For example, in the spreadsheet for impacts to Monument objects from the travel network alternatives, the campsites at Gap Well, north of SR 238, BLM has found that the preferred alternative will have mostly minor to moderate impacts on the Monument objects. This is in violation of Proclamation 7397 and BLM laws and policies. As stated in these comments above, the range of alternatives for the Monument should not consider anything less than what is necessary for the full protection of the objects of interest. This example is particularly egregious since BLM has documented the impacts from motorized travel and off-road vehicles in the Gap Well area and has instated a temporary closure due to that damage.

The standard should not be "adequate" protection. The standard is whether the route is furthering the purposes of the National Monument, i.e. if the route conserve, protect, and enhance the Monument objects. Mitigation of impacts does not satisfy the mandates of Proclamation 7397 and BLM policy.

Recommendations: While the methodology for determining protection of Monument objects is a good first step, the application of the methodology for management purposes is fundamentally flawed. The criteria for designing the travel management network in the RMP should be revised to clearly prioritize protection of Monument objects, provide for no new roads to be added to the network, and ensure that the benefits of closing roads are taken into account. Roads should only be kept open if they can be shown to be consistent with conservation, protection and enhancement of Monument objects. These criteria should be applied to revise the proposed travel management network and to ongoing monitoring and management of the network.

Comment Number: 100126-59
Organization: The Wilderness Society
Commenter: Phil Hanceford

Comment Excerpt Text:
We also recommend you look at the travel planning criteria set out in the Record of Decision for the Dillon (MT) RMP (relevant sections attached), as an example of criteria that incorporate key aspects of BLM's ORV regulations as well as ecological metrics. This field office did not complete a comprehensive travel management plan as part of its RMP revision; however, it included road density targets and included an appendix outlining the principles it will use when completing a comprehensive travel management plan during implementation.

A habitat fragmentation analysis is especially important in this planning process where BLM must "undertake activities to conserve and restore plant and animal species and natural communities within [priority biological areas]," as noted above. One such activity that BLM should consider to satisfy this mandate is connectivity of important wildlife habitat areas by decreasing the density of the route network.

Recommendation: BLM should use the information provided in Appendix A to measure habitat fragmentation, conduct a thorough fragmentation analysis, and inform decisions regarding road closure and other limitations on use in the RMP.

Comment Number: 100126-6
Organization: The Wilderness Society
Commenter: Phil Hanceford

Comment Excerpt Text:
In a discussion of why BLM did not consider an alternative to open all washes to four-wheel drive travel, the DRMP/DEIS states that "[t]his type of travel is inconsistent with Presidential Proclamation 7397, which expressly prohibits, with the exception of emergency or authorized administration use, all motorized and mechanized vehicle use "off road" in the Monument. Furthermore, washes throughout the Lower Sonoran Planning Area contribute substantially to sustaining healthy, diverse, and productive ecosystems and cultural landscapes." DRMP at 41. A 2005 Recreation Study performed by Northern Arizona University and Sonoran found that off-road use along roads and in washes is a problem in the Monument (Foti et al. 2005, at 18).

This, along with evidence of impacts to natural and cultural resources from the use of washes as travel corridors, leads to the conclusion that BLM should strongly consider closing all desert washes to motorized travel. In order to satisfy BLM's obligation to provide a "reasonable range of alternatives" in its NEPA analysis, BLM must look at an alternative that closes all desert washes to motorized vehicles.

Comment Number: 100126-61
Organization: The Wilderness Society
Commenter: Phil Hanceford

Comment Excerpt Text:
We support BLM's commitment to complete travel management concurrently with the RMP processes and to seize the opportunity presented by this RMP process to complete comprehensive travel management plan in conjunction with the RMP. BLM has not yet demonstrated that it is impractical to designate a travel network at this time. If BLM does defer it must set a schedule for travel planning. BLM should also prioritize what management areas it will plan for first ensuring that sensitive and important natural and cultural resources are protected from the adverse impacts of motorized use.

Comment Number: 100126-8
Organization: The Wilderness Society
Commenter: Phil Hanceford

Comment Excerpt Text:
The Draft RMP has not provided additional plans for signing, enforcing, or educating the public about the route network as required by BLM policy. BLM Manual 1626.06B1d states clearly that TMPs must contain guidelines for managing and maintaining the system of route, which, at a minimum require the following:

- development of route specific road, primitive road, and trail management objectives,
- a sign plan,
- education/public information plan,
- enforcement plan, and
- a process requiring the application of engineering best management practices.

In addition, BLM must include a plan for decommissioning and rehabilitating closed or unauthorized routes and a monitoring plan for implementing the travel plan.

BLM IM 2010-167, att.1 contains performance measures and action items for implementing these plans.

Recommendation: In order to comply with the BLM Travel and Transportation Manual and policy guidance, BLM should provide the requisite management guidelines and plans as mentioned above.

Comment Number: 100126-9
Organization: The Wilderness Society
Commenter: Phil Hanceford

Comment Excerpt Text:
In order to manage lands and wildlife at a landscape level, BLM must perform a baseline inventory, as required under NEPA, of the existing route network and its current density. BLM should then review current scientific literature to determine what the effect of certain route densities have on priority wildlife species. Without this important step, the travel management decisions in the Draft RMP and current and future efforts to designate routes are not in accord with laws, regulations and policies regarding BLM land use planning.

Comment Number: 100148-10
Commenter: Jon M Shumaker

Comment Excerpt Text:
Regarding travel management, no routes (roads, primitive roads, trails) may be designated and/or opened within the boundaries of the Monument until they as well as an adequate buffer of at least 200' on either side of each route have been completely surveyed (100%) for cultural resources, and the roads themselves must also be evaluated as to whether or not they are cultural resources. Such surveys must be consulted upon with SHPO and the tribes and the SHPO and tribes must concur with the adequacy of BLM's identification efforts for cultural resources. Additionally, no routes may be designated, opened, or used unless it can be shown beyond a doubt that such action will either protect or enhance protection for the resources the Monument was established to protect.

Summary

1) Commenters expressed concern regarding the BLM's approach to travel management planning in the DRMP/DEIS and requested the BLM commit to:

a. prioritizing protection of SDNM objects in its transportation plan,

b. providing adequate signage and enforcement, and developing a complete route inventory, and

c. conducting a thorough habitat fragmentation and route density analysis to help inform decisions regarding road closure.

2) Other commenters recommended the BLM maintain an extensive network of designated routes throughout the SDNM to

a. reduce high traffic concentration,

b. preclude route proliferation,

c. reduce recreational miles traveled, and

d. lessen the impacts from travel on air quality and SDNM Monument objects.

3) Commenters also suggested several revisions and clarifications related to the travel management process in the RMP including clarifying the route designation process. Commenters expressed support for designating a travel and transportation network through the development of a travel management plan for the planning area concurrently with the development of the RMP, noting that the BLM had not documented in the DRMP/DEIS why it was impractical to do so, and was therefore not in compliance with BLM Manual 1626 and BLM IM 2010-167.

4) Commenters indicated that the BLM should only designate the minimum transportation network that is necessary for protecting the SDNM objects in order to protect SDNM objects from further damage, and that BLM must look at an alternative that closes all desert washes to motorized vehicles.

Response

1) In response to commenter's expressed concerns:

a. The Proclamation's management mandates create an exception to the BLM's general management mandate as set forth in FLPMA. See BLM Instruction Memorandum, No. 2009-115. The Proclamation mandates the protection of the historic, cultural, natural, and scientific objects within the National Monument as the highest priority. The BLM's range of alternatives is designed to provide actions that would manage the Monument in accordance with the provisions of the Proclamation and other authorities, such as FLPMA, the National Historic Preservation Act (NHPA), Endangered Species Act (ESA), where applicable.

b. Signs and enforcement would be addressed in the travel management plan, which are implementation actions. Chapter 3 displays the route inventory for the entire district. Some omissions have been fixed, mostly occurring in the Gila Bend Mountains. All SDNM and LSFO lands have been inventoried for routes with the exception of east valley scattered parcels. An inventory was not completed on these areas due to their discontinuity with BLM lands and most of these parcels are identified for disposal.

c. Route density calculations were conducted for SDNM route alternatives. While there is no target density to achieve for Sonoran Desert ecosystem health, the density calculations were used as a general indicator of habitat potential. Fragmentation analysis was not conducted due to the lack of targets for habitat patch size. Without such targets, measurement of patch size would be for information purposes only.

2) The BLM developed the management goals, objectives, and actions with under each action alternative with the purpose of protecting Monument objects (see Section 1.1 for the purpose and intent of the SDNM RMP). The alternatives represent an effort to identify an optimum course of action to protect the Monument objects while allowing for compatible public uses as described in the Proclamation (see Appendix A; Appendix S, Section S.2, for a discussion of how BLM determined adequate protection of Monument objects.). This requirement extends to the preparation of the travel management plan. The range of alternatives analyzed for the travel management plan includes alternatives where more and fewer routes (i.e., at concentrated and dispersed densities) are designated for public use. Additionally, Alternative D would close desert washes to motorized vehicles. Air quality in SDNM is an issue that was considered. The PM-10 non-attainment area in the northern portion of the Monument was given highest priority. Route density inside the PM-10 boundary was reduced in all action alternatives.

3) Route designation is an implementation decision and is not required to be made concurrently within an RMP. The decision on delineating travel and transportation networks for the LSFO is deferred in the land use plan to the implementation phase. The BLM chose to defer specific route designations within the Lower Sonoran FO decision area due to the large size and complexity of the area and the desire to ensure meaningful opportunities for public involvement in the process. Designating travel and transportation networks would be completed within five years of the signing of the Record of Decision (ROD) for the RMP and the public would be given adequate notice and an opportunity to comment on the route delineation process and recommendations (BLM Manual 1626).

4) Same as response to point 2) above.

6.2.26 ACEC

6.2.26.1 Designations

Comment Number: 100001-14
Commenter: Jim Vaaler

Comment Excerpt Text:
The rest of the area west of Seven mile Mountain to the SDNM should be designated as an ACEC.

Comment Number: 100137-10
Organization: Fennemore Craig P.C.
Commenter: Dawn Meidinger

Comment Excerpt Text:
[2nd Chart pg. 9, Column 1]
Greater than locally significant qualities, giving special worth, consequence, meaning, distinctiveness, or cause of concern, especially compared to any similar resource.

[Column 2]
BLM Rationale For Determination (DRMP/EIS-Appendix V)

Adjacent to Tohono O'odham Nation and part of their traditional homeland. Broad varieties of cultural sites are represented in the area in higher density than surrounding areas. Important prehistoric obsidian sources for tool materials are located in this area.

[Column 3]
Rationale for Failure to Meeting Statutory and Regulatory Criteria

See comments in "relevance" chart above. Does not meet criteria of greater than local significance.

Comment Number: 100137-11
Organization: Fennemore Craig P.C.
Commenter: Dawn Meidinger

Comment Excerpt Text:
[Chart pg. 10, Row 1 Column 1]
"Importance" Value

Qualities or circumstances that make it fragile, sensitive, rare, irreplaceable, exemplary, unique, endangered, threatened or vulnerable to adverse change.

[Column 2]
BLM Rationale For Determination (DRMP/EIS-Appendix V)

Contains significant wildlife resources for three endangered (priority) species Sonoran pronghorn, lesser long-nosed bat, and CFPO. Area was proposed as critical habitat for CFPO and includes a proposed recovery area for the CFPO. Area provides important fawning habitat for the pronghorn. Several large washes provide suitable CFPO habitat.

Foraging habitat for lesser long-nosed bat.

Habitat for Sonoran desert tortoise and rosy boa.

Strong cultural resource component associated with the area as part of traditional Tohono O'odham homeland and contains much important information about prehistoric settlement and subsistence.

Area is popular with local residents and seasonal winter visitors from U.S. and Canada for dispersed recreation including camping and sightseeing

[Column 3]
Rationale for Failure to Meeting Statutory and Regulatory Criteria

CFPO is not a listed species, nor is critical habitat proposed or designated. No recovery plan for the species was ever finalized.

No demonstration that Sonoran pronghorn occupy anything other than a "small portion" of land in the area. Pronghorn reintroduction efforts are focused elsewhere. Species benefits from ESA protection. No demonstration that the land proposed is "fragile, sensitive, rare, exemplary, or unique."

Foraging habitat is not determinative that land is "sensitive, rare or irreplaceable." The bats utilize columnar cactus and agave for foraging. These plants are widespread throughout Southern Arizona, which is why no critical habitat was designated at the time of the species' listing.

The mere existence of habitat for any particular species is not determinative of the "fragile, sensitive, rare, irreplaceable, exemplary, unique, or endangered status" of the plant species utilized for habitat or the land. Does not meet criteria of being something more than local significance. Cultural recourse that may be present benefit from protection under NHPA among other federal statutes. No special management protection is required.

Non-determinative criteria and no factual basis to conclude that the area proposed for designation is vulnerable to "adverse change" from the sightseeing.

Comment Number: 100137-12
Organization: Fennemore Craig P.C.
Commenter: Dawn Meidinger

Comment Excerpt Text:
[Chart pg. 10 Row 2 Column 1]
"Importance" Value

Protection to satisfy national priority concerns or to carry out mandates of FLPMA.

[Column 2]
BLM Rationale For Determination (DRMP/EIS-Appendix V)

Mandate to protect threatened, endangered and candidate species and their habitats under the ESA.

[Column 3]
Rationale for Failure to Meeting Statutory and Regulatory Criteria

Protection of species under the ESA is the primary responsibility of USFWS. No demonstration the ESA is a "substantially significant" national priority concern or critical to carrying out the mandates of FLPMA (which is primarily the prevention of "unnecessary and undue degradation" to federal lands) has been demonstrated.

Comment Number: 100137-27
Organization: Fennemore Craig P.C.
Commenter: Dawn Meidinger

Comment Excerpt Text:
The proposed 64,000 acre Coffee Pot Batamote ACEC designation suffers from the same deficiencies as those identified for the Cuerda de Lena ACEC. Almost uniformly, the rationale identified for the Coffee Pot Batamote ACEC designation replicates the rationale used for justification of the Cuerda de Lena ACEC

Comment Number: 100137-7
Organization: Fennemore Craig P.C.
Commenter: Dawn Meidinger

Comment Excerpt Text:
The proposed Cuerda de Lena ACEC does not meet the statutory and regulatory criteria for designation. In addition to being duplicative of each other, the BLM's stated rationale for the relevance and importance criteria do not identify any supporting inventory data and fail to rise to the level of significance. In addition, existing statutory programs provide adequate protections for the resources of concern. There is no effort to explain why those existing protections are inadequate. In separate charts below, the "relevance" and "importance" criteria for ACECs are identified along with the BLM rationale for determination that each criteria has been met. See DRMP/EIS at Appendix V. The reason the BLM's rationale fails to meet applicable regulatory criteria is set forth in the third column and must be considered in the FEIS.

[Chart pg. 7, Column 1]
"Relevance" Value

Significant Historic, Cultural or Scenic Value.

[Column 2]
BLM Rationale for Determination

Adjacent to Tohono O'odham Nation and part of their traditional homeland. Broad varieties of cultural sites are represented in the area in higher density than surrounding areas. Important prehistoric obsidian sources for tool material are located in this area.

[Column 3]
Failure to Meet Statutory and Regulatory Criteria for Designation

This determination is inconsistent with DRMP/EIS, which states only 4% of the BLM administered land in the planning area has ever been surveyed (DRMP/EIS at 264) and that "no extensive inventories of traditional cultural resources have been completed." DRMP/EIS at 345-346.

Protection of specific areas of concern could be addressed via use of a specific cultural use allocation in the RMP or a Special Cultural Resource Management Area. See BLM Manual 8110.4 or DRMP/EIS at Appendix I. Special management consideration is not warranted due to other available statutory protection.6 [Footnote 6

Preservation Act of 1966, as amended (16 USC § 470 et seq.), Native American Graves Protection and Repatriation Act of 1990 (25 USC § 3001), Indian Sacred Sites (EO 13007, May 24, 1996), Archaeological Resources Protection Act of 1979 (16 USC § 469), Archaeological and Historic Preservation Act of 1974 (16 USC § 469) and BLM Manual 8140 ¬Protecting Cultural Resources (MS-8140).]

Comment Number: 100137-8
Organization: Fennemore Craig P.C.
Commenter: Dawn Meidinger

Comment Excerpt Text:
[Chart pg. 8 Column 1]
"Relevance" Value

Fish and Wildlife Resources

[Column 2]
BLM Rational For Determination

Only area within the Lower Sonoran Field Office that is managed for endangered Sonoran pronghorn antelope. There are currently Sonoran pronghorn that take up residence on public lands within the proposed bounds of the ACEC.

Suitable and occupied habitat for the candidate species Cactus ferruginous pygmy-owl ("CFPO").

[Column 3]
Failure to Meet Statutory and Regulatory Criteria for Designation

The current range of the Pronghorn is limited to the Cabeza Prieta NWR, Barry-Goldwater Range, Organ Pipe Cactus National Monument, and a "relatively small block of land to the west and south of Ajo." EA for Reestablishment of Sonoran Pronghorn (Oct. 2010). 7 [Footnote 7 Map 3-4 in the DRMP/EIS is misleading to the extent the identified "current range" is correctly the Pronghorn's "historic range" and Area D shown as the "reintroduction area" appears inconsistent with reintroduction areas shown in the EA for Reestablishment of Sonoran Pronghorn (Oct. 2010).]

Failure to demonstrate how the area is not otherwise adequately protected through implementation of Conservation Measures identified in Amended Proposed Action for Five Livestock Grazing Allotments in the Vicinity of Ajo Arizona (02-21-94-F¬192), 2004. See DRMP/EIS at Appendix K.

Failure to demonstrate how the proposed ACEC will benefit the species.

Species re-introduction efforts are not being focused in this area but on KOFA NWR and Barry Goldwater Range north and east of Ajo. [d.

CFPO is not a candidate species and listing of the species is not warranted as recently determined by USFWS. See 76 Fed. Reg. 61856 (Oct. 5,2011). CFPO is otherwise protected by the Migratory Bird Treaty Act (16 USC § 703-712). BLM must use best available scientific information in making these determinations.

Comment Number: 100137-9
Organization: Fennemore Craig P.C.
Commenter: Dawn Meidinger

Comment Excerpt Text:
[First Chart pg. 9, Column 1]
"Relevance" Value

Natural Process or System

[Column 2]
BLM Rational for Determination

Saguaro cactus forest situations which are foraging habitat for endangered lesser long-nosed bat. Suitable and occupied habitat for CFPO. Fawning, breeding, loafing and foraging habitat for Sonoran pronghorn.

[Column 3]
Failure to Meet Statutory and Regulatory Criteria for Designation

The presence of suitable/foraging habitat for two endangered species and one non-listed species is not sufficient absent a demonstration the plant species present are "endangered, sensitive, or threatened plant species; rare, endemic or relic plants or plant communities which are terrestrial, aquatic, or riparian. "

CFPO not listed. See 76 Fed. Reg. 61856 (Oct. 5, 2011)

Summary

Commenters question the importance and relevance criteria and rationale used by the BLM to determine ACEC boundaries.

Response

The FLPMA requires the BLM to "give priority to the designation and protection of areas of critical environmental concern." 43 USC § 1712(c)(3). To be designated as an ACEC, the area must meet the criteria of relevance and importance (as defined in BLM Manual 1613). Areas meeting the relevance criterion possess significant historic, cultural, or scenic values; fish or wildlife resources, including threatened and endangered species; or natural hazards. To meet the importance criterion, the resource must have substantial significance and value. This generally requires qualities of more than local significance and special worth, consequence, meaning, distinctiveness, or cause for concern.

BLM was required to determine if existing ACECs and areas proposed for ACEC designation met the relevance and importance criteria prior to inclusion in the RMP process. BLM completed the ACEC proposal evaluation forms presented in Appendix V, Areas of Critical Environmental Concern (ACEC) Evaluations. Areas that did not meet both relevance and importance were dropped from further consideration for ACEC designation.

The Preferred Alternative reflected the BLM's proposals for designation and management of ACECs. BLM Manual § 1613.23(A). The BLM's policy requires that all potential ACECs be carried forward for analysis in at least one alternative in the DRMP/DEIS. All potential ACECs have been analyzed in at least

one action alternative in the DEIS, and all ACEC proposals have been analyzed in Alternative D. Rationale for all ACEC decisions would be provided in the ROD and supported by analysis in the EIS.

Commenters noted areas identified for nomination; the BLM has reviewed these areas to identify those which meet the relevance and importance criteria:

- The BLM has reevaluated the relevance and importance criteria for the Coffeepot-Batamote ACEC (Alternative E) and has adjusted the ACEC boundaries to emphasize management of the acuna cactus.
- The BLM has reevaluated the relevance and importance criteria and management actions for the Cuerda de Lena area and have determined that the area satisfies ACEC designation criteria. Therefore no changes have been made.
- The BLM has evaluated the Seven Mile Mountain area and determined that it does not meet the relevance and importance criteria necessary for designation as an ACEC. The area referenced by commenters was not found to have significant historic, cultural, or scenic values; fish or wildlife resources, including threatened and endangered species; or natural hazards satisfying the relevance and importance criteria. No Threatened and Endangered species are known to occupy the Seven Mile Mountain. There is Category II desert tortoise habitat; however, such habitat is found throughout the Planning Area and not unique to the suggested ACEC area. Cultural resource surveys in the area of eastern Rainbow Valley have resulted in findings of very sparse prehistoric occupation. While there are known historic structures, e.g., historic homesteads, in the area, they, on their own merit, were not found to be important or relevant to designating the area as an ACEC. Finally, there are no noted scenic resources or wildlife habitat values for the area.

6.2.26.2 Impacts

Comment Number: 100137-26
Organization: Fennemore Craig P.C.
Commenter: Dawn Meidinger

Comment Excerpt Text:
Two of the proposed ACECs (i.e., the Coffeepot Batamote ACEC and Cuerda de Lena ACEC) surround Freeport's Ajo operation, and would severely impair future resource development. In fact, the proposed Cuerda de Lena ACEC directly abuts the southern boundary of the Ajo pit, making future expansion in conjunction with development of existing unpatented claims on BLM land virtually impossible without extraordinary mitigation.

Summary

A commenter noted that the BLM did not adequately address impacts of ACEC designations on Freeport McMoran's mining operation.

Response

As required by 40 CFR 1502.16, the DRMP/DEIS **Chapter 4**, Environmental Consequences, provided a discussion of the environmental impacts of the alternatives including the proposed action, any adverse

environmental effects which cannot be avoided should the proposal be implemented, the relationship between short-term uses of man's environment and the maintenance and enhancement of long-term productivity, and any irreversible or irretrievable commitments of resources which would be involved in the proposal should it be implemented.

Land use plan-level analyses are typically broad and qualitative rather than quantitative or focused on site-specific actions (BLM Land Use Planning Handbook H-1601-1, Chapter II, A-B at 11-13 and Chapter IV, B at 29). The DRMP contains only planning actions for ACECs and does not include any implementation actions. **Section 4.17** provides an analysis of impacts on minerals management from Special Designations, including ACECs. Impact analysis in **Section 4.17.3.2** concludes that designation of ACECs could place limitations on leasable and saleable minerals exploration and production and would require plans of operations for all operations beyond casual use for locatable minerals.

6.2.26.3 Management Actions

Comment Number: 100078-1
Commenter: Judith C Shaw
Other Sections: 18.4

Comment Excerpt Text:
3. ACEC. Having visited south side of Saddle Mountain many times, I know that that area contains Wilderness Characteristics; the ACEC should be expanded to approximate 20,000 acres as outlined in Tonopah Area Coalition proposal of 2005 and Arizona Wilderness Coalition recommendations.

I have seen many saguaro cacti damaged and/or killed as a result of being shot. To better protect ACEC values target shooting should not be allowed in the ACEC area. Likewise, there are many places where OHVs have left designated trails and created new trails damaging vegetation. OHV travel should be stopped completely in this ACEC area.

Comment Number: 100111-2
Organization: National Park Service
Commenter: Lee Baiza

Comment Excerpt Text:
In the draft document Maps 2-4 c and d proposed to manage some of the Ajo Block to protect wilderness characteristics. Maps 2-5 b through e, propose the Ajo Block be classified as Land Use Authorizations Avoidance or Restricted. These are some of the most limiting classifications and we are concerned that such designations could affect adjacent lands. NPS wishes to work with BLM to discuss alternatives on how management of the Ajo Block can help address serious issues affecting all agencies in the region, so as to minimize impacts to designated wilderness as well as threatened and endangered species.

Comment Number: 100121-51
Organization: Sierra Club
Commenter: Jim Vaaler

Comment Excerpt Text:
BLM should also consider prohibitions on recreational target shooting within special designation areas, including all Areas of Critical Environmental Concern and the Saddle Mountain Outstanding Natural Area.

Comment Number: 100121-55
Organization: Sierra Club
Commenter: Jim Vaaler
Other Sections: 24.4

Comment Excerpt Text:
ACEC designations within the SDNM should be retained. Releasing these areas will not help to further the Monument proclamation or protect the Monument objects. Having layered protection of the land can enhance its protections, and there is precedent for it. For example, wilderness areas within the Monument have layered protection. Monument status does not obviate the fact that these ACEC designations were done for a reason – objects within the boundary of the ACEC are at risk

Comment Number: 100121-56
Organization: Sierra Club
Commenter: Jim Vaaler

Comment Excerpt Text:
Recreational shooting should be limited in the ACECs, as well as the Saddle Mountain Outstanding Natural Area, in order to protect the cultural and natural resources. Recreational shooters have destroyed 4–5 saguaros in the Saddle Mountain area in just the past couple of years. We cannot afford to lose more to these irresponsible activities.

Comment Number: 100126-73
Organization: The Wilderness Society
Commenter: Phil Hanceford

Comment Excerpt Text:
The one exception is that all ACECs should be closed to all locatable and leasable mineral exploration and development and mineral material disposals including free use permits. The public lands within ACECs should be recommended for withdrawal. This is provided for in

Alternative D and we strongly recommend BLM choose this alternative with regard to mineral exploration and development to protect the important and sensitive resources found within the ACECs.

Comment Number: 100126-74
Organization: The Wilderness Society
Commenter: Phil Hanceford

Comment Excerpt Text:
Coffeepot-Batamote ACEC: As stated in the Draft RMP, the purpose of the Coffeepot-Batamote ACEC is to protect for outstanding botanical diversity of the native and rare plant communities (including the Acuña cactus); lesser long-nosed bat, cactus ferruginous pygmy-owl and desert bighorn sheep habitat; and other wildlife populations along with unique landscape and scenic features. Draft RMP at 196. In order to achieve those goals, BLM should adopt the following additional management actions:

- The route system would be designated to limit wildlife habitat fragmentation, wildlife disturbance, and vegetation damage. Motorized vehicle routes that conflict with maintenance of wildlife habitat and cultural resources would be closed, limited, or mitigated. New route construction would not be allowed except for resource protection.

- Routes within washes would be prohibited.
- Closed to leasable exploration and development.
- Recreational development would be limited to the minimum required to protect resources and provide for public safety.
- Exclusion area for utility-scale renewable energy development.
- No new utility and/or communication facilities.
- Proposed withdrawal from locatable mineral entry
- Apply a VRM Class I or II scenic designation
- Closed to the disposal of mineral materials

Comment Number: 100126-75
Organization: The Wilderness Society
Commenter: Phil Hanceford

Comment Excerpt Text:
Cuerda de Lena ACEC: The purpose of this designation is to protect wildlife, including the endangered Sonoran Pronghorn, cactus ferruginous pygmy-owl, and other species, as well as to protect cultural resources. While we are generally supportive of the management actions set out in Alternatives D and E, BLM should apply the following additional management prescriptions to meet this goal:

- The route system would be designated to limit wildlife habitat fragmentation, wildlife disturbance, and vegetation damage. Motorized vehicle routes that conflict with maintenance of wildlife habitat and cultural resources would be closed, limited, or mitigated. New route construction would not be allowed except for resource protection.
- Routes within washes would be prohibited.
- Closed to leasable exploration and development.
- Recreational development would be limited to the minimum required to protect resources and provide for public safety.
- Exclusion area for utility-scale renewable energy development.
- No new utility and/or communication facilities.
- Proposed withdrawal from locatable mineral entry
- Apply a VRM Class I or II scenic designation
- Closed to the disposal of mineral materials

Comment Number: 100126-76
Organization: The Wilderness Society
Commenter: Phil Hanceford

Comment Excerpt Text:
Saddle Mountain Outstanding Natural Area ACEC

- The route system would be designated to limit wildlife habitat fragmentation, wildlife disturbance, and vegetation damage. Motorized vehicle routes that conflict with maintenance of wildlife habitat and cultural resources would be closed, limited, or mitigated. New route construction would not be allowed except for resource protection.
- Routes within washes would be prohibited.
- Closed to leasable exploration and development.
- Recreational development would be limited to the minimum required to protect resources and provide for public safety.
- Exclusion area for utility-scale renewable energy development.
- No new utility and/or communication facilities.
- Proposed withdrawal from locatable mineral entry
- Apply a VRM Class I or II scenic designation
- Closed to the disposal of mineral materials

Comment Number: 100129-2
Organization: Center for Desert Archeology
Commenter: Andy Laurenzi

Comment Excerpt Text:
Page 198. AC-1.1.4S. This management action is meaningless in the context of an ACEC designation since it provides no greater level of protection than un designated public lands. We request that a No Surface Occupancy be stipulated. This will not only ensure protection of important cultural resources but further protect the natural area qualities that are the basis for the ACEC designation.

Comment Number: 100137-14
Organization: Fennemore Craig P.C.
Commenter: Dawn Meidinger

Comment Excerpt Text:
In addition to the designation of the area as an ACEC, over 55,000 acres of the ACEC would be managed for wilderness characteristics essentially excluding any intensive surface disturbance. The Coffee Pot Batamote ACEC would expand upon the existing Coffee Pot Botanical ACEC, which evidently contains more than 285 plant species, many with limited distributions in the United States. See DRMP/EIS at 344. This level of plant species diversity is not demonstrated in the expanded ACEC. For this reason, and the others set forth above, the Coffee Pot Batamote area does not meet regulatory criteria for ACEC designation.

Comment Number: 100137-16
Organization: Fennemore Craig P.C.
Commenter: Dawn Meidinger

Comment Excerpt Text:
In addition to the proposed elimination of major utility corridors, Alternative E contemplates LUA "Avoidance Areas" on all BLM land surrounding Ajo.9 [Footnote 9 "Avoidance Areas" are defined as "areas with sensitive resource values where minor linear LUAs and nonlinear LUAs ... would be strongly discouraged. Authorizations to be considered within avoidance areas must be compatible with the purpose for which the area was designated and not be otherwise feasible on lands outside the avoidance area." In addition, the proponent would be required to meet additional mitigation measures set forth by individual program areas that manage the "avoided" designated allocation." DRMP/EIS at 122.] Within the Cuerda de Lena ACEC and Coffee Pot Batamote ACEC the prohibitions are even greater as "Exclusion Areas" are specified therein.10 [Footnote 10 "Exclusion Areas" are defined as "areas with sensitive resource values where minor linear LUAs and nonlinear LUAs ... would not be authorized." In these areas, LUAs would be granted only in cases where there is a legal requirement to provide such access or an immediate public safety concern. Id.] DRMP/EIS at 120, 131-132. No justification is provided in the DRMP/EIS for these restrictive management prohibitions. No inventory or resource data is provided to demonstrate that the areas are so "sensitive" that they cannot withstand surface disturbance resulting from linear LUAs or that impacts cannot otherwise be mitigated. This effective closure of the public lands for utility corridors is an extreme and undue burden on industries dependent on water, power, fuel and available telecommunication for a variety of purposes, including mineral exploration and development. The administration of ACECs to exclude any LUAs is contrary to FLPMA's multiple use mandate and the effect is akin to a de-facto wilderness designation

Comment Number: 100145-14
Organization: National Park Service
Commenter: Naomi Torres

Comment Excerpt Text:
(Lower Gila Terraces and Historic Trails ACEC) AC-1.1.38-40: It was unclear from our review of the document where does the plan specifies what portions/parcels within the ACEC would be protected from surface disturbance and mineral exploration and development. Please clarify this. We question the value of the ACEC designation if the entire ACEC is not protected as a unit.

Comment Number: 100145-15
Organization: National Park Service
Commenter: Naomi Torres

Comment Excerpt Text:
Related to our comment in 2.8.1 Lands and Realty above, we suggest that an additional action be added: Acquire private or State owned parcels within the ACEC that have high resource value or would improve the connectivity of the ACEC, including the connectivity of the Anza Recreational Trail. Acquisition could be accomplished through a land exchange or purchase.

Comment Number: 100160-2
Organization: Tonopah Area Coalition
Commenter: Craig Weaver

Comment Excerpt Text:
However, TAC's 'on the ground' review of Saddle Mountain & Palo Verde Hills over the past two years (2010-11) show that ACEC designation and management would be better supported if additional management categories matched the ACEC goals. Our visits and analysis have shown negative impacts that make Alternative D for Target Shooting Management, Alternative D for Travel Management, Alternative D for Protecting Wilderness Characteristics, Alternative D for Visual Resource Management, Alternative D for Mineral Restrictions Locatables, and Alternative C for Recreation Management - are, in each category, more compatible with ACEC designation for protecting this Outstanding Natural ACEC.

Comment Number: 100160-4
Organization: Tonopah Area Coalition
Commenter: Craig Weaver

Comment Excerpt Text:
Gravel Pit located north of Saddle Mountain (2N 7W Section 31) on BLM land should be retired and lease with Maricopa County ended. Site has not been used for over 10 years, needs invasive tamarisk removed, and elimination of some fencing for Wildlife Linkage #64 AZGF/ADOT should be considered

Comment Number: 100166-35
Commenter: Steve Saway

Comment Excerpt Text:
Management Action AC-1.1.2: Core roadless areas would be maintained for wildlife while new facilities, including motorized routes, non-motorized trails, and trailheads that concentrate or increase use in these areas would be avoided.

Comment: I believe this statement could complicate implementation of recreation and public access objectives for portions of the Lower Gila Terraces and Historic Trails ACEC, i.e., where portions overlap the Gila Bend Mountains SRMA and the Lower Gila Historic Trails SRMA. For example, access to this proposed ACEC and the east and south sides of the Woolsey Peak Wilderness may require additional motorized routes. Recommend the word "avoided" be changed to "minimized" in order to allow some flexibility in establishing adequate access for non-motorized dispersed recreational experiences.

Summary

Commenters recommended additional management actions for the ACECs including: 1) prohibiting target shooting, OHV use, mineral leasing, and exploration and development, 2) withdrawal from mineral entry, 3) exclusion for renewable energy development, 4) changes to route designations, 5) designating VRM Class I or II allocations, and 6) allowing for land tenure adjustments.

Commenters were concerned with the avoidance and exclusion of land use authorizations in the Ajo Block, specifically as they relate to the designation of the Cuerda de Lena and Coffee Pot Batamote ACECs and their associated management prescriptions.

A commenter noted that the gravel pit located north of Saddle Mountain (2N 7W Section 31) on BLM-administered land should be retired and the lease with Maricopa County ended.

Response

The BLM has discretion regarding the formulation of management prescriptions for ACECs. A comparison of estimated effects and trade-offs associated with the alternative leads to development and selection of the preferred alternative. It is not prescribed in the BLM 1613 Manual that a particular potential ACEC's relevant and important values must be protected to the same level or degree of protection in all plan alternatives. The 1613 Manual does state, "The management prescription for a potential ACEC may vary across alternatives from no special management attention to intensive special management attention." Elaborating further, "Situations in which no special management attention would be prescribed (and therefore no designation) include … those in which the alternative would necessitate the sacrifice of the potential ACEC values to achieve other purposes." Such Manual guidance clearly allows for one or more RMP alternatives to be analyzed that would potentially impact relevant and important values in order to allow management for other prescribed purposes. It is the BLM's interpretation of its ACEC responsibility that relevant and important values must be protected whether designated an ACEC or not.

The management actions in Section 2.12.1 provide a range of management actions which provide protections of resources in ACECs to meet the goal of "Provide increased protection for cultural resources, outstanding and scenic features, and priority and special status species while continuing to provide the public access to enjoy these resources." Each ACEC has a particular set of resource values that BLM is trying to protect. Individual commenters recommended new management actions for ACECs they felt should be added, such as closing to target shooting, closing to mineral sales and leasing, withdrawing from mineral entry, exclusion from renewable energy development, and others. The prescriptions suggested by commenters are not universally warranted based on the relevance and importance resource values present or potential threats to specific ACEC values. For example, prohibiting target shooting or solar development is not warranted in ACECs where such activities are not present or may cause no harm. ACEC management prescriptions are tailored specifically to protect the subject ACEC's relevance and importance values. The suggested management actions made by commenters were considered and BLM applied them where we considered them needed to protect the identified Relevance and Importance values.

Any ACEC designation would still be subject to valid existing rights. The Proposed RMP/Final EIS was revised to include a management action under each ACEC that would allow land tenure adjustments.

Evaluations for all ACECs under consideration can be found in Appendix V, Areas of Critical Environmental Concern (ACEC) Evaluations. The values presented for these ACECs are considered the highest and best use for those lands, and protecting them takes precedence over the BLM's mandate to manage public lands for multiple uses. Avoidance and exclusion of land use authorizations are intended to ensure the BLM meets the goal of "Provide increased protection for cultural resources, outstanding and scenic features, and priority and special status species while continuing to provide the public access to enjoy these resources" for these ACECs.

The gravel pit located north of Saddle Mountain (2N, 7W, Section 31) on BLM-administered land is outside the ACEC boundary and does not impact any of the proposed ACEC's relevance and importance resource values.

The PRMP/FEIS has been revised to allow appropriate land tenure adjustments within ACECs.

6.2.26.4 SDNM

Comment Number: 100121-55
Organization: Sierra Club
Commenter: Jim Vaaler
Other Sections: 24.3

Comment Excerpt Text:
ACEC designations within the SDNM should be retained. Releasing these areas will not help to further the Monument proclamation or protect the Monument objects. Having layered protection of the land can enhance its protections, and there is precedent for it. For example, wilderness areas within the Monument have layered protection. Monument status does not obviate the fact that these ACEC designations were done for a reason – objects within the boundary of the ACEC are at risk

Summary

A commenter requested that ACEC designations within the SDNM be retained.

Response

As stated in Presidential Proclamation 7397, the SDNM was designated to protect "a magnificent example of untrammeled Sonoran desert landscape" with an "extraordinary array of biological, scientific, and historic resources" (see Appendix A, Sonoran Desert National Monument Presidential Proclamation). Presidential Proclamation 7397 prevails over FLPMA with regard to multiple-use management of ACECs in the SDNM (See BLM Instruction Memorandum, No. 2009-115).

The designation of the SDNM provides far greater protections for objects within the SDNM than ACECs. The Vekol Valley Grasslands ACEC is currently the only ACEC within the SDNM. The plant and animal communities represented within this ACEC are Monument objects subject to full protection offered by Proclamation 7397. Biological, ecological, wildlife and travel management prescriptions presented by the Preferred Alternative fully exceed the protective management prescriptions of the current ACEC. Therefore the ACEC is no longer needed.

6.2.27 FRED J. WEILER GREEN BELT RESOURCE CONSERVATION AREA

6.2.27.1 Administrative Actions

Comment Number: 100142-12
Organization: Arizona Game and Fish Department
Commenter: Josh Avey

Comment Excerpt Text:
Fred J. Weiler Green Belt Resource Conservation Area (GB) The Department understands BLM will be reevaluating the jurisdictional management responsibility of resources and travel management within the GB. We understand the evaluation will include revisiting established cooperative management agreements between the AGFD, USFWS, and BLM; as well as new laws, policy and guidance that relate to PLO 1015 lands (6,896 acres) within the GB since the time of withdrawal from the Department of the Interior (DOI) to the USFWS in 1954. As stated, the Department has managed these lands since that time for wildlife. The Department has not been previously contacted by BLM regarding the intent to re-evaluate jurisdictional management. At this time we request immediate coordination prior to initiation of the evaluation process, as well as sustained coordination so that our interests and concerns can be adequately researched and staffed. It is our expectation that any management changes that result from this re-evaluation will be resolved to all parties' mutual satisfaction under the guiding legal framework.

Summary

The Arizona Game and Fish Department (AGFD) has requested that BLM coordinate with them on the reevaluation of the jurisdictional management for the Fred J. Weiler Green Belt Resource Conservation Area.

Response

The BLM is committed to continued coordination with the AZGFD regarding the management actions within the Weiler RCA (see Chapter 5, Consultation and Coordination for a description of BLM's coordination with the AZGFD). As stated in Section 2.12.4, "Between the writing of the draft and the proposed RMP, a legal opinion would be requested from the Federal Solicitors Office and any proposed management actions that need to be changed would be done so in the proposed RMP."

6.2.27.2 Edits

Comment Number: 100142-20
Organization: Arizona Game and Fish Department
Commenter: Josh Avey

Comment Excerpt Text:
Section - 2.9.4.2
Page - 208
Line - GB-1-2

Comment/Suggestion
Management action states that the GB would be managed consistent with the Lower Gila Terraces and Historic

Trails SCRMA. However, under Alternatives D&E, these areas would also be designated as ACEC. Recommend correcting the management action to reflect the appropriate designation(s}.

Summary

A commenter noted that the Fred J. Weiler Green Belt is identified as a SCRMA and an ACEC in alternatives D and E and requested clarification and correction to reflect the appropriate designation.

Response

The Fred J. Weiler Green Belt is intended to be managed as an SCRMA in Alternative C; and an ACEC in Alternatives D and E. The PRMP/FEIS has been modified to correct Management Action GB-1.2 in Section 2.12.4 to correctly state the appropriate designation.

6.2.28 WILDERNESS

Comment Number: 100121-21
Organization: Sierra Club
Commenter: Jim Vaaler

Comment Excerpt Text:
We support the list of lands on page 301 in the DRMP/DEIS that the BLM has considered as qualified lands for potential inclusion in our system of wilderness lands given protection under the 1964 Wilderness Act. Map 2-4d shows these lands as part of Alternative D. We recommend that all of these lands be included for wilderness designation

Summary

Commenters proposed that all of the lands listed on page 301 in the DRMP-EIS be included for wilderness designation.

Response

As noted in Section 1.3.4, Issue 2: Wilderness characteristics, the discussion concerning recommending the designation of additional wilderness areas is outside the scope of this RMP/EIS. Only Congress can designate wilderness areas and there is no BLM policy for establishment of WSAs. However, areas that contain wilderness characteristics can be managed by the BLM to protect those characteristics and are described in various alternatives in Chapter 2, Alternatives, of the document.

6.2.29 NATIONAL BYWAYS

Comment Number: 100112-5
Organization: Arizona Department Of Transportation
Commenter: Justin White

Comment Excerpt Text:
Following our meeting, Leroy Brady forwarded the following link to Arizona 's scenic parkways, historic and scenic roads:

http://www.azdot.gov/Highways/Roadway_Engineering/Roadside_Development/PDF/AZ_PARKWAYS_HISTORIC_SCENIC_ROADS_List_2009.pdf. Some of these are not designated within the draft RMP, but should likely be considered during your planning process.

Summary

Commenter requested the BLM consider additional scenic parkways and historic/scenic roads designated by the State of Arizona in the RMP/EIS.

Response

BLM's Byways Program is a component of the National Scenic Byways Program. BLM State Directors designate BLM Back Country Byways on BLM public lands. Other Byway designations – such as National Scenic Byways, All-American Roads, State Scenic Byways, or National Forest Scenic Byways – may also occur on portions of BLM lands, but must be designated through a State Department of Transportation or other Federal agency.

Because the Gila Pinal Scenic Road and Organ Pipe Cactus Parkway are not predominantly on BLM land, the BLM did not consider them appropriate for designation as Backcountry Byways. Segments of these roads on BLM-administered lands would be managed according to ADOT and NPS management guidelines.

6.2.30 NATIONAL TRAILS

Comment Number: 100121-66
Organization: Sierra Club
Commenter: Jim Vaaler

Comment Excerpt Text:
This National Historic Trail needs to be closed to all mineral entry and exploration, as well.

Comment Number: 100126-33
Organization: The Wilderness Society
Commenter: Phil Hanceford

Comment Excerpt Text:
the Draft RMP states that "[m]anagement would be consistent with the National Park Service (NPS) management plan and in cooperation with the NPS." Draft RMP at 203. "Motorized vehicles are generally not acceptable on off-road segments of national historic trails." Comprehensive Management and Use Plan for the Juan Bautista de Anza NHT at 26 (NPS 1996).

"A portion of the Anza route passes through the North Maricopa Wilderness in the Lower Gila Resource Area of the Phoenix District of the BLM in Arizona. The management plan for the area proposes conversion of a 5.6 mile jeep trail to a primitive hiking and equestrian trail within the wilderness." Comprehensive Management and Use Plan for the Juan Bautista de Anza NHT, The Trail Environment at 3 (NPS 1996). When BLM was considering this action in 1996, there was less of a threat from ORVs in the area and the Sonoran Desert National Monument had not yet been created. It is substantially more important for BLM to consider the conversion of this portion of the Anza NHT as non-motorized as proposed in Alternative D.

Comment Number: 100126-72
Organization: The Wilderness Society
Commenter: Phil Hanceford

Comment Excerpt Text:
The Lower Sonoran/Sonoran Desert Draft RMP proposes similar management prescriptions to the Lander Draft RMP, but should also consider additional measures to appropriately protect the management of the NHTs for current and future generations:

- Designate a minimum 5-mile NHT corridor to allow for the protection of the historical and scenic values of the NHT.
- Outside of 5 miles from the NHTs, prohibition on "highly visible projects" and "projects out of scale with the surrounding environment," unless they will "cause no more than a weak contrast" on the NHTs.9
- VRM Class II.
- Remove or reclaim existing visual intrusions, such as roads, facilities and rights-of-way, in order to attain the Draft RMP's management goals for the NHTs.
- Prohibition on audible or atmospheric disturbances in excess of current levels.

Lander Draft RMP at 192-93, Maps 100, 104 and 132; Id. at 163, Maps 32, 100, 104 and 127.

Recommendations: We strongly recommend that BLM adopt these additional prescriptions as set forth in the Lander Draft RMP for the Lower Sonoran/Sonoran Desert Draft RMP. We support Alternative D with the addition of the above management actions for NHTs in the planning area. This includes the pertinent prescriptions in Sections 2.7.3 and 2.8.5 for the management of resources in relation to the NHTs.

Comment Number: 100145-1
Organization: National Park Service
Commenter: Naomi Torres

Comment Excerpt Text:
NPS has reviewed the DRMP/DEIS and we generally concur with the approach outlined in the BLM's Preferred Alternative (Alternative E). However, due to the agency's multiple use mission, we are concerned that some aspects of Alternative E would not afford enough protection for the historic trail corridor, lands adjacent to the corridor, or viewsheds from the corridor. This is especially true of federal lands outside SDNM along the lower Gila River corridor. We would prefer greater protection of the viewshed along the historic trail corridor throughout the planning area as proposed by Alternative D, which would zone much of the Lower Gila River ACEC as VRM Class II instead of VRM Class III, as is proposed by Alternative E.

Comment Number: 100145-16
Organization: National Park Service
Commenter: Naomi Torres

Comment Excerpt Text:
Please add additional text to provide some context regarding the Anza NHT. The Anza NHT commemorates the pioneering Spanish overland colonizing expedition in 1775-76 that brought approximately 240 persons and 1000 livestock from Sonora and Sinaloa to establish a presidio and mission at San Francisco. The expedition doubled the

Spanish population of Alta California. The route was also used by colonists in 1781 to establish the pueblo of Los Angeles and the presidio and mission at Santa Barbara.

Comment Number: 100145-17
Organization: National Park Service
Commenter: Naomi Torres

Comment Excerpt Text:
Please include an explicit definition of the Anza NHT corridor. It appears that the RMP defines the "Anza NHT corridor" as the assumed historic trail corridor as specified by the National Trails System Act, which is the assumed path traveled by the expedition based on original diaries and maps. This assumption is correct, however, a definition should be included so that the term corridor is not misunderstood.

Comment Number: 100145-18
Organization: National Park Service
Commenter: Naomi Torres

Comment Excerpt Text:
We support the development of the recreational retracement route (aka Anza Recreational Trail) throughout the entire planning area. To clarify, the recreational trail need not be located within the mapped historical corridor. The Anza NHT corridor is an important transportation route used by Indian tribes during prehistoric time as well as by many other more recent historic groups. Other historic trail names or events associated with all or portions of the route through the planning area include: the Southern Emigrant Trail, Butterfield Overland Stage, and Mormon Battalion, as stated in the document. NPS welcomes collaboration with BLM and historic trail organizations interested in interpreting the multilayered historical events of the period, and developing one recreational trail alignment that would allow visitors to experience the cultural landscape of this important historic transportation corridor.

Comment Number: 100145-19
Organization: National Park Service
Commenter: Naomi Torres

Comment Excerpt Text:
A buffer zone of should be provided along the historic corridor to avoid detrimental direct indirect effects of incompatible uses. Of most concern to NPS are significant visual impacts from large scale projects such as utility scale renewable energy projects, large mineral extraction activities, landfills etc.

Comment Number: 100145-2
Organization: National Park Service
Commenter: Naomi Torres

Comment Excerpt Text:
In addition, we recommend that the plan consider requiring a substantial buffer on either side of the historic corridor for large scale projects that would result in potentially significant adverse changes to the landscape. Such large projects should be sited and designed to minimize visual contrast to the trail viewshed to the greatest extent feasible.

Comment Number: 100145-20
Organization: National Park Service
Commenter: Naomi Torres

Comment Excerpt Text:
NT-1.1.7 States that the Anza NHT corridor would be an Exclusion Area for major utility-scale renewable energy development and new major linear LUAs. However, this statement only infers protection of the mapped historic corridor from direct impacts. Adjacent lands designated as Avoidance Areas could still allow large scale projects that could result in visual or other impacts to the trail corridor. Utility-scale renewable energy projects proposed within several miles of the historic have the potential for significant visual impacts on the viewshed of the trail. All such projects should be required to provide visual impact analysis for views from the trail corridor, with Key Observation Points selected in consultation with NPS.

Comment Number: 100145-21
Organization: National Park Service
Commenter: Naomi Torres

Comment Excerpt Text:
N.T.-1.1.14 & .15: NPS supports archaeological studies of Anza Expedition campsites and trail corridor subject to the conditions specified in these management actions.

Comment Number: 100145-24
Organization: National Park Service
Commenter: Naomi Torres

Comment Excerpt Text:
4.9 Impacts on Special Designations

Assumptions, National Historic Trails (p.744)

This section contains the following statements:

"The historic setting of the Anza NHT on all Federal Protection Components will have management prescriptions applied to a minimum of three miles from the NHT to the visual horizon, whichever is less."

"The recreational setting of the Anza NHT on all Federal Protection Components will have management prescriptions applied to a minimum of five miles from National Register eligible properties to the visual horizon, whichever is less, when management concerns warrant."

NPS would like clarification regarding the exact meaning of the above statements and how they would be implemented. What is meant by "management prescriptions," and what is meant by "a minimum of three/five miles from the NHT to the visual horizon, whichever is less"? Is the distance (three/five miles) measured from the centerline of the NHT historic trail corridor, or from the sides of the corridor? Also the phrasing of these statements leaves much room for interpretation when applied to specific projects. In some parts of the planning area, the visual horizon for the NHT could be 20 miles or more. Therefore, these statements only will generally afford a degree of management protection to the minimum distance (3 or 5 miles). Some large scale projects proposed in the planning area have the potential to result in significant visual contrast at greater distances, and projects should still be designed to minimize visual contrast if they are within the viewshed of the historic trail corridor and beyond three or five miles. NPS would like to work with BLM on revising this specific language to

clarify how it would be implemented by staff when reviewing applications. Perhaps the specific implementation of these regulations would be specified in the BLM National Scenic and Historic Trails manual (currently under development) or in a similar document specific to the Anza NHT in the planning area.

Comment Number: 100145-27
Organization: National Park Service
Commenter: Naomi Torres

Comment Excerpt Text:
Alternative D (p.802) would offer the highest level of protection from incompatible developments and visual intrusion (through VRM Class II) upon the historic landscape, but it would place significant restrictions on visitor use and even ground disturbing research activities.

Alternative E, Preferred Alternative, (p. 810) would allow more visual impacts (contrast) than Alternative D, especially in the Lower Gila Terraces / Historic Trails ACEC (VRM Class II + Class III). NPS would prefer more protection of the viewshed of the historic corridor than would be offered by Alternative E. We would prefer VRM Class II protection along the Anza NHT viewshed.

Comment Number: 100145-3
Organization: National Park Service
Commenter: Naomi Torres

Comment Excerpt Text:
In addition, all large scale projects proposed within 10 miles of the trail corridor should include a visual impact analysis of the effect on the Anza NHT. Where significant visual effects cannot be avoided, mitigation should be provided to benefit the Anza NHT by improving opportunities to address the key goals outlined above.

Comment Number: 100145-4
Organization: National Park Service
Commenter: Naomi Torres

Comment Excerpt Text:
Section 4.9 refers to the application of management prescriptions to minimize the effects of projects within three to five miles of the trail corridor. NPS appreciates this idea and we would like to discuss this concept with BLM to better understand how the management prescriptions would be applied.

Comment Number: 100145-6
Organization: National Park Service
Commenter: Naomi Torres

Comment Excerpt Text:
CL-1.1.6 NPS prefers the uses allowed under Alternative E, which designates Happy Camp, Christmas Camp, and the Anza-Butterfield Interpretive Trail Area as public and scientific use sites. Due to the size and remoteness of the SDNM, we believe that motorized travel along the Anza-Butterfield Interpretive Trail Area is appropriate, if it is sufficiently restricted to protect the extant physical traces of the historic trail(s) from damage from visitor use. However, we also feel that motorized vehicle access should not be permitted through Maricopa Pass, because it would encourage an unacceptably high level of through traffic and motorized use along the trail corridor. As mentioned in 4.19.7.3 Wilderness Areas, approximately four miles of the Anza NHT trail corridor is adjacent to

the North Maricopa Wilderness. Closing this section of the trail corridor to vehicle access would protect the wilderness values for which the North Maricopa Wilderness is designated.

Comment Number: 100145-7
Organization: National Park Service
Commenter: Naomi Torres

Comment Excerpt Text:
CL-1.1.10 Under All Alternatives but D, camping would be permitted within 100 feet of the centerline of the Anza-Butterfield Interpretive Trail in designated campsites. 100 feet in the relatively open desert landscape does not seem an adequate buffer distance to provide a quality recreational experience for trail users or for campers. We recommend a greater separation from the trail to designated campsites, such as 250 feet.

Comment Number: 100162-1
Organization: The Anza Trail Foundation
Commenter: Elizabeth Stewart

Comment Excerpt Text:
ATF requests that the following be prohibited in the SDNM and in a 3-10 mile buffer zone on either side of the Anza NHT in the Lower Gila Historic Trails SCRMA: renewable energy projects, transmission lines, multi-use utility corridors, mineral activity of any nature, grazing, target shooting, paintball, firewood gathering, landfills, OHV use, and all-terrain vehicles weighing less than 1800 pounds.

Comment Number: 100162-11
Organization: The Anza Trail Foundation
Commenter: Elizabeth Stewart

Comment Excerpt Text:
2.9.3 National Trails - Anza Trail

A buffer zone should be established along the historic corridor to avoid detrimental direct and indirect effects from incompatible uses, particularly the visual impacts from large scale projects such as renewable energy projects, transmission lines, mineral extraction activities and landfills. Additionally, all large scale projects located on adjacent BLM lands should be evaluated for their visual impact on the Anza NHT

Comment Number: 100162-12
Organization: The Anza Trail Foundation
Commenter: Elizabeth Stewart

Comment Excerpt Text:
ATF requests that the historic setting of the Anza NHT on all Federal Protection Components have management prohibitions in addition to prescriptions applied to a minimum of three miles from the NHT to the visual horizon, whichever is greater.

Comment Number: 100162-13
Organization: The Anza Trail Foundation
Commenter: Elizabeth Stewart

Comment Excerpt Text:
ATF requests that the setting of the Anza NHT on all Federal Protection Components have prohibitions in addition to prescriptions applied to a minimum of five miles from National Register eligible properties to the visual horizon, whichever is greater.

Comment Number: 100162-15
Organization: The Anza Trail Foundation
Commenter: Elizabeth Stewart

Comment Excerpt Text:
Visual Resource Management, page 763

ATF prefers that the Anza NHT corridor viewshed be protected through the adoption of Visual Resource Management (VRM) Class II designation to minimize visual impacts from actions on surrounding lands.

Comment Number: 100162-3
Organization: The Anza Trail Foundation
Commenter: Elizabeth Stewart

Comment Excerpt Text:
Motorized travel should not be permitted through the Maricopa Pass or through the approximately 4 miles of the Anza NHT trail corridor adjacent to the North Maricopa Wilderness referenced in 4.19.7.3.

Comment Number: 100162-6
Organization: The Anza Trail Foundation
Commenter: Elizabeth Stewart

Comment Excerpt Text:
Objective 1.3: Special Cultural resource Management Area (SCRMA)

ATF supports the designation of the Lower Gila Historic Trails SCRMA and request that the RMP specify that this area will receive the same protections against visual impacts, ground disturbances, air and water quality degradation and sound disturbances as the SDNM.

Comment Number: 100162-8
Organization: The Anza Trail Foundation
Commenter: Elizabeth Stewart

Comment Excerpt Text:
ATF request that surface disturbing activities be prohibited within the entire buffer zone of 3-10 miles from the Anza NHT and other historic trails instead of being mitigated within one-quarter mile

Comment Number: 100162-9
Organization: The Anza Trail Foundation
Commenter: Elizabeth Stewart

Comment Excerpt Text:
ATF requests that off -highway travel be prohibited within the Anza historic trail corridor to prevent ground, sound, and air degradation and preserve the historic setting

Comment Number: LSFO-SDNM-DRMP--1-18762-3
Organization: National Park Service
Commenter: Catherine Bradley

Comment Excerpt Text:
Mitigation measures
Comment Number: 3
Cited Content: NT-1.1.3: The Anza NHT corridor would remain open to leasable minerals exploration and development actions but any proposed action would contain a No Surface Occupancy stipulation.
Cited Section ID: 2.9.3.2 Management Actions for National Trails (NT) Action Alte
Comment Title: Mitigation measures
Issue: 10756

Comment:
To protect the recreation experience along the Anza NHT, include language about active mineral leases being subject to mitigation strategies for visual impairment within the mid-range viewshed from any direction on the trail.

Summary

Commenters recommended several management actions to further protect cultural and visual resources associated with National Historic Trails (NHTs). Specific recommendations included 1) managing the Anza Trail for non-motorized travel and closing the route in Maricopa Pass, 2) designating buffers and corridors adjacent to NHTs to limit visual and other impacts, 3) developing a recreational retracement route along the Anza NHT, 4) requiring visual impact analysis for views from the trail corridor for large-scale projects, 5) managing the Anza NHT corridor viewshed as VRM Class II, 6) prohibiting audible disturbances in NHTs above current levels, and 7) closing NHTs to mineral entry and exploration.

Commenters requested additional text to describe the history and context of the Anza Trail and an explicit definition of the Anza Trail Corridor.

Response

1, 5, 6, &7) The BLM's range of alternatives for Anza NHT management represents a full spectrum of options. Within the SDNM, the Anza National Historic Trail is a noted object of the National Monument's Proclamation and therefore all alternatives (goals, objectives, and management actions) for the Sonoran Desert National Monument are designed to protect the trail's physical remnants and its landscape setting. For trail management, the range of alternatives in the LSFO included open and closed to mineral development, and open and closed to motorized access. All alternatives include actions that would protect the recreational experience and retain the historic character in both decision areas.

2 & 4) BLM has conducted a viewshed analysis and VRM settings and associated prescriptions have been modified in Chapter 2 to better protect the historic and recreational settings associated with the Anza NHT.

3) Development of a recreational retracement route has already been initiated and is outside the scope of this plan.

Additionally, the actions BLM is considering under its preferred alternatives for the trail in the Lower Sonoran Field Office decision area and SDNM decision area are consistent with the National Park Service's Comprehensive Plan (the Plan is available on the NPS website at http://www.nps.gov/juba/parkmgmt/juba-cmp.htm (last visited 12/22/11). A more fully developed history and context of the trail is outlined in the "History and Significance" section of the National Park Service's Comprehensive Plan.

6.2.31 TRIBAL INTERESTS

6.2.31.1 Edits

Comment Number: 100045-1
Organization: Hopi Tribe
Commenter: Leigh Kuwanwisiwma

Comment Excerpt Text:
We note under Tribal Interests the statement, "Several American Indian tribes have traditional cultural affiliations with the Decision Areas." Pursuant to the Native American Graves Protection and Repatriation Act, cultural affiliation is defined as a shared group identity between an earlier identifiable group and a modern day tribe, not modern day tribes and a place such as the Decision Areas. Tribes are traditionally associated to places.

Summary

A commenter indicated that the BLM did not use the correct language in discussing traditional cultural affiliations.

Response

The Final EIS was clarified to distinguish the relationship of modern American Indian tribes to the locations of their traditional cultural affiliations.

6.2.31.2 Regulatory Compliance

Comment Number: 100148-11
Organization:
Commenter: Jon M Shumaker

Comment Excerpt Text:
There is no indication or documentation that the BLM has actually sat down in person with individual tribal representatives and consulted with each tribe on a government-to-government basis in order to fulfill the BLM's consultation obligations to Native American tribes.

Summary

One commenter indicated the BLM did not provide documentation of government-to-government consultation with Native American tribes.

Response

Documentation of BLM's government-to-government consultation with Native American tribes is described in the new Chapter 5, Consultation and Coordination, Section 5.3.2, of the Proposed RMP/Final EIS.

6.2.32 PUBLIC HEALTH AND SAFETY

Comment Number: 100140-7
Organization: US Environmental Protection Agency
Commenter: Kathleen Goforth

Comment Excerpt Text:
The FEIS should describe the BLM's plans for addressing abandoned mines in the resource area and National Monument. For example:

- What is the universe of current knowledge on abandoned mines in the resource area and Monument (how many, what are the known hazards/conditions, how are they prioritized)?
- What is currently being done to address these sites?
- How is this work being funded, and what are the current and future funding needs for this work?
- How many abandoned mines have been closed and remediated. and have the most significant known problems been addressed?
- Does the BLM have plans to conduct further surveys and investigations of abandoned mines in the resource area and Monument over the life of the RMP?
- How will abandoned mines be surveyed and assessed for physical and environmental hazards?
- How will they be prioritized for remediation, and what are the overall goals of the RMP regarding abandoned mine land remediation?

Summary

Commenters suggested that the BLM did not adequately address the issue of abandoned mine lands in the DRMP/DEIS. Commenters requested the BLM describe the plans for addressing abandoned mines in the RMP/EIS and include information such as plans for future surveys and inventories, remediation priorities, and the overall goals of the RMP regarding abandoned mine land remediation.

Response

Decisions related to abandoned mine lands are found in Section 2.13.1 Hazardous Materials and Public Safety; although they are not called out for specific management actions, they are included within Goal 1 and its associated objectives and management actions.

In Section 3.5.2 BLM describes the current status of active and abandoned mines in the decision areas. Plans that would specifically address how BLM intends to address the AML issue are considered implementation actions and not included as decisions in the PRMP.

6.2.33 SOCIOECONOMIC RESOURCES

6.2.33.1 Data

Comment Number: 100120-4
Organization:
Commenter: Bill Broyles

Comment Excerpt Text:
Again looking at the 1991 GAO report, grazing in SDNM likely has negligible economic benefit to the region. At that time, under better grazing conditions, "The 33 ranches in the Lower Gila North area of Arizona contributed an estimated 0.32 percent to the total value of livestock and livestock products sold in Yuma, Maricopa, and Yavapai counties" (p. 47). There are reasons that ranches and leases in both Lower Gila North and South have been abandoned. And I'm betting that the economic advantages of retiring grazing – tourism, hunting, environment -- far surpass those of grazing in SDNM, though I didn't see that information in the management report.

Comment Number: 100126-48
Organization: The Wilderness Society
Commenter: Phil Hanceford

Comment Excerpt Text:
The DRMP/DEIS does not account for the non-market values associated with undeveloped wild lands. Non-market values have been measured and quantified for decades. There is a well-established body of economic research on the measurement of non-market values, and the physical changes (decreases in the source of these values) brought about by oil and gas development and motorized recreation are very easy to measure quantitatively.

Comment Number: LSFO-SDNM-DRMP--1-18763-1
Organization:
Commenter: James Newman
Organization 2:
Commenter: Regina Newman
Organization 3:
Commenter 3: James Newman
Organization 4:
Commenter 4: Christopher Tosh
Organization 5:
Commenter 5: Carolyn Newman

Comment Excerpt Text:
In accurate statement on growth
Comment Number: 1
Cited Content: Unprecedented regional population growth and urban expansion into surrounding public lands is increasing demand for access to and use of public lands and resources. Growth contributes to dramatic increases in and demands for commodities, utilities, renewable energy, communication, transportation, and infrastructure on public lands.
Cited Section ID: Executive Summary
Comment Title: In accurate statement on growth

Comment:
Much of the area in question has been in a decline in population in the last several years which reduces the need for these resources listed.

Summary

Commenters questioned the data utilized for the analysis of socioeconomic impacts indicating, in some cases, that the data is too old and/or inaccurate to be used.

Commenters also noted that the analysis does not account for nonmarket values associated with undeveloped lands.

Response

Socioeconomic data has been updated as appropriate and available. Updated data more clearly highlights the changes in demographics over the last 5 years.

Non-market values are discussed in Section 3.5.3, Attractiveness of the Decision Space. Non-market values such as sense of place, rural character, open space, and ecological protection, are an important part of the planning area. This was highlighted during the five community socioeconomic meetings conducted as part of the planning process. Non-market and social values (e.g., sense of place) are one of the indicators used for impact analysis (see **Section 4.22**). The Proposed RMP/Final EIS was revised to include additional analysis on the effects of non-market values on areas to be managed to protect wilderness characteristics.

6.2.33.2 Impacts

Comment Number: 100121-34
Organization: Sierra Club
Commenter: Jim Vaaler

Comment Excerpt Text:
The final two sentences of the final paragraph in section 4.15.6.1 Both Decision Areas conclude that there would be dire economic hardships for towns and communities that are dependent on the ranching industry. We question this statement. What towns in the Decision Area are actually dependent upon the livestock grazing industry?

Comment Number: 100122-2
Organization: Tucson Electric Power Company
Commenter: Shannon Breslin

Comment Excerpt Text:
While the DRMP/DEIS briefly discusses the socioeconomic and environmental impacts that would occur to adjacent lands and the costs that would be incurred by utilities and their ratepayers if Alternatives C, D, or E are implemented, it does not quantify these impacts, which would be significant.

Comment Number: 100122-5
Organization: Tucson Electric Power Company
Commenter: Shannon Breslin

Comment Excerpt Text:
This would also include monies necessary for all activities identified in the chronology of events that would lead to the adoption of a change to the EHV Electric system plan and any necessary construction cost increases. Specifically, we respectfully request that the Sonoran Desert Management Plan include a full identification of the social and economic impacts on all of the approved regional EHV electric system components located in Sections 4 and 12, Township 7 South, Range 2 East; Sections 7, 17, 18,21,22,23,25, and 26, Township 7 South, Range 3 East; and Sections 30, and 31, Township 7 South, Range 4 East. These locations are shown on attached Exhibit A.

Exhibit B shows the location of the corridor approved in 1980 (Case 50) by the State of Arizona Power Plant and Transmission Line Siting Committee and Arizona Corporation Commission (ACC), in Sections 15,22, and 27 of Township 14 South, Range 10 East.

Comment Number: 100126-49
Organization: The Wilderness Society
Commenter: Phil Hanceford

Comment Excerpt Text:
The Draft RMP does not to fully address the impacts that the management of the planning area will have on the local economy. The economic impact that undeveloped lands have on local economies is well documented and has grown in importance as the U.S. moves from a primary manufacturing and extractive economy to one more focused on service sector industries. This shift means that many businesses are free to locate wherever they choose. The "raw materials" upon which these businesses rely are people, and study after study has shown that natural amenities attract a high-quality, educated, talented workforce – the lifeblood of these businesses.

Comment Number: 100126-92
Organization: The Wilderness Society
Commenter: Phil Hanceford

Comment Excerpt Text:
BLM should measure and account for changes in non-market values associated with the level of motorized recreation and other uses and development proposed in this RMP. To do otherwise omits a very important socioeconomic impact that is the direct result of management actions. The BLM must assess the non-market economic impacts to the American public. This analysis must include the passive use values of undeveloped lands such as the lands with wilderness characteristics and the passive use values of irreplaceable cultural resources.

Comment Number: 100126-93
Organization: The Wilderness Society
Commenter: Phil Hanceford

Comment Excerpt Text:
The BLM must collect and analyze actual data on the economic impacts of the alternatives. Some suggested analyses and sources of data can be found in "Socio-Economic Framework for Public Land Management Planning: Indicators for the West's Economy" (Attachment 7). BLM must make a thorough examination of the full socioeconomic impacts likely to occur if the management alternatives are implemented. These analyses must take into account the impacts that BLM land management actions will have on the surrounding communities, including the added cost of providing services and infrastructure, the long-term costs of the likely environmental damage, and the impacts on other sectors of the economy. The BLM must examine the role that protected public lands (including lands with wilderness characteristics) play in the local economy

Comment Number: 100133-2
Organization: Friends of San Tan Mountain Regional Park
Commenter:

Comment Excerpt Text:
San Tan Mountain Regional Park can be a big economic driver in this area where economic drivers are sparse at best. To lose this Park would be to stifle growth, opportunity and a viable local option where families to reap the health and educational benefits associated with San Tan Mountain Regional Park

Comment Number: 100136-94
Organization: Western Watersheds Project
Commenter: Greta Anderson

Comment Excerpt Text:
The BLM fails to analyze or disclose the socio-economics of the preferred alternative. There are very few beneficiaries of allowing livestock grazing to continue, but many economic losers, including the taxpayers, who must subsidize the federal lands grazing program. The DRMP/DEIS should have discussed the cost of administering ongoing livestock grazing in the planning area (both SDNM and LSFO) relative to the value these lands have for recreation, tourism, wildlife integrity, cultural landscapes, etc.

Comment Number: 100137-22
Organization: Fennemore Craig P.C.
Commenter: Dawn Meidinger

Comment Excerpt Text:
The general theme of failing to evaluate the impacts of withdrawal or other limitations placed on mineral development is unfortunately replicated in the analysis of socio-economic impacts. 12 [Footnote 12 In fact, one of the few mentions of economic benefits of mineral resource development occurs in the effects analysis for the "No Action Alternative" (Alternative A), which states that "[s]ince investment in locatable mineral development in the Planning Area is expected to increase, this alternative is expected to have minor to moderate impacts on local economic growth in employment and income in the surrounding communities." But even that analysis concludes with "[c]ontinued mineral development could cause a loss of scenic views and natural landscapes, which would decrease the social well-being of those individuals or groups who value these resources." DRMP/EIS at 840.] There is no consideration of the economic burden on local economies resulting from the management prescriptions for minerals in the DRMP.13 [Footnote 13 Using 2003 data for population and 1999 economic data, the DRMP/EIS cites Ajo as having a 38.5% minority population with a poverty rate of 22.3% (in contrast to the average rate of 13.9% for the balance of the State of Arizona). Miami is identified as having a minority population of 57.0% and a poverty rate of 21.5%. DRMP/EIS at 368-369.] The BLM is encouraged to review available public information about the economic benefits of mining in Arizona and incorporate such information into a proper effects analysis in the FEIS.14 [Footnote 14 See, for example, The Economic Impact of Freeport-McMoRan Copper & Gold Inc. on the State of Arizona and Selected Counties 2009, L. William Seidman Research Institute, W.P. Carey School of Business (20 10).] In fact, the total estimated direct and indirect economic impact of Freeport's Arizona operations was approximately $2 billion, including $79 million in state and local taxes and the employment of 23,271 Arizonans. To the extent mineral resource development in Ajo is limited or made even more costly as a result of the creation of ACEC or otherwise made impossible through the implementation of Avoidance and Exclusion zones surrounding Ajo, those economic impacts and socioeconomic effects must be evaluated in the FEIS.

Comment Number: 100137-23
Organization: Fennemore Craig P.C.
Commenter: Dawn Meidinger

Comment Excerpt Text:
Similar impacts resulting from withdrawals and limitations on development of leasable and saleable mineral operations should also be considered.

Summary

Commenters requested that the socioeconomic analysis further address certain impacts to local economies in the planning area as a result of management in the RMP. Specifically, commenters noted that the DRMP/DEIS does not adequately discuss potential socioeconomic impacts associated with closing San Tan Mountain Regional Park, approved EHV electrical systems, or impacts on non-market values (specifically on non-developed lands).

Commenters also noted that in some cases the analysis of impacts associated with specific industries including livestock grazing and mineral resources is incomplete and inaccurate.

Response

No alternative in this RMP would close San Tan Regional Park.

The socioeconomic impact analysis has been revised to incorporate updated and new data concerning livestock grazing and minerals in order to provide more context. Additional economic analysis is provided.

6.3 RESPONSES FOR SPECIFIC COMMENTS

BLM received detailed comments regarding livestock grazing decisions in the SDNM, Appendix F, the Land Health Evaluation, and Appendix E, Grazing Compatibility Report, and specific route designation comments for travel management decisions in the SDNM. As these comments related to specific implementation level decisions in the SDNM Decision Area, BLM determined it was appropriate to respond to the individual comments rather than combine the comments into a summarized response. In the following tables, BLM has made note of specific comments with associated level of detail in the response.

6.3.1 SDNM RMP LIVESTOCK GRAZING – ALLOTMENT SPECIFIC

Commenter	Comment Number	Comment Text	Response
Western Watersheds Project, Greta Anderson	100136-14	Big Horn allotment-Limy Upland Ecological Site a. An earlier version of the DRAFT LHE admits, "The Limy Upland ecological site is not meeting but is making significant progress toward achievement of Standard." Exhibit A, Draft DRAFT LHE at 39. The current version states, "The limy upland ecological site is achieving Standard 3." DRMP/DEIS at 1114. This appears to be because BLM changes the site objectives between drafts, downward adjusting the vegetation objectives so that the sites meet the standards instead of confronting the failures of both key areas to meet the original objectives. For example, the original objective was to maintain total vegetative canopy cover at 16 percent. Exhibit A, Draft DRAFT LHE at 39. The two monitoring sites had cover at 14% and 12%. DRMP/DEIS at 1114. The new objective is "Maintain total vegetative canopy cover at 12%." Ibid. Et viola! Both monitoring sites are now achieving the standard. This downgrading is unexplained and causes skepticism that the BLM's new plan is a fair look at the data.	The 2008 preliminary draft LHE was an internal working document that was peer reviewed in 2009. Baseline information was collected through 2010. The 2011 draft LHE that was provided in Appendix F of the Draft EIS contained changes from the 2008 version based on new information and was focused to specifically address impacts to Monument objects. The methodology for the draft LHE is provided in **Section F.6** of Appendix F. The methodology for the Compatibility Analysis and Determination process is in **Section E.2** of Appendix E. Peer reviewers suggested that a range around the absolute value rather than the absolute value would be more acceptable to judge achievement of resource management objectives because the range around the absolute value better represented real conditions on the ground than the absolute value alone. The 12% composition falls within 80% of the attribute value as explained in **Table F.9** and **E.2.3.1**.
Western Watersheds Project, Greta Anderson	100136-17	LOWER VEKOL ALLOTMENT 1. Lower Vekol -Limy Upland and Limy Upland Deep a. The previous draft of the DRAFT LHE characterized both plots LV-2 and LV-4 as Limy Upland Deep. Exhibit A, Draft DRAFT LHE at 57. The new DRAFT LHE moves LV-4 to "Limy Upland." DRMP/DEIS at 1132. b. Key Area LV-4 only has 10 percent actual canopy cover, as opposed to the 12 percent cover objective. DRMP/DEIS at 1132, 1131. The DRAFT LHE doesn't acknowledge this deficiency.	The Ecological site for LV-4 was misidentified in the 2008 preliminary draft. This was corrected in the DRMP/DEIS Appendix F, Land Health Evaluation. Peer reviewers suggested that a range around the absolute value rather than the absolute value is more acceptable to judge achievement of the resource management objectives. The 80% threshold captures the variability that occurs within the Sonoran Desert Natural Monument for plant canopy cover and plant abundance.

Commenter	Comment Number	Comment Text	Response
			Section F.8.0- Conclusions (also see **Table F.13**) - Ecological site variability was considered when making the final determination of whether or not a site is achieving Land Health Standard 3 Desired Plant Community Objectives by Key Area and PBI Site. Rather than using the absolute value to determine achievement of the objective, if the canopy cover and/or the composition vegetative attributes measured were within 80% of the attribute value, the site was considered achieving the objective.
Western Watersheds Project, Greta Anderson	100136-23	BLM states that its use-pattern mapping data for the Hazen allotment only relates to wildlife use around two wildlife waters on the allotment, and as such, is not included in the DRMP/DEIS. DRMP/DEIS at 1109. This raises serious questions: how was the map of use patterns from livestock grazing, and the subsequent determinations about use levels on the Hazen allotment, generated? Moreover, how does BLM know that the use is from wildlife instead of historic use by livestock? And, additionally, did BLM average the two years of non-use on the Hazen allotment into the ten-year average use on the allotment?	**Section F.7.4**, **Table F.4** refers to permitted use for the Hazen Allotment. This permitted use data was based on billing information (licensed use). Because no actual livestock use had occurred on the allotment for several years prior to collection of the use pattern mapping data, the use could not have been from livestock foraging (see **Section F.7.4**). Use pattern mapping is conducted at the end of the growing/grazing season to measure use on that year's forage production, not historic use.
Western Watersheds Project, Greta Anderson	100136-49	Big Horn allotment-Limy Upland Deep Ecological Site a. An earlier version of the LHE admits that utilization of white bursage at key area BH-5 exceeded the wilderness objective of20 percent utilization. Exhibit A, Draft LHE at 39. This information is not conveyed by the "Utilization and Use Pattern Mapping," in Table F.7.4. DRMP/DEIS at 1109.	BLM has revised **Section F.10.2.1.5** to state "the wilderness area objective of 20 percent was exceeded (see Table F.7)."
Western Watersheds Project, Greta Anderson	100136-51	Big Horn allotment-Granitic Hills ecological site a. An earlier version of the LHE states that the goal for this site was to maintain recruitment of saguaros at a rate of l/young per plot. Exhibit A Draft LHE at 40. The current LHE requires only .83 saguaros per plot. DRMP/DEIS at 1115.	The 2008 preliminary draft LHE was an internal working document that was peer reviewed in 2009. Baseline information was collected through 2010. The 2011 draft LHE that was provided in Appendix F of the DRMP/DEIS contained changes from the 2008 version based on new information and

Commenter	Comment Number	Comment Text	Response
		Four of the nine study plots in this don't have saguaros present at all. Id. at 1172-1189. These are not stem counts, merely cover data, and cannot be used to support the conclusions of the LHE or DRMP/DEIS.	was focused to specifically address impacts to Monument objects. The methodology for the draft LHE is provided in **Section F.6** of Appendix F. The methodology for the Compatibility Analysis and Determination process is in **Section E.2** of Appendix E. Peer reviewers suggested that a range around the absolute value rather than the absolute value would be more acceptable to judge achievement of resource management objectives because the range around the absolute value better represented real conditions on the ground than the absolute value alone. The 12% composition falls within 80% of the attribute value as explained in **Tables F.9** and **E.2.3.1**. **Section F.10.2.1.7** discusses saguaro recruitment on the Granitic Hills Ecological Site within the Big Horn allotment.
Western Watersheds Project, Greta Anderson	100136-52	Beloat allotment -Limy Upland ecological site a. The earlier version of the LHE set the objectives for total vegetation canopy cover at 16 percent. Exhibit A, Draft LHE at 44. The current LHE downgrades the objective to 12 percent. DRMP/DEIS at 1119. The one key area on this ecological site has 13 percent canopy cover, so under the revised objectives, this key area is meeting standards. Ibid. Again, the revision/downgrading of objectives is unexplained, but it appears that BLM tried to make the objectives fit the data instead of fairly and objectively analyzing the data it had. The current LHE states, "The Beloat allotment is not fully achieving Standard 3" based on the limy fan and sandy wash ecological sites. DRMP/DEIS at 1120. These sites compose over half the allotment. Ibid. However, if the BLM hadn't changed its site objectives, the limy upland site would have	The 2008 preliminary draft LHE was an internal working document that was peer reviewed in 2009. Baseline information was collected through 2010. The 2011 draft LHE that was provided in Appendix F of the DRMP/DEIS contained changes from the 2008 version based on new information and was focused to specifically address impacts to Monument objects. The methodology for the draft LHE is provided in **Section F.6** of Appendix F. The methodology for the Compatibility Analysis and Determination process is in **Section E.2** of Appendix E. Peer reviewers suggested that a range around the absolute value rather than the absolute value would be more acceptable to judge achievement of resource management objectives because the range around the absolute value better

Commenter	Comment Number	Comment Text	Response
		also failed to meet the standards.	represented real conditions on the ground than the absolute value alone. The 12% composition falls within 80% of the attribute value as explained in **Tables F.9** and **E.2.3.1**.
Western Watersheds Project, Greta Anderson	100136-53	The previous draft LHE found, "The Hazen allotment is not achieving but is making significant progress towards achievement of standard number 3." Exhibit A, Draft LHE at 51. The current draft states, "The majority of the Hazen allotment is achieving Standard 3." DRMP/DEIS at 1128. The difference in conclusions is remarkable, and unexplained. (18)	The 2008 preliminary draft LHE was an internal working document that was peer reviewed in 2009. Baseline information was collected through 2010. The 2011 draft LHE that was provided in Appendix F of the DEIS contained changes from the 2008 version based on new information and was focused to specifically address impacts to Monument objects. The methodology for the draft LHE is provided in **Section F.6** of Appendix F. The methodology for the Compatibility Analysis and Determination process is in **Section E.2** of Appendix E. Peer reviewers suggested that a range around the absolute value rather than the absolute value would be more acceptable to judge achievement of resource management objectives because the range around the absolute value better represented real conditions on the ground than the absolute value alone. The 12% composition falls within 80% of the attribute value as explained in **Tables F.9** and **E.2.3.1**.
Western Watersheds Project, Greta Anderson	100136-59	It is unexplained why BLM didn't include the data it has on ground cover in the Arnold allotment. Exhibit B at 28.	Data on the Arnold Allotment vegetative canopy cover in the Monument is displayed in **Table F.18**, Vegetative Canopy Cover Data in Appendix F of the Proposed RMP/Final EIS.
Western Watersheds Project, Greta Anderson	100136-67	The preferred alternative prorates grazing use on the Big Horn allotment based on "inventory data" and base water properties instead of percentage of public land acreage. DRMP/DEIS at 1085. This method is unexplained and unsupported; if BLM has "inventory" data for the Big Horn allotment, we would be most interested in seeing it and it	Forage is not distributed evenly across the landscape, so "percentage of public land acreage" is not a suitable method for prorating forage. In addition, water is not evenly distributed across the landscape so location of water also affects availability of forage. The footnote to **Table F.1**, Appendix F, has been clarified to explain that inventory data

Commenter	Comment Number	Comment Text	Response
		should have been disclosed in the and DRMP/DEIS. As we commented to the BLM in November 2008, the BLM must conduct a complete and NEPA-compliant review of the adjusted boundaries and FLPMA-compliant analysis of the carrying capacity of the remaining lands. The BLM must also provide a thorough analysis of the capacity of the lands on this allotment that would remain in active livestock use with the closures proposed in the preferred alternative.	and water availability were used to determine forage location and availability when prorating AUM percentages inside and outside the Monument. The design of grazing under the preferred alternative (levels of use and season of use) for livestock use North of I-8 are supported by the best available data: monitoring, field observations, ecological site/soil-vegetation inventory data and the Lower Gila south RMP resource protection alternative as represented by the Land Health Assessment and the Compatibility Analysis.
Western Watersheds Project, Greta Anderson	100136-8	The Lower Vekol allotment failed to meet LHE standards and livestock grazing was found to be incompatible with protection of desert washes along 2 miles of washes on this allotment. DRMP/DEIS at 1068. Inexplicably, the BLM hasn't closed any areas of this allotment under the preferred alternative. Map 1-8e. This violates the Proclamation, which protects desert washes, as the preferred alternative doesn't offer any protection or mitigation measures. It is inconsistent with the BLM's choices for the Conley allotment and parts of the Big Horn allotment, and this inconsistency is arbitrary and capricious and must be corrected in the final RMP	Approximately 607 acres of the Lower Vekol allotment have been found to be incompatible and has been made unavailable to grazing under the preferred alternative (see **Table 2.14**). **Map 2-8e** has been corrected to show the areas that are identified as unavailable.
Western Watersheds Project, Greta Anderson	100136-9	The LHE for the Arnold allotment determined that the sole key area on this allotment within the SDNM does not meet Standard 3 for canopy cover. DRMP/DEIS at 1134. The BLM states that the "Use Pattern Mapping" indicates slight use (6-20 percent) in the allotment and claims that current livestock grazing is not likely the causal factor for non-achievement of Standard 3. Ibid. It then refers the reader to the "Use Pattern Mapping" section, without indicating a page	**Section F.6.2** has been updated to clarify the methodology for collecting utilization data. BLM guidance for utilization studies may be found in Technical Reference 1734-3.

Commenter	Comment Number	Comment Text	Response
		number for this. We contacted BLM and were told that the page number is 1141, which is nothing more than a map of the results.(11) This is insufficient and fails to explain the process whereby this map was generated. (12) It is also insufficient to support BLM's decision to keep this allotment open for use under the preferred alternative.	
Western Watersheds Project, Greta Anderson	100136-99	The limy upland on the Lower Vekol allotment is not achieving Standard 3. DRMP/DEIS at 1131. It is not achieving composition objectives. Id. at 1132. The BLM claims that "use pattern mapping indicated light use" and determined that livestock grazing is not a causal factor in failing to achieve this standard. Ibid. However, there are no utilization data for this allotment provided in the DRMP/DEIS. Saguaro contributed to 1 percent of the cover. Id. at 1166. Here, the BLM has downgraded the percent cover "allowed" in the ecological site description from the 2 percent it claimed in the same ecological site on Big Horn (DRMP/DEIS at 1158) to 1 percent, thus meeting the "standard" once again.	The use pattern map represents the utilization data for that allotment. See **Section F.6.2** under "Utilization Studies" for explanation of use pattern mapping methodology. BLM guidance for use-pattern mapping may be found in Technical Reference 1734-3. To the extent the comment refers to the 2008 preliminary draft LHE, the 2008 preliminary draft LHE was an internal working document that was peer reviewed in 2009. Baseline information was collected through 2010. The 2011 draft LHE that was provided in Appendix F of the DRMP/DEIS contained changes from the 2008 version based on new information and was focused to specifically address impacts to Monument objects. The methodology for the draft LHE is provided in **Section F.6** of Appendix F. The methodology for the Compatibility Analysis and Determination process is in **Section E.2** of Appendix E. Peer reviewers suggested that a range around the absolute value rather than the absolute value would be more acceptable to judge achievement of resource management objectives because the range around the absolute value better represented real conditions on the ground than the absolute value alone. The 12% composition falls within 80% of the attribute value as explained in Tables **F.9** and **E.2.3.1**.

6.3.2 SDNM RMP ANALYSIS ISSUES

Commenter	Comment Number	Comment Text	Response
Western Watersheds Project, Greta Anderson	100136-22	The DRMP/DEIS claims that the landscape appearance method found in Technical Reference 1734-3 was used to map out zones of utilization for use-pattern mapping throughout the Monument. DMRP/DEIS at 1106. This method is used to identify use patterns "in order to plan for range improvements and identify necessary changes in management to improve distribution." Id. at 1106-1007. This type of assessment is rapid and qualitative, but does depend upon the establishment of permanent transects. See Technical Reference 1734-3 at 119 et seq.22 The DRMP/DEIS doesn't reveal how many of these transects were established, when they were established, or if the data revealed in Table F.7.4 are derived from these transects or from other types of monitoring. In any case, it is entirely unclear how the BLM used these methods to "map out zones of utilization for use-pattern mapping throughout the Monument." DRMP/DEIS at 1106. If the BLM did establish transects, the final RMP/EIS should include a map and the raw data, as well as a discussion of how this method relates to key area data.	Raw data is available in the Phoenix District Office and summarized in **Appendix F**, Land Health Evaluation. **Appendix F**, Land Health Evaluation has been revised to include a description of the methodology use to collect utilization data during use-pattern mapping and on utilization transects (see **Section F.6**).
Western Watersheds Project, Greta Anderson	100136-26	Where BLM claims this "reflects general pattern of current grazing management practices" and it is "supported by inventory and monitoring data," (Id. at 149) it has not demonstrated this through the plan with the inclusion of relevant actual use, inventory, or monitoring data. The BLM's focus on livestock impacts to vegetation does not include an analysis of ephemeral use. DRMP/DEIS at 502, 515. There is no information or analysis to support this change, and given the resources at stake on the Monument,	Actual use and monitoring data is available in the Phoenix District Office and summarized in **Chapter 3**, Affected Environment, **Appendix E**, Compatibility Report, and **Appendix F**, Land Health Evaluation (see **Section F.7.1**). The RMP has been revised to address the effects of ephemeral use on vegetation.

Commenter	Comment Number	Comment Text	Response
		the BLM cannot make this blanket adjustment through the RMP process.	
Western Watersheds Project, Greta Anderson	100136-54	It is worth noting that BLM simultaneously determines that livestock aren't the cause of impacts because use levels are negligible to slight and admits that livestock haven't used the allotment in several years. DRMP/DEIS at 1128-1129. Conclusions about whether long-term vegetation changes are the result of livestock grazing are apparently based on years when livestock aren't even present. This defies logic, but also calls into question whether any of the analyses can be used to support the DRMP/DEIS's contentions about the impacts of future livestock grazing.	Conclusions in the Proposed RMP/Final EIS are not solely dependent on utilization data but on the analysis of multiple data sets. The best available data was used to formulate management recommendations and to analyze the various alternatives. The data used has been described in **Appendix F**, Land Health Evaluation and can be reviewed in the BLM Phoenix District Office. Utilization data on the Hazen allotment indicated that use is best attributable to wildlife because there was no livestock use for several years. (See Appendix F, Land Health Evaluation, **Section F.7**.) Because Hazen allotment has had no livestock use for several years, BLM cannot conclude that livestock are the causal factor in not meeting Standard 3 on the Hazen Allotment (see Appendix F, Land Health Evaluation, **Section F.13.2.2**). This analysis was not used to support a conclusion of causation in any other allotment or impacts of future livestock grazing.
Western Watersheds Project, Greta Anderson	100136-63	Because the DRMP/DEIS does not include year-by-year analysis of currently authorized AUM on the Monument, it is impossible for the decision-maker and the public to know how the proposed action compares with current management. Though BLM claims that this change, "Reflects general pattern of current grazing management practices," it does not elaborate anywhere in the plan how this is so. This fails the "hard look" standard of the National Environmental Policy Act.	A land use planning-level decision is broad in scope and, therefore, does not require an exhaustive gathering and monitoring of baseline data. Although the BLM realizes that more data could always be gathered, the baseline data provides the necessary basis to make informed land use plan-level decisions. Land use plan-level analyses are typically broad and qualitative rather than quantitative or focused on site-specific actions (BLM Land Use Planning Handbook H-1601-1). The BLM would conduct subsequent project-specific NEPA analyses for projects proposed for implementation under the

Commenter	Comment Number	Comment Text	Response
			land use plan (40 CFR 1502.20, 40 CFR 1508.28). As required by NEPA, the public would have the opportunity to participate in the NEPA process for site-specific actions. Programmatic or RMP level analysis addresses impacts from RMP level decisions, which are decisions set forth to achieve the goals and objectives of a specific program area within the RMP. Analyses for these decisions are broad in scale and focus on the scope of the individual alternatives and environmental effects. Programmatic analysis is typically regional in scope and accounts for differing land use scenarios, including cumulative effects from multiple activities and future projects (of which the location and details are not yet known). Refer to **Sections 4.2** through **4.24** for RMP-level impact analysis. The explanation for why a ten-year average was used is given in Appendix F, Land Health Evaluation, **Section F.7.1**.
Western Watersheds Project, Greta Anderson	100136-64	Moreover, wherever BLM claims that the effects of Alternative E will be similar to Alternative A (Current Management), it has failed to describe potential differences from this changed seasonally-intensive use on Monument lands.	The impacts analysis in **Section 4.9.8.3** have been revised to disclose the effects of seasonal use as described in Alternative E.
Western Watersheds Project, Greta Anderson	100136-7	The LHE attributes many key areas' failures to meet land health standards to "other causes" which include "historic livestock grazing, livestock use patterns, fire, drought, OHV use, etc." DRMP/DEIS at 1070-1071. It is unclear how historic livestock use (unspecified time frame) or "livestock use patterns" are considered a cause "other" than livestock grazing.	**Table E.9**, bottom note has been clarified to read "*May include historic livestock grazing and use patterns , fire, drought, OHV use, etc." Historic grazing refers to that period described in Appendix E, **Section E.1.2**. The period considered "historic" has been refined to include grazing prior to the 1970's. The footnote to Table E.9 has been revised to say "*May include historic livestock grazing and historic livestock use patterns, fire, drought, OHV use, etc." The determination of compatibility is

Commenter	Comment Number	Comment Text	Response
			based on current ecological conditions and current authorized livestock use. BLM used the inventory of 1980 as baseline vegetation data (Proposed RMP/Final EIS, Appendix F, **Section F.6.1**). Monitoring data in 2004-2009 indicates very little change in vegetation conditions since that 1980 inventory. BLM does not have information that livestock grazing as currently authorized is the causal factor in not meeting Standard 3, except where indicated in Appendix E and F and subsequently brought forward into the alternative..
Western Watersheds Project, Greta Anderson	100136-70	The use pattern and utilization data are also problematic in that the BLM uses only utilization data to determine that grazing management is a factor in failing to achieve land health standards on only 12 miles of the 490.5 miles of desert wash on the SDNM. DRMP/DEIS at 1057.The BLM claims that while 294 miles are not meeting Standard 3, the utilization data show that livestock are not the causative factor. Ibid. This conclusion is unsupported. BLM only has utilization data for two allotments, the Big Horn and the Conley. DRMP/DEIS at 1109. The BLM claims that livestock use levels were negligible or slight on the Beloat and Hazen allotments, but it does not identify where how this level was ascertained given that it has no utilization data for these allotments. Id. at 1059-1060.23 It also contradicts our observations. See Figures 2-5, Attached as Exhibit F.	Use of utilization as an indicator of livestock as the causal factor is given in Appendix E, **Section E.2.3.2**. Utilization was collected using ocular estimate while conducting use pattern mapping consistent with Technical Reference 1743-3. While utilization data was not collected at key areas within the Beloat and Hazen allotments, the use pattern mapping does represent utilization data for these allotments (see Appendix F, **Map 5**).
Western Watersheds Project, Greta Anderson	100136-73	In fact, instead of looking at the livestock concentration areas (water developments, salt licks, etc.), where intensive harms are known to occur, the BLM specifically chose sites distant from areas of concentrated impacts to evaluate the	The methodology for Key Area selection is stated in **Section F.6.2**, and was conducted in in accordance with BLM guidance **TR-1734-4**. A key area: • Is representative of the stratum in which it is located.

Commenter	Comment Number	Comment Text	Response
		effects of livestock. Key areas are intentionally located at a remove from concentration areas, ensuring that BLM is only measuring dispersed impacts. DRMP/DEIS at 1054. For example, the BLM used only data from Pacific Biodiversity Institute plots that were located 1000 meters from livestock disturbance. DRMP/DEIS at 1107. The BLM claims that study sites located closer to water were not representative of what was happening at a broader area. Ibid. The BLM does not disclose how many water developments are on the northern portion of the SDNM, but at each water development, by using this selective sampling method, the BLM has effectively ignored ecological conditions on 775 acres of desert habitat within the more-disturbed perimeter. Each time, the BLM ignores the findings of an area nearly half the size of the Arnold allotment within the SDNM. This is exactly the opposite approach it used to analyze shooting, and one that strongly affects the reliability of the data See Fehmi 2009 at 4. The difference in analytical approach is significant because the PBI study sites located at disturbed areas, 50 m from disturbed areas, 100 meters from disturbed areas, and 500 meters from disturbed areas show that the ecological conditions of plots in close proximity to livestock waters were poor. Phase 2 Report at 97. Vegetation composition and soil structures were highly altered. Ibid. It also concluded that livestock grazing had more statistically significant impacts than off-road vehicle use. Phase 2 report at 116.	• Is located within a single ecological site and plant community. • Should contain the key species where the key species concept is used. • Is capable of, and likely to show, a response to management actions. This response should be indicative of the response that is occurring on the stratum. Livestock waters do not meet three of the four criteria above, and are not representative of the overall landscape level conditions within the Monument. For these reasons BLM was unable to use the analysis that was provided by PBI that used study plots in close proximity to water. Appendix F, **Map 4** provides locations of water developments in the northern portion of SDNM. The objects of the SDNM are landscape in nature and BLM's analysis is assessing the compatibility of livestock grazing with protection of those Monument objects. Impacts of livestock use have been disclosed in the Proposed RMP/Final EIS in several sections, including **Sections 4.8** and **4.9**.
Western Watersheds Project, Greta	100136-76	The BLM did not analyze ephemeral authorizations in context of its plan to shift the majority of the livestock grazing (65 percent) to the winter months. DRMP/DEIS at	The impacts analysis in **Section 4.9.8.3** have been revised to disclose the effects of seasonal use as described in Alternative E.

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Anderson		149. By shifting the majority or livestock use to the period between October 1 and April 30, the BLM is actually increasing perennial winter grazing without any evidence that the land can support it. Perennial grazing authorizations are based on yearlong use here, the BLM is using the perennial authorization numbers but distributing it unevenly over the year. This is a significant change that should be based on a "hard look."	
Western Watersheds Project, Greta Anderson	100136-79	BLM's use of utilization and use-pattern mapping to determine impacts to saguaros where standards are not being met is unfortunately ill-suited to the task. Just because livestock are only removing a "light" or "moderate" percentage of the vegetation (use) doesn't mean that they aren't adversely impacting saguaro recruitment through trampling, removal of understory vegetation, or other types of alteration that aren't captured in either cover, composition, or utilization data.	BLM looked at multiple indicators for saguaros. The BLM addressed saguaro cacti in **Sections F.5.3.4.6** and **F.5.3.4.7** and **Table F.22**. This issue has also been addressed in **Table F.2**. BLM used recruitment data to determine if saguaro standards are being met.
Western Watersheds Project, Greta Anderson	100136-98	The BLM also relies on Land Health Standard 3 for the limy upland and granitic hills ecological sites to assess "saguaro recruitment objectives." DRMP/DEIS at 1061-1062. This ecological site covers 42 percent of the Monument. Id. at 1087. However, a close look at the data reveal that BLM's LHE didn't actually assess the "diversity, density, and distribution" of plants within the saguaro forest community and didn't obtain much data that refutes PBI's observations. Simply having suitable cover, or meeting the cover objectives, doesn't achieve the indicator of "nurse plants." DRMP/DEIS at 1044.	BLM looked at multiple indicators for saguaros, including raw data from PBI. The BLM addressed saguaro cacti in **Sections F.5.3.4.6** and **F.5.3.4.7** and **Table F.22**. This issue has also been addressed in **Table F.2**. BLM used frequency and recruitment data to determine if saguaro standards are being met. BLM used PBI raw data to determine if saguaro objectives have been met.

6.3.3 SDNM DATA ISSUES – BASELINE CONDITIONS

Commenter	Comment Number	Comment Text	Response
Grand Canyon Chapter of The Sierra Club, Jim Vaaler	100001-5	When you are calculating a percentage decreases in cows upon the land, this calculation needs to be based on actual numbers, not on permitted numbers. These numbers are usually not the same. Actual numbers are almost always significantly lower than permitted numbers.	From the standpoint of BLM grazing authorizations (active preference), BLM is proposing a reduction in authorized use. It is not based on actual use because actual use varies from year to year.
Sierra Club, Don Steuter	100018-1	Information on actual annual use of SDNM allotments is not available in the RMP. A 10 year average permitted use [p. 1107] does not give READERS a good picture of how many cattle are actually on the Monument.	BLM did not require reporting of actual use on all allotments. The 10-year average permitted use was based on billing statements and field observations of BLM range conservationists. This information is the best data available to BLM to estimate use. See **Section F.7.1** and **Table F.4**. The RMP has been revised accordingly (see **Table 3-17**).
Sierra Club, Jim Vaaler	100121-38	Permitted use levels and actual use levels need to be clearly identified. Use of a chart that shows the percentage grazing reduction per allotment is not useful as this percentage reduction is not tied to permitted use levels or actual use levels. There is no way to determine which number is being used. The statement that permitted numbers and actual numbers are very nearly identical is open to serious question. The BLM seems to rely on the individual permittees to supply them with the number of cattle they have on the land rather than actual observation.	BLM did not require reporting of actual use on all allotments. The 10-year average permitted use was based on billing statements and field observations of BLM range conservationists. This information is the best data available to BLM to estimate use. See **Section F.7.1** and **Table F.4**. The RMP has been revised accordingly.
Western Watersheds Project, Greta Anderson	100136-11	The BLM used Area A and the Goldwater Range as reference areas for the S&Gs. However, the DRMP/DIES doesn't describe how these areas were selected and whether there were other impacts (burros, campsites, military impacts, etc.) that might have skewed the data in the reference conditions. Several of the plots are on the boundary of the Big Horn allotment, which surely subjects them to grazing influences (invasive species, erosion, etc.) if	Appendix F, Land Health Evaluation, **Section F.9** and **F.5.3.3** explain how BLM selected BMGR comparison ecological site plots based on occurrence of the same ecological site as north of I-8. Ruyle and several other peer reviewers commented on a preliminary draft of the Land Health Evaluation. BLM considered the comments of all peer reviewers of the preliminary draft. The draft was revised and the current version is in Appendix F of the RMP. See Appendix F,

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		not grazing (unauthorized use, trespass) itself. Moreover, as Ruyle (2009) points out, the ecological site concept is based on site potential, not the vegetation communities currently present on specific ecological sites. This is misleading, at best, and misapplied.	Compatibility Report, **Section F.2.3**.
Western Watersheds Project, Greta Anderson	100136-12	Whereas BLM claims that the "Average Number of Perennial Species Per Plot (Diversity) species diversity within the palo verde-mixed cacti and saguaro forest vegetation communities within the SDNM north of T-8 is not reduced from what is found in the BGR and Area A," it has not taken a hard look at the types of vegetation present. Are they native species? Perennial species? Palatable species? Do they represent the same types of vegetation community structure (i.e. tree/shrub/herbaceous/grass cover)? The LHE does not scrutinize these aspects of a "functioning desert community" and relies, inadequately, on alpha diversity rather than beta diversity. (13)	The data that was used to determine diversity may be found in Appendix F, **Table F-20 Attachment 3**, Key Area Data, and in Appendix E, Section Step 4, **Analysis of the Diversity of Plant Species Biological Object** and **Table E.6**, Average number of perennial specials per plot
Western Watersheds Project, Greta Anderson	100136-15	a. The earlier draft LHE set the standard of 50 percent cover in the Sandy Wash ecological site (for CFPO, key area #B2). Exhibit A, Draft LHE at 42. The current LHE downgrades this objective to 40 percent. DRMP/DEIS at 1117. The current LHE does not include a scientific reference in support for this reduced cover.	The 2008 LHE was a preliminary draft document that was subsequently revised based upon peer review. Baseline information was collected through 2010. How this standard was developed is described in **Appendix F, Section F.5, Ecological Site-Level Desired Plant Community Objectives** and meets habitat requirements providing cover, forage, escape, and perching. Additionally, this section has been clarified by adding the citation and information from an AGFD study. The AGFD recommends 35% ground cover for occupied habitat areas for the CFPO *(AGFD, Wilcox et al., 1999)*. The BLM DPC objective is set at 40% ground cover, which exceeds the AGFD recommendations.
Western Watersheds	100136-16	a. The new LHE claims that PBI plot 228 meets the 14 percent composition object for palatable browse on the	The 11.5% composition falls within 80% of the attribute value as explained in **Table F.12** and explained in Section F.8.

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Project, Greta Anderson		Sandy Wash ecological site. DRMP/DEIS at 1127. PBI plot 228 has 11.5 percent palatable browse. Ibid. These are inexplicable conclusions.	There was an error in the Draft RMP text. BLM referenced an incorrect table in Section F.13.2.1.1. This has been corrected in the Proposed RMP/Final EIS; see Section F.13, **Analysis of Desired Plant Community Objectives by Key Areas and PBI Sites**.
Western Watersheds Project, Greta Anderson	100136-18	In another inexplicable obfuscation of rangeland health condition, the BLM did not include multiple years of rangeland health data in the DRMP/DEIS even on key areas where these data exist. For example, on the Big Horn allotment, the DRMP/DEIS only includes the key area data from 2009. DRMP/DEIS at 1154-1158. The agency actually has data from previous years. Exhibit B (19) Appendices to Draft LHE. The failure to include it suggests intentional obfuscation. â€¢ On transect BH-I, the BLM failed to acknowledge that annual grasses have declined from 10 percent cover in 1980 and 2004, to just 5 percent cover in 2009. Id. at 3. Ironwood declined from 44 percent in 1980, to 31 percent in 2004, to just 8 percent in 2009. Ibid.	Comparison of transect data collected over several years in the key areas by BLM was not appropriate, in this case, for assessments of long-term trend analysis. The 2009 data were the most recent data for the area. The 2004 and 1980 transects used different study designs, and therefore, were not comparable to 2009 transects and could not be used to measure trend in the LHE. Annuals are not appropriate species for long-term monitoring for the following reasons: a) annuals complete their life cycle in one year and production fluctuates year to year based on precipitation level; b) cover data collection is often complicated by the presence of annuals that are live plants early in the season, only to become litter later in the season. Cover data from perennial plants is more reliable for measuring changes in cover over time. Average annual production, based on Ecological Site Descriptions are used to calculate total production and cover.
Western Watersheds Project, Greta Anderson	100136-21	A perennial grazing allotment is one which "Consistently produces perennial forage to support a year round livestock operation." DRMPIDEIS at 1095. It is clear that the levels of livestock use proposed in the preferred alternative are based on the production of annual forage, and there are very few palatable perennial species even identified in the field data. BLM has not established that there is sufficient	As part of the design features for the preferred alternative, the proposed livestock use is based on several considerations including the level of use established in the Resource Protection Alternative in Lower Gila South RMP (1988). Recent monitoring data supports the level of use suggested in the Resource Protection Alternative in Lower Gila South

Commenter	Comment Number	Comment Text	Response
		perennial forage on any of the SDNM allotments to make this the preferred alternative.	RMP. See Section F.16, Table F.15. for the rationale for preferred alternative.
Western Watersheds Project, Greta Anderson	100136-39	The LHE process did incorporate a data set collected in a more scientific way by Pacific Biodiversity Institute, but did so in a biased fashion. (6) One PBI study was designed to explicitly address the impact of livestock watering sources, by collecting data along linear transects around a number of water sources. For each water source, PBI sampled four or more plots, including a plot within the disturbance area, the second at 50 meters from the disturbance, the third at 100 meters, a fourth at 500 meters, and in some cases additional plots at additional 500 meter intervals. The LHE process used only data from plots that were 1,000 meters or farther from disturbance sites. DRMP/DEIS at 1107. BLM used data from 48 plots measured by PBI, out of 320 plots for which PBI gathered a full set of quantitative data. This eliminated data from 272 plots that could have better characterized the landscape condition. It eliminates a large portion of the SDNM from evaluation. PBI estimated that more than 4,700 acres of the SDNM were within "high-density cow trail areas." Morrison, et al. 2003. More importantly, BLM specifically excluded data that specifically addressed the question of livestock compatibility with a functioning desert ecosystem.	BLM contracted The Nature Conservancy (who in turn contracted PBI) to collect data within the SDNM for the purposes of providing BLM data to determine ecological conditions within the Monument. BLM used PBI plots to increase the number of key areas, where appropriate. See **Section F.6.3** of Appendix F. While PBI's method for collecting the vegetation attributes was acceptable, many of the plot locations did not fit BLM's criteria for selection of key areas. Several of the plots overlapped multiple ecological sites and soil survey mapping units and some plots were located too close to livestock waters, which are not representative of the overall landscape level conditions within the Monument. For these reasons BLM was unable to use some of the analysis that was provided. In addition, the majority of the plots were located south of I-8 on the allotments that were closed to livestock grazing as required under the SDNM proclamation and within BMGR on ecological sites that do not occur north of I-8. PBI's study was of limited use because it did not address the intensity, frequency, timing, class of livestock, season of use, ecological sites, precipitation patterns and other variables the BLM needs to address the effects of current livestock grazing practices on the objects of the Monument. However, BLM did use some of PBI's plot data (where applicable) to address vegetation attributes when defining Ecological Site and Key

Commenter	Comment Number	Comment Text	Response
			Area DPC objectives.
Western Watersheds Project, Greta Anderson	100136-55	The above-enumerated differences between previous monitoring data and the currently-reported monitoring data are significant. They are not the only differences in the data; there are also many instances of increased cover by wolfberry and creosote, some occurrence by new species, and other changes that aren't described here. The issue is this: BLM apparently chose to only include a single year of monitoring data in the Compatibility Determination, Land Health Assessment and DRMP/DEIS in order to avoid discussing the downward trend of cover on key conservation elements in the monitoring data. This is unacceptable. Management decisions should be based on all available data, not just the politically expedient subset.	The 2009 data were the most recent data for the area. The 2004 and 1980 transects used different study designs, therefore, were not comparable to 2009 transects and could not be used to measure long-term trend in the LHE. (see F.6).
Western Watersheds Project, Greta Anderson	100136-69	The BLM used a year with above-average precipitation (2008) in which to measure utilization. DRMP/DEIS at 1109, 1008. The BLM does not disclose allotment-specific stocking rates were in 2008, and only provides a ten-year average stocking rate. Id. at 1107, 322. BLM also conducted use-pattern mapping following two below-average use years where no ephemeral use had been authorized. Ibid. The BLM also apparently only has utilization data for two allotments, the Big Horn and the Conley. Id. at 1109. The DRMP/DEIS does not identify, analyze, or disclose, how this level of utilization relates to livestock use, where utilization was measured relative to livestock water sources, or how it relates to the utilization guidelines described on page 1104 of the plan. Ibid. Given the statement in the plan that utilization guidelines are intended to, "be met over the long-term and not on a year-to-year basis," (DRMP/DEIS at 1104) it's problematic that the agency uses a single year's	In 2008, precipitation at Gila Bend was slightly above average and Maricopa was slightly below average, resulting in an average production year, as stated in F.7.4. The 2008 billings (indicative of 2008 use) are available for review at PDO. BLM has clarified the text and Map 5 to state that use pattern mapping was conducted on all the allotments in the SDNM (north of Interstate-8) in 2009. Utilization measurements were conducted at key areas and other utilization plots on the Big Horn and Conley in 2008 and Big Horn, Conley and Lower Vekol allotments in 2009. The design features address recommended levels of use by allotment. Conclusions do not depend solely on utilization

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		monitoring on just two allotments to justify continued livestock use. Id. at 1109. In other words, where the agency won't use a single year's overutilization to limit livestock use, it is using the single year's lower utilization to justify ongoing livestock grazing. It is contradictory and belies an unscientific agenda	data but on multiple data sets and analysis for the development of management recommendations and alternatives. Supporting data can be found in Appendices E and F.
Western Watersheds Project, Greta Anderson	100136-71	WWP has obtained, through a Freedom of Information Act (FOIA) request in 2008, records of utilization monitoring on the Big Horn and Conley allotments from 2008. Exhibit C, utilization records. We requested any and all monitoring records from the SDNM in the winter of 2008; the records we received differ significantly from the results the DRMP/DEIS reports, including in the key areas monitored. See Exhibit C and DRMP/DEIS at 1109. If the BLM conducted subsequent utilization monitoring in the months following our May 2008 FOIA request, we are unaware of it, but it suggests that BLM was not monitoring livestock use during the winter/spring season that it reports was the period of the majority of livestock use. DRMP/DEIS at 1109. If the DRMP/DEIS is referencing the same data that we were provided, the summary is inconsistent with the actual data and we were not provided a complete response to our FOIA request.24	BLM has reviewed and clarified the information in Table F.7. Information provided in commenter's exhibit C reflects use compliance checks for ephemeral authorization. This type of monitoring data did not measure current year's growth utilization and was therefore not used in the RMP.
Western Watersheds Project, Greta Anderson	100136-72	In any case, having data from only two allotments fails to support the conclusions that grazing isn't the cause of degradation on the others. It appears that the agency is conflating absence of evidence with evidence of absence. If the BLM only has utilization data for two allotments, it cannot support its conclusions that depend on utilization data for the other allotments.	BLM has clarified the text and Map 5 to state that use pattern mapping was conducted on all the allotments in the SDNM (north of Interstate-8) in 2009. Utilization measurements were conducted at key areas and other utilization plots on the Big Horn and Conley in 2008 and Big Horn, Conley and Lower Vekol allotments in 2009.

Commenter	Comment Number	Comment Text	Response
Western Watersheds Project, Greta Anderson	100136-74	The DRMP/DEIS also ignores the findings of the xeroriparian grass report that quantified the impacts of grazing on this protected vegetation community at intervals from water developments. Smith and Morrison 2006. These plots were located on the Beloat, Big Horn, Hazen, and Conley allotments. Id. at 16. The analysis was performed using standard statistical methods, methods not employed in the qualitative studies conducted by BLM. However, the results of this study were likely skewed by inaccurate information provided by BLM about the water sources. Still, the report concluded with an acknowledgement that the most significant finding in the study was that on the parts of the SDNM north of interstate 8, abundance of exotic grasses is very high and abundance of native grasses is very low. This is not characteristic of Sonoran Desert xeroriparian areas at large and the report referenced earlier studies indicating that ungrazed areas have higher abundance of native grass species.	Impacts of grazing on xeroriparian areas were discussed in detail in the compatibility study (Appendix E) and Land Health Evaluation (Appendix F) when analyzing Sandy Wash ecological sites. BLM considered the Smith and Morrison report, but found it was of limited use because it did not address the intensity, frequency, timing, class of livestock, season of use, ecological sites, precipitation patterns and other variables the BLM needs to address the effects of current livestock grazing practices on the objects of the Monument.
Western Watersheds Project, Greta Anderson	100136-86	The DRMP/DEIS does not provide enough information about actual use, seasonal vegetation pulses, allotment conditions, ecosystem conditions, or other relevant parameters of the FO grazing system to determine whether the preferred alt (to continue status quo grazing) is appropriate.	The Lower Sonoran Decision Area does not include implementation level analysis for grazing. It provides program guidance for future implementation decisions.
Western Watersheds Project, Greta Anderson	100136-97	Other key issues with the utilization data (Exhibit C): â€¢ Bighorn Site # 1 is over one mile to water, 25 and yet utilization on some plants averaged 90 percent on both K. grayi and A. dumosa. BLM averaged this use to 41 and 35 percent, respectively, but failed to include this key area in the summary it provided to the public with the DRMP/DEIS. â€¢ Bighorn Site #2 is also approximately one mile to water,	Utilization patterns are affected by slope, terrain, seasonal temperature, and distance to or from water. All of these factors were considered during use pattern mapping. The BLM followed utilization guidelines in Technical Recommendation 1734-3 (RMP at F.6.2 and F.17).

Commenter	Comment Number	Comment Text	Response
		adjacent to Interstate 8. â€¢ Bighorn Site #3 (unreported location) includes a measure of burro bush (A. dumosa), but the DRMP/DEIS reports 13 percent, or slight use, on this species. Data sheets show that 90 percent of the plants receive slight use, but this is considered a "low" palatability plant.26 â€¢ Conley Site # 1 reports that the utilization was measured in a small wash running north/south, but UTM was not provided. Again, this is a low palatability shrub, and BLM apparently did not measure utilization on more preferable species (such as native grasses or other herbaceous shrubs). â€¢ Conley, Site #unspecified, is also over a mile to water, and yet, use on Krameria and Ambrosia reached 50 percent use at least once on each species. â€¢ Conley, Site #8, isn't included in the DRMP/DEIS. These are the only data we were provided by BLM, and given the irreconcilability with the data in the DRMP/DEIS, we hope for a more complete accounting of what the BLM actually has in terms of monitoring results and how they relate to xeroriparian areas and the protection of Monument objects. A	
Pacific Biodiversity Institute, Peter Morrison	100161-5	I also strenuously disapprove of BLM's use of a subset of PBI's data to support its conclusions about rangeland health. Our study was designed to explicitly address the impact of livestock watering sources on the ecological health of the SDNM. We did this by collecting data along linear transects around a number of water sources. At each water source, we sampled four or more plots, including a plot within the central disturbance area, the second at 50 meters from the disturbance, the third at 100 meters, a fourth at 500 meters, and additional plots at 500 meter intervals out to 5-km. The LHE process used only data from plots that were 1,000	BLM contracted The Nature Conservancy (who in turn contracted PBI) to collect data within the SDNM for the purposes of providing BLM data to determine ecological conditions within the Monument. BLM used PBI plots to increase the number of key areas, where appropriate. See **Section F.6.3** of Appendix F. While PBI's method for collecting the vegetation attributes was acceptable, many of the plot locations did not fit BLM's criteria for selection of key areas. Several of the plots overlapped multiple ecological sites and soil survey mapping

Commenter	Comment Number	Comment Text	Response
		meters or farther from disturbance sites (F.6.3). This neglects the range conditions most directly attributable to livestock grazing within the 1 km distance	units and some plots were located too close to livestock waters, which are not representative of the overall landscape level conditions within the Monument. For these reasons BLM was unable to use some of the analysis that was provided. In addition, the majority of the plots were located south of I-8 on the allotments that were closed to livestock grazing as required under the SDNM proclamation and within BMGR on ecological sites that do not occur north of I-8. PBI's study was of limited use because it did not address the intensity, frequency, timing, class of livestock, season of use, ecological sites, precipitation patterns and other variables the BLM needs to address the effects of current livestock grazing practices on the objects of the Monument. However, BLM did use some of PBI's plot data (where applicable) to address vegetation attributes when defining Ecological Site and Key Area DPC objectives.
Pacific Biodiversity Institute, Peter Morrison	100161-6	BLM used data from only 48 of 320 plots for which PBI gathered a full set of quantitative data. This eliminated data from 272 plots that could have belter characterized the landscape condition. It eliminated the plots that often dramatically documented the impacts of livestock grazing and the potential for harm to Monument objects from livestock grazing. This highly selective use of our data is indefensible.	BLM contracted The Nature Conservancy (who in turn contracted PBI) to collect data within the SDNM for the purposes of providing BLM data to determine ecological conditions within the Monument. BLM used PBI plots to increase the number of key areas, where appropriate. See **Section F.6.3** of Appendix F. While PBI's method for collecting the vegetation attributes was acceptable, many of the plot locations did not fit BLM's criteria for selection of key areas. Several of the plots overlapped multiple ecological sites and soil survey mapping units and some plots were located too close to livestock waters, which are not representative of the overall landscape level conditions within the Monument. For these reasons BLM

Commenter	Comment Number	Comment Text	Response
			was unable to use some of the analysis that was provided. In addition, the majority of the plots were located south of I-8 on the allotments that were closed to livestock grazing as required under the SDNM proclamation and within BMGR on ecological sites that do not occur north of I-8. PBI's study was of limited use because it did not address the intensity, frequency, timing, class of livestock, season of use, ecological sites, precipitation patterns and other variables the BLM needs to address the effects of current livestock grazing practices on the objects of the Monument. However, BLM did use some of PBI's plot data (where applicable) to address vegetation attributes when defining Ecological Site and Key Area DPC objectives.

6.3.4 SDNM RMP – LAND HEALTH EVALUATION EDITS

Commenter	Comment Number	Comment Text	Response
Western Watersheds Project, Greta Anderson	100136-20	The preferred alternative, Alternative E, allows livestock grazing to continue on 157,210 acres on the Big Horn, Beloat, Hazen, Lower Vekol, and Arnold allotments. It completely closes the Conley allotment within the SDNM to grazing, but the total unavailable acreage under the preferred alternative is wholly unclear: in Table 2.12, the unavailable acres total 95,290 (DRMP/DEIS at 143), in Table 2.14, unavailable acres equal 44,798 (Id. at 144), and in the Management Actions and Allowable Uses section, unavailable acres totals 95,290 again (Id. at 148).	In Table 2.12, the numbers indicate all acreage both north and south of I-8. Table 2.14. shows acres North of Interstate 8 only as indicated in the Table title. Footnotes corresponding with certain figures help to explain the differences between alternatives. Table 2-12 has been updated for clarification.
Western Watersheds Project, Greta Anderson	100136-45	It is also unclear, since the DRMP/DEIS doesn't specify, how ongoing use will be altered to ensure against future failures. Given the extent to which management decisions regarding harms to Monument objects hinge on meeting the land health standards, this section needs further clarification and elaboration.	Monitoring is not an RMP decision, but an administrative action related to day-to-day operations. BLM has added an admin action to the RMP [section?] addressing BLM's intent to design and implement a monitoring program for protection of Monument objects, regardless of the cause.
Western Watersheds Project, Greta Anderson	100136-48	The DRMP/DEIS's reference to "Key Management Species List" is without a page number. It is not clear how this list was derived, or whether BLM created it from the extant data set. Without supporting references, it is impossible for the decision-maker or reader to evaluate whether these objectives make sense	The Key Management Species list is described in the Land Health Evaluation in F.24, Attachment 7.
Western Watersheds Project, Greta Anderson	100136-65	Additionally, the description of alternatives included in the DRMP/DEIS is confusing. For example, under the preferred alternative, portions of the Santa Rosa and Big Horn allotments outside of the SDNM would need to be fenced in order to facilitate future use. DRMP/DEIS at 145. It is unclear why the BLM is encouraging additional range infrastructure	The RMP at GR 1.1.7 is correct. A portion of the Santa Rosa allotment and the Big Horn allotment within SDNM and south of Interstate-8 were closed in accordance with the Proclamation. Portions of the allotments outside of the SDNM (in the LS Decision Area) may be grazed once a fence is built to exclude cattle from the closed areas.

Commenter	Comment Number	Comment Text	Response
		given its plans to continue grazing use on these allotments inside the SDNM. This should be explained in the final RMP/EIS and an analysis of the impacts of this kind of infrastructure should be provided.	

6.3.5 DATA ISSUES – GENERAL

Commenter	Comment Number	Comment Text	Response
Donald Johnson	100108-1	BLM appears to be using portions of the data reported by PBI to support conclusions opposite those reached and reported after analysis of ALL the data by PBI staff. BLM has stated instead that grazing is not having an adverse effect on small saguaros. There is no SDNM data to support that conclusion and it goes against other scientific reports that have studied effects of cattle grazing on cactus recruitment. I have observed and photographed cactus recruitment within a sanctuary near La Paz, BCS, Mexico. Within that sanctuary ground cover was complete and cactus recruitment abundant; fence line photos show bare ground and the scarcity of cactus where cattle were present.	BLM contracted The Nature Conservancy (who in turn contracted PBI) to collect data within the SDNM for the purposes of providing BLM data to determine ecological conditions within the Monument. BLM used PBI plots to increase the number of key areas, where appropriate. See **Section F.6.3** of Appendix F. While PBI's method for collecting the vegetation attributes was acceptable, many of the plot locations did not fit BLM's criteria for selection of key areas. Several of the plots overlapped multiple ecological sites and soil survey mapping units and some plots were located too close to livestock waters, which are not representative of the overall landscape level conditions within the Monument. For these reasons BLM was unable to use some of the analysis that was provided. In addition, the majority of the plots were located south of I-8 on the allotments that were closed to livestock grazing as required under the SDNM proclamation and within BMGR on ecological sites that do not occur north of I-8. PBI's study was of limited use because it did not address the intensity, frequency, timing, class of livestock, season of use, ecological sites, precipitation patterns and other variables the BLM needs to address the effects of current livestock grazing practices on the objects of the Monument. However, BLM did use some of PBI's plot data (where applicable) to address vegetation attributes when defining Ecological Site and Key Area DPC objectives.

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			BLM looked at multiple indicators for saguaros. The BLM addressed saguaro cacti in **Sections F.5.3.4.6 and F.5.3.4.7 and Table F.22**. This issue has also been addressed in **Table F.2**. BLM used recruitment data to determine if saguaro standards are being met. The Methodology for the LHE is provided in Section F.6 of Appendix F. In accordance with BLM Manual Handbook 4400-1, the BLM incorporated a "Key Area" concept when establishing study sites. Only PBI plot data that was consistent with the definitions of a BLM "Key Area" was used to enhance the LHE process. Any PBI plot data that did not meet the definition was not applicable in the analysis. For example, PBI plots that fell in transition zones between two ecological sites or were not representative of larger areas were not used. Information was interpreted based on the best professional judgment of the individual evaluators at the field office, state office, and Washington office levels. Additionally, the LHE went through further revisions based on the comments and recommendations by a rigorous peer review of academic experts in the field of range management in Sonoran Desert ecosystems.
Donald Johnson	100108-4	Instead of relying on the best available science, the agency has manipulated PBI's comprehensive data and ignored report conclusions to support its agenda. PBI's raw data has been re-analyzed by someone outside PBI's scientific team and cited in the document as the work of PBI. These citations are inappropriate and need to be removed, with the source of the data analysis identified. References are made to the "Pacific Biodiversity Institute Saguaro Study", although PBI never conducted such work. The DRMP/DEIS document needs to	BLM contracted The Nature Conservancy (who in turn contracted PBI) to collect data within the SDNM for the purposes of providing BLM data to determine ecological conditions within the Monument. BLM used PBI plots to increase the number of key areas, where appropriate. See **Section F.6.3** of Appendix F. While PBI's method for collecting the vegetation attributes was acceptable, many of the plot locations did not fit BLM's

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		remove all inappropriate references to PBI.	criteria for selection of key areas. Several of the plots overlapped multiple ecological sites and soil survey mapping units and some plots were located too close to livestock waters, which are not representative of the overall landscape level conditions within the Monument. For these reasons BLM was unable to use some of the analysis that was provided. In addition, the majority of the plots were located south of I-8 on the allotments that were closed to livestock grazing as required under the SDNM proclamation and within BMGR on ecological sites that do not occur north of I-8. PBI's study was of limited use because it did not address the intensity, frequency, timing, class of livestock, season of use, ecological sites, precipitation patterns and other variables the BLM needs to address the effects of current livestock grazing practices on the objects of the Monument. However, BLM did use some of PBI's plot data (where applicable) to address vegetation attributes when defining Ecological Site and Key Area DPC objectives. BLM looked at multiple indicators for saguaros. The BLM addressed saguaro cacti in Sections F.5.3.4.6 and F.5.3.4.7 and Table F.22. This issue has also been addressed in Table F.2. BLM used recruitment data to determine if saguaro standards are being met. The Methodology for the LHE is provided in Section F.6 of Appendix F. In accordance with BLM Manual Handbook 4400-1, the BLM incorporated a "Key Area" concept when establishing study sites. Only PBI plot data that was consistent with the definitions of a BLM "Key Area" was used to enhance

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			the LHE process. Any PBI plot data that did not meet the definition was not applicable in the analysis. For example, PBI plots that fell in transition zones between two ecological sites or were not representative of larger areas were not used. Information was interpreted based on the best professional judgment of the individual evaluators at the field office, state office, and Washington office levels. Additionally, the LHE went through further revisions based on the comments and recommendations by a rigorous peer review of academic experts in the field of range management in Sonoran Desert ecosystems.
Donald Johnson	100108-5	The conclusion of the DRMP/DEIS that livestock grazing is compatible with the protection of Monument objectives is contrary to PBI's scientific research findings. Throughout reports published by PBI on the SDNM strong associations of livestock grazing with negative impacts on the natural communities were made.	BLM contracted The Nature Conservancy (who in turn contracted PBI) to collect data within the SDNM for the purposes of providing BLM data to determine ecological conditions within the Monument. BLM used PBI plots to increase the number of key areas, where appropriate. See **Section F.6.3** of Appendix F. While PBI's method for collecting the vegetation attributes was acceptable, many of the plot locations did not fit BLM's criteria for selection of key areas. Several of the plots overlapped multiple ecological sites and soil survey mapping units and some plots were located too close to livestock waters, which are not representative of the overall landscape level conditions within the Monument. For these reasons BLM was unable to use some of the analysis that was provided. In addition, the majority of the plots were located south of I-8 on the allotments that were closed to livestock grazing as required under the SDNM proclamation and within BMGR on ecological sites that do not occur north of I-8.

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			PBI's study was of limited use because it did not address the intensity, frequency, timing, class of livestock, season of use, ecological sites, precipitation patterns and other variables the BLM needs to address the effects of current livestock grazing practices on the objects of the Monument. However, BLM did use some of PBI's plot data (where applicable) to address vegetation attributes when defining Ecological Site and Key Area DPC objectives. BLM looked at multiple indicators for saguaros. The BLM addressed saguaro cacti in Sections F.5.3.4.6 and F.5.3.4.7 and Table F.22. This issue has also been addressed in Table F.2. BLM used recruitment data to determine if saguaro standards are being met. The Methodology for the LHE is provided in Section F.6 of Appendix F. In accordance with BLM Manual Handbook 4400-1, the BLM incorporated a "Key Area" concept when establishing study sites. Only PBI plot data that was consistent with the definitions of a BLM "Key Area" was used to enhance the LHE process. Any PBI plot data that did not meet the definition was not applicable in the analysis. For example, PBI plots that fell in transition zones between two ecological sites or were not representative of larger areas were not used. Information was interpreted based on the best professional judgment of the individual evaluators at the field office, state office, and Washington office levels. Additionally, the LHE went through further revisions based on the comments and recommendations by a rigorous peer review of academic experts in the field of range management in Sonoran Desert ecosystems.

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			The baseline data for the SDNM decision area was developed from monitoring data and best available information (including the 2011 Land Health Evaluation and Compatibility Analysis) and that was relevant to the Monument decision area level of analysis. This best available information was then used to develop management recommendations to meet the requirements of the SDNM proclamation.
Western Watersheds Project, Greta Anderson	100136-1	The LHE was not used objectively and was not scientific. Vegetation data collected by BLM were from subjectively placed plots, explicitly not in areas of high disturbance by livestock. DRMP/DEIS at 1054. A scientific study would have used randomly-placed plots, or would include a study design that explicitly incorporated and reported the variability of the landscape, such as a stratified random design.	The BLM uses the Key Area concept to monitor the effects of livestock grazing as described in RMP Appendix F.6.2 and in accordance with BLM technical Reference 1734-4.
Western Watersheds Project, Greta Anderson	100136-10	The key areas used in the LHE are distributed non-randomly across the landscape, which is problematic from the perspective of bias. Nowhere does the DRMP/DEIS reveal where these key areas are located or how they were picked. We were able to obtain geospatial location information about the key areas through a special request, but again, it is unclear why these areas are selected or how they were determined to be "representative" of livestock impacts on the Monument.	Key areas are displayed on Appendix F, Map 4, in draft LHE. Selection of key areas is described in Section F.6.2.
Pacific Biodiversity Institute, Susan Snetsinger	100138-1	1. PBI was referenced as the source for analyses that we did not conduct. It appears that PBI's raw data was re-analyzed by someone else and cited in the document as the work of PBI. These citations are completely inappropriate and need to be removed, and the actual source of the data analysis identified. For example, references are made to the "Pacific Biodiversity Institute Saguaro Study." This study does not	BLM contracted The Nature Conservancy (who in turn contracted PBI) to collect data within the SDNM for the purposes of providing BLM the data and determining ecological conditions within the Monument. BLM used PBI plots to increase the number of key areas, where appropriate. BLM used PBI raw data to determine if saguaro objectives

Commenter	Comment Number	Comment Text	Response
		exist - we never conducted such work. The DRMP/DEIS document needs to be thoroughly checked and all inappropriate references to PBI removed.	have been met.
Pacific Biodiversity Institute, Susan Snetsinger	100138-3	2. Inappropriate re-analysis of Pacific Biodiversity Institute's data. Despite the comprehensive work that PBI conducted to assess the ecological conditions of communities in the SDNM, the BLM has chosen to re-analyze the data using only a small subset of the information. The subset was chosen specifically to exclude those areas where livestock impacts most affect the natural communities. This is completely inappropriate and leads erroneous conclusions.	BLM contracted The Nature Conservancy (who in turn contracted PBI) to collect data within the SDNM for the purposes of providing BLM data to determine ecological conditions within the Monument. BLM used PBI plots to increase the number of key areas, where appropriate. See **Section F.6.3** of Appendix F. While PBI's method for collecting the vegetation attributes was acceptable, many of the plot locations did not fit BLM's criteria for selection of key areas. Several of the plots overlapped multiple ecological sites and soil survey mapping units and some plots were located too close to livestock waters, which are not representative of the overall landscape level conditions within the Monument. For these reasons BLM was unable to use some of the analysis that was provided. In addition, the majority of the plots were located south of I-8 on the allotments that were closed to livestock grazing as required under the SDNM proclamation and within BMGR on ecological sites that do not occur north of I-8. PBI's study was of limited use because it did not address the intensity, frequency, timing, class of livestock, season of use, ecological sites, precipitation patterns and other variables the BLM needs to address the effects of current livestock grazing practices on the objects of the Monument. However, BLM did use some of PBI's plot data (where applicable) to address vegetation attributes when defining Ecological Site and Key Area DPC objectives.

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			BLM looked at multiple indicators for saguaros. The BLM addressed saguaro cacti in Sections F.5.3.4.6 and F.5.3.4.7 and Table F.22. This issue has also been addressed in Table F.2. BLM used recruitment data to determine if saguaro standards are being met. The Methodology for the LHE is provided in Section F.6 of Appendix F. In accordance with BLM Manual Handbook 4400-1, the BLM incorporated a "Key Area" concept when establishing study sites. Only PBI plot data that was consistent with the definitions of a BLM "Key Area" was used to enhance the LHE process. Any PBI plot data that did not meet the definition was not applicable in the analysis. For example, PBI plots that fell in transition zones between two ecological sites or were not representative of larger areas were not used. Information was interpreted based on the best professional judgment of the individual evaluators at the field office, state office, and Washington office levels. Additionally, the LHE went through further revisions based on the comments and recommendations by a rigorous peer review of academic experts in the field of range management in Sonoran Desert ecosystems.
Pacific Biodiversity Institute, Peter Morrison	100161-4	The BLM has also used PBI data in other ways that are inaccurate. For example, BLM characterizes the ecological conditions of allotments north of interstate 8 in comparison to PBI's plots in the areas without authorized livestock grazing south of Interstate 8 on the Barry M. Goldwater Range and "Area A." The lands of BMGR/Area A may not have authorized livestock grazing, but they certainly have trespass livestock grazing, burros, and other types of disturbance. The area south of Interstate 8 experienced a	BLM contracted The Nature Conservancy (who in turn contracted PBI) to collect data within the SDNM for the purposes of providing BLM data to determine ecological conditions within the Monument. BLM used PBI plots to increase the number of key areas, where appropriate. See **Section F.6.3** of Appendix F. While PBI's method for collecting the vegetation attributes was acceptable, many of the plot locations did not fit BLM's

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		long history of livestock grazing in the late 1800's through the mid 1900's. Its ecological condition has been influenced by livestock grazing. More importantly, there are simply not enough plots distributed across comparable ecological sites to infer representative baseline conditions or deviation from reference conditions. The comparisons that BLM attempts to make between the plots south of Interstate 8 and those north of I8 reflect do not appear to be valid and represent a misuse of the data that PBI collected and a misunderstanding of valid scientific methods and uses of this data	criteria for selection of key areas. Several of the plots overlapped multiple ecological sites and soil survey mapping units and some plots were located too close to livestock waters, which are not representative of the overall landscape level conditions within the Monument. For these reasons BLM was unable to use some of the analysis that was provided. In addition, the majority of the plots were located south of I-8 on the allotments that were closed to livestock grazing as required under the SDNM proclamation and within BMGR on ecological sites that do not occur north of I-8. PBI's study was of limited use because it did not address the intensity, frequency, timing, class of livestock, season of use, ecological sites, precipitation patterns and other variables the BLM needs to address the effects of current livestock grazing practices on the objects of the Monument. However, BLM did use some of PBI's plot data (where applicable) to address vegetation attributes when defining Ecological Site and Key Area DPC objectives. BLM looked at multiple indicators for saguaros. The BLM addressed saguaro cacti in Sections F.5.3.4.6 and F.5.3.4.7 and Table F.22. This issue has also been addressed in Table F.2. BLM used recruitment data to determine if saguaro standards are being met. The Methodology for the LHE is provided in Section F.6 of Appendix F. In accordance with BLM Manual Handbook 4400-1, the BLM incorporated a "Key Area" concept when establishing study sites. Only PBI plot data that was consistent with the definitions of a BLM "Key Area" was used to enhance

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			the LHE process. Any PBI plot data that did not meet the definition was not applicable in the analysis. For example, PBI plots that fell in transition zones between two ecological sites or were not representative of larger areas were not used. Information was interpreted based on the best professional judgment of the individual evaluators at the field office, state office, and Washington office levels. Additionally, the LHE went through further revisions based on the comments and recommendations by a rigorous peer review of academic experts in the field of range management in Sonoran Desert ecosystems. Proclamation suggested BLM use area A as comparison (see Appendix F.9). BLM used raw data from PBI plots that were representative of the ecological sites found within allotments north of Interstate-8.

6.3.6 SDNM RMP LIVESTOCK GRAZING MANAGEMENT

Commenter	Comment Number	Comment Text	Response
Arizona Public Lands Foundation, Beau McClure	100053-1	We question that it is necessary or appropriate to permit yearlong livestock grazing on the allotments shown as Perennial or Perennial/Ephemeral on Alternative E Livestock Grazing Map 2-8e of the Draft report. Most of the livestock use of these desert lands in the Lower Sonoran area and the Sonoran Desert National Monument occurs in the Spring, after winter rains have produced a lush, short-lived crop of annual vegetation. The Executive Order that established the Sonoran Desert National Monument, provided that livestock grazing would eventually be terminated on public lands south of Interstate-8, and there are continuing court actions over livestock use on Monument lands north of Interstate-8. BLM is managing prime Sonoran desert habitats on public lands adjacent to a major metropolitan area. Why would you want to have a few cows on these lands year-round to stir up the environmental controversies commonly associated with livestock grazing? We strongly recommend that the Perennial Allotments and the Perennial/Ephemeral Allotments shown on Map 2-8e be re-designated as Ephemeral Allotments, and used for livestock grazing only when annual vegetation is present on the lands.	Chapter 2, **section 2.5.4** has been revised to explain why an Ephemeral Only alternative was not analyzed within the SDNM.
Western Watersheds Project, Greta Anderson	100136-75	The BLM's plan is to allocate this ephemeral forage to livestock use. Id. at 143. The extent of the ephemeral authorization is not disclosed in the plan. Ibid. The DRMP/DEIS erroneously states that ephemeral grazing will be authorized based on "a prediction of ephemeral forage." DRMP/DEIS at 1137. Ephemeral authorizations may be authorized if, "Ephemeral vegetation is present. .. and has grown to useable levels at the time grazing begins."	The EIS has been revised to clarify the procedures for ephemeral forage authorization in Appendix H, Best Management Practices and Standard Operating Procedures. Inconsistencies between the alternatives in Chapter 2, Appendix F and Appendix L concerning those procedures have been resolved. In addition, appropriate guidance has been cited.

Commenter	Comment Number	Comment Text	Response
		DRMP/DEIS at 1268. This is not a "prediction" of forage availability; it is an actual, observable availability. Moreover, this requires an allotment inspection prior to authorization. See IM-AZ-94-0 18 Ephemeral Grazing Authorizations. The BLM also states that ephemeral authorizations will be permitted on a case-by-case basis pursuant to the Special Ephemeral Rule. Ibid. However, the Special Ephemeral Rule is for the reclassification of allotments, not the management regime for allotments that are perennial/ephemeral as five of the six SDNM allotments in the planning area. 28 We note this study did not distinguish between areas north and south of I8, but the map distinguishes areas of high livestock impact in the northern portion of the Monument. The Special Ephemeral Rule does not provide management parameters such as production/tum out/utilization limits, or other requirements. However, Instruction Memorandum AZ-94-018 provides the guidance for the authorization of livestock grazing on allotments designated as ephemeral or for authorization of ephemeral grazing use on allotments managed as perennial (perennial/ephemeral). The BLM should have referenced this instruction in the DRMP/DEIS, especially because it establishes conditions of ephemeral authorizations in Sonoran desert tortoise habitat. This failure to establish, analyze, and disclose meaningful management parameters for ephemeral use is a major failure of the plan, given the dependence of wildlife on these same "boom" years. It is problematic also because the BLM does not set or even measure utilization on annual vegetation, despite the significance of this vegetation type to wildlife.	

Commenter	Comment Number	Comment Text	Response
Fennemore Craig P.C, Dawn Meidinger	100137-19	One concern, however, is Management Action GR-l.1.19 which states that BLM will use the guidelines described in the "Not Likely to Adversely Affect" section of "Guidance Criteria for Determinations of Effects of Grazing Permit Issuance and Renewal on T&E Species" (BLM and USFS Arizona and New Mexico, 1999). DRMP/EIS at 146. These guidelines are outdated, inconsistent with the ESA, and to the extent BLM wishes to utilize them for purposes of permit decisions or permit updates, the guidelines must be promulgated as a rule under the Administrative Procedure Act. 5 USC Â§ 553. At a minimum, they should be disclosed for public review and comment. Their guidelines expand the scope of the ESA to areas where members of listed species are not present and critical habitat does not exist. The determination of livestock grazing uses should be on a case by case basis involving the permittee. Prohibitions of use resulting from consultation under Â§ 7 of the ESA should only arise where threatened and endangered species are present or critical habitat has been designated. 16 USC Â§ 1533 (a)(2).	The EIS has been revised to remove Management Action GR-1.1.19. Relevant aspects of the criteria are included in objectives and management actions within the plan.

6.3.7 SDNM RMP MONUMENT AND COMPATIBILITY

Commenter	Comment Number	Comment Text	Response
Bill Broyles	100120-4	Again looking at the 1991 GAO report, grazing in SDNM likely has negligible economic benefit to the region. At that time, under better grazing conditions, "The 33 ranches in the Lower Gila North area of Arizona contributed an estimated 0.32 percent to the total value of livestock and livestock products sold in Yuma, Maricopa, and Yavapai counties" (p. 47). There are reasons that ranches and leases in both Lower Gila North and South have been abandoned. And I'm betting that the economic advantages of retiring grazing tourism, hunting, environment -- far surpass those of grazing in SDNM, though I didn't see that information in the management report.	This 1991 GAO report and a more recent report (2011 - Economic Benefits of Public Lands) have been included in Section **3.5.3**, Socioeconomics.
Friends of the Sonoran Desert National Monument, Thomas Hulen	100123-6	The Bureau of Land Management's preferred alternative would shift the majority of livestock use on the Monument to the winter and spring months. This is precisely the time when recreational use is at its peak.	The Proclamation states how livestock grazing would be addressed both north and south of Interstate-8. BLM has revised its analysis to clarify the effects of grazing on recreation use. Impacts of grazing to archeological resources are discussed in **Section 4.5**; impacts on wildlife are described in **Section 4.7**; and impacts on vegetation are described in **Section 4.9**.
The Wilderness Society, Phil Hanceford	100126-39	What is clear is that the status quo livestock grazing management will not suffice in the future for the Sonoran Desert National Monument. For example, in 2005, The Nature Conservancy entered into a cooperative agreement with the BLM's Phoenix Field Office to perform a study (TNC Study) of the impacts of livestock grazing within the Sonoran Desert.(11) Among the TNC Study's pertinent findings was the following statement about current grazing management strategies on Sonoran Desert public lands:	In the case of the SDNM, the LHE analyzed the Monument's desert ecosystems for proper functioning condition; considered the anticipated diversity of plant species; examined the long-term recruitment and maintenance of saguaro cactus forests; addressed the effect of grazing on wildlife and associated habitat; and evaluated the functioning, health, diversity and sustainability of key vegetation communities. The Compatibility Analysis (Appendix E, **Section E.2**) addresses the compatibility and determination

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		"Based on our review of the literature on grazing management strategies, we conclude that no currently described approach, including continuous grazing and each of the specialized grazing systems, is completely applicable to or appropriate for the Sonoran Desert ecosystem within their current formations. Furthermore, in conjunction with our review of stocking rate and drought management considerations, we conclude that continuous grazing in which livestock are maintained within fenced allotments yearlong is not a feasible grazing management strategy on Sonoran Desert public lands.(12)"These conclusions are based on factors that are specific to the Sonoran Desert ecosystem; namely, variable and low precipitation levels, frequent and extended drought, the particularly sensitive resources in the region, and lack of research in general on grazing impacts in the area.(13) In addition, the Monument proclamation itself recognizes the benefit to the biological diversity within the Monument by attributing the "especially striking" conditions of the Sand Tank Mountains area where "no livestock grazing has occurred for nearly 50 years." This should be taken into account when BLM is performing a compatibility analysis.	process. The land health standards, specifically Standard 1 and Standard 3, directly address and measure indicators associated with the biological and ecological objects identified for protection in the Monument's proclamation. These findings led to management recommendations for livestock grazing on the Monument and development of the alternatives in the DEIS. As described in Appendix E, **section E.2.3**, BLM chose the LHE as an appropriate tool in the compatibility because the LH standards are measurable and attainable goals for the desired condition of biological resources and physical components/characteristics of desert ecosystem found within the Monument.
The Wilderness Society, Phil Hanceford	100126-41	However, although the analysis purports to be looking at the compatibility of grazing with the "paramount purpose" of protecting Monument objects, the analysis conducted is actually a land health evaluation (LHE) that is used "to ascertain whether the Arizona Rangeland Health Standards (land health standards) are met." DRMP/DEIS, p. 1042. In evaluating whether grazing is "compatible" with protecting Monument objects, BLM should look to the existing use of the term in both the Wild and Scenic Rivers Act (16 USC Â§ 1274(d)(1)) and the National Wildlife Refuge Administration	In the case of the SDNM, the LHE analyzed the Monument's desert ecosystems for proper functioning condition; considered the anticipated diversity of plant species; examined the long-term recruitment and maintenance of saguaro cactus forests; addressed the effect of grazing on wildlife and associated habitat; and evaluated the functioning, health, diversity and sustainability of key vegetation communities. The Compatibility Analysis (Appendix E, **Section E.2**) addresses the compatibility and determination process. The land health standards, specifically Standard 1

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		Act, 16 USC Â§ 668ee.	and Standard 3, directly address and measure indicators associated with the biological and ecological objects identified for protection in the Monument's proclamation. These findings led to management recommendations for livestock grazing on the Monument and development of the alternatives in the DEIS. As described in Appendix E, **section E.2.3**, BLM chose the LHE as an appropriate tool in the compatibility because the LH standards are measurable and attainable goals for the desired condition of biological resources and physical components/characteristics of desert ecosystem found within the Monument.
The Wilderness Society, Phil Hanceford	100126-94	Using the correct standard will affect the determination of compatibility, as well as the development and selection of alternatives. See, DRMP/DEIS, p. 139 (For the SDNM Decision Area, implementation level allocations reflect the findings of the compatibility analysis. Since the "LHE and the Compatibility Analysis will not be final until the RMP's Record of Decision is approved (Id), the BLM can correct these flaws and update the compatibility analysis in accordance with the standards discussed above, including current science regarding livestock grazing in the Sonoran Desert	In the case of the SDNM, the LHE analyzed the Monument's desert ecosystems for proper functioning condition; considered the anticipated diversity of plant species; examined the long-term recruitment and maintenance of saguaro cactus forests; addressed the effect of grazing on wildlife and associated habitat; and evaluated the functioning, health, diversity and sustainability of key vegetation communities. The Compatibility Analysis (Appendix E, **Section E.2**) addresses the compatibility and determination process. The land health standards, specifically Standard 1 and Standard 3, directly address and measure indicators associated with the biological and ecological objects identified for protection in the Monument's proclamation. These findings led to management recommendations for livestock grazing on the Monument and development of the alternatives in the DEIS. As described in Appendix E, **Section E.2.3**, BLM chose the LHE as an appropriate tool in the compatibility because the LH standards are measurable and attainable goals for the desired condition of biological resources and physical components /

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			characteristics of desert ecosystem found within the Monument.
Western Watersheds Project, Greta Anderson	100136-100	It is also not clear how BLM's young saguaro recruitment rate corresponds with the objective set elsewhere in the plan to have medium to high density columnar cactus habitat (greater than 30 saguaros per acre) within 40 miles of roost sites of lesser long-nosed bats and/or whether this was even measured on the SDNM. DRMP/DEIS at 73. It appears BLM did not evaluate whether or not relevant SDNM plots met this objective, another failure of the plan to protect Monument objects	The BLM addressed saguaro cacti in **Sections F.5.3.4.6** and **F.5.3.4.7** and **Table F.22**. This issue has also been addressed in **Table F.2**. PS-2.1.3 has been revised to more clearly reflect the intent to maintain foraging habitat for lesser log-nosed bat. "Maintain existing medium to high density stands of columnar cacti (≥ plants/acre) within 40 miles of known roost sites where potential exists on the ecological site."
Western Watersheds Project, Greta Anderson	100136-36	The BLM determination of compatibility for grazing on the SDNM is fundamentally flawed on three levels. First, it contradicts the preponderance of scientific evidence that shows incompatibility. http://www. blm.gov/pgdataletc/medialiblblmlwo/Communications _Directorate/public _affairs/news release _ attachments.P ar.166IS.File.tmpINLCS_Strategy.pdf Second, instead of accepting the evidence, it relies on an inappropriate tool, the Land Health Evaluation to override scientific conclusions. And finally, it then misuses the Land Health Evaluation process by relaxing established standards and selectively omitting data.	In the case of the SDNM, the LHE analyzed the Monument's desert ecosystems for proper functioning condition; considered the anticipated diversity of plant species; examined the long-term recruitment and maintenance of saguaro cactus forests; addressed the effect of grazing on wildlife and associated habitat; and evaluated the functioning, health, diversity and sustainability of key vegetation communities. The Compatibility Analysis (Appendix E, **Section E.2**) addresses the compatibility and determination process. The land health standards, specifically Standard 1 and Standard 3, directly address and measure indicators associated with the biological and ecological objects identified for protection in the Monument's proclamation. These findings led to management recommendations for livestock grazing on the Monument and development of the alternatives in the DEIS. As described in Appendix E, **section E.2.3**, BLM chose the LHE as an appropriate tool in the compatibility because the LH standards are measurable and attainable goals for the desired condition of biological resources and physical components/characteristics

Commenter	Comment Number	Comment Text	Response
			of desert ecosystem found within the Monument. The PDF referenced in your comment is the BLM's NLCS Strategy document that recognizes grazing as a use in NLCS units on pages 2 and 4.
Western Watersheds Project, Greta Anderson	100136-38	The next stage of BLM's Compatibility Determination was based on a Land Health Evaluation (LHE). BLM did not conduct focused scientific studies designed to address every aspect of known incompatibility. Rather, the BLM chose to evaluate the protection of these Monument objects in context of a functioning ecosystem was considered in the development of "indicators." These indicators functioned as proxies in order to use data and methods BLM already had rather than develop new ways of measuring object-specific impacts of livestock grazing as enumerated by the literature review. BLM's indicators wholly rely on the Arizona Standards for Rangeland Health and Guidelines for Grazing Administration. DRMP/DEIS at 1060-1066. Instead, BLM relied upon its Land Health Evaluation process, "to gauge whether the Arizona Standards for Rangeland Health are being met on the Monument." DRMP/DEIS at 1052, et seq .. Those standards are intended to determine levels of soil erosion and the provision of food and cover for wildlife and livestock, along with a riparian-wetland standard that does not apply to the SDNM. Those standards do not address grazing compatibility with the identified objects on the Monument, and do not address the aspects of incompatibility that are known from the scientific literature. It is therefore incomprehensible that the results of a Land Health Evaluation could serve to override the preponderance of scientific evidence that shows incompatibility.	The Proclamation for the SDNM (**Appendix A**) tells BLM that "…grazing on Federal lands north of Interstate 8 shall be allowed to continue only to the extent that the Bureau of Land Management determines that grazing is compatible with the paramount purpose of protecting the objects identified in this proclamation…." The BLM is not aware of scientific evidence that shows managed grazing within the Sonoran Desert National Monument is incompatible with protecting the objects of the Monument. The proclamation leaves it to the BLM to design the method to make this determination. The method developed is described in Appendices E and F.

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Western Watersheds Project, Greta Anderson	100136-43	BLM policy cautions against the improper use of S&G assessments to make grazing and other management decisions. The BLM's "Interpreting Indicators of Rangeland Health" states that the technique should be sued in association with quantitative monitoring and inventory information, and "is designed to... provide a preliminary evaluation of soil/site stability, hydrologic function, and integrity of the biotic community... help land managers identify areas that are potentially at risk of degradation," and be used as a communication tool with a wide range of audiences. BLM Technical Reference 1734-6 at 1.(8) The Technical Reference explicitly states, "The approach is NOT to be used to: Identify the cause(s) of resource problems; Make grazing or other management decisions; Monitor land or determine trend; Independently generate national or regional assessments of rangeland health." Ibid., emphasis added. Here, BLM relies on the LHE process to assessing everything from livestock impacts to cultural resources, wildlife, sensitive species habitat, etc. in the Compatibility Determination. Moreover, the BLM relies on compliance with LHE to claim that livestock are not degrading the objects protected by the Monument Proclamation and to maintain status quo livestock grazing under the proposed action. This application, without any quantitative monitoring data to support it, is inappropriate and contrary to the BLM's own guidance.	The "Interpreting Indicators of Rangeland Health" is one of the assessment tools used in the Land Health Evaluation to determine if Rangeland Health Standards are being achieved. Supporting quantitative data included utilization, composition, frequency, dry weight rank, and similarity index. Much of this data is included in Appendix F, and the rest is available at PDO for review. The description of this process is found in **Appendix E**.
Western Watersheds Project, Greta Anderson	100136-46	It is also unclear why the BLM is seeking to continue livestock grazing on lands that aren't meeting land health standards. Livestock grazing has a cumulative detrimental impact; allowing it to continue on lands that aren't meeting standards for whatever reason will contribute to those lands	BLM's process and conclusions are shown in **Appendix E.2.5** of the RMP. The Land Health Evaluation is one step in analyzing grazing compatibility. Lands not meeting Land Health standards, by themselves, don't mean grazing is the cause, or that grazing is incompatible with protection of

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		ongoing failures. The DRMP/DEIS fails to show how livestock grazing is compatible with resource protection on areas that are degraded for any reason.	Monument objects.
Western Watersheds Project, Greta Anderson	100136-58	The statement, "The functioning desert ecosystem in the SDNM including the saguaro forests, various vegetation communities, and habitat for a wide range of wildlife species is generally unaffected by livestock grazing," (DRMPIDEIS at 1066) can only be justified if one ignores the scientific literature to the contrary, excludes relevant data sets and huge areas of profound livestock impacts, turns a blind eye to the limits of the monitoring methods, and changes the objectives to match the data to "prove" a foreordained outcome. The BLM here has employed all four tactics. The LHE and Compatibility Determination rest on this shaky and illegal foundation; the preferred alternative of the DRMP/DEIS is unsupported and unsupportable, and the BLM must act immediately to remove livestock from the SDNM.	The support for this summary statement is contained in **Section E.2.3.3.**
Western Watersheds Project, Greta Anderson	100136-68	We note that the statement, "The level of use should be adjusted primarily to fall-winter-spring with reduced use levels during the summer months .... " (DRMP/DEIS at 1075) comes out of the blue in the Compatibility Determination and is carried forward in the preferred alternative. Where the Technical Recommendations in the LHE provide a rationale for this, the data are not used to support this change. Because the allotment-level analyses did not describe a need for this change, it is unclear why this is necessary and how it might affect Monument objects.	BLM has revised **Section F.16** to clarify the procedures and rationale for reductions and seasonal adjustments. The analysis of the impacts of the preferred alternative on the Monument objects is described throughout Chapter 4.
Pacific Biodiversity Institute, Susan Snetsinger	100138-2	The conclusion of the DRMP/DEIS that livestock grazing is compatible with the protection of Monument objects is incomprehensible. This finding is completely contrary to the dominant body of scientific research on the impacts of	BLM reviewed extant applicable literature including reports by PBI, and considered them to the degree they were applicable. See **Section E.2.2**

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		livestock grazing in desert environments, as well as to PBI's own findings. Throughout the 4 reports published by PBI on the SDNM (the two others not mentioned earlier "Natural Communities of the Sonoran Desert National Monument and Sand Tank Mountains" and "Native Grass Characteristics within Xeroriparian Communities of the Sonoran Desert National Monument") we repeatedly find strong associations of livestock grazing with negative impacts on the natural communities.	BLM contracted The Nature Conservancy (who in turn contracted PBI) to collect data within the SDNM for the purposes of providing BLM data to determine ecological conditions within the Monument. BLM used PBI plots to increase the number of key areas, where appropriate. See **Section F.6.3** of Appendix F. While PBI's method for collecting the vegetation attributes was acceptable, many of the plot locations did not fit BLM's criteria for selection of key areas. Several of the plots overlapped multiple ecological sites and soil survey mapping units and some plots were located too close to livestock waters, which are not representative of the overall landscape level conditions within the Monument. For these reasons BLM was unable to use some of the analysis that was provided. In addition, the majority of the plots were located south of I-8 on the allotments that were closed to livestock grazing as required under the SDNM proclamation and within BMGR on ecological sites that do not occur north of I-8. PBI's study was of limited use because it did not address the intensity, frequency, timing, class of livestock, season of use, ecological sites, precipitation patterns and other variables the BLM needs to address the effects of current livestock grazing practices on the objects of the Monument. However, BLM did use some of PBI's plot data (where applicable) to address vegetation attributes when defining Ecological Site and Key Area DPC objectives.

6.3.8 SDNM RMP RANGE IMPROVEMENTS

Commenter	Comment Number	Comment Text	Response
Grand Canyon Chapter of The Sierra Club, Jim Vaaler	100001-1	If you are going to use "Key areas" to evaluate the effects of grazing on Sonoran Desert eco-systems, then these "Key areas" need to be fenced off from the effects of grazing. The Forest Service has numerous "grazing exclosures" that are ungrazed areas that may be used as baseline comparisons to areas that are grazed.	The Key Area concept is briefly described in Appendix F, **Section F.6.2** and a definition is provided in **Chapter 7**, Glossary. As stated, key areas are selected to "represent where livestock grazing pressure is occurring" and is used as "a long-term monitoring point" to evaluate the effects of grazing pressure. Key areas are not exclosures. Exclosures are used to compare grazed areas with ungrazed areas and provide a baseline for changes that might be detected at key areas. Area A serves as an exclosure because it has not had livestock grazing since the 1940's. Study plots within Area A allowed BLM to compare the condition and composition of some Ecological Sites that had not been grazed for approximately 70 years with the same ecological sites at key areas north of Interstate 8 where grazing has continued. (See Appendix F, Section F.5.3.)
Sierra Club, Jim Vaaler	100121-37	The BLM needs to institute a network of grazing exclosures similar to what the Forest Service has done on their lands. While the concept of Key Areas may be a good start, these Key Areas need to be upgraded into grazing exclosures. Simply calling Area A one huge grazing exclosure does not get the job done. Features such as soil type, plant community variations, percentage of rocky outcrops, exposure, and elevation, as well as past grazing history, call for an area-wide system of "grazing exclosures."	The Key Area concept is briefly described in Appendix F, **Section F.6.2** and a definition is provided in **Chapter 7**, Glossary. As stated, key areas are selected to "represent where livestock grazing pressure is occurring" and is used as "a long-term monitoring point" to evaluate the effects of grazing pressure. Key areas are not exclosures. Exclosures are used to compare grazed areas with ungrazed areas and provide a baseline for changes that might be detected at key areas. Area A serves as an exclosure because it has not had livestock grazing since the 1940's. Study plots within Area A allowed BLM to compare the condition and composition of some Ecological Sites that had not been grazed for approximately 70 years with the same ecological sites at key

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			areas north of Interstate 8 where grazing has continued. (See Appendix F, **Section F.5.3**.) Developing exclosures is not an RMP decision. BLM may select appropriate areas for exclosure as needed to facilitate monitoring without an RMP decision to do so.
Western Watersheds Project, Greta Anderson	100136-25	The DRMP/DEIS admits that livestock developments have an impact on the ecological resources of the Monument. It estimates that water developments have an impact of 6 acres (on average), with larger developments up to 125 acres of impacts. DRMP/DEIS at 502. The DRMP/DEIS does not analyze or disclose the methods it used to derive this acreage or the number of water developments that occur on the SDNM, making it impossible to evaluate the overall scope of impacts livestock infrastructure contributes.	Section E.1.4. lists the number of water developments in SDNM north of Interstate-8. The impact area around water developments were estimated by BLM range specialists. The total acreage was derived using GIS analysis.
Western Watersheds Project, Greta Anderson	100136-66	Similarly, the DRMP/DEIS fails to analyze or disclose the extent of infrastructure extant on the SDNM and the potential benefit of the "No Grazing" alternative on restoring these grossly impacted areas.	BLM has reviewed the impact analysis for removal of infrastructure and rehabilitation of areas impacted in Chapter 4, **Section 4.8.6** in regards to water development sites.
Arizona Game and Fish Department, Josh Avey	100142-17	Section - 2.7.5.2Page - 82Line - 14.1.2Commnet/Suggestion - Add provision that facilitates maintenance of livestock waters through cooperation with AGFD and/or a third party. BLM will consult with AGFD on viability of waters for removal. Bullet 3 - Add provision to remove fencing when fencing is no longer needed or other options meet need	Coordination and collaboration with other agencies is not an RMP decision, but an administrative action. BLM would coordinate with AGFD on disposition and maintenance of developed waters when they are no longer need for livestock use.

6.3.9 SDNM RMP TRAVEL MANAGEMENT – IMPLEMENTATION LEVEL COMMENTS

Commenter	Comment Number	Comment Text	Response
Colby Turner, Town of Gila Bend	100051-3 and 100051-4	Some of the apparent reasoning behind certain closings are scientifically inaccurate. The closing of washes during the summer because wildlife use these areas to escape the heat is only partially correct. During the summer, desert animals either estivate or become nocturnal. During estivation these animals sleep for long periods of time, away from naturally disturbed areas. Washes during the summer are naturally disturbed by our monsoons and spring rains. Which brings us to the nocturnal wildlife. These animals do indeed seek cooler areas (vegetation, washes, mountains) to rest during the day, but are active at night.	The issue of vehicular disturbance of resting wildlife along washes during hot weather (May through September) has not been studied sufficiently within the Sonoran Desert or the SDNM. The point about wildlife being nocturnal during summer months may be true for species that prefer it, such as javelina. However, other species are likely to remain in the wash area. Without peer-reviewed studies or other sound evidence, BLM is neither prepared nor comfortable with implementing night use hours in the Monument's washes without further analysis. BLM and the AGFD have started vehicular and wildlife disturbance wash studies in the past, but they have not been aggressively pursued. BLM would explore re-starting the study of this issue, preferably in the SDNM, and learn from the results. The findings would inform future decisions to: (1) amend the SDNM Travel Management Plan to allow night use hours or both day and night use of designated washes; (2) support maintenance of the decisions presented in this FEIS; and, (3) inform future travel management planning in the LSDA.
Colby Turner, Town of Gila Bend	100051-4	I have included the following trails by number, a brief notation to support keeping them open (1) SDNM Route 8008H and "Historic" Sand Tank Well (2) 8008I, 8009E- "Interconnectivity" "Accessibility" Game Catchment (3) 8013A ,8019A Resident Interconnectivity (4) Routes 8013, 8017, 8018, 8019 - Resident interconnectivity, Local Residents Use These To	(1) Access to view historic objects in SDNM is popular. BLM must balance the need for access with protecting remote areas from vandalism and over use where vehicle use may adversely affect Monument objects. The route being closed, 8008H, is 0.25 mile in length. It is reasonable that the historic well can be explored on foot. For these reasons, route 8008H would be closed. (2) Protection of saguaro cactus forests, a key Monument object, would be realized by eliminating vehicle traffic near

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		Access Points Of Interest (5) 8016A, 8016B - Sand Tank Wash tributaries (6) 8016C- "Interconnectivity" "Cultural Sensitivity" "Historic" Farley's Pass	the south end of 8009E. In this area, saguaro cactus may be hit by passing vehicles. The southern portion of the 8009E primitive road enters a network of interconnected washes (8008i, 8009F) where the travel path is indistinct. Route closures here would best protect the saguaro forests and wash habitat in this area. Camping is being accommodated by adjusting the open length of 8009E to the second campsite 0.25 mile south of the wildlife water. Access to the south near Johnson Well would remain available by driving a slightly longer distance, using route 8009. (3) The desire of Gila Bend residents to have interconnectivity of routes is recognized. Routes 8013A and 8019A occur in wash drainages where vegetation density is higher than the surrounding area, making it valuable for bird nesting and wildlife use/movement. Maintaining the closure of 8013A and 8019A and directing traffic to 8018C and 8008 would maintain access to this area. (4) The desire of local motorists for the interconnectivity of routes is acknowledged. Most of these routes are desert washes, an important Monument object. Vehicle use in washes with large trees can cause conflicts with providing undisturbed thermal cover for wildlife resting and nest sites for birds, both of which are required for a functioning desert ecosystem, a Monument object. The seasonal closure period has been adjusted in Alternative E to end August 31 in order to provide motorized visitor access and seasonal dove and archery hunting in these sand wash areas, while fully protecting

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			Monument objects. Furthermore, to offset concerns about successful nesting by birds in washes, thermal cover areas, and wildlife movement, route 8017 has been closed year round to provide additional high-quality wash habitat. (5) The desire for OHV travel in washes on primitive roads 8016A and 8016B for interconnectivity is understood. The indistinctness and difficult intersections with route 8016 is of concern to BLM. The absence of a good intersection with 8016 indicates that these routes were created by route proliferation. Factors BLM considered in opening and closing these two routes included: (1) the vagueness in finding the entrance to 8016A and B along the elevated 8016 primitive road; (2) the good stands of trees along these washes providing nesting habitat and wildlife forage, shade and cover; and, (3) the availability of route 8013 to provide similar opportunities and access. (6) The request for route 8016C to remain open for interconnectivity is recognized. Alternative E has been modified to open this route. Some public respondents supported opening route 8016C because it was a "technical" or challenging primitive road and important for connectivity and recreation access. Route 8016C saves seven miles of driving to reach the same location on route 8016, facilitating hunting, sightseeing and motor touring. BLM has concerns with an off-camber section of 8016C and its intersection visibility with 8016; appropriate visitor information and signing would be exercised.

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Justine White, ADOT	100112-6	ADOT has four existing material source sites (see attached map) within the LSDA, two of which are in the boundaries of the SDNM. Continued use of these sources, including their designated access routes from the interstate highway system, should remain valid.	ADOT authorizations were reviewed, and the necessary changes have been made to allow for administrative access.
Douglas Thomas	100117-15, 100117-16	Travel in washes offers a unique recreational experience with opportunities to view wildlife and xeroriparian vegetation that does not occur within the upland valley and bajada areas dissected by these washes. Driving in washes is a practice used by some hunters, and other visitors, to gain access to locations where game species are more likely to occur. Washes are a traditional travel route and have been used extensively throughout time. Motorized travel in washes should actually be encouraged in certain circumstances as evidence of travel in washes gets 'erased' after even a small flood event. The surface of wash beds is of gravely and rocky material that is resistant to erosion, so there are generally no measurable impacts to soils that occur from driving in wash beds.	BLM is working to designate a route system that protects the Monument's objects first and foremost, followed by a route system offering suitable and sustainable levels of visitor access and recreation opportunity. The use of washes as traditional routes of travel is not debated, nor their value in viewing wildlife and xeroriparian plants. Your points about washes being self-maintaining in the sense that ruts are smoothed over by flooding and reduced particulates emissions and erosion is acknowledged. BLM's primary concern remain this - large tree lined washes are the biological backbone of the Sonoran Desert. Washes are a Monument object, and are critical to several other Monument objects. These objects include wildlife and a functioning desert ecosystem with diverse plant communities. Washes in the SDNM support a much denser plant community than the surrounding desert, including mesquite, ironwood, palo verde, desert honeysuckle, chuperosa and desert willow. Such vegetation offers the dense plant cover bird species need for successful nesting, foraging, and escape, and birds heavily use desert washes during migration. In fact, most bird species in the Sonoran Desert occur in washes. Washes are equally important for other game and non-game wildlife for forage, cover, escape and movement. Relief from thermal stress by fauna requires washes with larger shade trees.

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Douglas Thomas	100117-18	What volume of travel constitutes a "disturbance" to wildlife habitat by travel though these washes during 6 summer months and what solutions (besides closure) would minimize the level of disturbance on these routes?	The consequences of driving vehicles in washes have been studied in the past with regard to effects on vegetation loss and potential harm to wildlife habitat. Sonoran Desert washes have not been sufficiently studied to determine a threshold or volume of use where impacts to wildlife and habitat is or could be detrimental. Impacts might occur from: (1) the intensity of motorized use; (2) the sights and sounds of motorized and nonmotorized recreation activities; (3) the time of day such motorized recreation use occurs; and, (4) through vegetation damage or loss. For these reasons, BLM is taking a conservative approach in using a seasonal closure in hot weather months to preclude vehicle use from disturbing wildlife and their habitat in washes south of I-8. The end date for the seasonal closure has been adjusted to end August 31 since extreme hot weather is subsiding by that date. At the same time, this allows visitors to access the areas for two early and popular hunting seasons, dove and archery.
Douglas Thomas	100117-20	The "Sand Tank Pass Route" (Route 8013) is the only route through the mountains to the southern area of the range. The Sand Tank Wash (8013), The Bender Wash (8018), and Farley Cabin Route cross-cut route (8017) all connect Monument lands and routes west of the Sand Tank Mountains with Monument lands and routes east of the Sand Tank Mountains without the necessity of round-about travel on Interstate 8.	The use of route 8013 as a cut across or short cut route must not conflict with wildlife requirements and the protection of Monument objects. The large habitat area provided by the Sand Tank Mountains ensures Monument objects would not be harmed by vehicle use in some washes in cool seasons. Ensuring animals have sufficient undisturbed habitat in summer months necessitates the seasonal route closures. It is understood by BLM that use on other or nearby upland routes may increase during times of seasonal closures. This is anticipated and would require additional monitoring and maintenance to ascertain impacts on resources and management objects.

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Douglas Thomas	100117-22, 100117-23, 100117-24	Access to the SDNM will be restricted to the Nine Mile Wash Road (Butterfield), Freeman Road and Vekol Rd where existing freeway interchanges are available. The elimination of direct access gates along both sides of Interstate 8 (in particular MM 124,127.7,133,2 & 136.4) will severely limit public access to the SDNM.	A management action has been added to the plan to address the desire for safe public access along I-8. Access at Big Horn Station would eventually be locked to provide additional protection to this historic site. However, a new access road is proposed. Other gate locations would remain open pending successful work with ADOT and FHWA.
Douglas Thomas	100177-25	The proposed access route to the SDNM from the Nine Mile Wash Road where it intersects Route 8019A just happens to be at the confluence of the Sand Tank Wash, the Bender Wash, and all of their branches. Because of the amount of runoff this confluence experiences and the flat nature of the terrain, this area become impassable for days due to ponding in the Nine Mine Road.	The designation of these routes as Primitive Roads, by definition of the asset, indicates BLM would not maintain nor manage the routes for daily or year round use. If flooding occurs and the routes are temporarily impassable, visitors would need to seek other access points.
Sierra Club, Jim Vaaler	100121-45	In an area just outside of the SDNM (along the gas pipeline road), there are a plethora of short roads that need to be posted as closed and then barricaded. It appears that some, if not all, of these roads are being used as access roads for user-created shooting galleries.	Some of these roads and along the pipeline can be repurposed for camping and day use parking. During the route inventory evaluations, identified attributes for these routes south of the gas pipeline road included good campsites. Some roads have wide turnaround areas suitable for group camping.
Sierra Club, Jim Vaaler	100021-54	The Anza-Butterfield Interpretive Trail in the SDNM should be closed to all motorized entry.	Vehicle access to the Anza/ Butterfield trail would be reduced to only the Butterfield Pass area. Potential future adverse effects on Monument objects in this area would be curtailed through limitations such as: (1) licensed drivers only; (2) licensed vehicles only; (3) designated routes only; (4) the proposed hardening and definition of the Gap Well camping areas; and (5) Butterfield/Anza specific recreation management planning.
Sierra Club, Jim Vaaler	100121-68	Short spur routes and routes located in desert washes need to be closed to vehicle use under all alternatives. Short spur routes most generally lead to user-created camp sites and/or user created shooting galleries, undesirable land use allocations. Short spur routes may	The use of designated spur roads would help visitors to comply with roadside pull-off limitations in this plan. The size or footprint of campsites by those towing camp trailers, ATVs or horses is very similar. The BLM feels that limitations being put in place on vehicle use would limit or curtail improper

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		also be used as informal staging areas for off-road vehicle activities and, over time, these areas get expanded through inappropriate off-road vehicle activity.	use. Personal contacts, signage and continuation of patrol and monitoring of visitor use and related impacts would be an important part of plan implementation.
Friends of the Sonoran Desert National Monument, Thom Hulen & Wilderness Society, Phil Hanceford	100123-7, 100123-8, & 100123-9, & 100126-14, 100126-66 & 100126-67	See pages 170, 171, 172, and 173, Chapter 6, for open route listings.	(1) Comments provided in support of maintaining open routes are noted. BLM agrees with your assessment with exception of the Anza/Butterfield Trail. BLM feels that only one section of the trail, the Butterfield Pass, can remain open to vehicle use. This use would be managed with the plan's new vehicle and driver restrictions. (2) BLM agrees with your route by route comments with exception of routes 8029, 8030, 8030A and 8037Q. Administrative use proposals for wildlife water access were not made during scoping; the AGFD specifically requested routes north of I-8 to remain available for public access. Routes 8029 and 8030 were cherry-stemmed into wilderness; Congress intended for these roads to remain open for use. The use of route 8030A is necessary to access routes 8029 and 8030, thus it remains open. 8037Q, although heavily used, allows access into the Mobile Valley. Public access in this area is virtually unavailable and unmanageable, mainly due to the assortment of private land owners and exceedingly silty soils. Consequently route 8037Q remains proposed for closure. Access to this area would be investigated using the power line road east of the SDNM. (3) Many comments were made supporting keeping open certain routes. The routes on your list appear as open in the FEIS.

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Friends of the Sonoran Desert National Monument, Thom Hulen & Wilderness Society, Phil Hanceford	100123-7, 100123-8, & 100123-9, & 100126-14, 100126-66 & 100126-67	See pages 170, 171, 172, and 173, Chapter 6, for closed route listings.	(1) Comments supporting closure of certain routes are noted. Routes along the Komatke Gas Pipeline road (8000C, D, E, F, G, L) would no longer be available for target shooting; however, certain roads may be repurposed to offer camping opportunities. 8000A was specifically cherry-stemmed into wilderness by Congress for access to a grazing improvement; it would remain open to all uses. Routes 8001A, B and D would remain open to provide hunting and general access. The preferred alternative is not allocating the Margie's Peak area to maintain wilderness characteristics; consequently effected routes in this locale would remain open. Several comments cited unnecessary roads, but it was difficult to interpret these comments. So, these comments were viewed as meaning unnecessary for Monument uses. Where closing spur roads was determined to be beneficial to managing the uses and objects of the Monument, routes have been closed. Routes 8006H and 8006I have been closed to reduce the number of access points to the SDNM. Routes 8039C and 8039D, although not in an area BLM is allocating to maintain wilderness characteristics, would be closed to reduce the number of access points and concentrate public and visitor use at more sustainable sites near Gap Well and North Tank. (2) Your route by route comments were reviewed for proposed route closures near the South Maricopa Mountains wilderness. Route 8031 is not in an area proposed by BLM to be maintained for wilderness

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			characteristics. Thus, it remains open for access to the west side of the wilderness. Your comments recommend closure of specific roads for redundancy; BLM agrees with most of these recommendations. BLM did not agree with all proposed route closure comments. Route 8033 provides access to an interesting campsite on 8033A as well as a sightseeing loop opportunity in area; hence BLM does not think the road is redundant. Route 8034A is next to route 8034I which is proposed for closure; therefore it's not redundant. Furthermore, route 8034A allows for a sightseeing loop in this area and general Monument access. Route 8037 is not a railroad crossing point. All proposed access to this area goes under the railroad tracks. Route 8037C may appear redundant, however, the route network on the ground is such that depending upon the direction of travel, east or west, this road or route 8037 enhances sustainable access, provides convenience and opportunities for driving choices, and has no impact on Monument objects. (3) Many comments were made indicating certain roads and routes south of I-8 as unnecessary or redundant. Spur roads are important to allow visitors camping access. This is an important concept considering the strict limitations for pulling off roads for parking or camping and the restriction of vehicles visitors to the immediate roadside. Vekol Valley: The following routes are proposed as Open by BLM: Routes 8007B, D, E, K, are spurs along Vekol Road where camping is allowed. Monitoring and adaptive management would ensure proper behavior and

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			restoration if needed. Route 8007F is proposed as an administrative use route going to water. It would remain closed to public use. South Sand Tank Mountains: 8008B and F are proposed as Open by BLM because they provide access off of the main road 8008 for camping, parking for hunting. Route 8009C provides opportunities for hunters and hikers to vehicle camp. 8009D affords visitors an alternate driving opportunity and a direct route for the AGFD to service or haul water to the nearby wildlife catchment. Route 8009E provides access to two campsites with vistas of a saguaro forest. North Sand Tank Mountains: Route 8011A provides access to Javelina Mountain where hunters and hikers have an opportunity for car camping. Route 8014 provides access to a well. Access to the north side of Sand Tank Mountains is also served by this route. Route 8015A is a glassing spot for hunters looking for wildlife. Route 8016 provides a distinctly different driving experience than 8011 due to its location and raised bed construction; thus BLM maintains it is not redundant. Route 8018D is located in the area of an ADOT borrow pit. Route 8009F is proposed for closure by BLM since it occurs in a wash where managing vehicle use would be problematic. Table Top Mountains area: BLM feels that for the following reasons, many roads claimed to be redundant are not, and are proposed to remain Open. Routes

Commenter	Comment Number	Comment Text	Response
			8023B and 8025A allow camping away from the power line road, route 8023. 8027A provides access to wildlife water. 8042B provides alternative access to Antelope Peak. BLM can provide legal public access completely on BLM land using route 8042B, although many people use 8043 for access. 8042C allows for camping and wilderness access away from a main road. Route 8043 has several uses such as private property access, law enforcement patrol, and functions as an alternative access to Antelope Peak. 8043A also provides law enforcement access and alternate access route from and to Vekol Valley Road.
Wilderness Society, Phil Hanceford	100126-32	As stated in the Draft RMP, the Anza, Butterfield, and Mormon Battalion NHTs are all named Monument objects. BLM's transportation planning should prioritize protection of Monument objects. Proclamation 7397 obligates BLM to develop a transportation plan "that addresses the actions, including road closures or travel restrictions, necessary to protect the objects identified in the proclamation." BLM has already demonstrated that damage to Monument objects has occurred and is likely to continue in the future within the temporary closure in place. Thus, the Draft RMP should not propose opening the routes in the area to motorized use. In addition, in order for BLM to open routes that are currently temporarily closed, the agency must make a showing that "the adverse effects are eliminated and measures implemented to prevent recurrence." 43 C.F.R. § 8341.2(a). The Draft RMP does not demonstrate BLM has eliminated the adverse effects (i.e. abuse from ORVs) that caused damage and does not propose measures to prevent the recurrence of the	BLM proposes to reopen Butterfield Pass between roads 8002 and 8004 (Gap Well). All other portions of the historic trail would be limited to non-motorized uses. This plan would enact restrictions such as requiring all vehicles to be licensed for street use and operated by licensed drivers. Such actions would reduce the effects of vehicle use by removing unlicensed vehicles and drivers. Such vehicles were associated with the irresponsible uses that necessitated, in the first place, the temporary OHV closure. Additional actions to be explained in detail in the SDNM travel management plan include: (1) the definition of Open Primitive Roads in the Gap Well area through fencing, and/or adding gravel to define the route; (2) other management actions including engineering, education, interpretation and enforcement; and, (3) development and defining of camping areas to further demarcate public use areas and curb cross-country use.

Commenter	Comment Number	Comment Text	Response
		damage.	The draft RMP does indicate that adverse effects would end or be greatly reduced upon plan implementation and subsequent development of site-specific recreation activity plans for this Butterfield/Anza area. Upon RMP approval, further activity planning would elaborate the details and specific on-the-ground management actions required to protect the historic trails and Monument objects in the temporary Butterfield/Anza OHV closure area.
Andy Laurenzi, Center for Desert Archaeology	100129-19	Based on existing information in AZSITE, we recommend specific route/road closures to public use as shown on the attached maps. Given the well documented information on motorized access and site impacts for these types of sites and the lack of any documentation on these sites in the plan, it is unclear how these Monument objects are adequately protected by continuing to designate these routes as open to public use. An additional consideration is that two of the three routes "dead end" at the southern Monument boundary which inadvertently facilitates trespass onto the Tohono O'odham Nation and Barry Goldwater Bombing Range.	Archaeological site information was reviewed as part of the route evaluation process. Site information is not disclosed in the plan. BLM Instructional Memo 2007-030 has been thoroughly followed with regard to Area of Potential Affect. Impact to sites was considered using a 1/4mile buffer along routes. Reference to subject sites can be found in the implementation level analysis for cultural objects. With regard to routes extending to the Tohono O'odham Nation boundary, BLM has not received any information from the Nation that they wish these roads to be closed. Smuggling activity is an illegal activity addressed outside of authorized public uses considered by comprehensive travel management planning.
AGFD, Josh Avey	100142-5	The preferred alternative identifies 32.7 miles of primitive roads on the southwest corner of the SDNM as seasonally closed from April 1 to September 15. Through these closures the public loses vehicular access to a substantial portion of the SDNM for 5.5 months of the year. September 1 to 15 is the early dove season and the seasonal closures eliminate a substantial portion of the SDNM from dove hunting. The closures will also impact archery hunts. The AGFD recommends revaluating the seasonal closures and leaving at least one route open year	BLM reviewed the seasonal closure per this comment. With monsoon rains occurring in July and August, sufficient water and forage should be available to sustain and disperse wildlife. The seasonal closure date for these washes has been revised to April 15-Aug 31. Wildlife objects of the Monument, if disturbed along designated routes such as Sand Tank Wash after August 31, would not be greatly affected. As an assurance of this, BLM has closed route 8017, a northern branch of Sand Tank wash

Commenter	Comment Number	Comment Text	Response
		round to provide year round public access to the southwest comer of the SDNM. We also recommend changing the end date to August 31 to accommodate the dove hunt.	to all uses. This proposal sets aside, free from vehicle-based human intrusions, a long stretch of excellent wash habitat year round, assuring thermal cover, forage and movement areas for wildlife, while protecting the Monument's wildlife and wash objects. In response to comments regarding access to the area between road 8002 and North Tank, BLM maintains protecting the Anza/Butterfield Trail area from vehicle damage is a higher priority than allowing hunter access. Road 8003 remains available by vehicle and goes to a dirt tank where game species may be found. Access to the north side of the South Maricopa Mountains wilderness has been adjusted to provide additional camping opportunities on spur routes. Routes 8037E and 8037F would remain open for vehicle use.

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CHAPTER 7

GLOSSARY

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ABIOTIC: The nonliving, material (as opposed to conceptual) components of the environment, such as air, rocks, soil, water, coal, peat, and plant litter. See BIOTIC.

ACCELERATED EROSION: Soil loss above natural levels resulting directly from human activities. Because of the slow rate of soil formation, accelerated erosion can permanently reduce plant productivity.

ACQUIRED PUBLIC LANDS: Lands in federal ownership that the government obtained as a gift or by purchase, exchange, or condemnation. See PUBLIC LANDS.

ACTIVE MANAGEMENT AREAS: Five areas in Arizona (i.e., Prescott, Phoenix, Pinal, Santa Cruz, and Tucson) where the Arizona Department of Water Resources regulates groundwater use. Groundwater regulations stem from the 1980 Arizona Groundwater Management Code, which provides the management framework to ensure dependable water supplies for Arizona well into the future. Ensuring dependable supplies, the code places conservation requirements on municipal and agricultural water use and promotes the use of renewable supplies, such as Colorado River water delivered by the Central Arizona Project.

ACTIVE MINING CLAIM: A parcel of federal land, valuable for a mineral deposit or deposits. A claim is a parcel for which one has asserted a right of possession. The right is restricted to extracting and developing a mineral deposit. The rights granted by a mining claim are valid against a challenge by the United States and other claimants only after the discovery of a valuable mineral deposit. There are two types of mining claims: lode and placer. Since October 5, 1992, only claimants who have a legal interest in ten or fewer mining claims nationwide and who also meet other requirements, may perform assessment work and file evidence of assessment. All other claimants must pay an annual fee of $125 per claim to BLM or file for a waiver from payment by August 31. Failure to file by August 31 requires BLM to declare the claim or site null and void by operation of law.

ACTIVE USE: The current authorized use, including livestock grazing and conservation use. Active use may constitute a portion of or all permitted use. Active use does not include temporary nonuse or suspended use of forage within all or a portion of an allotment.

ACTIVITY PLAN: A detailed and specific plan for managing a single resource program or plan element undertaken as needed to implement the more general resource management plan decisions. An activity plan is prepared for specific areas to reach specific resource management objectives within stated timeframes. (See STATE IMPLEMENTATION PLAN (SIP).) An activity plan usually describes multiple projects and applies best management practices to meet resource-management plan objectives. Examples of activity plans include interdisciplinary management plans, habitat management plans, recreation area management plans, and allotment management plans.

ACTUAL USE: Describes how many and what kind of livestock graze, as well as where they graze, on an allotment or on a portion or pasture of an allotment.

ADJUDICATION: Refers to a judicial process whereby water rights are determined or decreed by a court of law.

AGGREGATE (adj.): Constituting or amounting to the whole and complete Alternative resource prescriptions effects, not just the individual resource effect. The total aggregate effect of an Alternative in the RMP considers every resource prescriptions' effect on an individual resource.

AGGREGATE (n.): Any combination of sand, gravel, and crushed stone in its natural or processed state.

AIR QUALITY RATING: See CLASS I AIR QUALITY RATING and CLASS II AIR QUALITY RATING.

AIRSHED: An area that shares the same air because of topography, meteorology, and climate; the atmospheric zone potentially influenced by air pollutants from various sources.

ALLOTMENT: An area of land designated and managed for the grazing of livestock where one or more operators are authorized to graze their livestock. An allotment generally consists of federal rangelands but may include intermingled parcels of private, state, or federal lands. The BLM stipulates the number of livestock and season of use for each allotment.

ALLOTMENT MANAGEMENT PLAN (AMP): A livestock grazing management plan dealing with a specific unit of rangeland and based on multiple use resource management objectives. The AMP considers livestock grazing in relation to other uses of rangelands and in relation to renewable resources-watershed, vegetation, and wildlife. An AMP establishes the seasons of use, the number of livestock to be permitted on rangelands, and the rangeland improvements needed.

ALLUVIAL FAN: A low, outspread, relatively flat to gently sloping mass of sediment, shaped like an open fan and deposited by a stream where it flows from a narrow mountain valley onto a plain or broad valley.

ALLUVIUM: Any sediment deposited by flowing water as in a riverbed, floodplain, or delta.

ANALYSIS OF THE MANAGEMENT SITUATION (AMS): Step four in BLM's resource management planning process. An AMS describes a planning area's current public land management and suggests opportunities to better manage this land.

ANIMAL UNIT: One mature (1,000 pound) cow or the equivalent based upon an average daily forage consumption of 26 pounds of dry matter per day.

ANIMAL UNIT MONTH (AUM): The amount of forage needed to sustain one cow, five sheep, or five goats for one month.

ANNUAL PLANT: A plant that completes its life cycle and dies in one year or less. Also see PERENNIAL PLANT.

APPROPRIATE MANAGEMENT LEVEL (AML): The number of adult horses or burros (expressed as a range with an upper and lower limit) to be managed within an HMA. Forage for wild horses and burros (AUMs) is allocated based on the AML upper limit.

Excess Animals: Wild, free-roaming horses or burros which have been removed or which must be removed from in order to preserve and maintain a thriving natural ecological balance and multiple-use relationship in an area.

AQUATIC HABITATS (COMPONENTS): Habitats confined to streams, rivers, springs, lakes, ponds, reservoirs, and other water bodies.

AQUIFER: A water-bearing bed or layer of permeable rock, sand, or gravel capable of yielding large amounts of water.

AQUIFER RECHARGE: Adding water to an aquifer, a process that occurs naturally from the infiltration of rainfall and from water flowing over earth materials that allow it to infiltrate below the land surface.

ARCHAEOLOGICAL FEATURE: A non-portable object not recoverable from its matrix (usually in an archeological site) without destroying its integrity. Examples are rock paintings, hearths, post holes, floors, and walls.

AREA OF CRITICAL ENVIRONMENTAL CONCERN (ACEC): A designated area on public lands where special management attention is required (1) to protect and prevent irreparable damage to fish and wildlife; (2) to protect important historic, cultural, or scenic values, or other natural systems or processes; or (3) to protect life and safety from natural hazards.

ARIZONA STANDARDS FOR RANGELAND HEALTH AND GUIDELINES FOR GRAZING ADMINISTRATION: Standards and guidelines developed collaboratively by BLM and the Arizona Resource Advisory Council (RAC) to address the minimum requirements of the Department of the Interior's final rule for Grazing Administration, effective Aug. 21, 1995.

AUTHORIZED OFFICER: Any employee of the BLM who has been delegated the authority to perform duties related to public lands, public purposes, conveyances, hazardous substances, and solid wastes.

AZSITE DATABASE: A computer database containing cultural site information managed by the State Historic Preservation Office and maintained by Northern Arizona University and Arizona State University.

BACK COUNTRY BYWAY: A component of the national scenic byway system which focuses primarily on corridors along back country roads which have high scenic, historic, archeological, or other public interest values. The road may vary from a single track bike trail to a low speed, paved road that traverses back country areas (BLM Handbook H-8357-1, B 2).

BACK COUNTRY SETTING: Areas with undeveloped, primitive, and self-directed visitor experience without provisions for motorized or mechanized access, except for identified routes.

BAJADA: A broad continuous slope extending along and from the base of a mountain range and formed by coalescing alluvial fans.

BASE FLOW (DISCHARGE): The portion of stream discharge derived from such natural storage sources as groundwater, large lakes, and swamps but not derived from direct runoff or flow from stream regulation, water diversion, or other human activities.

BASE HERD: The constant livestock herd size that is continually licensed but may not be the same as the grazing (carrying) capacity. Also see GRAZING CAPACITY (CARRYING CAPACITY).

BASE METAL: A metal inferior in value to gold and silver; a term generally applied to the commercial metals such as copper and lead.

BASE PROPERTY: 1) Land that has the capability to produce crops or forage that can be used to support authorized livestock for a specified period of the year, or 2) water that is suitable for consumption by livestock and is available and accessible to the authorized livestock when the public lands are used for livestock grazing.

BASIN: A broad structural lowland between mountain ranges, commonly elongated and many miles across.

BENEFIT (RECREATION/SOCIETAL): A benefit is defined as an improved condition or the prevention of a worse condition. Benefits of leisure and recreation engagements can be realized by individuals (e.g., improved physical and psychological well-being), groups of individuals (strengthened bonds among family and friends), communities (economic gain from tourism), society (the cumulative effects of individual and group benefits), and the environment (a result of a stronger environmental ethic among individuals).

BENEFITS-BASED MANAGEMENT (RECREATION/SOCIETAL): Benefits-based management is an approach to park and recreation management that focuses on the positive outcomes of engaging in recreational experiences.

BIG GAME: Large species of wildlife that are hunted, such as elk, deer, bighorn sheep, and pronghorn.

BIGHORN SHEEP HABITAT: Area is open to non-vehicular traffic year around (e.g., hiking, biking, and equestrian). Restrictions vary by location and are listed in RMP. Typically, roads are closed during lambing season (January 1–June 30).

BIOLOGICAL ASSESSMENT: Information prepared by or under the direction of a federal agency to determine whether a proposed action is likely to (1) harm threatened or endangered species or designated critical habitat, (2) jeopardize the existence of species that are proposed for listing, or (3) adversely modify proposed critical habitat. Biological assessments must be prepared for major construction activities. The outcome of a biological assessment determines whether formal Section 7 consultation or a conference is needed. Also see BIOLOGICAL OPINION.

BIOLOGICAL DIVERSITY (BIODIVERSITY): The full range of variability within and among living organisms and the ecological complexes in which they occur. Biological diversity encompasses ecosystem or community diversity, species diversity, and genetic diversity.

BIOLOGICAL EVALUATION: The gathering and evaluation of information on proposed endangered and threatened species and critical and proposed critical habitat for actions that do not require a biological assessment. Also see BIOLOGICAL ASSESSMENT.

BIOLOGICAL OPINION: A document that includes the following- (1) the opinion of the US Fish and Wildlife Service or the National Marine Fisheries Service as to whether a federal action is likely to jeopardize the existence of a species listed as threatened or endangered or destroy or adversely modify designated critical habitat; (2) a summary of the information on which the opinion is based; and (3) a detailed discussion of the effects of the action on listed species or designated critical habitat.

BIOLOGICAL VEGETATION TREATMENT: Methods of vegetation treatment that employ living organisms to selectively suppress, inhibit, or control herbaceous and woody vegetation. Examples of such methods include insects; pathogens; and grazing by cattle, sheep, or goats.

BIOMASS: The total amount of living matter in a given unit of the environment.

BIOTIC: Pertaining to life or living; the living components of the environment. Also see ABIOTIC.

BIRDS OF CONSERVATION CONCERN: As listed by the US Fish and Wildlife Service, birds (other than threatened or endangered species) that are in greatest need of conservation action and without such action might become listed as threatened or endangered.

BOSQUE: A woodland dominated by trees more than 15 feet tall.

BRAIDING: A pattern of an interlacing or tangled network of several branching and reuniting stream channels separated by branch islands or channel bars.

BROOD PARASITISM: The exploitation by one bird species of the parental behavior of another species. A nest parasite lays eggs in the nest of another bird species to be cared for by a host. The parasite benefits from saving time, energy, and survival prospects, whereas the host may suffer partial or complete loss of its own current reproduction.

BROWSE: The part of leaf and twig growth of shrubs, woody vines, and trees available for animal consumption.

BUREAU (BLM) SENSITIVE SPECIES: All species that are under status review, have small or declining populations, live in unique habitats, or need special management to reduce the likelihood and need for future listing under the ESA.

CANAMEX: Canada to Mexico highway authorized through the North American Free Trade Agreement of 1994, designed to facilitate trade between Mexico, Canada, and the US.

CANCELLED/CANCELLATION: A permanent termination of a grazing permit, grazing lease, grazing preference, free-use grazing permit, or other grazing authorization in whole or in part.

CANDIDATE SPECIES: Species not protected under the Endangered Species Act, but being considered by the US Fish and Wildlife Service for inclusion on the list of federally threatened and endangered species.

CANOPY: The cover or leaves of branches formed by the tops or crowns of plants as viewed from above the cover measured by the vertical projection downward of the extent of the cover and expressed as a percentage of the ground so covered.

CARRYING CAPACITY (RECREATION): The amount of recreation use a given resource can sustain before the resource's quality begins to irreversibly deteriorate.

CARRYING CAPACITY (WILDLIFE): The most animals a specific habitat or area can support without causing deterioration or degradation of that habitat. Also see GRAZING CAPACITY (CARRYING CAPACITY).

CASUAL USE (MINING): Mining that only negligibly disturbs federal lands and resources and does not include the use of mechanized earth moving equipment or explosives or motorized equipment in areas closed to off-highway vehicles. Casual use generally includes panning, non-motorized sluicing, and collecting mineral specimens using hand tools.

CASUAL USE (RECREATION): Non-commercial or non-organized group or individual activities on public land that do the following: Comply with land use decisions and designations (i.e. special area designations), do not award cash prizes; are not publicly advertised; pose minimal risk for damage to public land or related water resources; and generally require no monitoring. If the use goes beyond those conditions, the activity should be treated as any other organized recreational group or competitive activity or event for which BLM would require the event organizer to obtain a special recreation permit (SRP).

CASUAL USE OF MINERAL MATERIALS: Extracting mineral materials for limited personal (noncommercial) uses.

CATEGORICAL EXCLUSION: A category of actions (identified in agency guidance) that do not individually or cumulatively have a significant effect on the human environment and for which neither an environmental assessment nor an EIS is required (40 CFR 1508.4).

CATTLE GUARD: A device placed in a road, usually a grate or series of metal bars placed perpendicular to the flow of traffic, which allows free passage of vehicles but which livestock will not cross.

CHANNEL: A natural or artificial watercourse with a definite bed and banks to confine and conduct continuously or periodically flowing water.

CHANNELIZATION: The process of rebuilding the natural course of a stream to make it flow into a restricted path.

CHANNEL MORPHOLOGY: Relating to the form and structure of channels.

CHARCO (DIRT CHARCO): A slight depression on the ground that holds water after a rain (from the Spanish word for "puddle"). In general, charcos are smaller than stock tanks or dirt tanks.

CHEMICAL VEGETATION TREATMENTS: The applying of chemicals to control unwanted vegetation.

CLASS I AIR QUALITY RATING: Under the Clean Air Act, the rating given areas of the country selected to receive the most stringent degree of air quality protection.

CLASS II AIR QUALITY RATING: Under the Clean Air Act, the rating given areas of the country selected for somewhat less stringent protection from air pollution damage than Class I areas, except in specified cases.

COLLUVIUM: Any loose, heterogeneous and incoherent mass of soil and/or rock fragments moved down slope by gravity-driven processes (like creep or sheet wash) and deposited at the base of the slope or hillside.

COMMUNICATION FACILITY: A building and/or tower, or other physical improvement that is built, installed, or established to house and support authorized communications uses.

COMMUNICATION SITE: An area of Public Land or National Forest System lands designated for communications use through the land and resource management planning process.

COMMUNITY: A collective term used to describe an assemblage of organisms living together; an association of living organisms having mutual relationships among themselves and with their environment and thus functioning at least to some degree as an ecological unit.

COMMUNITY INTERFACE: Community Interface represents public lands bordering or surrounded by communities and their associated urban infrastructure. This setting will also include lands projected to be influenced by the increasing urbanization of the planning area over the next 15 to 20 years. The setting can be natural in appearance, but the landscape is subject to change from intensive recreation activities and other land use authorizations.

COMMUNITY RECREATION-TOURISM MARKET: A community or communities dependent on public lands recreation and/or related tourism use, growth, and/or development. Major investments in facilities and visitor assistance are authorized within SRMAs where BLM's strategy is to target demonstrated community recreation-tourism market demand. Here, recreation management actions are geared toward meeting primary recreation-tourism market demand for specific activity, experience, and benefit opportunities. These opportunities are produced through maintenance of prescribed natural resource and/or community setting character and by structuring and implementing management, marketing, monitoring, and administrative actions accordingly.

COMPETITIVE RACES: For purposes of this plan, all competitive events that have an element of speed as a component, including, motorcycle enduros, OHV desert racing, and equestrian endurance rides.

COMPOSITION: The proportions of various plant species in relation to the total on a given area. It may be expressed in terms of cover, density, weight, etc.

CONSERVATION EASEMENT: An easement to assure the permanent preservation of land in its natural state or in whatever degree of naturalness the land has when the easement is granted.

CONTINUOUS GRAZING: Allowing livestock grazing in a particular pasture or area for the entire year, including the dormant season (see SEASONAL GRAZING).

COOPERATING AGENCY: Assists the lead federal agency in developing an EA or EIS. The CEQ regulations implementing NEPA define a cooperating agency as any agency that has jurisdiction by law or special expertise for proposals covered by NEPA (40 CFR 1501.6). Any federal, state, local government jurisdiction with such qualifications may become a cooperating agency by agreement with the lead agency.

COOPERATIVE MANAGEMENT AGREEMENT: A document that describes agreements made between BLM and the public on adjusting certain uses. This document also defines the specific adjustments and the schedule of adjustments (usually over a five-year period).

COOPERATIVE RECREATION MANAGEMENT AREA (CRMA): An area for which BLM enters into a cooperative management agreement with a local government to manage recreation land.

CORRIDOR: See DESIGNATED MULTIUSE UTILITY CORRIDOR.

COVER: (1) Plants or plant parts, living or dead, on the surface of the ground; (2) plants or objects used by wild animals for nesting, rearing of young, escape from predators, or protection from harmful environmental conditions.

COW-CALF LIVESTOCK OPERATION: A livestock operation that maintains a base breeding herd of mother cows and bulls. The cows produce a calf crop each year, and the operation keeps some heifer calves from each calf crop for breeding replacements. Between the ages of 6 and 12 months, the operation sells the rest of the calf crop along with old and non-productive cows and bulls.

CREEPING PLANT: A plant that spreads over the ground or other surface.

CRETACEOUS: In geologic history the third and final period of the Mesozoic era, from 144 million to 65 million years ago, during which extensive marine chalk beds formed.

CRITERIA AIR POLLUTANTS: Air pollutants for which acceptable levels of exposure can be determined and for which an ambient air quality standard has been set. Examples of such pollutants are ozone, carbon monoxide, nitrogen dioxide, sulfur dioxide, and PM_{10} and $PM_{2.5}$.

CRITICAL HABITAT, DESIGNATED: Specific parts of an area (1) that are occupied by a federally listed threatened or endangered plant or animal at the time it is listed and (2) that contain physical or biological features essential to the conservation of the species or that may require special management or protection. Critical habitat may also include specific areas outside an area occupied by a federally listed species if the Secretary of the Interior determines that these areas are essential for conserving the species.

CULTURAL HERITAGE VALUES: The irreplaceable qualities that are embodied in cultural resources, such as scientific information about prehistory and history, cultural significance to Native Americans and other groups, and the potential to enhance public education and enjoyment of the Nation's rich cultural heritage. Section 1 of the National Historic Preservation Act states that "the preservation of this irreplaceable heritage is in the public interest so that its vital legacy of cultural, educational, aesthetic, inspirational, economic and energy benefits will be maintained and enriched for future generations of Americans."

CULTURAL RESOURCE: A location of human activity, occupation, or use identifiable through field inventory, historical documentation, or oral evidence. Cultural resources include archaeological and historical sites, structures, buildings, objects, artifacts, works of art, architecture, and natural features that were important in past human events. They may consist of physical remains or areas where significant human events occurred, even though evidence of the events no longer remains. And they may include definite locations of traditional, cultural, or religious importance to specified social or cultural groups.

CULTURAL RESOURCE DATA: Cultural resource information embodied in material remains such as artifacts, features, organic materials, and other remnants of past activities. An important aspect of data is context, a concept that refers to the relationships among these types of materials and the situations in which they are found.

CULTURAL RESOURCE DATA RECOVERY: The professional application of scientific techniques of controlled observation, collection, excavation, and/or removal of physical remains, including analysis, interpretation, explanation, and preservation of recovered remains and associated records in an appropriate curatorial facility used as a means of protection. Data recovery may sometimes employ professional collection of such data as oral histories, genealogies, folklore, and related information to portray the social significance of the affected resources. Such data recovery is sometimes used as a measure to mitigate the adverse impacts of a ground-disturbing project or activity.

CULTURAL RESOURCE INTEGRITY: The condition of a cultural property, its capacity to yield scientific data, and its ability to convey its historical significance. Integrity may reflect the authenticity of a property's historic identity, evidenced by the survival or physical characteristics that existed during its historic or prehistoric period, or its expression of the aesthetic or historic sense of a particular period of time.

CULTURAL RESOURCE INVENTORY (SURVEY): A descriptive listing and documentation, including photographs and maps of cultural resources. Included in an inventory are the processes of locating, identifying, and recording sites, structures, buildings, objects, and districts through library and archival research, information from persons knowledgeable about cultural resources, and on-the-ground surveys of varying intensity.

Class I: A professionally prepared study that compiles, analyzes, and synthesizes all available data on an area's cultural resources. Information sources for this study include published and unpublished documents, BLM inventory records, institutional site files, and state and National Register files. Class I inventories may have prehistoric, historic, and ethnological and sociological elements. These inventories are periodically updated to include new data from other studies and Class II and III inventories.

Class II: A professionally conducted, statistically based sample survey designed to describe the probable density, diversity, and distribution of cultural properties in a large area. This survey is achieved by projecting the results of an intensive survey carried out over limited parts of the target area. Within individual sample units, survey aims, methods, and intensities are the same as those applied in Class III inventories. To improve statistical reliability, Class II inventories may be conducted in several phases with different sample designs.

Class III: A professionally conducted intensive survey of an entire target area aimed at locating and recording all visible cultural properties. In a Class III survey, trained observers commonly conduct systematic inspections by walking a series of close-interval parallel transects until they have thoroughly examined an area.

CULTURAL RESOURCE PROJECT PLAN: For cultural resource projects, a detailed design plan that defines the procedures, budget, and schedule for such activities as structure stabilization, recordation, interpretive development, and construction of facilities such as trails. These plans include estimates on workforce, equipment, and supply needs.

CULTURAL SITE: A physical location of past human activities or events, more commonly referred to as an archaeological site or a historic property. Such sites vary greatly in size and range from the location of a single cultural resource object to a cluster of cultural resource structures with associated objects and features.

CUMULATIVE IMPACTS: As stated in 40 CFR 1508.8, "...is the impact on the environment which results from the incremental impact of the action when added to other past, present, and reasonably foreseeable future actions regardless of what agency (federal or non-federal) or person undertakes such other actions. Cumulative impacts can result from individually minor but collectively significant actions taking place over a period of time."

DATA RECOVERY: See CULTURAL RESOURCE DATA RECOVERY.

DECISION RECORD: A manager's decision on a categorical exclusion review or an environmental assessment. Comparable to the record of decision for an environmental impact statement, the decision record includes- (1) a finding of no significant impact, (2) a decision to prepare an environmental impact statement, or (3) a decision not to proceed with a proposal.

DEFERMENT: A period of non-grazing during part of the growing season (see REST ROTATION).

DEFERRED ROTATION GRAZING: Moving grazing animals to various parts of a range in succeeding years or seasons to provide for seed production, plant vigor, and seedling growth.

DESERT TORTOISE HABITAT CLASSIFICATIONS: Three categories of desert tortoise habitat based on population, viability, size, density, and manageability and derived from BLM inventories of desert tortoise habitat throughout the planning areas between 1989 and 1999. The categories are as follows:

Category I. Medium to high tortoise density. Habitat area essential for maintaining large, viable populations.

Category II. Low to moderate tortoise density. Habitat is manageable.

Category III. Isolated patches of good habitat exist but are difficult to manage. Most management conflicts are not resolvable.

DESIGNATED MULTIUSE UTILITY CORRIDOR: See MULTIUSE UTILITY CORRIDOR

DESIRED FUTURE CONDITION: A detailed description of the particular resource condition to be achieved sometime in the future. These serve as resource standards which management is intended to achieve. These are analogous to resource objectives.

DESIRED OUTCOMES: A type of land use plan decision expressed as a goal or objective.

DESIRED PLANT COMMUNITY (DPC): The plant community that has been determined through a land use or management plan to best meets the plan's objectives for a site. A real, documented plant community that embodies the resource attributes needed for the present or potential use of an area, the desired plant community is consistent with the site's capability to produce the required resource attributes through natural succession, management intervention, or a combination of both.

DESTINATION RECREATION-TOURISM MARKET: National or regional recreation-tourism visitors and other constituents who value public lands as recreation-tourism destinations. Major investments in facilities and visitor assistance are authorized within SRMAs where BLM's strategy is to target demonstrated destination recreation-tourism market demand. Here, recreation management actions are geared toward meeting primary recreation-tourism market demand for specific activity, experience, and benefit opportunities. These opportunities are produced through maintenance of prescribed natural resource setting character and by structuring and implementing management, marketing, monitoring, and administrative actions accordingly.

DEVELOPED RECREATION SITES AND AREAS: Those sites and areas that contain structures or capital improvements primarily used by the public for recreation purposes. Such sites or areas may include such features as: delineated spaces for parking, camping, or boat launching; sanitary facilities; potable water; grills or fire rings; or controlled access.

DIKE: (1) An upright or steeply dipping sheet of igneous rock that has solidified in a crack or fissure in the earth's crust; (2) a human-made structure used to control stream flow.

DISPERSED RECREATION: Recreation that does not require developed sites or facilities.

DISPOSAL: See LAND DISPOSAL.

DRAINAGE AREA: Area or watershed that drains naturally to a particular point on a river, stream, or creek.

DRAINAGE BASIN: Drainage system that consists of a surface stream or body of impounded surface water together with all tributary surface streams and bodies of impounded surface water.

EASEMENT: The right to use land in a certain way granted by a landowner to a second party.

ECOLOGICAL CONDITION: See ECOLOGICAL SITE RATING (ECOLOGICAL CONDITION/ ECOLOGICAL STATUS).

ECOLOGICAL INTEGRITY: The quality of a natural unmanaged or managed ecosystem in which the natural ecological processes are sustained, with genetic, species, and ecosystem diversity assured for the future.

ECOLOGICAL NICHE: See NICHE.

ECOLOGICAL SITE: A distinctive kind of land that has specific physical characteristics and that differs from other kinds of land in its ability to produce a characteristic natural plant community.

ECOLOGICAL SITE DESCRIPTIONS: Descriptions of the following characteristics of an ecological site- soils, physical features, climatic features, associated hydrologic features, plant communities possible on the site, plant community dynamics, annual production estimates and distribution of production throughout the year, associated animal communities, associated and similar sites, and interpretations for management.

ECOLOGICAL SITE INVENTORY: The basic inventory of present and potential vegetation on BLM rangeland.

ECOLOGICAL SITE RATING (ECOLOGICAL CONDITION/ ECOLOGICAL STATUS): The present state of vegetation of an ecological site in relation to the potential natural community for the site. Independent of the site's use, the ecological site rating is an expression of the relative degree to which the kinds, proportions, and amounts of plants in a community resemble those of the potential natural community. The four ecological status classes correspond to 0-25 percent, 25-50 percent, 51-75 percent, or 76-100 percent similarity to the potential natural community and are called early-seral, mid-seral, late-seral, and potential natural community, respectively.

ECOSYSTEM: Organisms, together with their abiotic environment, forming an interacting system and inhabiting an identifiable space.

ECOTOURISM: Tourism that essentially focuses on natural rather than developed attractions with the goal of enhancing the visitor's understanding and appreciation of nature and natural features. Such tourism often attempts to be environmentally sound and to contribute economically to the local community.

ELIGIBLE RIVER SEGMENT: Qualification of a river for inclusion in the National Wild and Scenic Rivers System by determining that it is free flowing and, with its adjacent land area, has at least one river-related value considered to be outstandingly remarkable.

EMERGENT VEGETATION: Aquatic plant species that are rooted in wetlands but extend above the water's surface.

ENDANGERED SPECIES: Any animal or plant species in danger of extinction throughout all or a significant portion of its range as designated by the US Fish and Wildlife Service under the Endangered Species Act.

ENERGY FLOW: The intake, conversion, and passage of energy through organisms or through an ecosystem.

ENTRENCHMENT: The process by which a stream erodes downward (incision) creating vertical, often eroding banks and abandoning its floodplain. Entrenched streams are often referred to as gullies.

ENVIRONMENTAL ASSESSMENT (EA): As per 40 CFR 1508.9:

"(a) Means a concise public document for which a federal agency is responsible that serves to:

Briefly provide sufficient evidence and analysis for determining whether to prepare an environmental impact statement or a finding of no significant impact.

Aid an agency's compliance with the Act when no environmental impact statement is necessary.

Facilitate preparation of a statement when one is necessary.

(b) Shall include brief discussions of the need for the proposal, of alternatives as required by section 102 (2) (E), of the environmental impacts of the proposed action and Alternatives, and a listing of agencies and persons consulted."

ENVIRONMENTAL IMPACT STATEMENT (EIS): As per 40 CFR 1508.11 "means a detailed written statement as required by section 102 (2) (C) of the Act" (referring to the National Environmental Policy Act.)

ENVIRONMENTAL JUSTICE (EJ): The fair treatment and meaningful involvement of all people regardless of race, color, national origin, or income with respect to the development, implementation, and enforcement of environmental laws, regulations, and policies. Fair treatment means that no group of people, including racial, ethnic, or socio-economic group should bear a disproportionate share of the negative environmental consequences resulting from industrial, municipal, and commercial operations or the execution of federal, state, local, and Tribal programs and policies (see Executive Order 12898).

EPHEMERAL RANGELAND: Areas of the hot desert biome (region) that do not consistently produce enough forage to sustain a livestock operation but may briefly produce unusual volumes of forage that may be utilized by livestock.

EPHEMERAL STREAM: A stream or portion of a stream that (1) flows only in direct response to precipitation, (2) receives little or no water from springs or no long continued supply from snow or other sources, and (3) has a channel that is always above the water table.

EXCAVATION: The scientific examination of an archaeological site through layer-by-layer removal and study of the contents within prescribed surface units, e.g. square meters.

EXCLOSURE: An area fenced to exclude animals.

EXISTING PARKING, STAGING, AND CAMPING AREAS AND DISTURBED AREAS: Sites and areas previously used for overnight stays, parking and staging. Existing sites must have bare

mineral earth areas clear of vegetation, other indications include tent pads, camp fire rings, camper and vehicle pullouts, rock alignments and other signs of overnight and long-term use and occupation.

EXOTIC: An organism or species that is not native to the region in which it is found.

EXTENSIVE RECREATION MANAGEMENT AREA (ERMA): A public lands unit identified in land use plans containing all acreage not identified as a SRMA. Recreation management actions within an ERMA are limited to only those of a custodial nature.

EXTIRPATED SPECIES: A locally extinct species; a species that is no longer found in a locality but exists elsewhere.

EXTIRPATION: See EXTIRPATED SPECIES.

FACILITY FOOTPRINT: The area on the ground defining or delineating the extent of the facility. For a building, it could be the outside edge of the foundation. For a parking lot, staging area, or trail head, it could be a barrier fence or artificial boundary that defines the limits of the particular use.

FEDERAL LAND POLICY AND MANAGEMENT ACT (FLPMA): The act that (1) set out, for the Bureau of Land Management, standards for managing the public lands including land use planning, sales, withdrawals, acquisitions, and exchanges; (2) authorized the setting up of local advisory councils representing major citizens groups interested in land use planning and management, (3) established criteria for reviewing proposed wilderness areas, and (4) provided guidelines for other aspects of public land management such as grazing.

FEE SIMPLE TITLE: Unrestricted ownership of real property (i.e. land and whatever is erected or growing on it).

FINDING OF NO SIGNIFICANT IMPACT (FONSI): A document that is prepared by a federal agency and that briefly explains why an action not otherwise excluded from the requirement to prepare an environmental impact statement (EIS) would not significantly affect the human environment and not require an EIS.

FINE PARTICULATE MATTER ($PM_{2.5}$): Particulate matter that is less than 2.5 microns in diameter.

FIRE INTENSITY: The rate of heat release for an entire fire at a specific time.

FIRE MANAGEMENT: The integration of fire protection, prescribed burning, and fire ecology knowledge into multiple use planning, decision making, and land management.

FIRE MANAGEMENT PLAN: A plan that defines a program to manage wildland and prescribed fires and documents the fire management program in the approved land use plan.

FIRE SUPPRESSION: All the work of extinguishing or confining a fire, beginning with its discovery.

FIRE SUPPRESSION RESOURCES: People, equipment, services, and supplies available or potentially available for assignment to incidents.

FLOODPLAIN: Nearly level land on either or both sides of a channel that is subject to overflow flooding.

FORAGE: All browse and herbage that is available and acceptable to grazing animals or that may be harvested for feed.

FORB: An herbaceous plant that is not a grass, sedge, or rush.

FRAGILE SOILS: Soils having a shallow depth to bedrock, minimal surface layer of organic material, textures that are more easily detached and eroded, or are on slopes over 35 percent.

FREE USE PERMIT: A permit that allows the removal of mineral materials from public lands free of charge to any federal, state, or territorial agency, unit, or subdivision.

FRONT COUNTRY SETTING: Front Country offers the main setting and locations for intensive resource-dependent recreation uses and facilities. Motorized and mechanized vehicles must remain on existing or designated routes. The lands are generally natural in appearance and may see minor to moderate alterations over the life of the LUP due to land use authorizations and BLM management actions.

FUEL LOAD (IN FIRE SUPPRESSION): The oven-dry weight of fuel per unit area usually expressed in tons/acre.

FUEL LOADING: The amount of fuel present expressed by weight of fuel per unit area.

FUEL MOISTURE CONTENT (IN FIRE SUPPRESSION): The water content of a fuel expressed as a percentage of the fuel's oven-dry weight. For dead fuels, which have no living tissue, moisture content is determined almost entirely by relative humidity, precipitation, dry-bulb temperature, and solar radiation. The moisture content of live fuels is physiologically controlled within the living plant.

FUGITIVE DUST: Dust particles that are introduced into the air through certain actions such as soil cultivation or vehicles crossing open fields or driving on dirt roads or trails.

FUNCTIONING WATERS (WILDLIFE): A well, catchment, spring, reservoir, or other feature (human made or natural) that provides a reliable source of potable water on a year-long basis. For such a source of water to be considered functional, the quality and quantity of water must be sufficient to sustain native wildlife populations in the local area. For example, a reservoir that fills up during monsoon rains but goes dry in a few weeks is not functional from a wildlife standpoint.

FUNDAMENTALS OF RANGELAND HEALTH: As Described in 43 CFR 4180, the conditions in which (1) rangelands are in proper functioning physical condition, (2) ecological process are supporting healthy biotic populations and communities, (3) water quality is meeting state standards and BLM objectives, and (4) special status species habitat is being restored or maintained.

GAUGING STATION: Particular site on a stream, canal, lake, or reservoir where systematic observations of height or discharge are obtained.

GENETIC DIVERSITY: The variation in genes in a population pool that contributes to the ability of organisms to evolve and adapt to new conditions.

GEOGRAPHIC INFORMATION SYSTEM (GIS): An information system that integrates, stores, edits, analyzes, shares, and displays geographic information for informing decision making.

GOAL: The desired state or condition that a resource management policy or program is designed to achieve. Broader and less specific than objectives, goals are usually not measurable and may not have specific dates by which they must be reached. Objectives are developed by first understanding one's goals.

GRADIENT: Rate of regular or graded ascent or descent.

GRANT: A document authorizing the use of public or federal lands for the construction, operation, maintenance, and termination of a project.

GRAZING CAPACITY (CARRYING CAPACITY): The highest livestock stocking rate possible without damaging vegetation or related resources. Grazing capacity may vary from year to year or in the same area because of fluctuating forage production.

GRAZING CYCLE: The amount of time required for livestock to rotate completely through all the pastures under an allotment management plan.

GRAZING DISTRICT: The specific area within which the public lands are administered under section 3 of the Taylor Grazing Act of June 1934, as amended (43 USC 315). Public lands outside grazing district boundaries are administered under section 15 of the Act.

GRAZING PERMIT/LICENSE/LEASE: A written document authorizing use of the public lands within an established grazing district. Grazing permits specify all authorized use, including livestock grazing, suspended use, and conservation use. Permits also specify the total number of AUMs apportioned, the area authorized for grazing use, or both.

GRAZING PREFERENCE: A superior or priority position against others for the purpose of receiving a grazing permit or lease. This priority is attached to base property owned or controlled by the permittee or lessee.

GRAZING PRIVILEGES: The use of public land for livestock grazing under permits or leases.

GRAZING REST: Any period during which no livestock grazing is allowed within an area.

GRAZING SEASON: An established period for which grazing permits are issued.

GRAZING SYSTEM: A systematic sequence of grazing use and non-use of an allotment to meet multiple use goals by improving the quality and amount of vegetation.

GROUND COVER: See COVER.

GROUND LITTER: See LITTER.

GROUNDWATER: Subsurface water and underground streams that supply wells and springs. Use of groundwater in Arizona does not require a water right, but must only be "reasonable." Groundwater is separated from surface water by the type of alluvium in which the water is found. Water in the younger, floodplain alluvium is considered surface water. Water in the older, basin-fill alluvium is considered groundwater.

GROUNDWATER RECHARGE: Adding water to an aquifer, a process that occurs naturally from the infiltration of rainfall and from water flowing over earth materials that allow it to infiltrate below the land surface.

GULLIES: A furrow, channel or miniature valley cut by concentrated runoff, usually with steep sides through which water commonly flows during and immediately after rains or snow melt.

HABITAT: An area that provides an animal or plant with adequate food, water, shelter, and living space.

HABITAT FRAGMENTATION: Process by which habitats are increasingly subdivided into smaller units resulting in their increased insularity and losses of total habitat area.

HABITAT MANAGEMENT PLAN: A site-specific wildlife habitat plan.

HAZARDOUS MATERIALS (HAZMAT): An all-encompassing term that includes hazardous substances; hazardous waste; hazardous chemical substances; toxic substances; pollutants and contaminants; and imminently hazardous chemical substances and mixtures that can pose an unreasonable risk to human health, safety, and property.

HERBACEOUS: Of, relating to, or having the characteristics of a vascular plant that does not develop woody tissue.

HERD AREA (HA): Geographic areas of the public lands identified as habitat used by wild horses and/or wild burros at the time the Wild Free-Roaming Horses and Burros Act of 1971 was enacted.

HERD MANAGEMENT AREA PLAN (HMAP): A plan for the management of a geographic area used by wild horses or burros. It outlines details of a burro or horse capture plan, adoption program and long-term management of populations.

HERD MANAGEMENT AREA (HMA): May be established in those HAs within which wild horses and burros can be managed for the long term. HMAs are designated through the land use planning process for the maintenance of wild horse and burro herds. In delineating each HMA, the authorized officer shall consider the appropriate management level (AML) for the herd, the habitat requirements of the animals, the relationships with other uses of the public and adjacent private lands, and the constraints contained in 43 CFR 4710.4.

HERITAGE TOURISM: Programs that seek to stimulate economic development by promoting the use of historic properties. Management concerns include ensuring the long-term preservation and sustainable use of properties. Best-management practices also encourage economic partnerships between the BLM and the state, tribal and local tourism programs.

HIGH POTENTIAL HISTORIC SITE: Those historic sites related to the route of the National Historic Trail, or sites in close proximity thereto, which provide opportunity to interpret the historic significance of the trail during the period of its major use. Criteria for consideration as high potential sites include historic significance, presence of visible historic remnants, scenic quality, and relative freedom from intrusion. (From Section 12 of The National Trails System Act).

HIGH POTENTIAL ROUTE SEGMENT: Those segments of a trail which would afford high quality recreation experience in a portion of the route having greater than average scenic values or affording an opportunity to vicariously share the experience of the original users of a historic route. (From Section 12 of The National Trails System Act).

HISTORICAL SITE: A location that was used or occupied after the arrival of Europeans in North America (ca. A.D. 1492). Such sites may consist of physical remains at archaeological sites or areas where significant human events occurred, even though evidence of the events no longer remains. They may have been used by people of either European or Native American descent.

HOHOKAM: A group of North American Indians who lived between perhaps 300 BC and AD 1400 in central and southern Arizona, largely along the Gila and Salt Rivers.

HOME RANGE: The area in which an animal travels in the scope of natural activities.

HYDRIC: Characterized by, relating to, or requiring an abundance of moisture.

HYDROLOGIC CYCLE: The circuit of water movement from the atmosphere to the earth and its return to the atmosphere through various stages or processes, such as precipitation, interception, runoff, infiltration, percolation, storage, evaporation, and transpiration.

IGNEOUS ROCK: Rock, such as granite and basalt, which has solidified from a molten or partially molten state.

IMPLEMENTATION DECISIONS: Decisions that take action to implement land use plan decisions; generally appealable to IBLA under 43 CFR 4.410.

INDICATORS: Elements of the human environment affected, or potentially affected, by a change agent. An indicator can be a structural component, a functional process or an index. A key indicator integrates several system elements in such a way as to indicate the general health of that system.

INFILTRATION: The downward entry of water into the soil or other material.

INFRASTRUCTURE: The set of systems and facilities that support a region or community's social and economic structures. Examples of such systems include energy, transportation, communication, education, medical service, and fire and police protection.

INHOLDING: Parcels of land owned or managed by someone other than BLM but surrounded in part or entirely by BLM-administered land.

INTERDISCIPLINARY TEAM: A team of varied land use and resource specialists formed to provide a coordinated, integrated information base for overall land use planning and management.

INTERESTED PUBLIC: An individual, group, or organization that has submitted a written request to the authorized officer to be provided an opportunity to be involved in the decision-making process for the management of livestock grazing on specific grazing allotments or has submitted written comments to the authorized officer regarding the management of livestock grazing on a specific allotment.

INTERMITTENT STREAM: A stream which flows only at certain times of the year when it receives water from springs, rainfall or from surface sources such as melting snow.

INVASIVE SPECIES (INVADERS): Plant species that were either absent or present only in small amounts in undisturbed portions of a specific range site's original vegetation and invade following disturbance or continued overuse.

K FACTOR: A soil erodibility factor used in the universal soil loss equation that is a measure of the susceptibility of soil particles to detachment and transport by rainfall and runoff. Estimation of the factor takes several soil parameters into account, including soil texture, percent of sand greater than 0.10 millimeter, soil organic matter content, soil structure, soil permeability, clay mineralogy, and coarse fragments. K factor values range from .02 to .64, the greater values indicating the highest susceptibilities to erosion.

KEY AREA: A key area is a relatively small portion of an allotment selected because of its location, proximity to water, livestock and wildlife habitat values, and value as a long-term monitoring point.

KEY FORAGE SPECIES: Forage species whose use serves as an indicator of the degree of use of associated species.

LAND DISPOSAL: A transaction that leads to the transfer of title to public lands from the federal government.

LANDFORM: A discernible natural landscape that exists as a result of geological activity such as a plateau, plain, basin, or mountain.

LANDS MANAGED TO PROTECT WILDERNESS CHARACTERISTICS: An allocation resulting from a land use plan management decision for the purpose of protecting lands with wilderness characteristics. A wider range of actions and activities may be allowed than can occur in designated wilderness.

LAND TENURE ADJUSTMENT: The transfer of land or interest in land (e.g., easement) between the United States and private individuals, entities, state or local governments.

LAND USE ALLOCATION: The identification in a land use plan of the activities and foreseeable development that are allowed, restricted, or excluded for all or part of the planning area, based on desired future conditions.

LAND USE AUTHORIZATION (LUA): The BLM's authorization; through leases, permits, and easements; of uses of the public land. Land use authorizations may allow occupancy, recreational residences and cabin sites, farming, manufacturing, outdoor recreation concessions, National Guard maneuvers, and many other uses.

LAND USE PLAN: A set of decisions that establish management direction for land within an administrative area as prescribed under the planning provisions of FLPMA; an assimilation of land-use-plan-level decisions developed through the planning process outlined in 43 CFR 1600, regardless of the scale at which the decisions were developed. The term includes both Resource Management Plans and Management Framework Plans.

LEASABLE MINERALS: Minerals whose extraction from federally managed land requires a lease and the payment of royalties. Leasable minerals include coal, oil and gas, oil shale and tar sands, potash, phosphate, sodium, and geothermal steam.

LEASE: An authorization to possess and use public lands for a fixed period of time.

LEAVE NO TRACE: A nationwide (and international) program to help visitors with their decisions when they travel and camp on America's public lands. The program strives to educate visitors about the nature of their recreational impacts as well as techniques to prevent and minimize such impacts.

LENTIC: Standing water riparian-wetland areas such as lakes, ponds, seeps, bogs, and meadows. See also LOTIC.

LITTER: The uppermost layer of organic debris on the soil surface, essentially freshly fallen or slightly decomposed vegetal material.

LIVESTOCK/KIND OF LIVESTOCK: The species of domestic livestock, i.e., cattle, sheep, horses, burros, and goats.

LOAM: A soil texture class for soil material that contains 7 to 27 percent clay, 28 to 50 percent silt, and less than 52 percent sand.

LOCATABLE MINERALS: Minerals that may be acquired under the Mining Law of 1872, as amended.

LOCATION: The act of taking or appropriating a parcel of mineral land, including the posting of notices, the recording thereof when required, and marking the boundaries so they can be readily traced.

LOTIC: Running water riparian-wetland areas such as rivers, streams and springs. See also LENTIC

LUA AVOIDANCE AREA: Areas with sensitive resource values where minor linear and non-linear land use authorizations would be strongly discouraged and therefore "avoided."

LUA EXCLUSION AREAS: Areas with sensitive resource values where minor linear and non-linear land use authorizations would not be authorized.

MAINTENANCE (ROAD): From BLM 9100 Manual: The work required keeping a facility in such a condition that it may be continuously utilized at its original or designed capacity and efficiency, and for its intended purposes. Road or trail maintenance actions include (a) signage, (b) minor repairs, e.g. correction of drainage, erosion, or vegetation interference problems. Upon performance of condition assessment, maintenance could also be construed as (c) allowing road or trail to remain in present state for regular and continuous use.

MAJOR LINEAR LAND USE AUTHORIZATION: Land use authorizations that include transmission lines (consisting of 115kV or higher), water and gas pipelines (greater than 10 inches in diameter), roads (wider than 200 feet), as well as significant canals.

MANAGEMENT ACTIONS/PRACTICES (FROM RANGELAND STANDARDS & GUIDES): Actions or practices that improve or maintain basic soil and vegetation resources. Rangeland practices typically consist of watershed treatments (planting, seeding, burning, rest, vegetation manipulation, grazing management) in an attempt to establish desired vegetation species or communities.

MANUAL VEGETATION TREATMENTS: The use of hand-operated power tools and hand tools to cut, clear, or prune herbaceous and woody plants. In manual treatments, workers cut plants above ground level; pull, grub, or dig out plant root systems to prevent later sprouting and regrowth; scalp at ground level or remove competing plants around desired vegetation; or place mulch around desired vegetation to limit the growth of competing vegetation. Manual vegetation treatments cause less ground disturbance and generally remove less vegetation than prescribed fire or mechanical treatments.

MECHANICAL VEGETATION TREATMENTS: The use of mechanical equipment to suppress, inhibit, or control herbaceous and woody vegetation. BLM uses wheeled tractors, crawler-type tractors, mowers, or specially designed vehicles with attached implements for such treatments.

MESOZOIC ERA: One of the great eras of geologic time (248 million to 65 million years ago), following the Paleozoic era, preceding the Cenozoic era, and including the Triassic, Jurassic, and Cretaceous periods.

MINERAL ENTRY: The filing of a claim on public land to obtain the right to any minerals it may contain.

MINERALIZATION: Evidence of the presence of minerals.

MINERAL MATERIAL DISPOSAL: The disposal through sale or free use permit of sand, gravel, decorative rock, or other materials defined in 43 CFR 3600.

MINERAL MATERIALS: Materials such as common varieties of sand, stone, gravel, pumice, pumicite, and clay that are not obtainable under the mining or leasing laws but that can be acquired under the Mineral Materials Act of 1947, as amended.

MINING DISTRICT: An area, usually designated by name, with described or understood boundaries, where minerals are found and mined under rules prescribed by the miners, consistent with the Mining Law of 1872.

MINING PLAN OF OPERATIONS: A plan for mineral exploration and development that a mining operator must submit to BLM for approval for all mining, milling, and bulk sampling of more than 1,000 tons and for exploration disturbing more than 5 acres or on special status lands, including wilderness, areas of critical environmental concern, national monuments, national conservation areas, and lands containing proposed or listed threatened or endangered species or their critical habitat. A plan of operations must document in detail all actions that the operator plans to take from exploration through reclamation.

MINOR LINEAR LAND USE AUTHORIZATIONS: Land use authorizations which consist of transmission lines (consisting of 115kV or less), water and gas pipelines (less than 10 inches in diameter), roads (less than 200 feet wide), and other minor utility systems.

MONITORING: The periodic observation and orderly collection of information to determine (1) the effects of resource management actions by tracking changing resource trends, needs, and conditions; and (2) the effectiveness of actions in meeting management objectives.

MOSAIC: A pattern of vegetation in which two or more kinds of communities are interspersed in patches.

MOTORIZED TRAIL: A designated route that allows the use of motorcycles.

MULTIPLE USE: A combination of balanced and diverse resource uses that considers long-term needs for renewable and nonrenewable resources including recreation, wildlife, rangeland, timber, minerals, and watershed protection, along with scenic, scientific, and cultural values.

MULTIUSE UTILITY CORRIDOR: BLM's preferred route for placing MAJOR LINEAR LAND USE AUTHORIZATION for utilities (i.e. pipelines and power lines) and transportation (i.e. highways and railroads).

NATIONAL AMBIENT AIR QUALITY STANDARDS (NAAQS): The allowable concentrations of air pollutants in the ambient (public outdoor) air specified in 40 CFR 50. National ambient air quality standards are based on the air quality criteria and divided into primary standards (allowing an adequate margin of safety to protect the public health including the health of "sensitive" populations such as asthmatics, children, and the elderly) and secondary standards (allowing an adequate margin of safety to protect the public welfare). Welfare is defined as including effects on soils, water, crops, vegetation, human-made materials, animals, wildlife, weather, visibility, climate, and hazards to transportation, as well as effects on economic values and on personal comfort and well-being.

NATIONAL ENVIRONMENTAL POLICY ACT (NEPA): The federal law, effective January 1, 1970, that established a national policy for the environment and requires federal agencies- (1) to become aware of the environmental ramifications of their proposed actions, (2) to fully disclose to the public proposed federal actions and provide a mechanism for public input to federal decision-making, and (3) to prepare environmental impact statements for every major action that would significantly affect the quality of the human environment.

NATIONAL HISTORIC PRESERVATION ACT OF 1966, AS AMENDED (NHPA): A federal statute that established a federal program to further the efforts of private agencies and individuals in preserving the Nation's historic and cultural foundations. The National Historic Preservation Act- (1) authorized the National Register of Historic Places, (2) established the Advisory Council on Historic Preservation and a National Trust Fund to administer grants for historic preservation, and (3) authorized the development of regulations to require federal agencies to consider the effects of federally assisted activities on properties included on or eligible for the National Register of Historic Places.

NATIONAL HISTORIC TRAIL: One of the three categories of national trails defined in the National Trails System Act of 1968 that can only be established by act of Congress and are administered

by federal agencies, although part or all of the land base may be owned and managed by others. National historic trails are generally more than 100 miles long and follow as closely as possible and practicable the original trails or routes of travel of national historic significance. Their purpose is identifying and protecting the historic route and its remnants and artifacts for public use and enjoyment.

NATIONAL HISTORIC TRAIL CORRIDOR CONCEPT: Federal Trails Data Standards (FTDS) have been developed in order to describe several types of components of National Historic Trails. The codes NHT[1], NHT[2], and NHT[3] are the labels used to describe these aspects. The National Historic Trail corridor may be comprised of two or even three of these aspects.

NHT[1] is defined as the Congressionally designated NHT route and any associated NHT heritage sites.

NHT[2] is defined as the historic route and sites where history occurred.

NHT[3] is defined as the recreation aspect of the National Trail: where the trail and/or sites can be used for interpretive and recreational purposes.

NATIONAL HISTORIC TRAIL MANAGEMENT AREA: This is an allocation based on the congressionally designated NHT route (NHT[1]), BLM inventories, and GIS view shed analysis. A National Historic Trail Management Area encompasses the area identified along a portion of the National Historic Trail that meets certain criteria. The area must include a segment of National Historic Trail that qualifies as a "high potential route segment" and/ or has a "high potential historic site" within or along it (NHT[2]). The width of the National Historic Trail Management Area is defined as an area extending to the visual horizon from the NHT corridor on either side.

NATIONAL MONUMENT: An area designated to protect objects of scientific and historic interest by public proclamation of the President under the Antiquities Act of 1906, or by Congress for historic landmarks, historic and prehistoric structures, or other objects of historic or scientific interest on public lands. Designation also provides for the management of these features and values.

NATIONAL RECREATION TRAIL: One of the three categories of national trails defined in the National Trails System Act of 1968 that can only be established by act of Congress and are administered by federal agencies, although part or all of the land base may be owned and managed by others. National recreational trails are existing regional and local trails recognized by either the Secretary of Agriculture or the Secretary of the Interior upon application.

NATIONAL REGISTER DISTRICT: A group of significant archaeological, historical, or architectural sites, within a defined geographic area, that is listed on the National Register of Historic Places.

NATIONAL REGISTER ELIGIBLE PROPERTIES: Cultural resource properties that meet the National Register criteria and have been determined eligible for nomination to the National Register of Historic Places because of their local, state, or national significance. Eligible properties generally are older than 50 years and have retained their integrity. They meet one or more of four criteria- (a) associated with events that have made a significant contribution to the broad patterns of our history; (b) associated with the lives of persons significant in our past; (c) embody the distinctive characteristics of a type, period, or method of construction, or that represent the work of a master; and (d) have yielded, or may be likely to yield, information important in prehistory or history.

NATIONAL REGISTER OF HISTORIC PLACES: The official list, established by the National Historic Preservation Act, of the Nation's cultural resources worthy of preservation. The National Register lists archeological, historic, and architectural properties (i.e. districts, sites, buildings, structures, and objects) nominated for their local, state, or national significance by state and federal agencies and approved by the National Register Staff. The National Park Service maintains the National Register.

NATIONAL WILD AND SCENIC RIVERS SYSTEM: A system of nationally designated rivers and their immediate environments that have outstanding scenic, recreational, geologic, fish and wildlife, historical, cultural, and other similar values and are preserved in a free-flowing condition. The system consists of three types of streams- (1) recreation—rivers or sections of rivers that are readily accessible by road or railroad and that may have some development along their shorelines and may have undergone some impoundments or diversion in the past, (2) scenic—rivers or sections of rivers free of impoundments with shorelines or watersheds still largely undeveloped but accessible in places by roads, and (3) wild—rivers or sections of rivers free of impoundments and generally inaccessible except by trails with watersheds or shorelines essentially primitive and waters unpolluted.

NATIVE DIVERSITY: The diversity of species that have evolved in a given place without human influence.

NATIVE SPECIES: A species that is part of an area's original flora and fauna.

NEOTROPICAL MIGRATORY BIRDS: Birds that travel to Central America, South America, the Caribbean, and Mexico during the fall to spend the winter and then return to the United States and Canada during the spring to breed. These birds include almost half of the bird species that breed in the United States and Canada.

NICHE: The role of an organism in the environment, its activities and relationships to the biotic and abiotic environment.

NITROGEN OXIDES (OXIDES OF NITROGEN, NO_2): A general term for compounds of nitric oxide (NO), nitrogen dioxide (NO_2), and other oxides of nitrogen. Nitrogen oxides are typically created during combustion and are major contributors to smog formation and acid deposition. NO_2 is a criteria air pollutant and may have many adverse health effects.

NO SURFACE OCCUPANCY (NSO): A fluid minerals leasing constraint that prohibits occupancy or disturbance on all or part of the lease surface to protect special values or uses. Lessees may exploit the fluid mineral resources under the leases restricted by this constraint through use of directional drilling from sites outside the NSO area.

NON-ATTAINMENT AREA: An area in which the level of a criteria air pollutant is higher than the level allowed by the federal standards. A single area may have acceptable levels of one criteria air pollutant but unacceptable levels of one or more other criteria air pollutants. Therefore, an area can be both attainment and nonattainment at the same time.

NON-FUNCTIONAL: Riparian-wetland areas are considered to be in nonfunctioning condition when they don't provide adequate vegetation, landform, or large woody debris to dissipate stream energy associated with high flows and thus are not reducing erosion, improving water quality, or other normal

characteristics of riparian areas. The absence of certain physical attributes, such as a flood plain where one should be, is indicators of nonfunctioning conditions.

NON-LINEAR LAND USE AUTHORIZATIONS: LUAs that are not linear in fashion and do not exceed five acres of total surface disturbance. These LUAs do not produce or store more than 100MW of power.

NON-POINT SOURCE POLLUTION (WATER): Pollution sources that are diffuse and do not have a single point of origin or are not introduced into a receiving water body from a specific outlet. These pollutants are generally carried off the land by storm water runoff from such sources as farming, forestry, mining, urban land uses, construction, and land disposal.

NON-REPRODUCING WILD HORSES: An HMA composed, in whole or in part, of sterilized wild horses (either stallions or mares) to aid in controlling on the range population numbers.

NOXIOUS WEED: The Federal Noxious Weed Act, 1974 (PL 930629) defines a noxious weed as, "any living stage (including seeds and reproductive parts) of a parasitic or other plant of a kind which is of foreign origin, is new to or not widely prevalent in the US, and can directly or indirectly injure crops, other useful plants, livestock, poultry or other interests of agriculture, including irrigation, navigation, fish and wildlife resources, or the public health."

NUTRIENT CYCLE: The process of use, release and reuse of elements by plants and animals through uptake by incorporation into and decomposition of organisms. Elements involved in nutrient cycling remain in the vicinity of the earth's surface.

OBJECTIVES: The planned results to be achieved within a stated time period. Objectives are subordinate to goals, narrower in scope, and shorter in range. Objectives must specify time periods for completion, and products or achievements that are measurable. See also GOAL.

OBLIGATE: Essential, necessary, unable to exist in any other state, mode, or relationship.

OFF-HIGHWAY VEHICLE (OHV): Any motorized vehicle capable of, or designed for, travel on or immediately over land, water, or other natural terrain, excluding: (1) any non-amphibious registered motorboat; (2) any military, fire, emergency, or law enforcement vehicle while being used for emergency purposes; (3) any vehicle whose use is expressly authorized by the authorized officer, or otherwise officially approved; (4) vehicles in official use; and (5) any combat or combat support vehicle when used for national defense.

OFF ROAD: Cross country travel between designated routes.

OFF-ROAD VEHICLE (ORV): See OFF-HIGHWAY VEHICLE (OHV).

ON ROAD: Travelling on designated routes.

OUTSTANDING NATURAL AREA (ONA): ACECs that contain unusual natural characteristics and are managed primarily for educational and recreational purposes.

PALEONTOLOGICAL RESOURCES: The remains of plants and animals preserved in soils and sedimentary rock. Paleontological resources are important for understanding past environments, environmental change, and the evolution of life.

PALEOZOIC ERA: An era of geologic time (600 million to 280 million years ago) between the Late Precambrian and the Mesozoic eras and comprising the Cambrian, Ordovician, Silurian, Devonian, Mississippian, Pennsylvanian, and Permian periods.

PARTICULATE MATTER: Fine liquid or solid particles suspended in the air and consisting of dust, smoke, mist, fumes, and compounds containing sulfur, nitrogen, and metals. Also see $PM_{2.5}$ PARTICULATES and PM_{10} PARTICULATES.

PASSAGE SETTING: Passage setting provides a motorized travel corridor traversing the Back Country setting. This corridor is 200 feet wide (100 feet each side), centered on a motorized travel route designated for public use, and is available for management infrastructure in response to resource concerns and visitor demand. The lands are generally natural in appearance and may see minor to moderate alterations over the life of the LUP due to land use authorizations and BLM management actions.

PASTURE: A grazing area that is separated from other areas by fencing or natural barriers.

PATENT: The instrument by which the federal government conveys title to the public lands.

PAYMENTS IN LIEU OF TAXES (PILT): Payments made to counties by BLM to mitigate losses because public lands cannot be taxed. BLM calculates the amount of payments using a formula based on population and the amount of federal land in a particular local jurisdiction. These payments are in addition to federal revenues transferred to local governments under other programs, such as income generated from timber harvests, mineral receipts, and the use of federal land for livestock grazing.

PEDESTALLING: The removal of soil from the base of a plant, exposing the roots. Pedestalling is often a result of wind and stream bank erosion.

PERENNIAL PLANT: A plant that has a life cycle of three or more years. Also see ANNUAL PLANT.

PERENNIAL STREAM: A stream that flows from source to mouth throughout the year; a stream that normally has water in its channel at all times.

PERMEABILITY, SOIL: The ease with which gases, liquids, or plant roots penetrate or pass through a bulk mass of soil or a layer of soil.

PERMIT: A short-term revocable authorization to use public lands for specified purposes.

PERMITTED USE: The forage allocated by, or under the guidance of, an applicable resource-management plan for livestock grazing in an allotment under a permit or lease and is expressed in animal unit months (AUMs).

PERMITTEE: A person or company permitted to graze livestock or conduct commercial recreation on public land.

PERSONAL INCOME: The sum of wage and salary payments, other labor income, proprietors' income, rental income of persons, personal dividend and interest income, and transfer payments to persons, less personal contributions for social insurance.

PETROGLYPH: Pictures, symbols, or other art work pecked, carved, or incised on natural rock surfaces.

PILT: See PAYMENTS IN LIEU OF TAXES (PILT).

PITHOUSE: A type of house built partly underground by prehistoric people.

PLACER CLAIM: A mining claim located on surface or bedded deposits, particularly for gold, located in stream gravels.

PLANNING CRITERIA: The standards, rules, and other factors developed by managers and interdisciplinary teams for their use in forming judgments about decision making, analysis and data collection during planning. Planning criteria streamline and simplify the resource management planning actions.

PLAN OF OPERATIONS: See MINING PLAN OF OPERATIONS.

PLANT SUCCESSION: The process of vegetation development by which an area becomes successively occupied by different plant communities of higher ecological order.

PLANT VIGOR: The relative wellbeing and health of a plant as reflected by its ability to manufacture enough food for growth and maintenance.

PM_{10} PARTICULATES: A criteria air pollutant consisting of small particles with an aerodynamic diameter of 10 microns or less. Their size allows them to enter the air sacs deep within the lungs where they may be deposited in have adverse health effects. These particles include dust, soot, and other tiny bits of solid materials in the air.

$PM_{2.5}$ PARTICULATES: Tiny particles with an aerodynamic diameter of 2.5 microns or less. These particles penetrate most deeply into the lungs.

POPULATION: A group of interbreeding organisms of the same kind occupying a particular space; a group of individuals of a species living in a certain area.

POTENTIAL NATURAL COMMUNITY (PNC): The stable biotic community that would become established on an ecological site if all succession stages were completed without human interference under present environmental conditions. The PNC is the vegetation community best adapted to fully use the resources of an ecological site.

PRESCRIBED FIRE (BURNING): The planned applying of fire to rangeland vegetation and fuels under specified conditions of fuels, weather, and other variables to allow the fire to remain in a

predetermined area to achieve such site-specific objectives as controlling certain plant species; enhancing growth, reproduction, or vigor of plant species; managing fuel loads; and managing vegetation community types.

PRIME FARMLAND: As defined by the Farmland Protection Policy Act of 1981, land that has the best combination of physical and chemical characteristics for producing food, feed, fiber, forage, oilseed, and other agricultural crops with minimum inputs of fuel, fertilizer, pesticides, and labor, and without intolerable soil erosion, as determined by the Secretary of Agriculture. Prime farmland includes land with the above characteristics, but is being used to produce livestock and timber. It does not include land already in or committed to urban development or water storage.

PRIMITIVE RECREATION: Recreation that provides opportunities for isolation from the evidence of humans, a vastness of scale, feeling a part of the natural environment, having a high degree of challenge and risk, and using outdoor skills. Primitive recreation is characterized by meeting nature on its own terms, without comfort or convenience of facilities.

PRIMITIVE ROAD: A linear route managed for use by four-wheel drive or high-clearance vehicles. Primitive roads do not normally meet any BLM road design standards.

PRIMITIVE ROUTE: Any transportation linear feature located within areas that have been identified as having wilderness characteristics and not meeting the wilderness inventory road definition.

PRIORITY HABITAT: Includes fish and wildlife habitats requiring protective measures and/or management guidelines to ensure habitat availability.

PRIORITY WILDLIFE SPECIES: Includes fish and wildlife species requiring protective measures and/or management guidelines to ensure their perpetuation. Moreover, priority wildlife species includes State Endangered, Threatened, Sensitive, and Candidate species; animal aggregations considered vulnerable; and those species of recreational, commercial, or tribal importance that are vulnerable.

PROPAGULES: A structure (as a cutting, a seed, or a spore) that propagates a plant.

PROPERLY FUNCTIONING CONDITION: Riparian-wetland areas are functioning properly when enough vegetation, landform, or large woody debris is present to dissipate stream energy associated with high water flows, thereby reducing erosion and improving water quality; filter sediment, capture bed-load, and aid floodplain development; improve floodwater retention and groundwater recharge; develop root masses that stabilize stream banks against cutting action; develop diverse ponding and channel characteristics to provide the habitat and the water depth, duration, and temperature necessary for fish production, waterfowl breeding, and other uses; and support greater biodiversity. The functioning condition of riparian-wetland areas is influenced by geomorphic features, soil, water, and vegetation.

Uplands function properly when the existing vegetation and ground cover maintain soil conditions capable of sustaining natural biotic communities. The functioning condition of uplands is influenced by geographic features, soil, water, and vegetation.

PUBLIC DOMAIN: Lands that are part of the original public domain and have never left federal ownership and lands in federal ownership that were acquired in exchange for public domain lands or for timber on public domain lands.

PUBLIC LAND ORDER: An order effecting, modifying, or canceling a withdrawal or reservation. Such an order is issued by the Secretary of the Interior pursuant to powers of the President delegated to the Secretary by Executive Order No. 9146 of April 24, 1943.

PUBLIC LANDS: Land or interest in land owned by the United States and administered by the Secretary of the Interior through the BLM without regard to how the United States acquired ownership, except lands located on the Outer Continental Shelf, and land held for the benefit of Indians, Aleuts, and Eskimos.

RANGE IMPROVEMENT: An authorized physical modification or treatment which is designed to improve production of forage; change vegetation composition; control patterns of use; provide water; stabilize soil and water conditions; restore, protect and improve the condition of rangeland ecosystems to benefit livestock, wild horses and burros, and fish and wildlife. Range improvements may be structural or nonstructural. A structural improvement requires placement or construction to facilitate the management or control the distribution and movement of animals. Such improvements may include fences, wells, troughs, reservoirs, pipelines, and cattle guards. Nonstructural improvements consist of practices or treatments that improve resource conditions. Such improvements include seedings; chemical, mechanical, and biological plant control; prescribed burning; water spreaders; pitting; chiseling; and contour furrowing.

RANGELAND: A kind of land on which the native vegetation, climax, or natural potential consists predominately of grasses, grass like plants, forbs, or shrubs. Rangeland includes lands revegetated naturally or artificially to provide a plant cover that is managed like native vegetation. Rangelands may consist of natural grasslands, savannas, shrub lands, moist deserts, tundra, alpine communities, coastal marshes, and wet meadows.

RANGELAND STUDIES: Any study methods accepted by the authorized officer for collecting data on actual use, utilization, climatic conditions, other special events, and trends to determine whether management objectives are being met.

RAPTORS: Birds of prey.

REACH (CHANNEL): A relatively homogeneous section of a stream having a repetitious sequence of physical characteristics and habitat types.

RECLAIMING OR RECLAIMED (ROUTE): See ROAD & ROUTE TYPES.

RECORD OF DECISION: A document signed by a responsible official recording a decision that was preceded by the preparing of an environmental impact statement.

RECREATIONAL TARGET SHOOTING: The discharge of any firearm for any lawful, recreational purpose other than the lawful taking of a game animal. Recreational target shooting does not include firearms use employed in accordance with state hunting regulations and policy regarding recreational

target shooting does not apply to hunters in pursuit of game with firearms that are being employed in accordance with such regulations.

RECREATION AND PUBLIC PURPOSES ACT of 1926 (44 Stat. 741, as amended; 43 U.S.C. 869 et seq.): An act of Congress that allows lease or acquisition of public land to be used for recreation or public purposes by local government entities (county or city governments) and nonprofit organizations.

RECREATION EXPERIENCES: Psychological outcomes realized either by recreation-tourism participants as a direct result of their onsite leisure engagements and recreation-tourism activity participation or by non-participating community residents as a result of their interaction with visitors and guests within their community and/or interaction with the BLM and other public and private recreation-tourism providers and their actions.

RECREATION MANAGEMENT ZONES (RMZs): Subunits within a SRMA or ERMA managed for distinctly different recreation products. Recreation products are comprised of recreation opportunities, the natural resource and community settings within which they occur, and the administrative and service environment created by all affecting recreation-tourism providers, within which recreation participation occurs.

RECREATION NICHE: The place or position within the strategically targeted recreation-tourism market for each SRMA that is most suitable (i.e., capable of producing certain specific kinds of recreation opportunities) and appropriate (i.e., most responsive to identified visitor or resident customers), given available supply and current demand, for the production of specific recreation opportunities and the sustainable maintenance of accompanying natural resource and/or community setting character.

RECREATION OPPORTUNITIES: Favorable circumstances enabling visitors' engagement in a leisure activity to realize immediate psychological experiences and attain more lasting, value-added beneficial outcomes.

RECREATION OPPORTUNITY SPECTRUM (ROS): One of the existing tools for classifying recreation environments (existing and desired) along a continuum ranging from primitive, low-use, and inconspicuous administration to urban, high-use, and a highly visible administrative presence. This continuum recognizes variation among various components of any landscape's physical, social and administrative attributes; and resulting descriptions (of existing conditions) and prescriptions (of desired future conditions) define recreation setting character. Descriptions of settings follow:

<u>Primitive:</u>

- Remoteness: An area designated by a line generally 3 miles from all open roads, railroads, and motorized trails.
- Evidence of Humans: Setting is essentially an unmodified natural environment. Evidence of humans would be unnoticed by an observer wandering through the area.
- Evidence of trails is acceptable but should not exceed standard to carry expected use.

- Structures are extremely rare.
- Social: Usually less than six parties per day encountered on trails and less than three parties visible at campsites.
- Managerial: Onsite regimentation is low with controls primarily offsite.

Semi-primitive Non-motorized:

- Remoteness: An area designated by a line generally ½ mile from any road, railroad, or trail open to public motorized use. (The guideline for applying the ½ mile criterion is to use ½ mile except where topographic or physical features closer than ½ miles adequately screen out the sights and sounds of humans and make access more difficult and slower. For example, if a ridge is ¼ mile from the road, use the ridge instead of the ½ mile.)
- Any roads, railroads, or trails within the semi-primitive non-motorized areas will have the following characteristics:
- Closed to public motorized use, and
- Are reclaimed, or in the process of reclaiming (when reclaiming will harmonize with the natural appearing environment). Some examples are old logging roads, old railroad beds, old access routes to abandoned campsites, temporary roads, and gated roads that are used for occasional administrative access.
- Evidence of Humans: Natural setting may have subtle modifications that would be noticed but not draw the attention of an observer wandering through the area.
- Little or no evidence of primitive roads and the motorized use of trails and primitive roads.
- Structures are rare and isolated.
- Social: Usually 6-15 parties per day encountered on trails and six or fewer parties visible from campsite.
- Managerial: Onsite regimentation and controls present but subtle.

Semi-Primitive Motorized:

- Remoteness: An area designed by a line generally ½ mile from open better than primitive roads. (The guideline for applying the ½ mile criterion is to consistently use ½ mile where topographic or physical features closer than ½ mile adequately screen out the sights and sounds of humans, e.g. a ridge ¼ mile from the road).
- Contains open primitive roads that are not maintained for the use of standard passenger-type vehicles, normally OHVs and high-clearance vehicles, e.g. an old pickup with high clearance. These open roads are generally tracks, ruts, or rocky-rough surface and upgraded and not drained. The roadbeds and cuts are mostly vegetated with grass or native material

unless they are too rocky for vegetation. The roads harmonize with the natural environment. Examples include old logging roads from before specified road years, old revegetated railroad beds, old access roads to abandoned home-sites, temporary logging roads that are revegetated, and low standard administrative roads (normally used for access to wildlife openings).

- Evidence of Humans: Natural setting may have moderately dominant alterations but would not draw the attention of motorized observers on trails and primitive roads within the area. Any closed improved roads must be managed to revegetate and harmonize with the natural environment.
- Strong evidence of primitive roads and the motorized use of trails and primitive roads.
- Structures are rare and isolated.
- Social: Low to moderate contact frequency.
- Managerial: Onsite regimentation and controls present but subtle.

Roaded Natural:

- Remoteness: No criteria.
- Evidence of Humans: Natural setting may have modifications, which range from being easily noticed to strongly dominant to observers within the area. But from sensitive travel routes and use areas these alterations would remain unnoticed or visually subordinate.
- There is strong evidence of designed roads, highways, or both.
- Structures are generally scattered, remaining visually subordinate or unnoticed to the sensitive travel route observer. Structures may include utility corridors or microwave installations.
- Social: Frequency of contact is- Moderate to High on roads; Low to Moderate on trails and away from roads.
- Managerial: Onsite regimentation and controls are noticeable but harmonize with the natural environment.

Rural:

- Remoteness: No criteria.
- Evidence of Humans: Natural setting is culturally modified to the point that it is dominant to the sensitive travel route observer. This setting may include pastoral, agricultural, intensively managed wild landscapes, or utility corridors. Pedestrian or other slow-moving observers are constantly within view of culturally changed landscape.

- There is strong evidence of designed roads, highways, or both.
- Structures are readily apparent and may range from scattered to small dominant clusters, including utility corridors, farm buildings, microwave installations, and recreation sites.
- Social: Frequency of contact is: Moderate to High developed sites, on roads and trails, and water surfaces; Moderate away from developed sites.
- Managerial: Regimentation and controls obvious and numerous, largely in harmony with the human-made environment.

Urban:

- Remoteness: No criteria.
- Evidence of Humans: Setting is strongly structure dominated. Natural or natural appearing elements may play an important role but be visually subordinate. Pedestrian and other slow moving observers are constantly within view of artificial enclosure of spaces.
- There is strong evidence of designed roads and/or highways and streets.
- Structures and structure complexes are dominant.
- Social: Large numbers of users onsite and in nearby areas.
- Managerial: Regimentation and controls obvious and numerous.

RECREATION-TOURISM MARKET: Recreation-tourism visitors, affected community residents, affecting local governments and private sector businesses, or other constituents and the communities or other places where these customers originate (local, regional, national, or international). Based on analysis of supply and demand, land use plans strategically identify primary recreation-tourism markets for each SRMA: destination, community, or undeveloped.

RECRUITMENT: The increase in population caused by natural reproduction or immigration.

REFUGIUM: An area that has remained unaffected by adverse environmental changes to the surrounding area, allowing a population to survive where others have perished.

RENEWABLE ENERGY: Energy which comes from natural resources such as sunlight, wind, rain, tides, and geothermal heat, which are renewable (naturally replenished).

RESEARCH DESIGN: A statement of proposed identification, documentation, evaluation, investigation, or other research that identifies the project's goals, methods and techniques, expected results, and the relationship of the expected results to other proposed activities or treatments.

RESILIENT SITES: Sites with bare mineral earth clear of vegetation, that do not have crust that can be broken through or other characteristics that will cause permanent or long-term changes to the site due to activities.

RESOURCE ADVISORY COUNCIL (RAC): A citizen-based group of 10 to 15 members chartered under the Federal Advisory Committee Act and appointed by the secretary of the interior to forward advice on public land planning and management issues to the BLM. Council membership reflects a balance of various interests concerned with the management of the public lands and users of the public lands.

RESOURCE CONSERVATION AREA (RCA): A citizen-based group of 10 to 15 members chartered under the Federal Advisory Committee Act and appointed by the secretary of the interior to forward advice on public land planning and management issues to the BLM. Council membership reflects a balance of various interests concerned with the management of the public lands and users of the public lands.

RESOURCE MANAGEMENT PLAN (RMP): The Federal Land Policy and Management Act (43 CFR 1601.0-5 (k)) details the form and contents of an RMP. It generally establishes that the document will provide guidance on:

- Land areas for limited, restricted or exclusive use; designation, including ACEC designation; and transfer from Bureau of Land Management Administration;
- Allowable resource uses (either singly or in combination) and related levels of production or use to be maintained;
- Resource condition goals and objectives to be attained;
- Program constraints and general management practices needed to achieve the above items;
- Need for an area to be covered by more detailed and specific plans;
- Support action, including such measures as resource protection, access development, realty action, cadastral survey, etc., as necessary to achieve the above;
- General implementation sequences, where carrying out a planned action is dependent upon prior accomplishment of another planned action; and
- Intervals and standards for monitoring and evaluating the plan to determine the effectiveness of the plan and the need for amendment or revision.
- It is not a final implementation decision on actions which require further specific plans, process steps, or decisions under specific provisions of law and regulations.

REST: See GRAZING REST.

RESTORATION (CULTURAL RESOURCE): The process of accurately reestablishing the form and details of a property or portion of a property together with its setting, as it appeared in a particular period of time. Restoration may involve removing later work that is not in itself significant and replacing missing original work. Also see STABILIZATION (CULTURAL RESOURCE).

REST-ROTATION GRAZING: A grazing system in which one part of the range is ungrazed for an entire grazing year or longer while other parts are grazed for a portion or all of a growing season. Distinguished from deferment, in which non-use occurs only during part of the grazing season (see DEFERMENT).

RIGHT-OF-WAY: A permit or easement that authorizes the use of lands for certain specified purposes, commonly for pipelines, roads, telephone lines, or power lines.

RILL: A narrow, very shallow (a few centimeters deep), intermittent water course having steep sides and formed as a result of erosion.

RILL EROSION: Removal of soil by running water forming shallow channels that can be smoothed out by normal cultivation.

RIPARIAN: Pertaining to or situated on or along the bank of streams, lakes, and reservoirs.

RIPARIAN AREA: A form of wetland transition between permanently saturated wetlands and upland areas. Riparian areas exhibit vegetation or physical characteristics that reflect the influence of permanent surface or subsurface water. Typical riparian areas include lands along, adjacent to, or contiguous with perennially and intermittently flowing rivers and streams, glacial potholes, and the shores of lakes and reservoirs with stable water levels. Excluded are ephemeral streams or washes that lack vegetation and depend on free water in the soil.

ROAD (Travel Management definition): A linear route declared a road by the owner, managed for used by low-clearance vehicles having four or more wheels, and maintained for regular and continuous use.

ROAD (Wilderness Inventory definition): A route that has been improved and maintained by mechanical means to insure relatively regular and continuous use. Refer to BLM IM 2011-154, Attachment 1 for additional description of this definition.

ROADSIDE: A general term denoting the area adjoining the outer edge of the road.

ROCK CRAWLING: The use of specialized motor vehicles for crossing difficult terrain. Also known as extreme technical trail driving.

ROTATIONAL GRAZING: A grazing system that involves scheduled movement of grazing animals from one pasture to another. Utilizing rotational grazing can improve livestock distribution while incorporating rest period for new forage.

ROUTE: represents a group or set of roads, trails, and primitive roads that represents the BLM transportation system. Generically, components of the transportation system are described as "routes".

RUNOFF: Precipitation, snow melt or irrigation water that appears in uncontrolled surface streams or rivers.

SAFE YIELD: The rate at which water can be withdrawn from a groundwater basin (aquifer) without depleting the supply so as to cause undesirable effects.

SALEABLE MINERALS: Common variety minerals on public lands, such as sand and gravel, which are used mainly for construction and are disposed of by sales or special permits to local governments.

SCIENTIFIC DATA RECOVERY: See CULTURAL RESOURCE DATA RECOVERY.

SCOPING: An early and open process for determining the scope of issues to be addressed in an environmental impact statement and the significant issues related to a proposed action.

SEASONAL GRAZING: A grazing system that allows livestock grazing on a particular area for only part of the year.

SEASON OF USE: The time period when livestock grazing is permitted on a given range area as specified in the grazing permit.

SECTION: 640 acres, 1 mile square.

SECTION 2920 PERMIT: Revocable authorizations, for up to three years to permit land uses that involve either little or no land improvement or construction, or investment which can be amortized within the terms of the permit. A permit conveys no possessory interest. The authorized officer may renew it at his/her discretion or revoke it in accordance with its terms or the provisions of 43 CFR 2920.9-3. There are no limitations on the amount of land that maybe included in a permit; however, the area should be limited to the size justified.

SECTION 404 PERMIT: A permit required by the Clean Water Act, under specified circumstances, when dredge or fill material is placed in the waters of the United States, including wetlands.

SECTION 7 CONSULTATION: The requirement of Section 7 of the Endangered Species Act that all federal agencies consult with the US Fish and Wildlife Service or the National Marine Fisheries Service if a proposed action might affect a federally listed species or its critical habitat.

SEDIMENT: Solid material that originates mostly from disintegrated rocks and is transported by, suspended in, or deposited from water. Sediment includes chemical and biochemical precipitates and decomposed organic material such as humus.

SEDIMENTARY ROCKS: Rocks, such as sandstone, limestone, and shale, that are formed from sediments or transported fragments deposited in water.

SEDIMENTATION: The process or action of depositing sediment.

SEDIMENT LOAD (SEDIMENT DISCHARGE): The amount of sediment, measured in dry weight or by volume, which is transported through a stream cross-section in a given time. Sediment load consists of sediment suspended in water and sediment that moves by sliding, rolling, or bounding on or near the streambed.

SEDIMENT TRANSPORT: The movement of mineral and organic solid materials in a stream.

SEDIMENT YIELD: The amount of sediment removed from a watershed over a specified period, usually expressed as tons, acre-feet, or cubic yards of sediment per unit of drainage area per year.

SEEPS: Wet areas, normally not flowing, arising from an underground water source.

SEGREGATION: The removal for a limited period, subject to valid existing rights, of a specified area of the public lands from the operation of the public land laws, including the mining laws, pursuant to the exercise by the Secretary of the Interior of regulatory authority to allow for the orderly administration of the public lands.

SELF-SUSTAINING: The ability of reproducing herds of wild horses and burros to maintain themselves in a healthy condition and to produce healthy foals.

SENSITIVE SHEEP HABITAT: Habitat identified by BLM and AZGFD that provides one or more essential biological elements including: lambing areas, migration routes, mineral licks, water source, and foraging areas.

SENSITIVE SOILS: Soil types prone to erosion, such as from surface disturbing activities and vehicle use, and have a low soil loss tolerance rate. A tolerable soil loss is the maximum annual amount of soil, which can be removed before the long term natural soil productivity is adversely affected based on the Universal Soil Loss Equation (USLE) (Ontario Ministry of Agriculture, Food and Rural Affairs web site, http://www.omafra.gov.on.ca/english/engineer/facts/00-001.htm last visited 2/21/2012).

SHARED USE TRAIL: A trail shared for a variety of uses such as motorized and non-motorized uses; a combination of non-motorized uses such as hiking, horseback riding, and bicycling; or a combination of motorized uses such as dirt bikes and small and large four-wheel-drive vehicles.

SHOULDER: The portion of the roadway contiguous to the travel way for accommodation of stopped vehicles.

SIKES ACT OF 1974: A federal law that promoted federal-state cooperation in managing wildlife habitats on both BLM and Forest Service lands. The act requires BLM to work with state wildlife agencies to plan the development and maintenance of wildlife habitats and has as its main tool the habitat management plan.

SINUOSITY: The ratio of stream length between two points divided by the valley length between the same two points.

SMALL TRACT LANDS: Parcels of public lands of 5 acres or less that have been found to be chiefly valuable for sale or lease as home, cabin, camp, recreational, convalescent, or business sites under the Act of June 1, 1938.

SOCIAL TRAIL: An unplanned random trail made by first visitors and then followed by others.

SOIL ERODIBILITY: The predisposition of a particular soil to be transported by wind or water if it is disturbed and exposed to the elements.

SOIL INFILTRATION: The ability of soil to absorb moisture that falls on it as precipitation.

SOIL MOISTURE STORAGE: The water content stored in a soil.

SOIL PRODUCTIVITY: The capacity of a soil in its normal environment to produce a specified plant or sequence of plants under a specified system of management.

SOIL STABILITY: A qualitative term used to describe a soil's resistance to change. Soil stability is determined by intrinsic properties such as aspect, depth, elevation, organic matter content, parent material, slope, structure, texture, and vegetation.

SOIL STRUCTURE: The physical constitution of soil material as expressed by size, shape, and the degree of development of primary soil particles and voids into naturally or artificially formed structural units.

SPECIAL CULTURAL RESOURCE MANAGEMENT AREA (SCRMA): An area containing cultural resources that are of special importance for public use, scientific use, traditional use or other uses as defined in BLM Manual 8110.4.

SPECIAL RECREATION MANAGEMENT AREAS (SRMAs): A public lands unit identified in land use plans to direct recreation funding and personnel to fulfill commitments made to provide specific, structured recreation opportunities (i.e., activity, experience, and benefit opportunities). Both land use plan decisions and subsequent implementing actions for recreation in each SRMA are geared to a strategically identified primary market: destination, community, or are undeveloped.

SPECIAL RECREATION PERMIT (SRP): An authorization that allows for specific nonexclusive permitted recreational uses of the public lands and related waters. SRPs are issued to control visitor use, protect recreational and natural resources, provide for the health and safety of visitors, and accommodate commercial recreational uses.

SRP TYPES AND DEFINITIONS:

Commercial Use: The activity, service, or use is commercial if:

- Any person, group, or organization makes or attempts to make a profit, receive money, amortize equipment, or obtain goods or services, as compensation from participants in recreational activities occurring on public lands led, sponsored, or organized by that person, group, or organization;
- Anyone collects a fee or receives other compensation that is not strictly a sharing of actual expenses, or exceeds actual expenses, incurred for the purposes of the activity, service, or use;
- There is paid public advertising to seek participants; or
- Participants pay for a duty of care or an expectation of safety.

Competitive Use: Any organized, sanctioned, or structured use, event, or activity on public land in which two or more contestants compete and either or both of the following elements apply:

- Participants register, enter, or complete an application for the event;

- A predetermined course or area is designated;
- Or, one or more individuals contesting an established record such as for speed or endurance.

Organized Group Activity and Event Use: A structured, ordered, consolidated, or scheduled event on, or occupation of, public lands for the purpose of recreational use that is not commercial or competitive.

Vending: The sale of goods or services, not from a permanent structure, associated with recreation on the public lands or related waters, such as food, beverages, clothing, firewood, souvenirs, filming or photographs (video or still), or equipment repairs.

SPECIAL STATUS SPECIES: Plant or animal species listed as threatened, endangered, candidate, or sensitive by federal or state governments. By policy, the BLM has certain responsibilities for all special status species. BLM sensitive species are not covered by any other "safety net" of status designation; therefore, the Arizona BLM Sensitive Species List does not include species that are already federally listed or state listed.

SPLIT-ESTATE: Land whose surface rights and mineral rights are owned by different entities.

STABILIZATION (CULTURAL RESOURCE): Protective techniques usually applied to structures and ruins to keep them in their existing condition, prevent further deterioration, and provide structural safety without significant rebuilding. Capping mud-mortared masonry walls with concrete mortar is an example of a stabilization technique. Also see RESTORATION (CULTURAL RESOURCE).

STABILIZATION (SOIL): Chemical or mechanical treatment to increase or maintain the stability of a mass of soil or otherwise improve its engineering properties.

STAGING AREA: An area where participants in an activity gather and make final preparations for the activity.

STANDARDS AND GUIDELINES FOR RANGELAND HEALTH: See ARIZONA STANDARDS FOR RANGELAND HEALTH AND GUIDELINES FOR GRAZING ADMINISTRATION.

STANDARD TERMS AND CONDITIONS: Areas may be open to leasing or available for permitted uses with no specific management decisions defined in a Resource Management Plan; however, these areas are subject to lease or permit terms and conditions as defined on the lease form (Form 3100-11, Offer to Lease and Lease for Oil and Gas; and Form 3200-24, Offer to Lease and Lease for Geothermal Resources) or land use authorization permit.

STATE HISTORIC PRESERVATION OFFICER (SHPO): The official within and authorized by each state at the request of the Secretary of the Interior to act as liaison for the National Historic Preservation Act. Also see NATIONAL HISTORIC PRESERVATION ACT OF 1966, AS AMENDED (NHPA).

STATE IMPLEMENTATION PLAN (SIP): Strategic document, prepared by a state (or other authorized air quality regulatory agency) and approved by the EPA, that thoroughly describes how

requirements of the Clean Air Act will be implemented (including standards to be achieved, control measures to be applied, enforcement actions in case of violation, etc.).

STATE TRUST LANDS: Lands granted to Arizona by the federal government at territorial establishment and at statehood. Totaling 9.4 million acres, these lands are managed by the Arizona State Land Department to yield revenue over the long term for the 14 trust beneficiaries. The chief beneficiary consists of the public schools. Whenever Arizona sells or leases these lands and their natural resources, it must pay the beneficiaries. Revenues from land sales are maintained in a permanent fund managed by the State Treasurer, and interest from this fund is paid to the beneficiaries.

STIPULATION: A condition of lease or permit issuance that provides a level of protection for other resource values or land uses by restricting surface disturbing activities during certain times or locations or to avoid unacceptable impacts, to an extent greater than standard lease terms or regulations. A stipulation is an enforceable term of the lease contract or land use authorization, supersedes any inconsistent provisions of the standard lease form, and is attached to and made a part of the lease or permit. Stipulations further implement BLM's regulatory authority to protect resources or resource values. Stipulations are developed through the land use planning process.

STOCKING RATE: The number of specific kinds and classes of animals grazing or using a unit of land for a specific time period. Stocking rates may be expressed as a ratio, such as of animal units/section, acres/animal unit, or acres/animal unit month.

STOCK TANK (POND): A water impoundment created by building a dam, digging a depression, or both, to provide water for livestock or wildlife.

STREAMBANK: The portion of a stream channel that restricts the sideward movement of water at normal water levels. The stream bank's gradient often exceeds 45° and exhibits a distinct break in slope from the stream bottom.

STREAMBANK STABILITY: A stream bank's relative resistance to erosion, which is measured as a percentage of alteration to stream banks.

STRUCTURAL DIVERSITY: The diversity of the composition, abundance, spacing, and other attributes of plants in a community.

SUBSTRATE: (1) Mineral and organic material forming the bottom of a waterway or water body; (2) The base or substance upon which an organism is growing.

SUBSURFACE: Of or pertaining to rock or mineral deposits which generally are found below the ground surface.

SUCCESSION: See PLANT SUCCESSION.

SUPPLEMENTAL WILDERNESS VALUES: Resources not required for an area to be designated a wilderness but that are considered in assessing an area's wilderness potential. Such values include ecological, geologic, and other features of scientific, educational, scenic, or historical value.

SURFACE-DISTURBING ACTIVITY: Surface-disturbing activities are those that normally result in more than negligible disturbance to public lands and accelerate the natural erosive process. Surface disturbance may, but does not always, require reclamation. These activities normally involve use or occupancy of the surface, cause disturbance to soils and vegetation, and are usually caused by motorized or mechanical actions. They include, but are not limited to: the use of mechanized earth-moving equipment; truck-mounted drilling and seismic exploration equipment; off-road vehicle travel in areas designated as limited or closed to off-road vehicle use; vegetation treatments; construction of facilities such as power lines, pipelines, oil and gas wells; recreation sites, improvements for range and wildlife; new road construction; and use of pyrotechnics and explosives. Surface disturbance is not normally caused by casual-use activities. Activities that are not considered surface-disturbing include, but are not limited to: livestock grazing, cross-country hiking, minimum impact filming, and vehicular travel on designated routes.

SUSPENSION: The temporary withholding from active use through a decision issued by the authorized officer or by agreement of part or all of the permitted use in a grazing permit or lease.

SUSTAINED YIELD: Achieving and maintaining a permanently high level, annual or regular period production of renewable land resources without impairing the productivity of the land and its environmental values.

TAILINGS: The waste matter from ore after the extraction of economically recoverable metals and minerals.

TAKE: As defined by the Endangered Species Act, "to harass, harm, pursue, hunt, shoot, wound, kill, capture, or collect, or attempt to engage in any such conduct."

TARGET SPECIES: Plant species to be reduced or eliminated by a vegetation treatment.

TEMPORARY NONUSE: The authorized withholding, on an annual basis, of all or a portion of permitted livestock use in response to a request of the permittee or lessee.

TERMS AND CONDITIONS: Stipulations contained in livestock grazing permits and leases as determined by the authorized officer to be appropriate to achieve management and resource condition objectives for the public lands and other lands administered by BLM and to achieve standards for rangeland health and ensure conformance with guidelines for grazing administration. See also STANDARD TERMS AND CONDITIONS.

TERTIARY PERIOD: The earlier (65 million to 1.8 million years ago) of the two geologic periods in the Cenozoic era of geologic time.

THREATENED SPECIES: Any plant or animal species likely to become endangered within the foreseeable future throughout all or a part of its range and designated by the U.S. Fish and Wildlife Service under the Endangered Species Act. Also see ENDANGERED SPECIES.

THRIVING NATURAL ECOLOGICAL BALANCE (TNEB): Wild horses and burros are managed in a manner that assures significant progress is made toward achieving the Land Health Standards for upland vegetation and riparian plant communities, watershed function, and habitat quality

for animal populations, as well as other site-specific or landscape-level objectives, including those necessary to protect and manage Threatened, Endangered, and Sensitive Species.

TINAJA: A small pool in a rocky hollow, usually along an ephemeral water course where it runs through exposed bedrock that holds water into the dry season.

TRAIL: (Interagency definition) Linear route managed for human powered, stock, or off highway vehicle forms of recreation or for historic or heritage values. Trails are not generally managed for use by four wheel drive or high clearance vehicles.

Sonoran Desert National Monument Trail Definition: Linear route managed for foot, horseback, and pack stock. Motorized and mechanized forms of travel are prohibited, except for wheeled game carriers and handcarts.

Designated Wilderness Area Trail Definition: Linear route managed for travel by foot, horseback and, pack stock. Mechanized forms of travel (e.g. mountain bikes, wheeled game carriers, handcarts, and hang gliders) are prohibited in wilderness areas. Motorized travel is prohibited.

TRAILHEAD: The terminus of a hiking, horse, or bicycle trail accessible by motor vehicle and sometimes having parking, signs, a visitor register, and camping and sanitary facilities.

TRANSFER PAYMENT: A government grant to an individual of money that represents a gift without anything being received or required in return. Examples of transfer payments include student scholarship grants, welfare checks, and social security benefits.

TRANSITIONAL PATHWAYS: The processes that cause a shift from one vegetation state to another.

TRANSPORTATION SYSTEM: Represents the sum of BLM's recognized inventory of linear features (roads, primitive roads, and trails) formally recognized, designated, and approved.

TRAVEL MANAGEMENT AREAS: The TMAs are polygons or delineated areas where travel management (either motorized or non-motorized) needs particular focus. These areas may be designated as open, closed, or limited to motorized use and will typically have an identified or designated network of roads, trails, ways, and other routes that provide for public access and travel across the planning area. All designated travel routes within TMAs should have a clearly identified need and purpose as well as clearly defined activity types, modes of travel, and seasons or times for allowable access or other limitations.

TREAD LIGHTLY! ™: A not-for-profit organization whose mission is to increase awareness of ways to enjoy the great outdoors while minimizing human impacts.

TREND: The direction of change, over time, either toward or away from desired management objectives.

TURBIDITY: Cloudiness of water measured by how deeply light can penetrate it from the surface. Highly turbid water is often called "muddy" although all kinds of suspended particles/sediment contribute to turbidity.

UNAUTHORIZED USE: Any use of the public lands not authorized or permitted.

UNDERSTORY: Plants growing under the canopy of other plants. Understory usually refers to grasses, forbs, and low shrubs under a tree or brush canopy.

UNDEVELOPED RECREATION-TOURISM MARKET: National, regional, and/or local recreation-tourism visitors, communities, or other constituents who value public lands for the distinctive kinds of dispersed recreation produced by the vast size and largely open, undeveloped character of their recreation settings. Major investments in facilities are excluded within SRMAs where BLM's strategy is to target demonstrated undeveloped recreation-tourism market demand. Here, recreation management actions are geared toward meeting primary recreation-tourism market demand to sustain distinctive recreation setting characteristics; however, major investments in visitor services are authorized both to sustain those distinctive setting characteristics and to maintain visitor freedom to choose where to go and what to do—all in response to demonstrated demand for undeveloped recreation.

UPLANDS: Lands at higher elevations than the alluvial plain or low stream terrace; all lands outside the riparian-wetland and aquatic zones.

URBAN INTERFACE (WILDLAND-URBAN INTERFACE): The line, area, or zone where structures and other human development meet or intermingle with undeveloped wildland or vegetation. This interface creates conflicts and complicates fighting wildfires and conducting prescribed burns, as well as all other natural resource management activities.

USABLE FORAGE: That portion of the forage that can be grazed without damage to the basic resources; may vary with season of use, species, and associated species.

UTILITY CORRIDOR: BLM's preferred route for placing land use authorizations for major linear utilities (i.e. pipelines and power lines). See also DESIGNATED MULTIUSE UTILITY CORRIDOR.

UTILITY-SCALE RENEWABLE ENERGY DEVELOPMENT: Utility-scale renewable energy facilities (managed as a land use authorization), where the proponent has signed a purchase power agreement with a utility company to sell power. These facilities typically produce more than 100MW of power.

UTILIZATION (FORAGE): The proportion of the current year's forage consumed or destroyed by grazing animals. Utilization is usually expressed as a percentage.

VALID EXISTING RIGHTS: Locatable mineral development rights or land use authorizations that existed when the Federal Land Policy and Management Act (FLPMA) was enacted on October 21, 1976. Some areas are segregated from entry and location under the Mining Law to protect certain values or allow certain uses. Mining claims that existed as of the effective date of the segregation may still be valid if they can meet the test of discovery of a valuable mineral required under the Mining Law. Determining

the validity of mining claims located on segregated lands requires BLM to conduct a valid existing rights determination.

VANDALISM (CULTURAL RESOURCE): Malicious damage or the unauthorized collecting, excavating, or defacing of cultural resources. Section 6 of the Archaeological Resources Protection Act states that "no person may excavate, remove, damage, or otherwise alter or deface any archaeological resource located on public lands or Indian lands…unless such activity is pursuant to a permit issued under section 4 of this Act."

VEGETATION STRUCTURE: The composition of an area's vegetation--plant species, growth forms, abundance, vegetation types, and spatial arrangement.

VEGETATION TREATMENTS: Treatments that improve vegetation condition or production. Such treatments may include seedings; prescribed burning; or chemical, mechanical, and biological plant control.

VEGETATION TYPE: A plant community with distinguishable characteristics.

VIABILITY: The capability of living, developing, growing, or germinating under favorable conditions.

VIEWSHED: The entire area visible from a viewpoint.

VISITOR DAY: 12 visitor hours, which may be aggregated continuously, intermittently, or simultaneously by one or more people.

VISUAL ASPECT: The visual first impression of vegetation at a particular time or seen from a specific point.

VISUAL RESOURCE MANAGEMENT (VRM): The planning, design, and implementing of management objectives to provide acceptable levels of visual impacts for all BLM resource management activities.

VISUAL RESOURCE MANAGEMENT (VRM) CLASSES: Categories assigned to public lands based on scenic quality, sensitivity level, and distance zones. There are four classes. Each class has an objective which prescribes the amount of change allowed in the characteristic landscape.

Class I: (Preservation) provides for natural, ecological changes only. This class includes wilderness areas, some natural areas, some wild and scenic rivers, and other similar sites where landscape modification should be restricted.

Class II: (Retention of the landscape character) includes areas where changes in any of the basic elements (form, line, color, or texture) caused by management activities should not be evident in the characteristic landscape.

Class III: (Partial retention of the landscape character) includes areas where changes in the basic elements caused by management activities may be evident in the characteristic landscape. But the changes should remain subordinate to the existing landscape character.

Class IV: (Modification of the landscape character) includes areas where changes may subordinate the original composition and character. But the changes should reflect what could be a natural occurrence in the characteristic landscape.

VOLATILE ORGANIC MATERIALS: Carbon-containing compounds that with few exceptions evaporate into the air. Often having odors, they contribute to the forming of smog and may be toxic. Some examples are gasoline, alcohol, and solvents used in paints.

WATER DEVELOPMENTS: Construction of artificial, or modification of natural water sources to provide reliable, accessible water for livestock, wildlife, or people.

WATER QUALITY: Term used to describe the chemical, physical, and biological characteristics of water in respect to its suitability for a particular purpose.

WATER RIGHT: The right to use a specific quantity of water occurring in a water supply, on a specific time schedule, at a specific place and putting it to a specific beneficial use.

WATERSHED (CATCHMENT): A topographically delineated area that is drained by a stream system, that is, the total land area above some point on a stream or river that drains water past that point. The watershed is a hydrologic unit often used as a physical-biological unit and a socioeconomic-political unit for planning and managing natural resources.

WATERSHED CONDITION (WATERSHED HEALTH): The comparison of watershed processes to normal or expected measurements of properties such as soil cover, erosion rate, runoff rate, and groundwater table elevation; an assessment or categorization of an area by erosion conditions, erosion hazards, and the soil moisture/temperature regime.

WATERSHED FUNCTION: The combination of processes attributed to watersheds as part of the hydrologic cycle, including interception of rain by plants, rocks, and litter; surface storage by the soil; groundwater storage; stream channel storage; soil evaporation; plant transpiration; and runoff. These processes affect the following properties of the watershed: runoff rate, water infiltration rate, soil building rate, soil erosion rate, groundwater recharge rate, groundwater discharge rate, water table elevation, and surface water discharge. These properties in turn affect plant communities through soil attributes, including soil parent material, soil moisture, and nutrients; stream and rivers through flooding duration and magnitude, as well as sediment load, which structures the dimension, pattern, and profile of channels; and lakes and reservoirs through sedimentation and nutrient input.

WEED: Any plant that interferes with management objectives. A weed may be native or non-native, invasive or passive, or non-noxious.

WETLANDS: An area that is inundated or saturated by surface or ground water often and long enough to support and that under normal circumstances supports a prevalence of vegetation typically adapted for life in saturated soil. Wetlands include marshes, shallows, swamps, lake shores, bogs, muskegs, wet meadows, estuaries, cienegas, and riparian areas.

WIDTH/DEPTH RATIO: Bank-to-bank, full-stream width divided by average depth.

WILD AND SCENIC RIVER CORRIDOR: See NATIONAL WILD AND SCENIC RIVERS SYSTEM.

WILDCAT ROAD: A non-permitted road on federally managed land.

WILDERNESS CHARACTERISTICS: Attributes defined in Section 2(c) of the Wilderness Act, including the area's size, its apparent naturalness, and its outstanding opportunities for solitude or a primitive and unconfined type of recreation. Wilderness characteristics may also include supplemental values such as ecological, geological, or other features of scientific, educational, scenic, or historical value that may be present but are not required.

Naturalness: The degree to which an area generally appears to have been affected primarily by the forces of nature with the imprint of people's work substantially unnoticeable.

Solitude: The state of being alone or remote from others; isolation. A lonely or secluded place.

Primitive and Unconfined Recreation: Non-motorized, non-mechanized (except as provided by law), and undeveloped types of recreation activities.

WILDFIRE: The unplanned ignition of a wildland fire (such as a fire caused by lightning, volcanoes, unauthorized and accidental human-caused fires) and escaped prescribed fires..

WILD FREE-ROAMING HORSES AND BURROS: Wild horses and burros are managed in a manner that assures significant progress is made toward achieving the Land Health Standards for upland vegetation and riparian plant communities, watershed function, and habitat quality for animal populations, as well as other site-specific or landscape-level objectives, including those necessary to protect and manage Threatened, Endangered, and Sensitive Species.

WILDLAND FIRE: A general term describing any non-structure fire, other than prescribed fire, that occurs in the wildland. Wildland fires are categorized into two distinct types:

Wildfires- unplanned ignitions or prescribed fires that are declared wildfires.

Prescribed Fires- Planned ignitions.

WILDLAND-URBAN INTERFACE (WUI): Areas where human structures and natural fuels interface or intermix with each other. This interface occurs mainly within 66 to 200 feet of houses, where fire most directly threatens houses and where a defensible zone can be developed.

WILDLIFE: A broad term that includes birds, reptiles, amphibians, and non-domesticated mammals.

WILDLIFE HABITAT AREAS (WHAs): An area that offers feeding, roosting, breeding, nesting, and refuge areas for a variety of wildlife species native to an area. Referred to as Wildlife Management Areas in prior plans.

WITHDRAWAL: Withholding an area of federal land from settlement, sale, location, or entry under some or all of the general land laws, for the purpose of limiting activities under those laws in order to maintain other public values in the area or reserving the area for a particular public purpose or program;

or transferring jurisdiction over an area of federal land, other than property governed by the Federal Property and Administrative Services Act, from one department, bureau, or agency to another department, bureau, or agency. See also SEGREGATION.

XERORIPARIAN: An area in a drainage that supports plant species more characteristic of uplands than wetlands, but that is more densely vegetated than areas removed from the drainage. Any flows in these channels are characteristically ephemeral but water may also be subsurface and the drainage may not flow.

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CHAPTER 8

REFERENCES

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Andereck, K. L., C. A. Voight, K. Larkin, and K. Freye. 2001. Differences between motorized and nonmotorized trail users. *Journal of Park and Recreation Administration* 19(3): 17-32.

Arcadis Geraghty & Miller, Inc. and SWCA, Inc. 1997. Cactus Survey Report on Portions of the Barry M. Goldwater Range. Report Prepared for Luke Air Force Base, 56 FW/RMO. Arizona.

Archer, Steven R., and Katherine I. Predick. 2008. "Climate change and ecosystems of the Southwestern United States." Rangelands (Society for Range Management), June: 23-28.

Arita, H. T. Spatial segregation in long-nosed bats, *Leptonycteris nivalis* and *Leponycteris curasoa*e, in Mexico. Journal of Mammology. 79: 706-714.

Arizona Bat Resource Group. 2003. Arizona Bat Conservation Strategic Plan, Technical Report 213. K.E. Hinman and T.K. Snow, editors (August 2003).

Arizona Climate Change Advisory Group. 2005. Final Arizona Greenhouse Gas Inventory and Reference Case Projections 1990-2020. Internet Website: http://azmemory.lib.az.us/cgi-bin/showfile.exe?CISOROOT=/statepubs&CISOPTR=2347&filename=2419.pdf.

Arizona Department of Administration. 2012. Population Projections. Internet Website: http://www.azstats.gov/population-projections.aspx. Accessed January 19, 2012.

Arizona Department of Commerce. 2003. Public Outreach, Local Plan Integration and Strategy Findings. Prepared for the Arizona Department of Commerce and the Commerce and Economic Development Commission by Elliott D. Pollack and Company Scottsdale, Arizona and Pat Schroeder, Practical Solutions Mesa, Arizona. Internet Website: http://www.azcommerce.com/doclib/PROP/SES%20Public%20Outreach%20exec%20summary.pdf Accessed on June, 2010.

Arizona Department of Environmental Quality (ADEQ). 2012. Long-term Summary of Visibility Index Values. Internet Website: http://www.phoenixvis.net/vis-index.html#a. Accessed on February 1, 2012.

_____. 2008. 2006/2008 Status of Ambient Surface Water Quality in Arizona – Arizona's Integrated 305(b) Assessment and 303(d) Listing Report. November.

_____. 2006a. Air Quality Plans: NAA and AA with Maintenance Plans. Internet Website: http://www.azdeq.gov/environ/air/plan/nonmeet.html. Accessed on March 31, 2006.

_____. 2006b. Arizona Climate Change Advisory Group Climate Change Action Plan. Internet Website: http://www.azclimatechange.gov/download/O40F9347.pdf Accessed in June 2010.

_____. 2005. 2005 Air Quality Annual Report. Internet Website: http://www.azdeq.gov/function/forms/download/2005/aqd.pdf. Accessed on March 31, 2006.

_____. 2004. 2004 Air Quality Annual Report. Internet Website: http://www.azdeq.gov/function/forms/download/2004/air.pdf. Accessed on March 31, 2006.

_____. 2003. 2003 Air Quality Annual Report. Internet Website: http://www.azdeq.gov/function/forms/download/2003/aq.pdf. Accessed on March 31, 2006.

_____. 2002. 2002 Air Quality Annual Report. Internet Website: http://www.azdeq.gov/function/forms/reports.html#2002. Accessed on March 31, 2006.

_____. 2001. 2001 Air Quality Report. Internet Website: http://www.azdeq.gov/function/forms/reports.html#2001. Accessed on March 31, 2006.

_____. 2000. Annual Report 2000: Appendix I Air Quality Report. Prepared by the Air Quality Division.

_____. 1999. 1999 Air Quality Report: Appendix I to the 1999 Annual Report. Prepared by the Air Quality Division.

_____. 1998. Air Quality Report: Appendix I to the 1998 Annual Report. Prepared by the Air Quality Division.

_____. 1996. AP 42, Fifth Edition, Volume I Chapter 13: Miscellaneous Sources, Section 13.1:Wildfires and Prescribed Burning. Internet Website: www.azdeq.gov/function/forms/archives.html Accessed on May 11, 2006.

Arizona Department of Mines and Mineral Resources. 2007. Arizona Mining Update 2007. Circular 129. June 2008. Nyal Niemuth, Chief Mining Engineer.

_____. 2003. Arizona Mining Preliminary Review for 2002. Nyal Niemuth, Mining Engineer. Internet Website: http://www.mines.az.gov/Info/annual_production.html. Accessed in June 2010.

Arizona Department of Water Resources (ADWR). 1999a. Phoenix Active Management Area 3rd Management Plan. Arizona Department of Water Resources on-line report. Internet Website: http://www.azwater.gov/AzDWR/Watermanagement/AMAs/ ThirdManagementPlan3.htm#Phoenix. Accessed on December 1, 2003.

_____. 1999b. Pinal Active Management Area 3rd Management Plan. Arizona Department of Water Resources on-line report. Internet Website: http://www.azwater.gov/AzDWR/Watermanagement/AMAs/Third ManagementPlan3.htm#Pinal. Accessed in June 2010.

Arizona Game and Fish Department (AGFD). 2011. Arizona State Wildlife Action Plan. Draft Arizona Game and Fish Department Publication. Phoenix, Arizona.

_____. 2005. Wildlife Water Development Standards. Revised April 2005.

_____. 2003a. Arizona Heritage Data Management System. Internet Website: http://www.azgfd.gov/w_c/edits/hdms_species_lists.shtml. Accessed in June 2010.

_____. 2003b. The Economic Importance of Fishing and Hunting: Economic data on fishing and hunting for the State of Arizona and for each Arizona County. Prepared by Jonathan Silberman, PhD, Arizona State University West, School of Management. Internet Website: http://www.gf.state.az.us/pdfs/w_c/FISHING_HUNTING%20Report.pdf.

_____. 2003c. Hunt Arizona Survey: Harvest, and Hunt Data for Big and Small Game. Phoenix Office, Phoenix, Arizona.

_____. 2002a. Arizona Shooting Ranges, a Strategic Plan for the Development of Arizona Shooting Ranges.

_____. 2002b. Arizona Shooting Ranges, a Strategic Plan for the development of Arizona Shooting Ranges. Draft for Public Review and Comment. September. Internet Website: http://www.basfaz.com/Strategic_Plan.htm. Accessed in June 2010.

_____. 2001a. Wildlife 2006. The Arizona Game and Fish Departments Wildlife Management Program Strategic Plan for the years 2001-2006. Approved by the AGFD Commission January 19, 2001. 91 pp. Internet Website: www.azgfd.com.

_____. 2001b. Wildlife 2006, Wildlife Management Program Strategic Plan for the Years 2001-2006.

_____. 1997. Echinomastus erectocentrus var. acuñensis. Unpublished Abstract Compiled and Edited by the Heritage Data Management System, Arizona Game and Fish Department, Phoenix, Arizona.

Arizona Game and Fish Department and Arizona State Parks. 2003. The Economic Importance of Off-Highway Vehicle Recreation. Economic data on off-highway vehicle recreation for the State of Arizona and for Each Arizona County Study Prepared by Jonathan Silberman, PhD, Arizona State University West, School of Management. Internet Website: http://www.gf.state.az.us/pdfs/w_c/OHV%20Report.pdf.

Arizona Humanities Council. 2000. Cultural Heritage Tourism, Practical Applications. Internet Website: http://www.azhumanities.org/pdf/chtwrkbk.pdf. September.

Arizona Interagency Desert Tortoise Team and Arizona Game and Fish Department. 1996. Management Plan for the Sonoran Desert Population of the Desert Tortoise in Arizona.

Arizona Interagency Desert Tortoise Team. 2000. R.C. Averill-Murray, ed. Status of the Sonoran Population of the Desert Tortoise in Arizona: an Update. Arizona Interagency Desert Tortoise Team and Arizona Game and Fish Department, Phoenix. 48pp.

Arizona Office of Employment and Population Statistics 2012. Labor Force and Unemployment Information 2000-2011. Internet Website: http://azstats.gov/laus-series-query-tool/. Accessed on January 20, 2012.

Arizona Office of the State Mine Inspector 2010. Ninety-Ninth Annual Report for the calendar year 2010. Joe Hart State Mine Inspector.

Arizona Office of Tourism 2011. 2010 Arizona Domestic Overnight Visitor Profile Non-Residents vs. Residents. Internet Website: http://www.azot.gov/system/files/457/original/2010%20AZ%20Domesitic%20Non-Res%20vs.%20Res.pdf?1316211013. Accessed in January 2012.

Arizona Public Service (APS). 2006. APS Completes First Solar Trough Power Plant in Arizona; and the First Built in the US in 17 Years. April 20. Phoenix, Arizona. Internet Website: http://www.aps.com/main/news/releases/release_315.html.

_____. 2003. Arizona Public Service Company 2003-2012 Ten-Year Plan.

_____. 2000. Buckeye Conceptual Planning Final Report. Prepared by BRW. Phoenix, Arizona. June.

Arizona Rock Products Association (ARPA). 2006. Impact of the Rock Products Industry on the Arizona Economy. Prepared by W.P. Carey School of Business, Arizona State University

Arizona State Drought Monitoring Technical Committee, Arizona Water Department. 2009. Monthly Drought Status by Watershed. Phoenix, Arizona, November 2, 2009.

Arizona State Land Department. 2003. Conceptual Plan for Gila Bend.

_____. 1998. Eighty-seventh Annual Report for the Calendar Year 1998. Douglas K. Martin. http://www.asmi.state.az.us/98Annrpt.pdf.

Arizona State Parks. 2009. Arizona Trails 2010: A Statewide Motorized & Non-Motorized Trails Plan. Phoenix, Arizona.

_____. 2004. Arizona Trails 2005: Statewide Motorized and Nonmotorized Trails Plan. Phoenix Office, Phoenix, Arizona.

_____. 2003. Statewide Comprehensive Outdoor Recreation Plan (SCORP). October 2002. Phoenix Office, Phoenix, Arizona.

_____. 1999. Arizona Trails 2000: State Motorized and Nonmotorized Trails Plan. Phoenix Office, Phoenix, Arizona.

AZSITE Consortium. 2003. AZSITE Cultural Resource Inventory. Arizona State Museum, Arizona State University, Museum of Northern Arizona, State Historic Preservation Office. Internet Website: http://azsite.asu.edu. Data acquired on October 26, 2003.

Belnap, J., J. H. Kaltnecker, R. Rosentreter, J. Williams, S. Leonard, and D. Eldridge. 2001. Biological Soil Crusts: Ecology and Management. US Department of the Interior (USDI), Bureau of Land Management (BLM) Technical Reference 1730-2, 119.

Bent, A. C. 1940. Life histories of North American Cuckoos, Goatsuckers, Hummingbirds, and their allies. US Natural Museum Bulletin. p. 176.

Bolen, W. P. 2001. Sand and Gravel, Construction. US Geological Survey Minerals Yearbook 2001.

_____. 2002. Sand and Gravel, Construction. US Geological Survey Minerals Yearbook 2002.

_____. 2003. Sand and Gravel, Construction. US Geological Survey Minerals Yearbook 2003.

_____. 2004. Sand and Gravel, Construction. US Geological Survey Minerals Yearbook 2004.

_____. 2005. Sand and Gravel, Construction. US Geological Survey Minerals Yearbook 2005.

Brown, B. T. 1988. Breeding ecology of a willow flycatcher population in Grand Canyon. Arizona. Western Birds 19:25-33.

Brown, D. E. ed. 1994. Biotic Communities: Southwestern United States and Northwestern Mexico. Salt Lake City, Utah: University of Utah Press. 342 p.

Brown, D. E., and C. H. Lowe. 1980. Biotic Communities of the Southwest. General Technical Publication RM-78, US Forest Service Rocky Mountain and Range Experimental Station.

Brown, D. E., C. H. Lowe, and C. P. Pace. 1979. A digitized classification system for the biotic communities of North America, with community (series) and association examples for the Southwest, J. Arizona-Nevada Acad. Sci., 14 (Suppl. 1), 1–16, 1979.

Browning, M. R. 1993. Comments on the taxonomy of Empidonax traillii (willow flycatcher). Western Birds 24:241-257.

Bureau of Economic Analysis. 2005. *July 1, 2005 Population Estimates for Arizona's Counties, Incorporated Places and Balance of County*, Population Statistics Unit, Research Administration. July 1.

Bureau of Land Management (BLM), US. Department of Interior (USDI). 2012. Air Quality General Conformity Evaluation. Prepared by ICF, International. April 11.

_____. 2012a. Surface Management Responsibility/Ownership in Planning Area. Geographic Information System data.

_____. 2012b. Restoration Design Energy Project Draft Environmental Impact Statement. February.

_____. 2011. Saleable Minerals Monthly Production Reports. Data provided by BLM operators and compiled for the PRMP/FEIS.

_____. 2007. Vegetation Treatments Using Herbicides on BLM Lands in 17 Western States. PEIS. Adopted September 2007.

_____. 2005a. Approved Amendment to the Lower Gila North Management Framework Plan and the Lower Gila South Resource Management Plan and Decision Record. July 2005.

_____. 2005b. Land Use Planning Handbook, H-1601-1.

_____. 2005c. Maricopa Complex Wilderness Management Plan: Five-Year Evaluation. Phoenix Field Office.

_____. 2005d. Analysis of the Management Situation for the Phoenix South and Sonoran Desert National Monument RMPS/EIS. Prepared for the Lower Sonoran Field Office. July 2005.

_____. 2004b. News Release. BLM Proposes $1.7 Billion for FY 2005 Budget to Enhance Multiple-Use Management through Conservation Partnerships. Internet Website: http://www.blm.gov/nhp/news/ releases/pages/2004/pr040202_budget.htm. Accessed on February 2, 2004.

_____. 2004c. Phoenix South and Sonoran Desert National Monument Resource Management Plans and Environmental Impact Statement Energy and Mineral Resource Potential Report. Prepared by: URS Corporation. April. 110 pp.

_____. 2004d. News Release, BLM Budget Fact Sheet. Internet Website: http://www.blm.gov/nhp/news/releases/pages/2004/040202_budget/pr040202_budget_FS.html. Accessed on February 2, 2004.

_____. 2004e. Arizona Strip Fire Management Zone Fire Management Plan.

_____. 2003a. Arizona Statewide Land Use Plan Amendment for Fire, Fuels, and Air Quality Management. Arizona State Office. Finding of No Significant Impact (FONSI) and Environmental Assessment. September.

_____. 2003b. Final Energy and Mineral Potential Report. Phoenix South and Sonoran Desert National Monument Resource Management Plans and Environmental Impact Statement. 62 pp.

_____. 2003c. Summary of October 8 RMP/EIS URS/BLM Interdisciplinary Team Field Trip. Recorded by Carol Wirth.

_____. 2003d. Recreation Management Information System data for the Phoenix Field Office, Sonoran Desert National Monument. October 21. Internet Website: http://www.blm.gov/pgdata/etc/medialib/blm/wo/MINERALS__REALTY__AND_RESOURCE_PROTECTION_/cost_recovery.Par.62768.File.dat/ObtainingaROWPamphlet.ss04-08-05.pdf.

_____. 2003e. BLM Financial Management Information System, Arizona Labor/Operations Target Reports. For Fiscal Years 2001, 2002, and 2003. Dated November 4.

_____. 2003f. Phoenix Field Office. Surface Management Information.

_____. 2003g. Bureau of Land Management, Washington Office. Information Bulletin No. 2003-138, Annual Adjustment of Linear Right-of-Way (R/W) Rental Rates. September 12.

_____. 2003h. Telephone call from Danny Rakestraw, URS Corporation, to Byron Lambeth, BLM, Phoenix Field Office. December 16.

_____. 2003j. Woolsey Peak Wilderness and Signal Mountain Wilderness Management Plan, Environmental Assessment, Finding of No Significant Impact, and Decision Record, Phoenix Field Office. December.

_____. 2003k. GIS Generated Data (potential error +0.05).

_____. 2002a. Instruction Memorandum No. 2002-167, Social and Economic Analysis for Land Use Planning, May 2002. Henri R. Bisson, Assistant Director Renewable Resources and Planning.

_____. 2002b. BLM Instruction Memorandum No. 2002-164, Guidance to Address Environmental Justice in Land Use Plans and Related National Environmental Policy Act Documents.

_____. 2002c. Public Land Statistics 2002. http://www.blm.gov/natacq/pls02/.

_____. 2002d. Sonoran Desert National Monument Current Management Guidance. Phoenix Field Office, Phoenix, Arizona. May.

_____. 2001a. National Management Strategy for Motorized Off-Highway Vehicle Use on Public Lands. January 2001. Washington, D.C. Office, Washington, D.C.

_____. 2001b. National Landscape Conservation System. Arizona Wilderness and Wilderness Study Areas. Map and listing by field office with acreage. Printed by the US Government Printing Office. 763-079/43-5 Region No. 8.

_____. 2001c. Integrating GIS Technologies with the Visual Resource Management Inventory Process. Technical Note 407. National Science & Technology Center, Denver, Colorado. November.

_____. 1997a. Arizona Standards for Rangeland Health and Guidelines for Grazing Administration. Arizona State Office, Phoenix, Arizona.

_____. 1997b. Mining claims and sites on Federal lands. BLM Solid Minerals Group brochure.

_____. 1996a. Recreation and Public Purposes Act. Washington, DC.

_____. 1996b. Washington, D.C. Obtaining a Right-of-Way on Public Lands. United States Government Printing Office. 573-016/40510.

_____. 1995. Maricopa Complex Wilderness Management Plan, Environmental Assessment, and Decision Record. Lower Gila Resource Area, Phoenix.

_____. 1995b. Mountain Sheep Ecosystem Management Strategy in the 11 Western States and Alaska.

_____. 1994. BLM Manual 3060, Mineral Reports – Preparation and Review, Rel. 3-284, April 7, U.S. Department of the Interior, Bureau of Land Management, Washington, DC.

_____. 1992. Strategy for Desert Tortoise Habitat Management on Public Lands in Arizona: New Guidance on Compensation for the Desert Tortoise. (Instruction Manual No. AZ-92-46). Arizona State Office, Phoenix, AZ.

_____. 1990a. Strategy for Desert Tortoise Habitat Management on Public Lands in Arizona. Bureau of Land Management, Arizona State Office, Phoenix. 19 pp.

_____. 1990b. Final Lower Gila South Resource Management Plan (Goldwater Amendment). Phoenix District Office, Phoenix, Arizona. 13 November.

_____. 1989. Phoenix Resource Area Resource Management Plan. Phoenix District. Released in 1988, Adopted in 1989.

_____. 1988a. Desert Tortoise Habitat Management on the Public Lands: A Rangewide Plan. Bureau of Land Management, Washington, DC. 23 pp.

_____. 1988b. Rangewide plan for managing habitat of desert bighorn sheep on public lands. US Department of the Interior, Bureau of Land Management, Washington, DC. 41 pp.

_____. 1988c. Record of Decision for the Lower Gila South RMP.

_____. 1988d. BLM Manual section 1613 – Areas of Critical Environmental Concern.

_____. 1987. Record of Decision. Eastern Arizona Grazing Environmental Impact Statement and Rangeland Program Summary. US Department of the Interior, Bureau of Land Management, Phoenix and Safford Districts, Arizona. September.

_____. 1986. H-8410-1. Visual Resource Inventory. Government Printing Office. Washington, DC.

_____. 1985a. Manual 3031. Energy and Mineral Resource Assessment. Rel 3-115. June 19, 1985.

_____. 1985b. Final Lower Gila South Resource Management Plan Environmental Impact Statement. Phoenix District Office, Phoenix, AZ. August.

_____. 1984. Manual Section 8400. Visual Resource Management. Government Printing Office. Washington, DC. 10 pp.

_____. 1983a. Lower Gila North Management Framework Plan. Phoenix District Office, Phoenix, Arizona. March.

_____. 1983b. Lower Gila South Management Situation Analysis. Phoenix District Office, Phoenix, Arizona.

_____. 1983c. Phoenix Resource Area Management Situation Analysis. Phoenix District Office, Phoenix, Arizona. March.

_____. 1982. Proposed Grazing Management Program for the Lower Gila North EIS Area. Phoenix District Office, Phoenix, Arizona. January.

_____. 1980. Wilderness Review, Arizona: Intensive Inventory of Public Lands Administered by Bureau of Land Management, Decision Report. Arizona State Office, Phoenix.

Busch, D. E. 1995. Effects of fire on southwestern riparian plant community structure. Southwestern Nat. 40:259-276.

Business Week online. 2006. *Copper's Golden Hue*. By Mara DerHovanesian with Colin Barraclough. May 9.

Cameron, R. E. 1960. Communities of soil algae occurring in the Sonoran Desert in Arizona. Journal of the Arizona Academy of Science 1:85-88.

Carpenter, Michael C. 1999. *South-Central Arizona: Earth fissures and subsidence complicate development of desert water resources*, In Land Subsidence in the United States, edited by D. Galloway, D. R. Jones, and S. E. Ingebritsen. US Geological Survey, Circular 1182, Pages 65-78.

City of Apache Junction. 1999. Apache Junction General Plan.

City of Goodyear. 2003. Goodyear General Plan Update 2003-2013.

_____. 2001. City of Goodyear Parks, Trails, and Open Space Master Plan.

City of Phoenix. 2004. Aviation Department, Historical Traffic Statistics. Internet Website: http://skyharbor.com/pdf/historic_statistics.pdf. Accessed on January 20, 2004.

_____. 2003. Facility Plan, City of Phoenix SR 85 Landfill, Buckeye, Arizona.

_____. 2001. City of Phoenix General Plan.

Clinton, William J. 2001. Proclamation 7397 – Establishment of the Sonoran Desert National Monument.

Collins, Glendon E. 2006. A History of the Bureau of Land Management's Phoenix District and the Federal Lands in Arizona. Bureau of Land Management, Phoenix District Office, Phoenix, Arizona, USA.

Cordy, G. E., J. A. Rees, R. J. Edmonds, J. B. Gebler, L. Wirt, D. J. Gellenbeck and D. W. Anning. 1998. Water-Quality Assessment of the Central Arizona Basins, Arizona and Northern Mexico – Environmental Setting and Overview of Water Quality. US Geological Survey Water-Resources Investigation Report 98-4097.

Corman, T. 2005. Yellow-billed cuckoo. In: Arizona Breeding Bird Atlas. T. Corman and C. Wise-Gervais, eds. University of New Mexico Press, Albuquerque, NM. 2 pp.

DeLorme. 1999. Arizona Atlas and Gazetteer. Topo Maps of the Entire State. Public Lands. Back Roads. Third Edition.

Dean Runyan Associates. 2011. Arizona Travel Impacts 1998-2010. Prepared for the Arizona Office of Tourism. Phoenix, Arizona. July 2011.

Dolton, D. D. and R. D. Rau. Mourning Dove Population Status, 2006. US Fish and Wildlife Service, Laurel, Maryland.

Ehrlich, P. R., D. S. Dobkin and D. Wheye. 1988. The birder's handbook. Simon and Schuster, New York, p. 286.

Eller, B. M. 1997. Road dust induced increase of leaf temperature. Environmental Pollution 13:99-107.

Ellis, L. M., C. S. Crawford, and M. C. Molles. 1998. Comparison of litter dynamics in native and exotic riparian vegetation along the middle Rio Grande of central New Mexico, U.S.A. Journal of Arid Environments 38:283-296.

Enderson, E. F., R. L. Bezy. 2005. Amphibians of the Vekol Valley. Sonoran Herpetologist 18 (7): 74-79.

Esque, T. C., C. R. Schwalbe, L. A. DeFalco, R. B. Duncan, and T. J. Hughes. 2003. Effects of desert wildfires on desert tortoise (Gopherus agassizii) and other small vertebrates. The Southwestern Naturalist 48(1): 103-111. Referenced in USDI, BLM. 2003. Arizona Statewide Land Use Plan Amendment for Fire, Fuels and Air Quality Management. Arizona State Office. Finding of No Significant Impact (FONSI) and Environmental Assessment. September.

Esque, T. C., and C. R. Schwalbe. In Review. Alien Annual Plants and Their Relationships to Fire and Vegetation Change In Sonoran Desertscrub. In Invasive Organisms in the Sonoran Desert. Tellman, B., and T. R. Van Devender, eds. Arizona-Sonora Desert Museum. Publisher to be determined. Tucson, Arizona.

Farmer, A. M. 1992. The effects of dust on vegetation – a review. Environmental Pollution 79:63-75.

Federal Aviation Administration. 2002. National Plan of Integrated Airport Systems (2001-2005). April.

Federal Register. 2002. Endangered and Threatened Wildlife and Plants; Designation of Critical Habitat for the Arizona Distinct Population Segment of the Cactus Ferruginous Pygmy-owl (*Glaucidium brasilianum cactorum*). Vol. 67, No. 229. 71032-71064.

Fleming, T. H., M. D. Tuttle, and M. A. Horner. 1996. Pollination biology and the relative importance of nocturnal and diurnal pollinators of three species of Sonoran Desert cacti. Southwestern Naturalist. 41:257-269.

Fleming, T. H., R. A. Nunez, and L. S. L. Steinberg. 1993. Seasonal changes in the diets of migrant and non-migrant nectarivorous bats as revealed by carbon stable isotope analysis. Occologia 94: 72-74.

Flesch, A. D., and R. J. Steidl. 2007. Association between roadways and cactus ferruginous pygmy-owls in northern Sonora, Mexico. Final Report for Arizona Department of Transportation, Environmental Planning Group, Phoenix: Arizona Department of Transportation.

Foti, P. and C. Patterson. 2003. Sonoran Desert National Monument Recreation Impact Inventory Dispersed Sites. Northern Arizona University. October.

Foti, P. and N. Chambers. 2005. Sonoran Desert National Monument Recreation Impact Inventory: Final Report. Prepared for BLM-Phoenix District.

Galliano, S. J. and G. M. Loeffler. 1999. Place Assessment: How People Define Ecosystems. US Department of Agriculture, Forest Service, Pacific Northwest, Research Station; US Department of the Interior, Bureau of Land Management. General Technical Report PNW-GTR-462. http://www.fs.fed.us/pnw/pubs/gtr_462.pdf. September.

Goddard Institute for Space Studies. 2007. Annual Mean Temperature Change for Three Latitude Bands. Datasets & Images, GISS Surface Temperature Analysis, Analysis Graphs and Plots, New York, New York. Available online at: http://data.giss.nasa.gov/gistemp/graphs/Fig.B.lrg.gif.

Government Accountability Office (GAO). 2007. Climate Change: Agencies should develop guidance for addressing the effects on federal land and water resources. Washington, DC.: United States Government Accountability Office.

_____. 1991. Rangeland Management. BLM's hot desert grazing program merits reconsideration. GAO-RCED-92-12. November 1991.

Garfin, G., M. A. Crimmins, and K. Jacobs. 2007. "Drought, Climate Variability, and Implications for Water Supply and Management." In Arizona Water Policy: Management Innovations in an Urbanizing, Arid Region, by B.G. Colby and K. (eds Jacobs), 61-78. Washington, DC.: Resources for the Future.

Gellenbeck, D. J., and D. W. Anning. 2002. Occurrence and Distribution of Pesticides and Volatile Organic Compounds in Groundwater and Surface Water in Central Arizona Basins, 1996-98, and Their Relation to Land Use. Water-Resources Investigation Report 01-4144.

Gila County. 2003. Draft Gila County 2012 Comprehensive Plan.

Groschupf, K. 1987. Status of the yellow-billed cuckoo (*Coccyzus americanus occidentalis*) in Arizona and west Texas. Report prepared for the US Fish and Wildlife Service, under contract no. 20181-86-00731. 34 pp.

Hann et al. 2008. Interagency and The Nature Conservancy Fire Regime Condition Class website. USDA Forest Service, USDA Department of the Interior, The Nature Conservancy and Systems for Environment Management (www.frcc.gov).

Hall, J. A., P. Comer, A. Gondor, R. Marshall, and S. Weinstein. 2001. Conservation Elements of and a Biodiversity Management Framework for the Barry M. Goldwater Range, Arizona. The Nature Conservancy of Arizona, Tucson.

Hanson, R. 2006. E-mail communication with Ryan Rausch, URS, regarding recreation activities in SDNM, June 12, 2006.

Harp, A. J., N. R. Rimbey and T. D. Darden. 2001. Cohesion, Integration, and Attachment in Owyhee County Communities. Paper presented at the Annual Meeting of the Society for Range Management, Kailua-Kona, Hawaii, February 17-23.

Headwaters Economics. 2009. *Economic Profile System*. Headwaters Economics, Bozeman, Montana.

Hubbard, J. P. 1987. The status of the willow flycatcher in New Mexico. Endangered Species Program, New Mexico Department of Fish and Game, Santa Fe, New Mexico. 29 pp.

Hunter, M. L., Jr. 1996. Fundamentals of conservation biology. Blackwell Science, Inc., Cambridge, MA.

Interagency Monitoring of Protected Visual Environments (IMPROVE). 2000. Spatial and Seasonal Patterns and Temporal Variability of Haze and its Constituents in the United States: Report III. Internet Website: http://vista.cira.colostate.edu/improve/Publications/Reports/2000/ 2000.htm Accessed on March 31, 2006.

Interagency Standards for Fire and Aviation Operations Task Group. 2010. Environmental Guidelines for Delivery of Retardant or Foam near Waterways.

IPCC. 2007. IPCC Fourth Assessment Report. Geneva: United Nations Environmental Programme.

Jacob, G. R. and R. Schreyer. 1980. Conflict in outdoor recreation: A theoretical perspective. Journal of Leisure Research 12(4): 368-380.

Johnson, R. R., L. T. Haight, and J. M. Simpson. 1987. Endangered habitats versus endangered species: a management challenge. Western Birds 18:89-96.

Jones, K.B., L. Porzer Kepner and W.G. Kepner. 1983. Anurans of Vekol Valley, central Arizona. Southwestern Naturalist 28:469–470.

Justus, J. R., and S. R. Fletcher. 2007. Global Climate Change. Nova Science Publishing, Inc.

Kade, A., and S. D. Warren. 2002. Soil and plant recovery after historic military disturbances in the Sonoran Desert, USA. Arid Land Research and Management 16: 231-243.

Katibah, E. F. 1984. A brief history of riparian forests in the Central Valley of California. Pages 23-29 in R.E. Warner and K.M. Hendrix eds. California Riparian Systems: Ecology, Conservation, and Productive Management. University of California Press, Berkeley, California.

Keith, S. B., D. E. Gest, E. DeWitt, N. W. Toll, and B. A. Everson. 1983. Metallic Mineral Districts and Production in Arizona. Arizona Bureau of Geology and Mineral Technology Bulletin 194, 58 pp.

Krausman, P. R., J. R. Morgart, L. K. Harris, C. S O'Brien, J. W. Cain III, and S. S. Rosenstock. 2005. Introduction: management for the survival of Sonoran pronghorn in the United States. Wildlife Society Bulletin. 33(1):5-7.

Maricopa. 2006. (City of Maricopa) Special Census 2005 Executive Summary. May 2. Phoenix, Arizona.

Maricopa Association of Governments (MAG). 2010. Draft Regional Transportation Plan 2010 Update.

_____. 2003a. Interim Projections of Population, Housing and Employment by Municipal Planning Area and Regional Analysis Zone. July.

_____. 2003b. Final Regional Transportation Plan. November 25. Internet Website: http://www.mag.maricopa.gov/detail.cms?item=3082.

_____. 2000. Desert Spaces Plan. Internet Website: http://www.mag.maricopa.gov/detail.cms?item=2560

Maricopa County. 2004. Maricopa County Regional Trail System Plan. August 16.

_____. 2003a. Maricopa County 2020 Eye To The Future Rainbow Valley Area Plan Update. Maricopa County Planning and Development, Phoenix, Arizona. March.

_____. 2003b. Draft Rainbow Valley Area Plan.

_____. 2003c. Draft State Route 85 Corridor Area Plan.

_____. 2003d. White Tanks Grand Avenue Area Plan.

_____. 2002a. Maricopa County Regional Trail System Plan Phase One.

_____. 2002b. Maricopa County Regional Trail System. Presentation to the Phoenix Association of Realtors. http://www.maricopa.gov/trail/pdf/realtors.pdf.

_____. 2002c. Maricopa County 2020, Eye to the Future Comprehensive Plan.

_____. 2002d. Tonopah/Arlington Area Plan.

_____. 1992a. Grand Avenue Corridor Area Land Use Plan.

_____. 1992b. Maricopa County Land Use Plan Queen Creek Planning Area.

_____. 1991. Maricopa County Land Use Plan Mobile Planning Area.

Maricopa County Parks and Recreation. 2004. San Tan Mountains Regional Park Master Plan Environmental Assessment.

Marsh, Diana. 2002. The Status of Water Quality in Arizona in 2002: Volume I. Arizona's Integrated 305(b) Assessment and 303(d) Listing Report. Arizona Department of Environmental Quality, Phoenix, Arizona.

McFadden, L. D., E. V. McDonald, S. G. Wells, K. Anderson, J. Quade, and S. L. Forman. 1998. The vesicular layer and carbonate collars of desert soils and pavements: formation, age, and relation to climate change. Geomorphology 24:101-145.

Mine Safety and Health Administration. 2004. Mine Yearly Reported Production Information from 1983 to 2003 for Mine IDs 0201049, 0200112, 0202503, 0202416, 0202859, 0201136, 0202614, 0200156, and 0202798. Sum Average of Annual Employment data (totals). http://www.msha.gov/drs/drshome.htm.

Monson, G., and L. Sumner. 1980. The Desert Bighorn: Its Life History, Ecology and Management. The University of Arizona Press, Tucson.

Morrison Institute for Public Policy. 2000. Hits and Misses: Fast Growth in Metropolitan Phoenix. Copyright by the Arizona Board of Regents for and on behalf of Arizona State University and its Morrison Institute for Public Policy. .

Morrison, P. H., H. M. Smith, IV, and S. D. Snetsinger. 2003. The Natural Communities and Ecological Condition of the Sonoran Desert National Monument and Adjacent Areas. Winthrop, Washington: Pacific Biodiversity Institute.

Munzer, O. M., H. C. English, A. B. Smith, and A. A. Tudor. 2005. Southwestern willow flycatcher 2004 survey and nest monitoring report. Nongame and Endangered Wildlife Program Technical Report 244. Arizona Game and Fish Department, Phoenix, Arizona.

Murphy, R., K. Berry, T. Edwards, A. Leviton, A. Lathrop, and J. D. Riedle. 2011. The Dazed and Confused Identity of Agassizi's Land Tortoise, Gopherus agassizii (Testudines, Testudinidae) with the Description of a New Species, and the Consequences for Conservation. ZooKeys 113:39-71.

National Oceanic and Atmospheric Administration (NASS). National Weather Service. Internet Website:http://www.nws.noaa.gov.

National Park Service. 1996. Comprehensive Management and Use Plan Final Environmental Impact Statement. April.

_____. 2003. Long Range Interpretive Plan for the Juan Bautista de Anza NHT.

National Weather Service Forecast Office. 2009. Phoenix Monthly Precipitation 1896 to Present. 2009. http://www.wrh.noaa.gov/psr/climate/ (accessed October 30, 2009).

National Wildfire Coordinating Group (NWCG). 2008. Glossary of Wildland Fire Terminology. Internet Website: http://www.nwcg.gov/pms/pubs/glossary/pms205.pdf.

Niemuth, Nyal J. 2006. Arizona's Metallic Resources, Trends and Opportunities 2006, Open File Report 06-23. Phoenix, Arizona. February.

_____. 2005. Arizona Department of Mines and Mineral Resources, Arizona 2004 Mining Review. Phoenix, Arizona.

_____. 2003. Copper production. Letter from Nyal Niemuth, Arizona Department of Mines and Mineral Resources, to Dennis Carlson, URS. August 25. 6 pp.

Ohmart, R. D. and B. W. Anderson. 1982. North American desert riparian ecosystems. Pp. 433-479 in: G. L. Bender (ed.) Reference handbook on the deserts of North America. Greenwood Press, Westport, CT.

Okin. G. S., B. Murray, and W. H Schlesinger. 2001. Degradation of sand arid shrubland environments: observations, process modeling, and management implications. Journal of Arid Environments 47: 123-144.

Organ Pipe Cactus National Monument (OPCNM). 1999. Ecological monitoring program annual report, 1996. Organ Pipe Cactus National Monument, Arizona.

_____. 1998. Ecological Monitoring Program Annual Report, 1995. Organ Pipe Cactus National Monument, Arizona.

Phillips, K. A., N. J. Niemuth, and D. R. Bain. 2002. Active Mines in Arizona - 2001-2002. Arizona Department of Mines and Mineral Resources Directory 49, 34 pp.

Pima County. 2004a. Draft Pima County Multi-Species Conservation Plan.

_____. 2004b. Sonoran Desert Conservation Plan. Pima County, Tucson, Arizona.

_____. 2003. Pima County Comprehensive Plan. Pima County Development Services Department Planning Division, Tucson, Arizona. Adopted in 1992, revised in June 2003.

_____. 2002. Pima County, Arizona, Department of Finance. 2002. Comprehensive Annual Financial Report, Fiscal Year Ended June 30, 2002.

Pinal County. 2001. Pinal County Comprehensive Plan. Pinal County Planning, Florence, Arizona. December.

Pollack, E. D. 2002. Arizona's Tourism Impact, Arizona Blue Chip. June. Internet Website: http://www.arizonaeconomy.com/word_docs/azbc02-06.htm.

P Plus Corporation. 2002. Second Biennial Transmission Assessment 2001-2011. Prepared for the Arizona Corporation Commission, Phoenix, Arizona. December.

Rogers, G. F. and J. Steele. 1981. Sonoran Desert Fire Ecology. Proceedings of Fire History Workshop. US Forest Service General Technical Report RM-81.

Rosenstock, S. S., M. J. Rabe, C. S. O'Brien and R. B. Waddell. 2004. Studies of wildlife water developments in southwestern Arizona: wildlife use, water quality, wildlife diseases, wildlife mortalities and influences on native pollinators. Arizona Game and Fish Department Research Branch Technical Guidance Bulletin No. 8. Phoenix, 15 pp.

Saunders, S., C. Montgomery, T. Easley, and T. Spencer. 2008. Hotter and Drier: The West's Changed Climate. The Rocky Mountain Climate Organization, Natural Resources Defense Council.

Sheppard, Paul R., Andrew C. Comrie, Gregory D. Packin, Kurt Angersbach, and Malcolm K. Hughes. 2002. *The climate of the US Southwest.* Climate Research 21 (July): 219-238.

Shreve, Forrest. 1951. Sonoran Desert Subdivision Map.

Sogge, M. K. 1995a. Southwestern willow flycatcher (*Empidonax traillii extimus*) monitoring at Tuzigoot National Monument. 1995 progress report to the National Park Service. National Biological Service Colorado Plateau Research Station/Northern Arizona University, Flagstaff, Arizona. 20 pp.

_____. 1995b. Southwestern willow flycatchers in the Grand Canyon. Pages 89-91 *in* LaRoe, E.T., G.S. Farris, C.E. Puckett, P.D. Doran, and M.J. Mac, eds. 1995. Our living resources: A report to the nation on the distribution, abundance, and health of US plants, animals, and ecosystems. US Department of the Interior, National Biological Service, Washington, DC. 520 pp.

Sogge, M. K., B. E. Kus, S. J. Sferra, and M. J. Whitfield. 2003. Ecology and conservation of the southwestern willow flycatcher. Studies in avian biology 26. Cooper ornithological Society, Camarillo, California. 210 pp.

Soil Conservation Service (SCS). 1991. Soil Survey for Pinal County, Arizona – Western Part. US Department of Agriculture, Soils Conservation Service (now Natural Resource Conservation Service).

_____. 1977. Soil Surveys for Maricopa County – Central Part. US Department of Agriculture (USDA), Soils Conservation Service (now Natural Resource Conservation Service). 117 p. plus maps.

_____. 1974. Soil Survey for Eastern Maricopa and Northern Pinal Counties. USDA Soils Conservation Service (now Natural Resource Conservation Service). 61 p. plus maps.

Sonoran Institute. 2012. Reports produced using the Economic Profile System Human Dimensions Toolkit for Maricopa, Pima, and Pinal Counties. February 2, 2012.

Sonoran Institute. 2003. Data and reports prepared by the Sonoran Institute for the Bureau of Land Management to contribute to planning for the Sonoran Desert National Monument. Including (1) reports on Socioeconomic Trends for Maricopa, Pima, and Pinal Counties; Ajo; Buckeye; Casa Grande; Gila Bend; Phoenix; Sells; and Tucson; and (2) Data Sets and Calculations for Civics, Education, Employment, Health and Safety, Housing, Income, Population, Resource and Land Use, and Transportation. May 2003.

Southwick Associates. 2003. Economic Impact Analysis of Nonconsumptive Wildlife-Related Recreation in Arizona. Conducted for the Arizona Game and Fish Department by Southwick Associates in conjunction with the Responsive Management project, Arizona Residents' Attitudes Toward Nongame Wildlife. http://www.gf.state.az.us/pdfs/w_c/AZ%20County%20Impacts%20-%20Southwick.pdf. Accessed in June 2010).

Stebbins, R.C. 1985. A Field Guide to Western Reptiles and Amphibians. Houghton Mifflin Publishing, Boston, Massachusetts.

Thompson, J. R., P. W. Mueller, W. Fluckiger, and A. J. Rutter. 1984. The effect of dust on photosynthesis and its significance for roadside plants. Environmental Pollution (Series A) 34: 171-190.

Tibbits, T. J., M. K. Sogge, and S. J. Sferra. 1994. A survey protocol for the southwestern willow flycatcher (*Empidonax traillii extimus*). National Park Service Technical Report NPS/NAUCPRS/NRTR-94/04. 24 pp.

The Nature Conservancy: Hall, J.A., P. Comer, A. Gondor, R. Marshall, and S. Weinstein. 2004. *Conservation Elements of and a Biodiversity Management Framework for the Barry M. Goldwater Range, Arizona*. The Nature Conservancy of Arizona. 199 + ix p. + 15 unpaginated figures.

Tucson Electric Power. 2006. Springerville Generating Station Solar System Description. Tucson, Arizona. January 1 update. http://greenwatts.com/pages/SolarStats/SolarDescr.html.

_____. 2003. Tucson Electric Power Company Ten-Year Plan for Years 2003-2012. Prepared for the Arizona Corporation Commission. Phoenix, Arizona. January.

Unitt, P. 1987. Empidonax traillii extimus: an endangered subspecies. Western Birds 18:137-162.

URS Corporation. 2004. Phoenix South and Sonoran Desert National Monument Resource Management Plans and Environmental Impact Statements Final Air Quality Baseline Report.

US Air Force. 1999. Renewal of the Barry M. Goldwater Range Land Withdrawal Final Legislative Environmental Impact Statement Volume 1. March.

_____. 1996. Final Characterization Plan for the Munitions Residue Burial Site on the Barry M. Goldwater Range, Arizona.

US Census Bureau 2010a. Census 2010. Table DP-1. Profile of General Population and Housing Characteristics: 2010. Accessed January 16, 2012. Internet Website: http://factfinder2.census.gov/faces/nav/jsf/pages/index.xhtml.

_____.2010b. 2010 Poverty Threshold. Internet Website: http://www.census.gov/hhes/www/poverty/data/threshld/index.html. Accessed on January 17, 2012.

_____.2010c. American Community survey 1 year estimates. Internet Website: http://factfinder2.census.gov/faces/nav/jsf/pages/index.xhtml. Accessed on February 3. 2012.

_____.2010d. American Community Survey 3 year estimates. Internet Website: http://factfinder2.census.gov/faces/nav/jsf/pages/index.xhtml. Accessed on February 3, 2012.

_____. 2010e. American Community Survey 5 year estimates. Internet Website: http://factfinder2.census.gov/faces/nav/jsf/pages/index.xhtml. Accessed on February 3, 2012.

_____. 2008. Annual New Privately-Owned Residential Building Permits. Internet Website: http://censtats.census.gov/bldg/bldgprmt.shtml.

_____. 2003a. New Privately Owned Housing Units Authorized - Top 20 CMSAs/MSAs: 2002 http://www.census.gov/const/www/02msawebchart.pdf 02. May 1.

_____. 2003b. Monthly New Privately-Owned Residential Building Permits, Cumulative to Date Estimates with Imputation, December 2000 for Pinal County (021) and Maricopa County (013). http://censtats.census.gov/bldg/bldgprmt.shtml.

_____. 2003c. United States Census Bureau. 2003c. GCT-PH1-R-1 Table, Population, Housing Units, Area, and Density (geographies ranked by total population): 2000 for Arizona and Counties.

_____. 2003d. DP-1 Tables, Profile of General Demographic Characteristics: 2000 for Arizona and Maricopa, Pima, and Pinal Counties. Information obtained from:

_____. 2003e. GCT-PH1-R-1 Table, Population, Housing Units, Area, and Density (geographies ranked by total population): 2000 for Arizona and Counties.

_____. 2003f. Poverty in the United States: 2002. Poverty Thresholds in 2002 by Size of Family and Number of Related Children Under 18 Years. Issued September.

_____. 2003g. DP-3 Table, Profile of Selected Economic Characteristics: 2000.

_____. 2003h. P6 Table, Race.

_____. 2003i. QT-H10 Table, Units in Structure, Householder 65 Years and Over and Householder Below Poverty Level: 2000 for United States, Arizona and Counties.

_____. 2003j. GCT-H5 Table, General Housing Characteristics: 2000 for Arizona and Counties.

_____. 2003k. H18 Table, Average Household Size of Occupied Housing Units by Tenure [3] – Universe: 2000 for United States, Arizona and Counties.

_____. 2003l. Census 2000 Brief: *The Foreign-Born Population: 2000.* C2KBR-34. By Nolan Malone, Kaari F. Baluja, Joseph M. Costanzo, and Cynthia J. Davis.

_____. 2003m. Census 2000 Special Reports, *State-to-State Migration Flows: 1995 to 2000*. CENSR-8. By Marc J. Perry.

_____. 2002a. Poverty Thresholds in 1999, by Size of Family and Number of Related Children Under 18 Years.

_____. 2002b. *The American Indian and Alaska Native Population: 2000*, Census 2000 Brief. C2KBR/01-15. http://www.census.gov/prod/2002pubs/c2kbr01-15.pdf. Issued February.

_____. 2001a. Census 2000 PHC-T-2. Ranking Tables for States: 1990 and 2000. Table 3. States Ranked by percent Population Change: 1990 to 2000. http://www.census.gov/population/cen2000/phc-t2/tab03.txt. Internet Release date: April 2.

_____. 2001b. *Population Change and Distribution, Census 2000 Brief*. C2KBR/01-2. Internet Website: http://www.census.gov/prod/2001pubs/c2kbr01-2.pdf. Issued April.

_____. 2001c. *The Hispanic Population, Census 2000 Brief*. C2KBR/01-3. Internet Website: http://www.census.gov/prod/2001pubs/c2kbr01-3.pdf. Issued May.

_____. 2001d. *Age: 2000, Census 2000 Brief*. C2KBR/01-12. Internet Website: http://www.census.gov/prod/2001pubs/c2kbr01-12.pdf. Issued October.

_____. 2000a. Monthly New Privately-Owned Residential Building Permits, Cumulative to Date Estimates with Imputation, December 2000 for Pinal County (021) and Maricopa County (013). Internet Website: http://censtats.census.gov/bldg/bldgprmt.shtml

_____. 2000b. Land Area, Population, and Density for States and Counties: 1990. Table 1. Data are consistent with 1990 Summary Tape File 1C.Released: March 12, 1996; Revised: June 26, 2000 (Corrected population number for Alaska). Internet Website: http://www.census.gov/population/censusdata/90den_stco.txt

US Departments of the Air Force, Navy, and the Interior (Lead Agency) and Arizona Game and Fish Department. 2003. Draft Environmental Impact Statement for a Proposed Integrated Natural Resources Management Plan for the Barry M. Goldwater Range.

US Departments of the Air Force, Marine Corps, and Interior. 2003. Draft Environmental Impact Statement Proposed Integrated Natural Resource Management Plan for the Barry M. Goldwater Range, Arizona. February.

US Department of Agriculture, National Agriculture Statistical Service (USDA NASS). 2011. 17 State Grazing Fees- January 2011. Internet Website: http://www.nass.usda.gov/Charts_and_Maps/Grazing_Fees/gf_am.asp. Accessed January 22, 2012.

_____. 2009. 2007 Census of Agriculture-Arizona. State and County Data. Column 1. Geographic Areas Series, Part 3. Issued February 2009. Updated December 2009.

_____. 2004. 2002 Census of Agriculture, Arizona State and County Data. Internet Website: http://www.agcensus.usda.gov/Publications/2007/Full_Report/Census_by_State/Arizona/index.asp.

US Department of Agriculture, Natural Resource Conservation Service (NRCS). 1997. Soil Survey for the Gila Bend–Ajo Area. USDA Natural Resource Conservation Service. 257 pp. plus maps.

_____. 1991. Soil Survey for the Gila River Indian Community, USDA, Natural Resource Conservation Service. 232 pp. plus maps.

US Department of Energy (DOE). 2008. Programmatic Environmental Impact Statement, Designation of Energy Corridors on Federal Land in the 11 Western States. November 2008.

_____. 2003a. National Solar Radiation Database. Renewable Resource Data Center (RReDC), National Renewable Energy Laboratory website: http://www.nrel.gov/rredc/solar_resource.html.

_____. 2003b. Wind Energy Resource Atlas of the United States. Renewable Resource Data Center (RReDC), National Renewable Energy Laboratory Internet Website: http://www.nrel.gov/rredc/wind_resource.html.

US Department of Energy and Bureau of Land Management (DOE and BLM). 2011. Supplemental Draft Solar Programmatic Environmental Impact Statement. October 2011.

_____. 2010. Draft Solar Programmatic Environmental Impact Statement. December 2010.

_____. 2008. Programmatic Environmental Impact Statement, Designation of Energy on Bureau of Lands Management-Administered Lands in the 11 Western States. November.

US Department of Homeland Security (DHS) Customs and Border Protection. 2009. Final Environmental Assessment for the Proposed SBInet Ajo-1 Tower Project. December 2009. Internet Website: http://www.wildernesswatch.org/pdf/ajo_final.pdf.

US Department of Homeland Security (DHS) National Strategy for the Physical Protection of Critical Infrastructure and Key Assets. February 2003. Internet Website: http://www.dhs.gov/xlibrary/assets/Physical_Strategy.pdf

US Department of Interior (USDI) 2012. Payments in Lieu of Taxes (PILT) County Payments and Acres. Internet Website: http://www.nbc.gov/pilt/pilt/search.cfm. Accessed in January 2012.

US Department of the Interior (USDI), National Park Service (NPS). 2003. Juan Bautista de Anza National Historic Trail Long Range Interpretive Plan. Internet Website: http://www.nps.gov/juba/parkmgmt/index.htm.

_____. 1998. Organ Pipe Cactus National Monument Final General Management Plan Development Concept Plans Environmental Impact Statement.

_____. 1996. Juan Bautista de Anza National Historic Trail Comprehensive Management and Use Plan Final Environmental Impact Statement. Internet Website: http://www.nps.gov/archive/juba/plan/anzaplan.htm. April.

_____. 1995. Economic Impacts of Protecting Rivers, Trails, and Greenway Corridors A Resource Book. Rivers, Trails, and Conservation Assistance. Fourth Edition. Revised.

US Department of Interior. US Geological Survey (USGS). 2007 Mineral Industry Surveys. 2007.

_____. 2001a. Bolen, W. P. Sand and Gravel, Construction. US Geological Survey Minerals Yearbook 2001.

_____. 2001b. Tepordei, V. V. Stone, Crushed. US Geological Survey Minerals Yearbook 2001.

_____. 2002a. Bolen, W. P. Sand and Gravel, Construction. US Geological Survey Minerals Yearbook 2002.

_____. 2002b. Tepordei, V. V. Stone, Crushed. US Geological Survey Minerals Yearbook 2002.

_____. 2003a. Bolen, W. P. Sand and Gravel, Construction. US Geological Survey Minerals Yearbook 2003.

_____. 2003b. Tepordei, V. V. Stone, Crushed. US Geological Survey Minerals Yearbook 2003.

_____. 2004a. Bolen, W. P. Sand and Gravel, Construction. US Geological Survey Minerals Yearbook 2004.

_____. 2004b. Tepordei, V. V. Stone, Crushed. US Geological Survey Minerals Yearbook 2004

_____. 2005a. Bolen, W. P. Sand and Gravel, Construction. US Geological Survey Minerals Yearbook 2005

_____. 2005b. Tepordei, V. V. Stone, Crushed. US Geological Survey Minerals Yearbook 2005.

US Department of Transportation, Federal Aviation Administration. 2001. Final Regional Transportation Plan. Maricopa Association of Governments, 2003.

US Department of Transportation (UDOT), Federal Aviation Administration (FAA). 2003. FAA Order 7400.2E. Procedure for Handling Airspace Matters. May 15.

US Energy Information Administration. 2009. Emissions of Greenhouse Gases Report. Internet Website: http://www.eia.gov/oiaf/1605/ggrpt/carbon.html. Accessed on July 9, 2011.

US Environmental Protection Agency (EPA). 2012. Particulate Matter ($PM_{2.5}$) Concentrations Air Quality Trends, Maricopa County, AZ. Internet Website: http://www.epa.gov/region9/air/trends/pm25.html. Accessed on February 1, 2012.

_____. 2008. Inventory of US Greenhouse Gas Emissions and Sinks: 1990-2006. Published April 15, 2008.

_____. 2006. Appendix G: Measures of Visibility Impairment and Light Extinction. Internet Website:http://www.epa.gov/ttncaaa1/t1/reports/pmspapg.pdf. (accessed March 31, 2006).

_____. 2003. AP 42, Fifth Edition, Volume I Chapter 13: Miscellaneous Sources, Section 13.2.2: Unpaved Roads. Internet Website:http://www.epa.gov/ttn/chief/ap42/ch13/final/c13s0202.pdf (Accessed May 11, 2006).

US Fish and Wildlife Service (USFWS). 2012. Federally Listed Species. Arizona Ecological Service Office Website. Accessed on January 19, 2012.

_____.2010. News Release: Sonoran Desert Tortoise to be Designated a Candidate for Endangered Species Protection, and Federal Register/Vol. 75, No. 239/Tuesday, December 14, 2010. Internet Website: http://www.fws.gov/southwest/es/arizona. Accessed May 16, 2012.

_____. 2006. Internet Website: http://www.fws.gov/southwest/es/arizona/ Threatened.htm#CountyList. Accessed on March 30, 2006.

_____. 2005. Endangered and Threatened Wildlife and Plants; Designation of Critical Habitat for the Southwestern Willow Flycatcher; Final Rule. Federal Register 70 (201): 60886-61009. October 19.

_____. 2004. Species Assessment and Listing Priority Form for Yellow-billed cuckoo, Western United States Distinct Population Segment. Internet Website: http://ecos.fws.gov/docs/candforms_pdf/r8/B06R_V01.pdf.

_____. 2003a. Cactus Ferruginous Pygmy-owl Abstract. Species Abstract Compiled and Edited by the Arizona Ecological Services Field Office, United States Fish and Wildlife Service, Phoenix, Arizona.

_____. 2003b. Sonoran Pronghorn Abstract. Species Abstract Compiled and Edited by the Arizona Ecological Services Field Office, United States Fish and Wildlife Service, Phoenix, Arizona.

_____. 2003c. Revised Biological Opinion: Proposed and Ongoing Activities by the Marine Corps Air Station-Yuma (MCAS-Yuma) (02-21-95-F-0114R4).

_____. 2002. Southwestern willow flycatcher recovery plan. Albuquerque, New Mexico. i-ix +210 pp.

_____. 2001. Endangered and Threatened Wildlife and Plants; 12-month finding for a petition to list the yellow-billed cuckoo (Coccyzus americanus) in the western continental United States. Federal Register 66(143): 38611-38626.

_____. 1998a. Final Revised Sonoran Pronghorn Recovery Plan. US Fish and Wildlife Service, Albuquerque, NM.

_____. 1998b. Final Programmatic Environmental Assessment for the Future Management of Cabeza Prieta National Wildlife Refuge and Draft Comprehensive Conservation Plan.

_____. 1997. Biological Opinion for Five Grazing Allotments in the Vicinity of Ajo, Arizona. US Fish and Wildlife Service, Region 2, Albuquerque, New Mexico.

_____. 1995a. Final rule determining endangered status for the southwestern willow flycatcher. Federal Register 60(38):10694-10715.

_____. 1995b. Lesser Long-nosed Bat Recovery Plan. US Fish and Wildlife Service, Albuquerque, New Mexico. 45 pp.

_____. 1993. Proposed Rule to list the Southwestern Willow Flycatcher as Endangered with Critical Habitat. Federal Register 58(40):39495-39522.

United States Global Change Research Program. 2010. Regional Climate Information: Southwest. http://www.globalchange.gov/publications/reports/scientific-assessments/us-impacts/regional-climate-change-impacts/southwest (accessed March 26, 2010).

US Immigration and Naturalization Service. 2003. Office of Policy and Planning, Estimates of the Unauthorized Immigrant Population Residing in the United States: 1990 to 2000. http://www.dhs.gov/xlibrary/assets/statistics/publications/Ill_Report_1211.pdf. January.

_____. 1996. Illegal Alien Resident Population. Internet Website: http://www.dhs.gov/xlibrary/assets/statistics/ illegal.pdf. October.

Van Devender, T. R., R. S. Felger, and A. Búrquez. 1997. Exotic Plants in the Sonoran Desert Region: Arizona and Sonora, California Exotic Pest Plant Council Annual Symposium.

Visibility Information Exchange Web System (VIEWS). 2006. Trends data for Tonto National Monument. Internet : http://vista.cira.colostate.edu/DataWarehouse/IMPROVE/Data/SummaryData/group_means_nia_20060306.csv. Accessed on March 31, 2006.

Weiss, J. L., and J. T. Overpeck. 2005. *Is the Sonoran Desert losing its cool?* Global Change Biology 11, no. 12: 2065-2077.

Westerling, A. L., H. G. Hidalgo, D. R. Cayan, and T. W. Swetnam. 2006. *Farming and earlier spring increase western US forest wildfire activity.* Science 313, no. 5789, August: 940-943.

Western Regional Climate Center (WRCC). 2003a. Arizona Climate Summaries. Internet Website: http://www.wrcc.dri.edu/summary/azF.html. Accessed on March 31, 2006.

_____. 2003b. Average Wind Speeds by State. Internet Website: http://www.wrcc.dri.edu/htmlfiles/westwind.final.html. Accessed on March 31, 2006.

_____. 2003c. RAWS Data. Internet Website: http://www.wrcc.dri.edu/wraws/az.html. Accessed on March 31, 2006.

Whitfield, M. J. and C. M. Strong. 1995. A brown-headed cowbird control program and monitoring for the southwestern willow flycatcher, South Fork Kern River, California. California Department of Fish and Game, Bird and Mammal Conservation Program Report 95-4. Sacramento, California. 17 pp.

Wildland Fire Leadership Council (WFLC). 2009. Guidance for Implementation of Federal Wildland Fire Management Policy.

World Resources Institute. 2011. Climate Analysis Indicators Tool (CAIT) version 9.0. Internet Website: http://cait.wri.org/cait.php.

Wright, R. L., and J. C. deVos Jr. 1986. Final Report on Sonoran Pronghorn Status in Arizona. Arizona Game and Fish Department. Phoenix, Arizona. 132 pp.

Yoakum, J. D. 1978. Pronghorn. In Big game of North America: Ecology and management, edited by J. L. Schmidt and D .L. Gilbert, Pp.103-121. Stackpole Books, Harrisburg, Pennsylvania.

Yuma County. 2001. Yuma County 2010 Comprehensive Plan.

Zalaznik, S. Wildlife Specialist, Game Branch. AGFD, Phoenix Office. October 2003 – Written communication regarding hunt use days for game management units within the Planning Area from 1993-1997.