Ironwood Forest National Monument
Proposed Resource Management Plan
and
Final Environmental Impact Statement

Prepared by

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SUMMARY

INTRODUCTION

The Ironwood Forest National Monument (IFNM) was established on June 9, 2000, with the signing of Presidential Proclamation 7320 (Proclamation) to protect objects of scientific interest, including geological, biological, and archaeological resources. The IFNM encompasses approximately 189,600 acres of land. Approximately 128,400 acres within the monument boundaries are public land administered by the Bureau of Land Management (BLM); the balance of the land consists of approximately 54,700 acres of State Trust land (administered by the Arizona State Land Department) and approximately 6,000 acres that are privately owned.

The BLM Tucson Field Office has prepared this Proposed Resource Management Plan and Final Environmental Impact Statement (PRMP/FEIS) to identify four alternative management approaches for public land in the IFNM and analyze the potential effects of implementing each alternative. The management goals and objectives of each alternative are designed to protect the objects of the monument on a broad scale, although it is recognized that public uses of the monument's resources may result in localized impacts that could degrade monument objects at the individual scale (such as injury to or loss of a plant or animal). Where possible, the plan also identifies appropriate measures to mitigate potential impacts on natural resources, cultural resources, public uses, and social or economic conditions so that even the localized impacts are minimized. The EIS has been developed in compliance with the National Environmental Policy Act (NEPA) of 1969, Council on Environmental Quality regulations implementing NEPA, Federal Land Policy and Management Act (FLPMA) of 1976, and other associated regulations. Together, the RMP and EIS analyze and establish BLM's management practices for these lands in response to the Presidential Proclamation, current legislation and policies, and the demand to use public land and its resources.

AREA DESCRIPTION

The IFNM lies in the heart of the Sonoran Desert ecosystem in southern Arizona, and is a unique scenic area of rolling desert and ironwood woodlands including the Silver Bell, Waterman, Sawtooth, and Roskruge Mountains. Much of the vegetation in the area is classic Sonoran Desert upland habitat dominated by cacti such as saguaro, Bigelow's cholla, and staghorn cholla. Other common plants include ironwood, paloverde, creosote, brittlebush, triangle-leaf bursage, ocotillo, and white thorn acacia. The upper slopes of the Silver Bell Mountains possess a chaparral community dominated by jojoba. The lower bajadas contain interbraided streambeds that carry water after heavy rains. These desert wash habitats are characterized by large ironwood, blue paloverde, and mesquite trees. Within these natural environments, the IFNM contains habitat for two endangered species, including the lesser long-nosed bat and Nichol Turk's head cactus, as well as several other species of concern.

In addition to the natural environment, abundant cultural resources occur within the IFNM. The IFNM includes a site listed in the National Register of Historic Places (National Register), two archaeological districts listed in the National Register, historic mining camps, and other cultural resources that are eligible for listing in the National Register.

Public lands within the IFNM provide for various uses including grazing, land use authorizations (such as rights-of-way for utilities), and dispersed recreational opportunities.

PURPOSE AND NEED

The purposes of the RMP are (1) to specifically address management of lands within the IFNM consistent with the monument designation to protect objects of scientific interest; and (2) to implement BLM's policy to prepare a stand-alone RMP for all National Landscape Conservation System (NLCS) units, which includes the IFNM. Presently, the land within the IFNM is managed under the 1989 Phoenix Resource Area RMP (Phoenix RMP) as amended by the Arizona Standards for Rangeland Health and Guidelines for Grazing Administration and the Arizona Statewide Land Use Plan Amendment for Fire, Fuels, and Air Quality Management, and the 1987 Eastern Arizona Grazing EIS, when decisions in these documents are consistent with the Proclamation. Wildlife habitat plans, such as the Silver Bell Habitat Management Plan, and allotment management plans provide specific management direction and actions for wildlife and range programs on lands within and immediately adjacent to the IFNM. In addition, BLM has been following an interim guidance document for managing public land within the IFNM until the new RMP is completed and approved.

An RMP is needed for the IFNM due to the numerous changes that have occurred requiring reconsideration of existing management decisions since the Phoenix RMP and Eastern Arizona Grazing EIS were developed. The most significant change in relation to this RMP is the establishment of the IFNM, but other changes are also relevant. For example, the continuing urban growth of the Tucson and Marana metropolitan areas has increased the demand for public land to accommodate many forms of recreational activity, and these pressures demand increased consideration of management for the protection of monument resources and values.

PLANNING ISSUES

Key planning issues considered for developing alternatives in this plan included protection of monument objects—particularly related to vegetation, wildlife and wildlife habitat, special status species, cultural resources, visual resources, and geologic resources. Additional issues considered included concerns for wilderness characteristics, energy and mineral resources, grazing and livestock management, recreation, lands and realty, and travel management. Most issues focused on how BLM should protect natural, cultural, and visual resources while managing current and increasing numbers of visitors and increased uses resulting from nearby development of lands (e.g., State Trust lands). The planning issues used for developing alternatives were derived from the Proclamation, as well as the public scoping process, during which BLM solicited input from agencies and the public about opportunities, conflicts, or problems with the management and use of public lands within the IFNM. Additional public input gathered at numerous public meetings, as well as from letters and e-mails, was considered throughout the development of the plan.

ALTERNATIVES

BLM developed four alternative management strategies for managing public lands within the IFNM in accordance with NEPA and BLM regulations that require development of a reasonable range of alternatives to address the planning issues. Alternative A is a "No Action Alternative"; that is, it proposes no new plan. Under this alternative, management of public land within the IFNM would continue under existing planning documents, as modified by the Proclamation and additionally guided by BLM's Interim Management Policy. Alternatives B, C, and D (the "action alternatives") would each effect more change in management—each includes proactive responses to existing conditions and circumstances, which in many cases may have changed since the existing planning document now in force was written. Establishment of the monument is, of course, the best example of this.

Each alternative has a management emphasis that reflects a different response to the Federal mandate to balance use and conservation of resources on public lands. All four alternatives comply with the Proclamation, including the protection of the objects of the monument, and with all other applicable laws, regulations, and policies. Uses of land and resources that are not permitted by the Proclamation have been excluded from consideration.

Alternative A, No Action

Alternative A, the "No Action Alternative," would continue management of public land within the IFNM according to the management prescriptions of the 1989 Phoenix RMP and the Eastern Arizona Grazing EIS, as amended by the Arizona Statewide Land Use Plan Amendment for Fire, Fuels, and Air Quality Management and the Arizona Standards for Rangeland Health and Guidelines for Grazing Administration. Alternative A would include modifications to management mandated by the Proclamation, which BLM has already implemented with current management guidance for the IFNM.

Alternative B

The management theme of Alternative B is preservation—it is the most restrictive strategy, designed to protect the monument's resources by limiting use of the area's resources to an allowable minimum. This alternative places more restrictions on motorized travel throughout the monument and favors dispersed, non-motorized recreational activities over motorized recreational activities. The types of allowable uses and the intensity of those uses are restricted to provide the strongest reasonable protection for objects of historic, scientific, and aesthetic interest within the monument – largely through preservation.

Alternative C

With the exception that the Proposed Plan would not establish utility corridors, Alternative C is BLM's Proposed Plan. It incorporates elements from each of the other alternatives to strike a balance between long-term conservation of public land and resources within the IFNM and uses that have traditionally taken place on the land within the monument, such as grazing and recreation. As a result, under Alternative C, the protection of monument objects can be achieved at or near the level of protection afforded under Alternative B, while allowing for increased public uses in the monument. Specifically, in sensitive resource areas, Alternative C would provide a higher level of resource protection and less public use; however, greater opportunities for public use would be allowed outside those areas.

Alternative D

The management theme of Alternative D is access—it emphasizes the maintenance of existing public access to monument lands and resources. It identifies areas that are most appropriate to accommodate various uses—especially those identified as desirable during public scoping —and emphasizes those uses, particularly with respect to transportation and recreation. It includes the most miles of routes designated for motorized use, would allow for the establishment of more recreational sites (e.g., campsites), and would make the entire monument available for grazing. Though this alternative also protects monument objects, additional mitigation efforts would be likely to achieve the level of protection that would be afforded under Alternatives B and C.

AFFECTED ENVIRONMENT

The affected environment documents the existing conditions and establishes a baseline for evaluating impacts within the IFNM. The current resources and land uses and their conditions are introduced below.

Air Quality

A portion of the IFNM is located within the Rillito particulate matter (PM_{10}) nonattainment area, where nearby air quality monitors indicate that National Ambient Air Quality Standards (NAAQS) are not being met. The remainder of the IFNM lies within attainment areas for PM_{10}, as well as other pollutants regulated by the NAAQS. Within the IFNM, there are no major stationary sources of emissions, and vehicle travel (on-road) represents the largest single air-pollutant-source category.

Geology and Cave Resources

The IFNM is located within the Basin and Range physiographic province, which is characterized by long, narrow, block-faulted mountain ranges oriented northwest-southeast that are separated by broad, relatively flat valleys containing several thousand feet of alluvial sediments.

The jagged mountaintops and steep cliffs (considered objects of the monument warranting protection), such as Ragged Top and Wildcat Peak, are composed of resistant Cretaceous to Tertiary volcanic plugs or necks, while the Samaniego Hills and Sawtooth Mountains consist of thick sequences of volcanic flows and sediments. The Silver Bell Mountains are formed from Laramide-age granitic and volcanic rocks that host a major porphyry-copper deposit.

No caves have been reported in the IFNM, but several have been noted in other portions of southern and eastern Arizona. There are two caves, Silver Bell and Rattlesnake, in the Waterman Peak area, that are located within the vicinity of the IFNM; however, these are not located on public land.

Soil and Water Resources

More than half of the soils in the IFNM are composed of fan terraces that have been incised by drainages. The soils in fan terraces are used primarily for rangeland and the IFNM does not contain soils that qualify as prime farmland soils. Biological soil crust occurrence in the IFNM has been noted; however, detailed information on the location and extent of these biological soil crusts has not been compiled. In addition, small patches of weakly varnished youthful desert pavement occur in the IFNM. Varnished pavements occur in two areas: (1) on the bajada on the south side of the West Silver Bell Mountains and (2) on the west side of the Sawtooth Mountains, where the most extensive and interesting varnished pavements occur.

Within the IFNM, there are no wells that are monitored routinely for water quantity or quality. However, groundwater within and around the IFNM provides a variety of beneficial uses, including domestic, wildlife, commercial, agricultural, and industrial uses. Surface water flows within the IFNM are entirely ephemeral.

Vegetation

Vegetation within the IFNM generally is classified within two upland plant communities. The paloverde-cacti-mixed scrub community is dominated by foothill paloverde with scattered cacti, mostly saguaro, and contains other associated species such as mesquite and ironwood (i.e., the ancient legume and cactus forest, which is an object of the monument). The creosotebush-white bursage community is dominated by creosotebush and white bursage, with scattered triangle-leaf bursage, ocotillo, and prickly pear cactus. In addition, a minor plant community of jojoba chaparral, dominated by the jojoba plant, is found near the summit of Silver Bell Peak. Xeroriparian communities also occur throughout the IFNM along dry washes.

Approximately 54 non-native plant species occur in IFNM. These plants have special adaptations that allow them to quickly invade and out-compete many native species. Species that pose the greatest threats include buffelgrass, Sahara mustard, and Bermuda grass.

Wildlife and Wildlife Habitat

The fauna of the IFNM include a diversity of game and nongame wildlife species, as well as migratory birds, typically found in the Sonoran Desert. Several species are restricted to certain locales while others occur widely in suitable habitats. The ironwood-bursage habitat in the Silver Bell Mountains is associated with more than 674 species, including 64 mammalian and 57 bird species (BLM 2001). Additional species not specifically noted below also may occur within the IFNM.

Big game species known to occur in the planning area include desert bighorn sheep (an object of the monument), mule deer, and javelina. Small game species that occur in the planning area include desert cottontails, jackrabbits, and quail. Non-game species, including songbirds, raptors, reptiles and one amphibian, are also found within the IFNM.

Land use patterns on the IFNM influence wildlife habitat connectivity. Factors contributing to fragmentation of wildlife habitats within the IFNM include roads, residential development, mines, undocumented immigrant (UDI) traffic, and off-road driving. Wildlife corridors could connect habitats between the Silver Bell Mountains, West Silver Bell Mountains, and Sawtooth Mountains. The primary function of wildlife corridors is to connect fragmented habitat areas. All washes in the IFNM serve as corridors for wildlife. These corridors facilitate dispersal of individuals between patches of remaining habitat.

Special Status Species

Special status species include the following: (1) species currently listed or considered for listing as threatened or endangered by U.S. Fish and Wildlife Service (USFWS); (2) species listed as sensitive by BLM; (3) species listed as Wildlife of Special Concern in Arizona by Arizona Game and Fish Department (AGFD); (4) Priority Vulnerable Species in Pima County; and (5) plants that have special protection under the Arizona Native Plant Law.

As identified by BLM, USFWS, AGFD, and Pima County's Sonoran Desert Conservation Plan, 122 special status species occur in Pima and Pinal Counties. Of this total, two species with Federal status are known to occur in the planning area and are considered to be objects of the monument: lesser long-nosed bat and Nichol Turk's head cactus. Of those special status species that are not federally listed, 36 have the potential to occur in the IFNM and three of these are known to occur: Sonoran desert tortoise, cactus ferruginous pygmy own (both wildlife species of concern in Arizona), and Tucson shovel-nosed snake (priority vulnerable under Pima County's Sonoran Desert Conservation Plan).

Fire Ecology and Management

All of the lands within the IFNM are designated as current condition Class 1, where vegetation species, composition, and structure are intact and functioning within historic range. The BLM's Arizona Statewide Land Use Plan Amendment for Fire, Fuels and Air Quality Management provides general direction for fire management to meet statewide goals (USDI, BLM 2003a). The IFNM is considered a full suppression area. Fuels treatments could occur on a case-by-case basis, generally in areas where treatments would be necessary for removal of invasive or exotic species.

Cultural Resources

The primary motivation for protecting and preserving cultural resources is to enhance public and professional interpretation and appreciation of our cultural heritage. Public interpretation within the IFNM has been limited primarily to occasional guided tours of Hohokam petroglyph sites (which are objects of the monument described in the Proclamation). Future opportunities for public interpretation include heritage publications, other media products, interpretive signs and kiosks, and visitor centers.

Archaeological sites reflecting both prehistoric and historic-era occupation of the region are so abundant that only a small percentage of the sites have been recorded. Twenty-one documented surveys have, in the aggregate, inventoried approximately 21,194 acres (33.1 square miles) for cultural resources within the IFNM. The surveys encompass about 13 percent of the public land and about 9 percent of the nonpublic lands within the IFNM. A total of 279 archaeological and historical sites have been recorded on BLM land within the IFNM, 175 of which have been recommended eligible for the National Register of Historic Places. Survey data suggest there could be approximately 2,300 sites on the BLM surface estate within the IFNM.

To date, no specific places within the IFNM have been identified as having traditional cultural significance, but an inventory study has not been conducted. Tribes with traditional cultural affiliations with the region are known to have concerns about treatment of human remains, funerary objects, sacred objects, and objects of cultural patrimony that are sometimes present within archaeological sites. Information gathered through tribal consultation efforts has revealed that members of the Tohono O'odham Nation, which borders the IFNM, also might consider some places within the IFNM that were used traditionally, such as stands of saguaro where fruit was collected, as having cultural significance.

Paleontological Resources

Paleontological resources in southern Arizona are typically found in the Quaternary deposits. There are a few limited known occurrences of paleontological resources on the IFNM; however, no significant fossils are known to occur within the IFNM. Several neotoma (packrat) middens located in late Pleistocene and subrecent deposits have yielded various animal and plant species in the Wolcott Peak area of the IFNM.

With respect to fossil sensitivity or the potential for discovering fossils, the IFNM is mainly Class 1 (low sensitivity) and Class 2 (moderate sensitivity), though there are a few Class 3 areas (also moderate sensitivity). Class 1 includes igneous and metamorphic geologic units and sedimentary geologic units where vertebrate fossils or uncommon nonvertebrate fossils are unlikely to occur, and Class 2 includes sedimentary geologic units that are known to contain or have unknown potential to contain fossils that vary in significance, abundance, and predictable occurrence. A few Class 3 areas also occur, which are areas where geologic units are known to contain fossils but have little or no risk of human-caused adverse impacts and/or low risk of natural degradation.

Scenic and Visual Resources

Visual resources on IFNM lands are an important part of the landscape viewed from public travel routes and populated areas, including the Avra and Santa Cruz valleys, I-10, Tucson, Marana, Oro Valley, Casa Grande, and other nearby communities. The landscape in the IFNM exhibits outstanding examples of the Basin and Range, Sonoran Desert Section (which is an object of the monument described in the Proclamation), with visual resources in largely natural appearing condition. The scenic quality has many outstanding landform, vegetation and special features that attract sightseeing activities, and define the surrounding area's landscape setting. Visual sensitivity is high, and viewing distance is in the foreground-middle ground from important viewing areas within and outside the Monument. Its rugged, steep-sloped

mountains form the background and skyline defining the broad, flat valleys where agricultural, rural and urban development exists. Due to landform, vegetation and visibility characteristics, IFNM lands are vulnerable to visual impacts from activities that involve vegetation clearing, earthwork disturbance, and placement of structures, which can cause strong visual contrasts noticeable in foreground to background views.

Under the current management, visual resources in the Monument are under Visual Resource Management (VRM) Class III objectives to partially retain the existing character of the landscape. Under this Class, changes to the landscape are limited to a moderate level, with land use and management activities that may attract attention but not dominate the view of the casual observer; changes in the landscape should repeat the basic elements found in the predominant natural features of the characteristic landscape.

Wilderness Characteristics

As part of the land use planning process and in response to input received during scoping, the BLM assessed the planning area for wilderness characteristics. The BLM Land Use Planning Handbook (H-1601-1) provides the following guidance:

> 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.

The assessment utilized data gathered for the plan in the visual, recreation, vegetation, ecological site, and wildlife habitat resource inventories.

The wilderness characteristics assessment confirmed the presence of wilderness characteristics on approximately 36,990 acres of BLM-administered land, including areas of the Sawtooth, West Silver Bell, Silver Bell, and Roskruge Mountains.

Energy and Mineral Resources

BLM manages approximately 149,360 acres of Federal mineral estate within the IFNM boundaries. The Federal mineral estate lies under surface areas administered by the BLM, as well as areas of State Trust land (14,680 acres) and private land (3,220 acres). As a result of the Proclamation, all of the lands and interests in lands, including minerals, within the IFNM boundaries have been withdrawn from location, entry, and patent under the mining laws and from disposition under all laws relating to mineral and geothermal leasing.

BLM is responsible for managing leasable, locatable, and salable minerals within the IFNM. There are no known leasable minerals (oil, gas, or geothermal resources) within the IFNM. Locatable minerals, which include metallic and nonmetallic minerals have been reported in the IFNM. As of 2005, there were 225 existing claims for metallic minerals, though no active mining of metallic or nonmetallic minerals presently is occurring on public land. Salable minerals, which include sand, gravel, aggregate, and other building stone, have historically been extracted from public lands in the IFNM; however, no mineral removal operations presently are occurring.

Livestock Grazing

The entire IFNM is available for grazing, which includes approximately 128,400 acres of public land. Currently, grazing leases are held for 11 allotments.

Recreation

The IFNM is easily accessible from both Tucson and Phoenix, and small towns and communities in beween. IFNM lands provide outstanding recreational opportunities in a semi-primitive undeveloped setting. Visitors engage in a variety of dispersed recreational activities, including hiking/walking/running, sightseeing, wildlife viewing, camping, vehicle touring, picnicking, target shooting, hunting, and horseback riding. Universal access is not available to recreation opportunities in the IFNM due to barriers imposed by terrain and vegetation, but some opportunities are accessible to persons with mobility impairments where accessible by motorized or mechanized vehicles. The Ragged Top Mountain area is the primary destination within the IFNM for sightseeing and wildlife viewing.

Under current management, recreation resources and use in the IFNM are managed for basic custodial resource and visitor management. Use of IFNM lands in connection with commercial and/or organized recreational activities is managed under special recreation permits issued according to regulations in 43CFR2930.

Lands and Realty

BLM administers approximately 128,400 acres of public land (surface estate) in the IFNM. Adjustments to land tenure within the IFNM boundaries can occur under a variety of realty actions. However, under the Proclamation, all land and interests in land (i.e., surface and subsurface estate) within the IFNM boundaries will remain under BLM's administration unless an exchange would further the protective purposes of the monument.

In addition to land tenure adjustments, BLM manages utility corridors to accommodate rights-of-way for major facilities and communication sites. There are three utility corridors, where rights-of-way for pipelines and electrical transmission lines have been issued. Rights-of-way for other utilities and facilities also are present in the IFNM, including two communication sites: Pan Quemado and Confidence Peak. Presently, there are 27 rights-of-way authorized by BLM within the IFNM.

Travel Management

There are approximately 346 miles of routes of varying condition on public lands within the IFNM; the vast majority of these routes are dirt roads. These are typically single-lane roads that are passable by two-wheel-drive, high-clearance vehicles, but not by passenger vehicles or larger vehicles, and that show no evidence of improvement or regular maintenance. Vehicle travel is limited to these existing routes and county-maintained routes through the IFNM, including Sasco, Avra Valley, Silverbell, Manville, Mile Wide, El Tiro, and Pump Station Roads.

Special Designations

The Waterman Mountains area of critical environmental concern (ACEC), which includes 2,240 acres of public land, is the only special designation within the IFNM. It was established in the 1989 Phoenix RMP primarily for the protection of the Nichol Turk's head cactus, and is one of the most popular destinations within the monument.

Social and Economic Conditions

Overall, long-term (30-year, 1970 to 2000) social and economic trends for the study area indicate a shift among the dominant employment sectors and the major sources of personal income. In Pima and Pinal counties, the long-term trend has been a large increase in jobs in the services and professional sector, which generally pays less than other sectors. This trend is statewide; the services and professional sector has provided approximately 75 percent of new jobs in Arizona between 1970 and 2000. Conversely, employment in the mining sector during this same time frame declined (although beginning in 2003, there has been a resurgence in the copper industry). New job growth in the government sector has occurred over this 30-year timeframe in both counties. The farm and agricultural services sector remained flat in Pima County, but declined in Pinal County.

ENVIRONMENTAL CONSEQUENCES

The predicted consequences, or potential effects, on the environment that would result from the implementation of the alternative management strategies were identified. An impact, or effect, is defined as a modification to the environment as it presently exists, that is brought about by an outside action. The following sections summarize the results of the impact analysis for each alternative.

Impacts on Air Quality

Under all alternatives, surface-disturbing activities—including vehicle travel, recreational uses, land use authorizations, and livestock grazing (at least until leases expire under Alternative B)—would result in localized degradation of air quality. Under Alternative B, surface-disturbing activities in fragile or sensitive soils would be prohibited and fewer miles of routes would be designated for motorized use compared to other alternatives, resulting in greater protection of air quality. Under Alternatives A, C, and D, BLM would allow increased surface disturbance compared to Alternative B; however, erosion prevention and/or control, and site-specific mitigation of impacts from surface disturbance in fragile or sensitive soils would minimize the potential for impacts on air quality under these alternatives. Alternatives B, C, and D would all reduce air quality impacts compared to current management (Alternative A).

Impacts on Geology and Caves Resources

Under all alternatives, surface-disturbing activities—including vehicle travel, recreational uses, collection of paleontological resources, and land use authorizations—could degrade geological resources in localized areas (e.g., along travel routes). Because of the extent of the mountain ranges within IFNM that contain geologic resources, these localized impacts on geological objects of the monument would not reduce the contribution of those resources to the natural characteristics, processes, and scenic and wildlife values. Maintaining and improving soil cover and productivity through erosion preventative measures would indirectly help maintain geological resources. Under Alternative A, designating the IFNM as VRM Class III could allow for surface-disturbing activities that could degrade geological resources. Under Alternative B, designating 125,110 acres of VRM Class I and II, closing 38,040 acres to vehicle travel, and managing 36,990 acres for wilderness characteristics could limit surface-disturbing activities in these areas, subsequently protecting geological and cave resources throughout a majority of the IFNM. Under Alternative C, designating 124,900 acres of VRM Class II, closing 10,880 acres to vehicle travel, and managing 9,510 acres for wilderness characteristics could protect geological and cave resources similar to Alternative B, though across less area of the IFNM. Under Alternative D, designating 122,580 acres of VRM Class II would provide protection of geological and cave resources, similar to Alternatives B and C, though across less area of the IFNM. Under Alternatives A, C, and D, utility corridors (8,240, 241, and

2,660 acres, respectively) would provide opportunities for land use authorizations that could degrade geological resources.

Impacts on Soil and Water Resources

Under all alternatives, surface-disturbing activities—including vehicle travel, recreational uses, collection of paleontological resources, and land use authorizations—could result in the loss of soil resources or degradation of water quality in localized areas. However, maintaining and improving soil cover and productivity through erosion preventative measures would indirectly help maintain soil and water resources. Under Alternative A, designating the IFNM as VRM Class III would allow for surface-disturbing activities that could degrade soil and water resources. Under Alternative B, designating 125,110 acres of VRM Class I and II, closing 38,040 acres to vehicle travel, and managing 36,990 acres for wilderness characteristics could limit surface-disturbing activities in these areas, subsequently protecting soil and water resources throughout a majority of the IFNM. Under Alternative C, designating 124,900 acres of VRM Class II, closing 10,880 acres to vehicle travel, and managing 9,510 acres for wilderness characteristics could protect soil and water resources similar to Alternative B, though across less area of the IFNM. Under Alternative D, designating 122,580 acres of VRM Class II would provide protection of soil and water resources, similar to Alternatives B and C, though across less area of the IFNM. Under Alternatives A, C, and D, utility corridors (8,240, 241, and 2,660 acres, respectively) would provide opportunities for land use authorizations that could result in surface-disturbing activities, resulting in degradation of soil and water resources in localized areas. Prohibiting recreational target shooting (under Alternatives B and C) and restricting target shooting to designated areas (Alternative D) would reduce the amount of lead shot within the IFNM, as well as the potential for lead to leach into the soil.

Impacts on Vegetation

Under all alternatives, restrictions on surface-disturbing activities and measures to minimize soil erosion would help retain existing vegetation diversity, species composition, and successional states and patterns, providing protection for monument objects. Construction of facilities, vehicle travel, recreational uses, and land use authorizations could result in the loss of vegetation in localized areas. Under Alternative A, designating the IFNM as VRM Class III potentially would allow for surface-disturbing activities that could result in trampling or removal of vegetation. Under Alternative B, designating 125,110 acres of VRM Class I and II, closing 38,040 acres to vehicle travel, and managing 36,990 acres for wilderness characteristics could limit surface-disturbing activities in these areas, subsequently protecting vegetation and reducing the potential for the spread of invasive species compared to Alternative A. Under Alternative C, designating 124,900 acres of VRM Class II, closing 10,880 acres to vehicle travel, and managing 9,510 acres for wilderness characteristics could protect vegetation similar to Alternative B. In addition, allocating 2,240 acres as the Waterman Mountains Vegetation Habitat Management Area (VHA) and 6,780 acres as the Ragged Top VHA would limit surface-disturbing activities in these areas, resulting in protection of vegetation in these areas under both Alternatives B and C. Under Alternative D, designating 122,580 acres of VRM Class II would provide protection of vegetation, similar to Alternatives B and C, though across less area of the IFNM. In addition, allocating 2,240 acres as the Waterman Mountains VHA and 6,500 acres as the Ragged Top VHA would limit surface-disturbing activities in these areas, resulting in protection of vegetation in these areas. Under Alternatives A, C, and D, utility corridors (8,240, 241, and 2,660 acres, respectively) would provide opportunities for land use authorizations that could result in surface-disturbing activities, resulting in trampling or removal of vegetation in localized areas, as well as the potential for spreading of invasive species in disturbed areas. Recreational target shooting could result in dispersed damage to vegetation resources (Alternative A), little to no damage under Alternatives B or C (as target shooting would be prohibited), or potentially concentrated damage to vegetation near designated shooting areas (Alternative D). Compared to

Alternative B, Alternatives A, C, and D could result in increased disturbance to vegetation in localized areas from camping, rights-of-way (in designated corridors), vehicle travel on motorized routes, and other allowable uses. The localized disturbance to vegetation from such actions would not alter the viability of ironwood, palo verde, or saguaro populations, or their vegetative communities.

Impacts on Wildlife and Wildlife Habitat

Under all alternatives, restrictions on surface-disturbing activities and measures to minimize soil erosion would help retain existing vegetation, subsequently retaining wildlife habitat and protecting monument objects. Vehicle travel and recreational uses could result in surface-disturbing activities that would degrade wildlife habitat in localized areas. Under Alternative A, designating the IFNM as VRM Class III would allow for surface-disturbing activities that could degrade wildlife habitat. Under Alternative B, designating 125,110 acres of VRM Class I and II, closing 38,040 acres to vehicle travel, and managing 36,990 acres for wilderness characteristics could limit surface-disturbing activities in these areas, subsequently protecting vegetation and reducing the potential for degradation of wildlife habitat compared to Alternative A. In addition, allocating 29,820 acres as the Desert Bighorn Sheep Wildlife Habitat Management Area (WHA) and 2,240 acres as the Waterman Mountains VHA would limit surface-disturbing activities in these areas, resulting in protection of wildlife habitat. Under Alternative C, designating 124,900 acres of VRM Class II, closing 10,880 acres to vehicle travel, and managing 9,510 acres for wilderness characteristics could protect wildlife habitat similar to Alternative B, though across less area of the IFNM. Alternative C would include protection of wildlife habitat in the Desert Bighorn Sheep Wildlife WHA and Waterman Mountains VHA similar to Alternative B. Under Alternative D, designating 122,580 acres of VRM Class II would provide protection of wildlife habitat, similar to Alternatives B and C, though across less area of the IFNM. Under Alternatives A, C, and D, utility corridors (8,240, 241, and 2,660 acres, respectively) would provide opportunities for land use authorizations that could result in surface-disturbing activities, resulting in trampling or removal of vegetation, which would degrade wildlife habitat in localized areas.

Impacts on Special Status Species

Under all alternatives, surface-disturbing or disruptive activities could displace special status species, fragment habitat, or result in the loss of habitat. The impacts on special status species (objects of the monument) would not result in the loss of a population of a special status species. Under Alternative A, designating the IFNM as VRM Class III would allow for surface-disturbing activities that could degrade special status species habitat. Under Alternative B, designating 125,110 acres of VRM Class I and II, closing 38,040 acres to vehicle travel, and managing 36,990 acres for wilderness characteristics could limit surface-disturbing activities in these areas, subsequently protecting vegetation and reducing the potential for degradation of special status species habitat compared to Alternative A. In addition, allocating 29,820 acres as the Desert Bighorn Sheep WHA and 2,240 acres as the Waterman Mountains VHA would limit surface-disturbing activities in these areas, resulting in protection of special status species habitat in those areas. Under Alternative C, designating 124,900 acres of VRM Class II, closing 10,880 acres to vehicle travel, and managing 9,510 acres for wilderness characteristics could protect special status species habitat similar to Alternative B, though across less area of the IFNM. Alternative C would include protection of wildlife habitat in the Desert Bighorn Sheep Wildlife WHA and Waterman Mountains VHA similar to Alternative B. Under Alternative D, designating 122,580 acres of VRM Class II would provide protection of special status species habitat, similar to Alternatives B and C, though across less area of the IFNM. Under Alternatives A, C, and D, utility corridors (8,240, 241, and 2,660 acres, respectively) would provide opportunities for land use authorizations that could result in surface-disturbing activities, resulting in direct conflicts with special status species or the loss or potentially increased fragmentation of their habitat. Compared to Alternative B, Alternatives A, C, and D could result in increased impacts on special status species in localized areas, although the management

goals and objectives associated with each alternative would protect special status species populations as a whole. Mitigation measures would be implemented to reduce impacts on special status species to minimize impacts and to provide further protection of the monument objects.

Impacts on Fire Ecology and Management

Under all alternatives, management actions to limit surface disturbance would reduce opportunities for the establishment of noxious weeds and invasive species, which would indirectly help retain the existing fire regime. Under Alternative A, the potential for ignitions would be minimized on the 820 acres closed to motorized vehicle travel. Under Alternative B, 38,040 acres would be closed to motorized vehicle travel, reducing the potential for ignitions in those areas. However, managing 36,990 acres for wilderness characteristics could preclude some types of fuel reduction treatments in those areas. Under Alternative C, 10,880 acres would be closed to motorized vehicle travel, reducing the potential for ignitions in those areas. However, managing 9,510 acres for wilderness characteristics could preclude some types of fuel reduction treatments in those areas. Under Alternative D, no areas would be closed to motorized travel (though motorized travel would be limited to designated routes), resulting in the potential for ignitions along roads.

Impacts on Cultural Resources

Under all alternatives, surface-disturbing activities—including vehicle travel, recreational uses, land use authorizations, and livestock grazing (at least until leases expire under Alternative B)—could result in disturbance of cultural resources. However, management objectives and decisions for management actions, allowable use, and use allocations would protect the cultural objects of the monument through the careful definition of scientific and public use of cultural resources. Furthermore, mitigation measures (such as closing access to site, establishing barriers to restrict access, recovering data through excavation and documentation) also would provide for protection of cultural resources. Under Alternative A, closing 820 acres to motorized vehicles and allocating the 2,720-acre Avra Valley Cultural Resource Management Area would help protect cultural resources by reducing surface disturbance in those areas. In addition, limiting the amount of human access helps to protect cultural resources by minimizing the potential for looting, pothunting, vandalism, illegal immigration traffic, and inadvertent damage. Under Alternative B, surface-disturbing activities in fragile or sensitive soils would be prohibited, 38,040 acres would be closed to motorized travel, and fewer miles of routes would be designated for motorized use compared to other alternatives, resulting in greater protection of cultural resources in those areas. In addition, surface disturbance for research would not be permitted. Under Alternatives A, C, and D, BLM would allow increased surface disturbance compared to Alternative B, including surface disturbance for research; however, erosion prevention and/or control, and site-specific mitigation of impacts from surface disturbance in fragile or sensitive soils would minimize the potential for impacts on cultural resources (monument objects) under these alternatives.

Impacts on Paleontological Resources

Under all alternatives, surface-disturbing activities—including vehicle travel, recreational uses, land use authorizations, and livestock grazing (at least until leases expire under Alternative B—could result in disturbance of paleontological resources. Under Alternative A, closing 820 acres to motorized vehicles would provide limited protection for paleontological resources by reducing surface disturbance in those areas. Under Alternative B, surface-disturbing activities in fragile or sensitive soils would be prohibited, 38,040 acres would be closed to motorized travel, and fewer miles of routes would be designated for motorized use compared to other alternatives, resulting in greater protection of paleontological resources in those areas. Under Alternatives A, C, and D, BLM would allow increased surface disturbance compared to Alternative B; however, erosion prevention and/or control and site-specific mitigation of

impacts from surface disturbance in fragile or sensitive soils would minimize the potential for impacts on paleontological resources under these alternatives.

Impacts on Scenic and Visual Resources

Under Alternative A, BLM would allow for the greatest modification of the visual environment, as the IFNM would be managed under objectives for VRM Class III; mitigation could be necessary for projects to protect scenic values. Under Alternatives B, C, and D, much less modification to the scenic and visual environment would be anticipated as a majority of the IFNM under these alternatives would be managed such that changes to the landscape should not be noticeable. Alternative B would include 36,990 acres of public land managed as VRM Class I, and 88,120 acres of public land managed as VRM Class II. Alternatives C and D would not include any VRM Class I, but would include 124,900 or 122,580 acres, respectively, managed as VRM Class II, which would maintain and protect the views of public land within the monument.

Impacts on Wilderness Characteristics

Under Alternatives A, B and C, wilderness characteristics would be protected in areas that are closed to OHV travel; however, the area closed under Alternative B would be greater than under any other alternative. Under Alternative B, 36,990 acres of public land would be managed to maintain wilderness characteristics, and these areas would be managed as VRM Class I, resulting in few if any surface-disturbing activities. In addition, surface-disturbing activities in fragile or sensitive soils would be prohibited and fewer miles of routes would be designated for motorized use compared to other alternatives, resulting in greater protection of wilderness characteristics in those areas. Under Alternative C, 9,510 acres of public land would be managed to maintain wilderness characteristics, and these areas would be managed as VRM Class II, resulting in coincidental protection of wilderness characteristics in those areas. Though no areas would be managed to maintain wilderness characteristics under Alternative D, increased protection of such characteristics would occur compared to Alternative A as a result of VRM class designations (mainly VRM Class II under Alternative D), which would limit surface disturbance, and as a result of the designation of routes for motorized or non-motorized travel (fewer miles would be designated for motorized travel compared to Alternative A).

Impacts on Energy and Mineral Resources

The Proclamation designating the IFNM withdrew the area from mineral material disposal, location, entry and patent under mining laws and from disposition under all laws relating to mineral and geothermal leasing, subject to valid existing rights. Under the locatable mining laws for all alternatives, before any exploration or mining activity could occur, BLM would need to determine mining claim validity. Valid mining claims can be developed pursuant to current regulations. With the exception of any valid existing rights, because the subject lands are withdrawn, any known or undiscovered mineral deposits will not be developed. Impacts to renewable energy resources are discussed under land use authorizations in the lands and realty section.

Impacts on Livestock Grazing

Under all alternatives livestock grazing would be adjusted when necessary to continue to comply with Arizona Standards for Rangeland Health. Although these adjustments would help enhance rangeland conditions and increase long-term forage production, animal unit month (AUM) use could decrease for some livestock operators. Managing vegetation and wildlife habitat, and implementing programs to reduce wildfire ignitions, would enhance vegetation community conditions and could increase forage. Recreation, mining activities, and activities associated with cultural resource management could either

disrupt livestock or result in surface disturbance that removes vegetation, including livestock forage, from localized areas. Under Alternative A, designating 128,400 acres of BLM-administered lands in the IFNM to meet VRM Class III, providing 8,240 acres for utility corridors, and continuing custodial management of recreation could result in surface disturbance removing vegetation and forage. Under Alternative B, designating 125,110 acres as VRM Class I and II, managing 36,990 acres for wilderness characteristics, and managing 60,000 acres as Semi-Primitive Non-Motorized could help retain vegetation resources by reducing surface disturbance activities. However, this could restrict the type or location of rangeland improvement projects. Under Alternative B, making BLM-administered lands unavailable for livestock grazing after existing leases expire could reduce the number of livestock operators in the area. Impacts on livestock grazing until leases expire from closing 36,990 acres to motorized use, and managing the IFNM as an exclusion area for right-of-way could help maintain forage available for livestock grazing. Under Alternatives C and D, managing 124,900 and122,580 acres, respectively, as VRM Class II could reduce surface-disturbing activities, retaining vegetation and forage. Under Alternative C, managing 9,510 acres for wilderness characteristics could restrict rangeland improvement projects.

Impacts on Recreation

Under all alternatives, retaining all public lands within the IFNM and acquiring non-Federal lands could provide continued recreation opportunities in the IFNM. Managing the IFNM for full suppression of fires and maintaining or improving soil productivity could help maintain the recreation setting. Under Alternative A, continued custodial management of recreation could provide opportunities for vehicle-based recreation throughout the IFNM. However, this dispersed use could result in increased surface disturbance in localized areas and may diminish recreational settings over time. Managing 127,580 acres as limited to designated or existing routes would provide opportunities for motorized recreation. Designating the IFNM (128,400 acres) as VRM Class III and managing 8,240 acres as utility corridors would allow surface-disturbing activities that could reduce naturalness and degrade recreational settings. Closing 820 acres to OHV use could help preserve naturalness and maintain the recreational setting. Under Alternative B, C, and D, managing the IFNM using recreation management zones (RMZs) could help maintain the recreational setting over time by reducing surface disturbance in localized areas. Under Alternative B, managing 36,990 acres for wilderness characteristics, managing 60,000 acres as a Semi-Primitive Non-Motorized recreation zone, and managing 38,040 acres as closed to motorized use would maintain primitive and non-motorized recreational opportunities. Under Alternative C, managing 117,520 acres as limited to designated routes would maintain opportunities for motorized recreation throughout a majority of the IFNM. Closing 10,880 acres to motorized use, managing 57,450 acres as Semi-Primitive Non-Motorized recreation zone, and managing 9,510 acres for wilderness characteristics would maintain primitive and non-motorized recreational opportunities. Under Alternative D, managing the IFNM (128,400 acres) as limited to designated routes would maintain opportunities for motorized recreation. Managing 43,770 acres for Semi-Primitive Non-Motorized recreation use would provide opportunities for non-motorized recreation. Alternative D would provide for two designated areas for recreational target shooting, whereas Alternative A would continue opportunities for dispersed recreational shooting and Alternatives B and C would prohibit recreational shooting within IFNM.

Impacts on Lands and Realty

Under all alternatives, BLM could acquire land and incorporate those lands into the IFNM. Acquisitions would be dependent upon having a willing seller. In accordance with the Proclamation, no lands would be transferred out of Federal ownership. Under Alternative A, land tenure adjustments would focus on the acquisition of non-Federal land in the Waterman Mountains, Sawtooth Mountains, Agua Blanca Ranch area, Cocoraque Butte area, Silver Bell Mountains and three sections of land in the West Silver Bell Mountains. Closing 820 acres to OHV travel could restrict land use authorizations in these areas as a result of access limitations that would be enforced as part of the OHV closure. Under Alternatives B, C

and D, land tenure adjustments would focus on acquisition of non-Federal land throughout the IFNM, on an opportunistic basis, rather than within specific areas. This would provide greater flexibility for BLM in prioritizing land for acquisition and would account for changing conditions in and around the IFNM. Under Alternative B, allocating the IFNM as an exclusion area without identifying any utility corridors would result in considering land use authorizations for rights-of-way only when required by law. This would exclude the potential for new rights-of-way for electric generating facilities (including renewables), transmission lines, pipelines, and other utilities, but would best protect the objects of the monument. Closing 38,040 acres to OHV travel could restrict land use authorizations in these areas as a result of access limitations that could be enforced as part of the OHV closure. Under Alternative C, closing 10,880 acres to OHV travel could restrict land use authorizations in these areas as a result of access limitations that could be enforced as part of the OHV closure. Allocating the IFNM as an avoidance area (except for 241 acres that are identified as utility corridors) would limit opportunities for rights-of-way (including renewable energy projects) unless no other viable alternatives exist to avoiding placement of facilities within the IFNM. Corridors on 241 acres would provide limited opportunities for major utilities. Under Alternative D, allocating the IFNM as an avoidance area (except for identified utility corridors) would limit opportunities for rights-of-way unless no other viable alternatives exist to avoiding placement of facilities within the IFNM. The three corridors on 2,660 acres would provide limited opportunities for major utilities.

Impacts on Travel Management

Under all alternatives, fire suppression activities could require emergency access that may not be accommodated by the travel route system. Mining activity at valid existing claims could require additional access that may not be accommodated by the travel route system and could require additional routes be established for the specific purpose of a valid mining claim. Erosion prevention and land treatments to maintain or improve soil cover and productivity could improve road conditions. Acquiring lands would protect and potentially expand public travel and access within the IFNM because additional travel routes and access points could become available for public use. Under Alternative A, closing 820 acres to OHV travel and limiting motorized vehicle travel to existing or designated routes on approximately 127,580 acres would provide and extensive travel network on 346 miles throughout the IFNM. Under Alternative B, closing 38,040 acres to OHV travel and limiting motorized vehicle use to designated routes on the remaining 90,360 acres would provide a 63-mile travel network (plus County-administered and State Trust lands) throughout the IFNM. Under Alternative C, closing 10,880 acres to OHV travel and limiting motorized vehicle travel to designated routes on 124 miles would provide a travel network throughout the IFNM. Under Alternative D, limiting motorized vehicle travel to designated routes on 128,400 acres would provide a 226-mile travel network throughout the IFNM.

Impacts on Special Designations

Under Alternative A, only decisions for special status species and special designations would affect the Waterman Mountain ACEC. The approximately 2,240 acres of BLM-administered lands would continue to be designated for the protection of the Nichol Turk's head cactus. Under Alternatives B, C, and D, the 2,240 acres of BLM-administered lands in the Waterman Mountain ACEC would not continue because the IFNM designation and management proposed for the IFNM would provide protection of the special status species for which the ACEC was established.

Impacts on Social and Economic Conditions

Under all alternatives, management of the IFNM would protect monument objects, recognizing the social value of resource preservation and conservation; this would include minor expenditures and earning associated with BLM management. Mining claims that predate the establishment of the IFNM could

potentially be developed and economic gains would be realized commensurate with the scale of the development. Under Alternative A, livestock grazing would continue to generate economic gains from operators, depending upon stocking rates which would vary. Social values of ranching would continue under Alternatives A, C, and D. Under Alternative A, continuing custodial management of recreation would result in minor economic impacts (generally fees for permits); however, social conflicts would continue and possibly escalate over time if use of the IFNM increases. After existing grazing leases expire, under Alternative B, there would be a loss of economic activity associated with livestock grazing as well as a loss of the social value of ranching within the IFNM. Under Alternatives B, C, and D, opportunities for recreation would vary based on the differing allocation of RMZs, but all would provide for a variety of motorized and non-motorized recreational settings and opportunities. Under Alternative B, managing 36,990 acres for wilderness characteristics would recognize the social and non-market values of these areas; however, opportunities for uses that generate economic returns could be limited in these areas. Allocating the IFNM as an exclusion area for rights-of-way and not identifying any utility corridors would preclude opportunities for such facilities and the economic impacts. Under Alternative C, managing 9,510 acres for wilderness characteristics would recognize the social and non-market values of these areas; however, opportunities for uses that generate economic returns could be limited in these areas. Allocating the IFNM as an avoidance area for rights-of-way, except on 241 acres for identified utility corridors, would limit, but not preclude, opportunities for such facilities and the associated economic impacts. Under Alternative D, allocating the IFNM as an avoidance area for rights-of-way except for 2,660 acres of identified utility corridors would limit, but not preclude, opportunities for such facilities and the associated economic impacts.

Impacts on Public Safety

Under all alternatives safety risks and hazards would exist to some degree. Emergency and rescue operations would be available on an as-needed basis regardless of the level of risk allowed under any of the alternatives. BLM's framework for hazardous materials management policies as provided in Manual Section 1703 (MS-1703) would be applicable to all alternatives. Implementing programs to reduce ignitions and maintaining full fire suppression would reduce risks and hazards. However, the use of hazardous materials, vehicles, or aircraft in association with these management activities could result in unintended spill or release of hazardous materials. Under Alternative A, allowing vehicle travel on 346 miles of existing or designated routes within the 127,580 acres open to motorized vehicles would present risks to public safety from vehicle-based accidents. Under Alternatives A and D, allowing recreational shooting could present risks of exposure to hazardous materials and injuries in areas of intense recreational use. Under Alternatives B and C, prohibiting recreational shooting except for permitted hunting would limit risks of exposure to hazardous materials and minimize risks to public safety from shooting activities. Under Alternative B, allowing vehicle travel on 63 miles of designated routes within the 90,360 acres available for vehicle travel would present risks to public safety from vehicle-based accidents. Under Alternative C, allowing vehicle travel on 124 miles of designated routes within the 117,520 acres available for vehicle travel would present risks to public safety from vehicle-based accidents. Under Alternative D, allowing vehicle travel on 226 miles of designated routes within the IFNM would present risks to public safety from vehicle-based accidents.

CUMULATIVE IMPACTS

Potential cumulative impacts, projects, and actions in or near the IFNM were determined by examination of other plans in the region, discussions with local governments and State and Federal land managers, and from information provided by BLM. The timeframe for this cumulative impact analysis encompasses past activities in the planning area since as early as 1860, but generally focuses on activities that occurred in the 1900s, present-day activities, and future activities that may extend 20 years into the future.

Cumulative impact on air quality could result in areas where direct impacts from different activities overlap. This could increase the amount of inhalable particulate matter such as PM_{10} concentrations, which could contribute to continued PM_{10} nonattainment status for air quality in portions of the IFNM and surrounding area.

Cumulative impacts on soil and water resources, and vegetation could occur from BLM management combined with proposed construction of additional urban and residential development, increased roads and highways, projects authorized as a result of the West-wide Energy Corridors, and the Southwest Transmission Company's Sandario Project could increase localized removal of or disturbance to vegetation. Comprehensive management plans as well as the IFNM RMP would restrict surface-disturbing activities, resulting in some mitigation of surface disturbance and vegetation removal.

The cumulative impact boundaries and impacts for wildlife and wildlife habitat vary by species. Cumulative impacts on the wildlife and wildlife habitat would result from surface disturbance and disruptive activities in and near the IFNM. Cumulative impacts from surface-disturbing activities could include habitat fragmentation, including some important movement corridors. State, county, and city comprehensive management plans would restrict surface-disturbing activities, resulting in some mitigation of habitat degradation.

The cumulative impact boundaries for special status plant and wildlife vary by species. Cumulative impacts on the special status species habitat would result from surface disturbance and disruptive activities in and near the IFNM. Cumulative impacts from surface-disturbing activities could include habitat fragmentation, including some important movement corridors. State, county, and city comprehensive management plans would restrict surface-disturbing activities, resulting in some mitigation of habitat degradation.

With respect to fire ecology and management, increased residential development on private lands adjacent to the IFNM would increase the amount of wildland-urban interface (WUI) areas over the long term. Residential development and increasing recreational use would increase the potential for accidental human-caused ignitions, which could spread into or out of the IFNM.

The proposed construction and additional residential development and infrastructure and/or utility improvements and expansions could disturb paleontological and/or cultural resources. These developments in conjunction with continued urban growth and recreational and other uses on public land also could disturb paleontological and cultural resources. The loss of cultural resources resulting from development on non-public land adjacent to the IFNM and potential degradation of cultural resources could occur with increased visitation. Comprehensive management plans, including city and county plans, may include provisions to protect and conserve paleontological and/or cultural resources.

Visual resources would continue to be affected by projects and activities that occur on lands that are not administered by the BLM, but which could be visible from public lands due to proximity and topography. Road construction, farming, mining, utility lines, and residential development tend to create visual contrasts along the borders of the IFNM. These types of activities combined with past actions have resulted in contrasts of texture, form, line, and color that are often visible to the casual observer at varying distances. Future projects likely would involve increased residential development and road construction which would continue to create visual contrasts with the landscape. However, Pima County's Buffer Overlay Zone Ordinance, if applicable to the IFNM could require projects to "provide for an aesthetic visual appearance from and to Pima County's public preserves," resulting in some mitigation of the cumulative impacts on scenic and visual resources.

Major mining complexes and vehicle traffic associated with these facilities could diminish wilderness characteristics if these operations were in direct view from localized portions of the IFNM. Projects outside of the planning area could impact wilderness characteristics due to the visibility of the projects from within the IFNM. The development of residential housing to the north and east of the IFNM could be visible from higher elevations within the IFNM, such as the Sawtooth Mountains and the Samaniego Hills. However, wilderness characteristics in designated wilderness within 50 miles of the IFNM would be protected in perpetuity and cumulative impacts on these values would be very limited regionally.

Removal of vegetation as a result of surface-disturbing activities, the presence and abundance of grazing wildlife, and general human disturbance (including illegal undocumented immigrant travel) would result in diminished potential for livestock grazing within and outside of the IFNM. Increased recreation use, urban development, and the conversion of private or Arizona State Trust land to other uses could reduce forage and livestock numbers. Under Alternative B, managing BLM-administered lands as unavailable for livestock grazing after existing leases expire, in conjunction with increased population growth and recreation demands, could reduce the number of livestock operators. This could reduce the demand for livestock grazing on Arizona State Trust land and private land in the IFNM.

Various past, present, and reasonably foreseeable future actions affect, or could affect, the supply and/or demand for recreational opportunities within the IFNM. The existence of other publicly accessible lands, including State and county parks, various State and regional trails, and the Sonoran Desert National Monument, provide various recreational opportunities. Increased vehicle-based recreation, closure of shooting ranges, and the growing urban and residential development, all would contribute to increased demand for recreational opportunities in the region.

Restrictions on rights-of-way and utilities near the IFNM could result from implementation of comprehensive plans, including habitat conservation plans (HCPs), the Sonoran Desert Conservation Plan, and Pima County Conservation Lands System. These plans, combined with areas protected as open space such as Saguaro National Park and other State and county parks, could concentrate rights-of-way in areas around, but outside of, the IFNM. The West-wide Energy Corridor Programmatic EIS would not establish additional corridors within the IFNM, but could result in major utilities being located outside of the IFNM. Sales (or exchanges, if permitted in the future) of Arizona State Trust land could result in extensive change to surface management within the IFNM boundaries. If BLM acquired non-Federal lands, the demand for major and smaller-scale distribution facilities could decrease. However, BLM likely would need to increase rights-of-way issued if State Trust land within the IFNM boundaries was sold to private parties for future development.

Urban development patterns and areas protected from development have guided the location and development of many highways and roads near and within the IFNM. The continuing growth of vehicle-based recreation, urban development, planned road and highway projects, and population growth are expected to increase demand and construction of transportation routes near the IFNM. Restrictions on the development of travel routes within the IFNM could increase the concentration of vehicles within the IFNM.

Trends such as population growth, increasing non-labor income, and the increasing importance of open space and preserved lands to the regional economy, are largely independent of the alternatives. However, as statewide and local economies shift towards the services sector and non-labor sources of income, BLM-administered lands take on a greater role in community economic development because they provide recreational opportunities and open space preservation to some extent. The small magnitude of socioeconomic impact of BLM's proposed actions relative to the increasing development of Pima and Pinal Counties are unlikely to impact tax revenues, employment, population growth, and development of the area overall. The presence of the IFNM may cause long-term increases in property values for adjacent landowners.

SUMMARY OF CHANGES MADE SINCE THE DRAFT RMP/EIS

This PRMP/FEIS includes changes to the Draft RMP/EIS that resulted from public comments on the draft, policy changes, and additional studies or other information. The key changes are described below. Comment responses in Appendix J provide additional details regarding changes made to the plan.

Information has been added to the PRMP/FEIS to explain the objects of the monument that are specifically identified for protection in the Proclamation. This information is included in Section 1.3.1, with clarification also provided in appropriate sections of Chapter 4 (i.e., applicable resource management categories) related to the impacts on "objects" of the monument. This information has been included to further explain selection of Alternative C and Alternative B for utility corridors as the management that would provide protection of monument objects, without extensive restrictions on public uses and access within the IFNM.

A detailed study was conducted to determine if it was practical to designate specific areas within IFNM for recreational shooting. Based on the analysis, which is included as Appendix I of this plan, only two sites were determined to be potentially suitable. Alternative D evaluates the effects of designating these two sites for recreational shooting while prohibiting dispersed recreational shooting in the remainder of IFNM.

The preferred alternative (Alternative C) in the Draft RMP/EIS proposed that two grazing allotments, Tejon Pass and Morning Star, be reclassified as perennial allotments from their current status as ephemeral allotments. This reclassification requires that forage capacity be identified, which was not done or analyzed in the Draft RMP/EIS. BLM is conducting additional monitoring to determine appropriate forage capacity; therefore, the decision to reclassify these allotments is being deferred until BLM can collect the data necessary to support and identify an appropriate forage capacity level and conduct an associated environmental analysis. As a result of this deferral, the proposed plan incorporates the "no action" alternative for these two allotments, meaning they will continue to be classified as ephemeral at this time.

The preferred alternative (Alternative C) in the Draft RMP/EIS proposed that native plants be used as the first priority for all restoration projects, and that non-intrusive, non-native plants would 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. The Proposed Plan (Alternative C) has been revised and proposes that only native plants be used in restoration activities.

Cultural resource surveys were conducted along roads that would be open for motorized use based on the Proposed RMP. Survey findings have been added to Section 3.1.8.1 and impacts for each alternative are included in Section 4.3.8.

Cocoraque Butte will not be allocated to public use because of the significance of the resources identified in this area and the need to protect those objects of the monument.

Primarily in response to public comments on the Draft RMP/EIS, some minor changes have been made to the alternatives to close certain routes to motorized use and open others to motorized use. This resulted in minor changes to the number of miles of routes designated for various uses. In addition, it should be noted that the policy on bicycle and other mechanized use within IFNM has been clarified. Except where specifically restricted, mechanized use would be allowed on all designated routes except those designated as trails. Maps in Appendix G illustrate this clarification.

The Proposed Plan would not provide for utility corridors, which is consistent with Alternative B; this differs from the preferred alternative in the Draft RMP/EIS, which included Alternative C for utility corridors.

The preferred alternative (Alternative C) in the Draft RMP/EIS proposed that acquisition of mineral estate not be a factor in surface estate acquisitions within the IFNM. The proposed plan (Alternative C) has been revised and proposes that BLM will not acquire surface estate unless mineral estate can be acquired concurrently (or is already federally owned).

Several management goals and objectives for the various resources and resource uses presented in Tables 2-1 through 2-17 were revised based on external comments and internal review to provide clarity and quantification where appropriate. These tables were also revised to correctly categorize a number of actions listed under "Implementation-Level Decisions" in the Draft RMP/EIS; these actions were either moved under "Decisions for Management Actions, Allowable Uses, and Use Allocations," in the same table or moved to Appendix D: Administrative Action by Resource.

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CHAPTER 1.0 INTRODUCTION

Under the authority provided in 16 United States Code (U.S.C.) 431, the Ironwood Forest National Monument (IFNM or monument) was established by Presidential Proclamation 7320 (Proclamation) for the purpose of protecting biological, cultural, geological, and other resource values (Appendix A). The U.S. Department of the Interior (USDI), Bureau of Land Management (BLM) Tucson Field Office has the responsibility of planning for and management of the IFNM.

In accordance with the Federal Land Policy and Management Act of 1976 (FLPMA), BLM is responsible for management of public lands and its resources based on the principles of multiple use and sustained yield. Management direction is provided by land use plans, which determine appropriate multiple uses, allocate resources, develop strategies to manage and protect resources, and establish systems to monitor and evaluate the status of resources and effectiveness of management. Land use plans are intended to guide management, allowing response to new legislation, changing policies, and changing uses of public land over extended time periods.

1.1 PURPOSE OF AND NEED FOR THE RESOURCE MANAGEMENT PLAN

A resource management plan (RMP) is being developed for the IFNM to specifically address management of lands within the IFNM consistent with the monument designation to protect objects of scientific interest. Presently, the land within the IFNM is managed under the 1989 Phoenix Resource Area RMP (Phoenix RMP) as amended by the Arizona Standards for Rangeland Health and Guidelines for Grazing Administration (USDI, BLM 1997), the Arizona Statewide Land Use Plan Amendment for Fire, Fuels, and Air Quality Management (USDI, BLM 2003a), and the 1987 Eastern Arizona Grazing Environmental Impact Statement (EIS), when decisions in these documents are consistent with the Proclamation.Where decisions in these documents may not be consistent with the Proclamation, BLM has been following an interim guidance document for managing public land within the IFNM until the new RMP is completed and approved (USDI, BLM 2001a). Wildlife habitat plans, such as the Silver Bell Habitat Management Plan, and allotment management plans provide specific management direction and actions for wildlife and range programs on lands within and immediately adjacent to the IFNM.

Since the Phoenix RMP and Eastern Arizona Grazing EIS were developed, numerous changes have occurred in the planning area that require reconsideration of existing management decisions. The most significant change in relation to this RMP is the establishment of the IFNM, but other changes are also relevant. For example, the continuing urban growth of the Tucson and Marana metropolitan areas has increased the demand for public land to accommodate many forms of recreational activity, and these pressures demand increased consideration of management for the protection of monument resources and values.

1.2 OVERVIEW OF THE PLANNING AREA

The IFNM lies in the Sonoran Desert ecosystem of southern Arizona and is a unique scenic area of rolling desert and ironwood woodlands including the Silver Bell, Waterman, Roskruge, and Sawtooth Mountains. Much of the vegetation in this area is classic Sonoran Desert upland habitat, dominated by saguaro, Bigelow's cholla, and staghorn cholla cacti. Other common vegetation includes ironwood and paloverde trees, creosotebush, brittlebush, triangle-leaf bursage, ocotillo, and white thorn acacia. Jojoba dominates the chaparral community on the upper slopes of the Silver Bell Mountains. The lower bajadas contain interbraided streambeds that carry water after heavy rains. These desert wash habitats are characterized by large ironwood, blue paloverde, and mesquite trees.

The IFNM encompasses mountain ranges that are important to the diverse wildlife and plant communities associated with the ironwood/saguaro forest. In addition, the IFNM contains habitats for several endangered species and species of concern (e.g., desert tortoise), an area of critical environmental concern (ACEC) to protect an endangered cactus, and a desert bighorn sheep special management area. IFNM also includes a site and two archaeological districts listed on the National Register of Historic Places (National Register), and historical mining camps and other cultural resources that are eligible for listing on the National Register.

The IFNM is located in Pinal and Pima Counties, Arizona, approximately 80 miles south of Phoenix and 25 miles northwest of Tucson, Arizona (Map 1-1: Location of the Ironwood Forest National Monument in Arizona). The IFNM is bordered by the Tohono O'odham Indian Reservation on the west and unincorporated county land otherwise. The closest population center is the Town of Marana to the east. The IFNM boundaries encompass Federal public land, Federal military land, State Trust land, and private land (Map 1 2: Surface Management). Table 1-1 summarizes acreages by surface manager or owner.

Table 1-1: Surface Management/Ownership of Land Within the IFNM

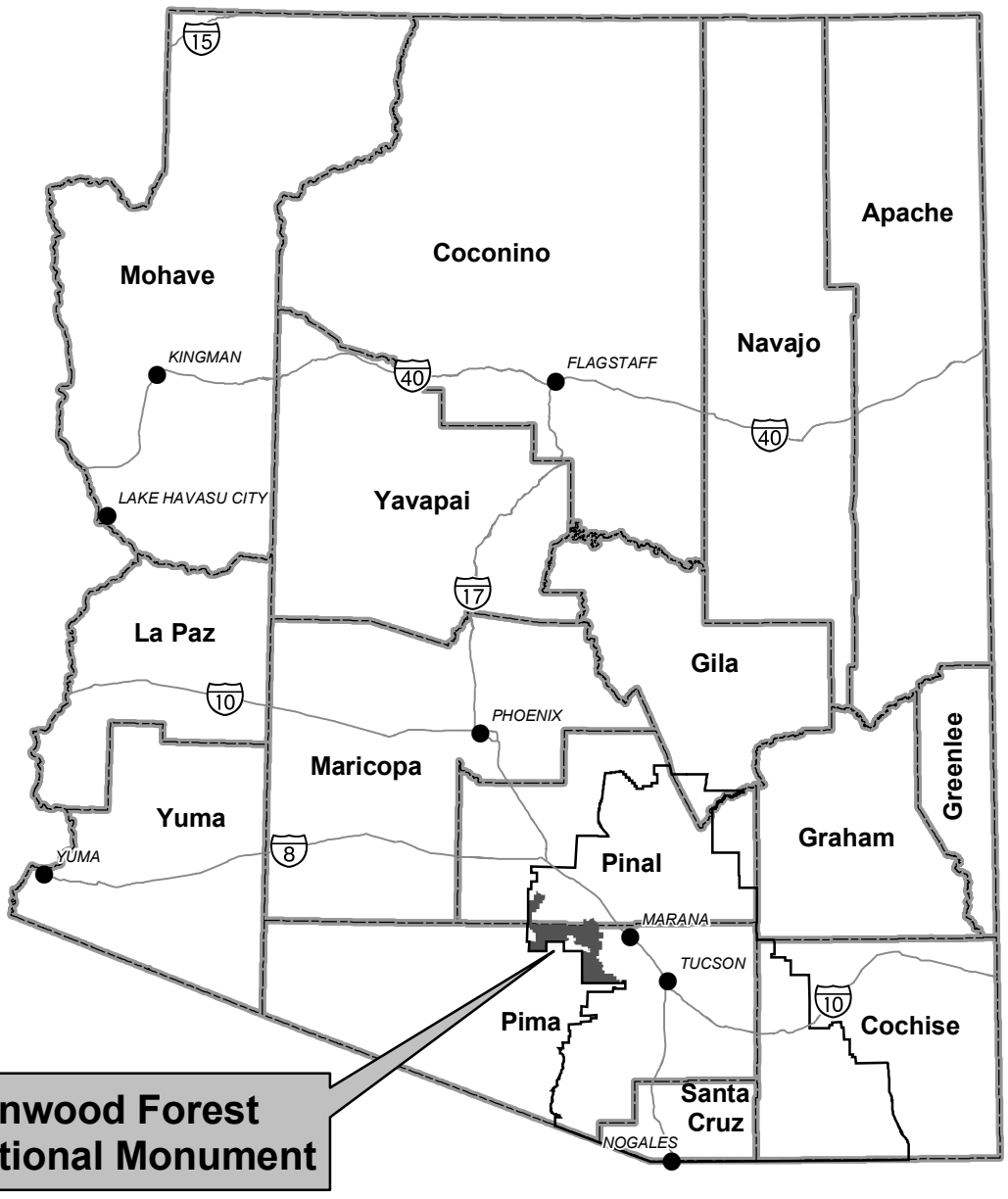
Surface Administrator/ Owner	Acres[1] within the Planning Area	Percent of Planning Area
BLM	128,398	68
State of Arizona	54,741	29
Pima County	632	<1
Department of Defense	299	<1
Private	4,549	3
TOTAL	**188,619**	**100**

SOURCE: U.S. Department of the Interior, Bureau of Land Management 2003b
NOTE: [1] Unless otherwise noted, acreages specified in this document are derived from a geographic information system (GIS) based on the best available data and may be rounded to the nearest 100 or 1,000 acres.

Three terms used in this document describe the areas under study. The "planning area" includes all lands within the boundaries of the IFNM, regardless of ownership or jurisdiction. The planning area in this case is 188,619 acres. The "decision area" is all public land and all Federal mineral estate within the boundaries of the IFNM, over which BLM has decision authority. Federal mineral estate is sometimes located beneath land owned or managed by entities other than the Federal Government. Lands where this occurs are referred to as "split estate" lands. BLM's decision area comprises 128,398 acres of surface land and 149,360 acres of Federal mineral estate, about 17,900 acres of which are split estate. The land use allocations, designations, and management prescriptions presented in Chapter 2 apply only to public lands and mineral estate administered by the BLM. If non-Federal lands are acquired, they would be managed according to the allocations depicted on the maps. The term "study area" also is used to describe the area being studied. The aerial extent of the study area differs for some resources or resource uses. The study area for most resources is the planning area; however, certain resources or resource uses are more appropriately addressed using a larger area when potential effects would extend beyond the planning area. For example, this is the case with the effects on air quality and on social and economic conditions within the region.

1.3 PURPOSE, SIGNIFICANCE, VISION, AND GOALS OF THE IFNM

The IFNM was established to protect an area within the Sonoran Desert that is representative of the richness and diversity of this unique desert environment, which stretches from the American Southwest into Mexico. The lands are significant because they are host to an internationally unique blend and assortment of biological species from different biotic communities. The incredible variety of substrates of rock and soil types greatly add to this, as well as vastly ranging microhabitats from flat plains to vertical cliffs.



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Legend

Planning Area

- Ironwood Forest National Monument Planning Area
- Tucson Field Office Boundary

General Reference

- County Boundary
- Interstate

Universal Tranverse Mercator
Zone 12, Units Meters
Clark 1866 Spheroid
NAD27 Datum

0 25 50 100 Miles

Location of the Ironwood Forest National Monument in Arizona

Map 1-1

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Surface Management

Ironwood Forest National Monument
PRMP/FEIS

Legend

Surface Management

- Bureau of Land Management
- National Park Service
- Bureau of Reclamation
- American Indian Reservation
- Military Reservation
- State Trust Land
- State, County, City; Wildlife, Park and Outdoor Recreation Area
- Private
- Pima County

Data Source:
Base Information: BLM 2003
Quadrangle Image: U.S. Geological Survey 1977 Tucson

General Reference

- County Boundary
- Central Arizona Project (CAP) Canal
- River
- Interstate 10
- Main public access routes to monument. County administered roads connecting monument travel route system to public highways.

Planning Area

- Ironwood Forest National Monument

Universal Tranverse Mercator
Zone 12, Units Meters
Clark 1866 Spheroid
NAD27 Datum

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0 1 2 4 Miles
0 2 4 8 Kilometers

Location in Arizona



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Map 1-2

The vision statement for the IFNM reflects a concern to preserve this valuable resource, as well as make it available to a community that has enjoyed unrestricted access over the years. The sections below provide an expanded description of the purpose of the IFNM, the area's significance, and the vision statement that was developed to protect and showcase this natural resource, as well as the goals established for the protection of monument objects. All of these have been and will continue to be used to guide development of this RMP and subsequent management actions.

The overall management purpose is derived, principally, from the Proclamation, as well as FLPMA, which recognizes the value of our nation's public land and was established to protect the quality and health of public lands for the use and enjoyment of later generations. Other laws and legal mandates also are considered during the process, and help establish goals and objectives for the planning area. Partner agencies, American Indian tribes, and the public have all been invited to participate in the RMP process. The following statements of purpose and significance of the IFNM, and the goals established for the IFNM have been derived from an elaborate collaboration of effort that incorporated consideration of all of the above.

1.3.1 Purpose

The IFNM was designated to protect objects of scientific interest within the monument, including the drought-adapted vegetation of the Sonoran Desert, geological resources such as Ragged Top Mountain, and abundant archaeological resources. The purpose of the IFNM is to preserve, protect, and manage the biological, cultural and geological resources, and other objects of this area for future generations, and to further our knowledge and understanding of these resources through scientific research and interpretation. These objects are referred to as "monument objects," "monument resources," or "monument values" in this document. Table 1-2 includes the text from Presidential Proclamation 7320 that identifies the monument objects, and lists what those objects are. The table also identifies the specific indicators and thresholds for protection of monument objects, and references the resource management category in which each of the objects are addressed in this plan. The resource management goals and objectives for each of these resource management categories are identified in Chapter 2 (see Tables 2-2, 2-4, 2-5, 2-6, 2-8, and 2-10); these goals further define BLM's actions to protect the objects, including opportunities to enhance or restore objects of the monument.

Table 1-2: Protection of Objects Within the IFNM

Text from Presidential Proclamation 7320	Monument Object	Object Indicators and Protection Thresholds	Resource Management Category
The landscape of the Ironwood Forest National Monument is swathed with the rich, drought-adapted vegetation of the Sonoran Desert. The monument contains objects of scientific interest throughout its desert environment. Stands of ironwood, palo verde, and saguaro blanket the monument floor beneath the rugged mountain ranges, including the Silver Bell Mountains. Ragged Top Mountain is a biological and geological crown jewel amid the depositional plains in the monument.	Drought-adapted vegetation	▪ Maintain viable natural populations of ironwood, palo verde, saguaros, and other drought-adapted vegetation within the monument. ▪ Prevent avoidable loss of unique vegetation communities on Ragged Top and other rugged mountain ranges.	Vegetation Special Status Species (refer to Tables 2-4 and 2-6 for resource condition goals and objectives and management actions)

Text from Presidential Proclamation 7320	Monument Object	Object Indicators and Protection Thresholds	Resource Management Category
	Rugged mountain ranges	▪ Maintain natural characteristics, processes, and scenic and wildlife values of geologic resources.	Geology and Caves (refer to Table 2-2 for resource condition goals and objectives and management actions)
The monument presents a quintessential view of the Sonoran Desert with ancient legume and cactus forests. The geologic and topographic variability of the monument contributes to the area's high biological diversity.	View of the Sonoran Desert	▪ Maintain visual quality of landscapes from important viewing areas.	Visual Resources (refer to Table 2-10 for resource condition goals and objectives and management actions)
Ironwoods, which can live in excess of 800 years, generate a chain of influences on associated understory plants, affecting their dispersal, germination, establishment, and rates of growth. Ironwood is the dominant nurse plant in this region, and the Silver Bell Mountains support the highest density of ironwood trees recorded in the Sonoran Desert. Ironwood trees provide, among other things, roosting sites for hawks and owls, forage for desert bighorn sheep, protection for saguaro against freezing, burrows for tortoises, flowers for native bees, dense canopy for nesting of white-winged doves and other birds, and protection against sunburn for night blooming cereus.	Ironwood trees	▪ Maintain viable natural populations of ironwood; prevent increased mortality of ironwood stands.	Vegetation (refer to Table 2-4 for resource condition goals and objectives and management actions)
The ironwood-bursage habitat in the Silver Bell Mountains is associated with more than 674 species, including 64 mammalian and 57 bird species. Within the Sonoran Desert, Ragged Top Mountain contains the greatest richness of species. The monument is home to species federally listed as threatened or endangered, including the Nichols turk's head cactus and the lesser long-nosed bat, and contains historic and potential habitat for the cactus ferruginous pygmy-owl. The	Habitat for threatened, endangered, and rare wildlife and vegetative species	▪ Maintain a natural range of variation in vegetation communities to support rare species. ▪ Prevent avoidable loss of special status species.	Vegetation Wildlife and Wildlife Habitat Special Status Species (refer to Tables 2-4, 2-5, and 2-6 for resource condition goals and objectives and management actions)

Text from Presidential Proclamation 7320	Monument Object	Object Indicators and Protection Thresholds	Resource Management Category
desert bighorn sheep in the monument may be the last viable population indigenous to the Tucson basin.			
In addition to the biological and geological resources, the area holds abundant rock art sites and other archaeological objects of scientific interest. Humans have inhabited the area for more than 5,000 years. More than 200 sites from the prehistoric Hohokam period (600 A.D. to 1450 A.D.) have been recorded in the area. Two areas within the monument have been listed on the National Register of Historic Places, the Los Robles Archeological District and the Cocoraque Butte Archeological District. The archaeological artifacts include rhyolite and brown chert chipped stone, plain and decorated ceramics, and worked shell from the Gulf of California. The area also contains the remnants of the Mission Santa Ana, the last mission constructed in Pimeria Alta.	Archaeological objects of scientific interest	▪ Reduce threats and resolve conflicts from natural or human-caused deterioration of rock art and other prehistoric sites, Archeological Districts on the National Register of Historic Places, artifacts, and remnants of Mission Santa Ana.	Cultural Resources (refer to Table 2-8 for resource condition goals and objectives and management actions)

Presidential Proclamation 7320 provides guidance for managing the monument for "the purposes of protecting the objects identified." In addition to the protection threshold identified above, protection of the monument objects is defined as maintaining the objects over time, such that any human-caused change or impact on the known biological, geological, and archaeological monument object(s) would be undetectable or measurable only in small and localized areas and the integrity of the object(s) would be conserved for future generations.

1.3.2 Significance

The variations in topography and geological features within the monument's boundaries provide the context for a rich diversity of biological communities. The ironwood, for which the monument is named and which is able to survive in excess of 800 years, generates a chain of influences on associated understory plants, affecting their dispersal, germination, establishment, and rates of growth. Ironwood is the dominant nurse plant in the region, providing, among other things, roosting sites for hawks and owls, forage for desert bighorn sheep, protection for saguaros against freezing, burrows for tortoises, flowers for native bees, dense canopy for nesting white-winged doves and other birds, and protection against sunburn for night-blooming cereus.

The ironwood-bursage habitat in the Silver Bell Mountains is associated with more than 674 species, including 64 mammalian and more than 70 avian species. The IFNM is home to species listed as threatened or endangered by the Federal Government, including the Nichols Turk's head cactus and the lesser long-nosed bat. In addition, the IFNM provides habitat for desert bighorn sheep, Sonoran desert tortoise, and other wildlife of special concern.

In addition to the rich biological and geological resources and objects, the planning area holds abundant rock art sites and other archaeological objects of scientific interest. Humans have inhabited the area for more than 5,000 years. More than 200 sites from the prehistoric Hohokam period (600 A.D. to 1450 A.D.) have been recorded in the area. Two archaeological districts have been identified within the IFNM and listed on the National Register—the Los Robles Archeological District and the Cocoraque Butte Archaeological District. The planning area also contains the remnants of the Mission Santa Ana de Cuiquiburitac, the last mission constructed in the Pimería Alta, which also has been listed on the National Register.

1.3.3 Vision

BLM enlisted the public's participation in crafting a vision statement for the IFNM that would help guide development of the RMP. A series of public workshops held in the spring of 2004 to introduce BLM's programs and the planning process produced a statement calling for both preservation and access: "Ironwood Forest National Monument is a place where the Ironwood-rich Sonoran Desert ecosystem, including its open spaces, outstanding vistas, and unique resources, is conserved, protected, and enhanced while providing opportunities for recreation, education, and other allowable uses for the enjoyment and appreciation of present and future generations."

1.3.4 Overarching Goals

The following management goals have been derived from the vision for the IFNM, as described above:

- Protect, enhance, and restore biodiversity, habitat integrity, and population viability of the native biotic community.
- Protect cultural resources to conserve their integrity and values.
- Protect biological, geological, and archaeological objects of scientific interest, and views of the Sonoran Desert.
- Provide for compatible, sustainable multiple use and safe enjoyment of public land.
- Encourage community and agency coordination and collaboration for managing and protecting the monument.
- Expand understanding and appreciation of the IFNM and its natural and cultural resources.
- Use a landscape-based approach to maintain and enhance the natural, cultural, and scenic resources of the IFNM.
- Pursue partnerships to promote social and economic benefits to local communities, businesses, visitors, organizations, interest groups, and future generations, and to enhance management of public land.

1.4 LEGISLATIVE REQUIREMENTS

The RMP process is both inspired and constrained by the Proclamation, FLPMA, and the National Environmental Policy Act (NEPA). These and other laws, regulations, and policies provide the framework for management of the IFNM.

1.4.1 Presidential Proclamation 7320

President William J. Clinton issued Presidential Proclamation 7320 to establish the IFNM on June 9, 2000. Its stated purpose is to reserve the public land within the boundaries of the IFNM established by the Proclamation to protect sensitive biological, cultural, geological, and other resource values within that area. The Proclamation is provided in Appendix A.

1.4.2 Federal Land Policy and Management Act of 1976

The BLM's planning process is governed by FLPMA (43 USC 1711). Land use plans ensure that BLM-administered public lands are managed in accordance with the intent of Congress as stated in FLPMA and under the principles of multiple use and sustained yield. As required by FLPMA, public lands must be managed in a manner that protects the quality of scientific, scenic, historical, ecological, environmental, air and atmospheric, water resource, and archaeological values; that, where appropriate, preserves and protects certain public lands in their natural condition and provides food and habitat for fish and wildlife and domestic animals; and provides for outdoor recreation and human occupancy and use by encouraging collaboration and public participation throughout the planning process. According to Section 302(a) of FLPMA, the National System of Public Lands is to be managed under the principles of multiple use and sustained yield "except that where a tract of such public land has been dedicated to specific uses according to any other provisions of law it shall be managed in accordance with such law." This section of FLPMA directs that when an area of public land is set aside by a presidential proclamation issued under the Antiquities Act of 1906 or an act of Congress, the designating language is the controlling law.

1.4.3 National Environmental Policy Act

NEPA was signed into law in 1970. As a result of its passage, the Federal Government cannot undertake any "major Federal action" unless and until the environmental consequences of that action have been thoroughly assessed. The act requires that the Federal Government adhere to a standard procedure for determining the environmental impact of decisions and/or projects, and encourages decision makers within Federal agencies to consider the environmental impact of every major project with Federal involvement. NEPA also requires Federal agencies to involve interested groups and the public in its decision-making process (42 U.S.C. 4331).

1.4.4 Other Regulations and Policies

This plan has been developed in accordance with the requirements set forth in the BLM H-1601-1 Land Use Planning Handbook, all current instruction memorandums and bulletins; Title 43, Code of Federal Regulations 1600 (43 CFR 1600); BLM supplemental guidance; Council on Environmental Quality (CEQ) guidelines for implementing NEPA (40 CFR 1500-1508), and other associated regulations and guidance (refer to Appendix B).

1.5 PLANNING CRITERIA

BLM planning regulations (43 CFR 1610) require the preparation of planning criteria as preliminary to the development of all plans. Planning criteria establish the principles that will guide the development of the plan and influence all aspects of the planning process, including collection of resource and resource use inventory data, development of alternatives, analysis of impacts, and ultimately the selection of a proposed plan. In effect, planning criteria ensure the planning process remains focused on the identified issues, and prevent unnecessary data collection and analysis.

Planning criteria are developed on the basis of applicable laws, agency guidance, public involvement, data analysis, professional judgment, and coordination with other Federal, State, and local governments and American Indian tribes. Appendix B provides the planning criteria for this planning effort and identifies the laws, regulations, and policies that form the basis for these criteria.

1.6 PLANNING PROCESS AND COLLABORATION

After the IFNM was established by Presidential Proclamation in June 2000, the BLM Tucson Field Office initiated the collaborative process that would build a solid foundation of community trust and respect throughout the preparation of the plan. The initial public involvement effort occurred prior to public scoping, as there was strong public support for the IFNM and a corresponding interest in how it would be managed. Public informational meetings were held between August 2000 and March 2002 to encourage the community dialogue. These meetings were well attended and a diversity of interests were represented. Representatives from several conservation and user groups, as well as Federal, State, tribal, and local agencies were in attendance. Other public information efforts included presentations to community councils, business and social groups, and various organizations.

The formal public scoping process was initiated on April 24, 2002, with publication of a notice of intent to prepare the RMP/EIS in the Federal Register. A detailed description of all issues identified during scoping can be found in the IFNM Scoping Report (USDI, BLM 2004a). The scoping report is available on the BLM's website at http://www.blm.gov/az/lup/ironwood/reports.htm.

BLM hosted nine scoping meetings in communities throughout southern Arizona. After public scoping was completed, BLM continued to have informal discussions with agencies, organizations, and individuals interested in the IFNM RMP/EIS. BLM also attended various organized meetings as a guest to provide information regarding the IFNM RMP/EIS.

BLM also hosted meetings in September and October 2004 to provide information regarding lands managed to protect wilderness characteristics, access, educational opportunities, public health and safety, social and economic conditions near the IFNM, and military uses in and around the IFNM. BLM also arranged a series of field trips, as requested by the workshop participants. Seven field trips occurred between December 2004 and March 2005, covering the IFNM-related topics of mining, cultural resources, ranching uses, recreational uses, wildlife waters, vegetation, and wildflowers and birding.

In August 2005, BLM hosted a workshop on the preliminary draft alternatives to present the range of management strategies that would be considered for the IFNM. During and following this meeting, BLM accepted comments from the public on the preliminary draft alternatives, and used these comments to broaden the range of alternatives to what was analyzed within the Draft RMP/EIS. In addition, BLM met with representatives of the Tohono O'odham Nation in January 2006 to review specific aspects of the alternatives.

The release of the Draft RMP/EIS in March 2007 was accompanied by a 90-day public comment period during which BLM held six public meetings throughout southern Arizona and in the Phoenix area. BLM received over 12,000 comments during the comment period from the public, agencies, and other organizations throughout the United States, with a few comments coming from outside the country (see Appendix J). Since the release of the Draft RMP, BLM has consulted further with the Four Southern Tribes, and participated in ongoing discussions with the Arizona Game and Fish Department, Arizona State Land Department, Pima and Pinal Counties, and other government entities as well as individuals and organizations to receive clarification on comments and discuss issues relevant to the IFNM RMP.

1.6.1 Cooperating Agencies

CEQ regulations, which are contained in 40 CFR 1501.6 and 1508.5, implement the NEPA mandate that Federal agencies responsible for preparing NEPA analysis and documentation do so "in cooperation with State and local governments" and other agencies with jurisdiction by law or special expertise (42 U.S.C. 4331(a), 4332(2)). Cooperating agency status allows interested agencies to assume responsibilities beyond attending public meetings, and to both review and comment on plan documents. In support of this mandate, BLM invited more than 200 Federal, State, local, and tribal agencies to become cooperating agencies on the development of the IFNM RMP, and a cooperating agency meeting was held at the BLM Arizona State Office on October 30, 2002, 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.

The Arizona Game and Fish Department (AGFD) established a Memorandum of Understanding (MOU) with the BLM Arizona State Office to work as a cooperating agency on various plans within the State, including the IFNM RMP. The MOU describes the responsibilities of BLM and AGFD with regard to the planning process. The agencies' responsibilities as outlined in the MOU are consistent with the Sikes Act (16 U.S.C. 670 et seq.), which authorizes the USDI, 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. Beyond the development of the RMP, BLM and AGFD will continue to work cooperatively to manage resources within the IFNM. BLM is responsible for managing wildlife habitat on BLM land; AGFD, through the authority of the Arizona Game and Fish Commission, has public trust responsibility to manage fish and wildlife. The close, cooperative nature of the relationship is cited throughout this document. BLM and AGFD recently revised their master MOU, which establishes protocols that direct the cooperative working relationship between the agencies (MOU AZ-930-0703). This MOU provides context to better enable both agencies to work in partnership and to make decisions in a consistent manner across the state. The guidelines established in MOU AZ-930-0703 apply to implementation of this plan. Activities conducted by AGFD to meet Trust responsibilities to manage wildlife are recognized by BLM as consistent with decisions proposed in this RMP. AGFD's ability to manage wildlife on lands administered by BLM in Arizona will not be diminished. All implementation-level plans and site-specific projects will continue to be evaluated through appropriate partnerships and through Federal and State regulations." Though no other State agency or county or local government agreed to be a cooperating agency during development of the plan, several have been actively engaged in the planning process. BLM has worked closely with the Arizona State Land Department (ASLD) to coordinate management on public lands in the monument and set up a framework for future cooperative agreements regarding specific lands and routes that are administered by ASLD within the boundary of the IFNM. Pima and Pinal Counties initially expressed interest in becoming cooperating agencies, but instead have participated through various meetings with BLM, as well as the public meetings. In addition, the City of Marana established a specific agreement with the BLM to collaborate throughout the process.

1.6.2 Tribal Consultation

As part of the scoping effort, BLM contacted the following tribes to initiate consultations and reissue an invitation to participate as a cooperating agency:

- Tohono O'odham Nation
- Gila River Indian Community
- Ak-Chin Indian Community
- Pasqua Yaqui Indian Community

Though none chose to assume cooperating agency status, all elected to remain involved in the planning process. Due to their proximity to the IFNM, BLM also arranged meetings with the Gila River Indian Community in October 2004 and the Tohono O'odham Nation in August 2005 to brief tribal members on the progress of the planning process and identify ways to remain engaged. BLM also provided the preliminary draft alternatives to the tribes in September 2005. In addition, BLM met with representatives of the Tohono O'odham Nation in January 2006 to review specific aspects of the alternatives.

1.7 PLANNING ISSUES

Planning issues are derived from scoping, which takes place in the preliminary stages of the planning process to solicit public and agency input to help identify the relevant issues and define the range of environmental analysis to be undertaken for the plan.

The planning issues identified through the scoping process included a variety of resources and resource uses. The comments and issues identified assisted in determining the scope of the studies completed and addressed in this plan. However, some issues raised during scoping were considered but not analyzed in detail such as (1) wilderness designations, (2) the immediate elimination of livestock grazing, and (3) designation of a new route network, as recommended by a consortium of interested parties. These issues were not analyzed because BLM does not have authority to establish wilderness areas or wilderness study areas (WSAs); the Proclamation allows for continued grazing; and the proposed route network did not consider access to private inholdings or State Trust land, where BLM could be required to provide access (see Section 2.2, Alternatives Considered but Not Analyzed in Detail). Potential decisions about the planning issues identified below are presented in Chapter 2 (Alternatives).

Key planning issues considered for developing alternatives in this plan included the following:

1.7.1 Vegetation

- What management actions will provide for preservation of existing plant communities and biodiversity?
- How will BLM manage potential impacts on plants from recreation, land development on State Trust land and private inholdings, grazing, and areas where there are existing mining claims?
- How will grazing and off-highway vehicle (OHV) use be managed for preventing the introduction and spread of noxious weeds into and within the IFNM?

1.7.2 Wildlife and Wildlife Habitat

- What management actions will protect wildlife and wildlife habitat?
- How will nearby human activity be managed to limit adverse impacts on the desert bighorn sheep population and lambing habitat?
- How will BLM manage potential conflicts with habitat and wildlife corridors from grazing, recreational shooting, camping activities, OHV use, land development on State Trust land and private inholdings, grazing, and areas where there are existing mining claims?

1.7.3 Special Status Species

- How will BLM give precedence to protection and restoration of habitat for threatened and endangered species and wildlife of special concern (as listed by the AGFD) species identified by local governments?

1.7.4 Cultural Resources

- How will BLM manage public access to potentially sensitive cultural resource sites?

1.7.5 Visual Resources

- How will BLM manage threats to scenic values of the IFNM from visitor facilities and OHV use?

1.7.6 Wilderness Characteristics

- How will BLM manage areas within the IFNM to protect wilderness characteristics?

1.7.7 Energy and Mineral Resources

- What management actions will be conducted to avoid potential impacts on wildlife, vegetation, water quality, and soil resources from ground-disturbing activities within the IFNM, including mining where valid existing rights occur?

1.7.8 Grazing/Livestock Management

- How will BLM manage grazing to be compatible with multiple uses within the IFNM?

1.7.9 Recreation (including visitor facilities)

- What management actions will be conducted to limit recreational activities (e.g., hiking, horseback riding, biking, camping, hunting, and recreational shooting) to protect resources within the IFNM from degradation?
- What visitor facilities should BLM provide within the IFNM?

1.7.10 Lands and Realty

- How will BLM evaluate and/or prioritize land acquisitions of private and State Trust land within the IFNM boundaries?

1.7.11 Travel Management

- How will BLM manage access into the IFNM from adjacent lands and communities (e.g., State and private inholdings and Tohono O'odham Nation lands)?

1.8 RELATED PLANS

Based on the location of the IFNM, BLM reviewed and considered existing Federal, State, and local management plans that relate to the IFNM. Federal plans include recovery plans from the USFWS for federally listed species. The State plans cover the management of water resources through active management areas (AMAs) by the Arizona Department of Water Resources (ADWR) and the management of fish, wildlife, and natural habitats through the Comprehensive Wildlife Conservation Strategy by the AGFD. Local plans include comprehensive plans for Pima and Pinal Counties (Pima County 1992; Pinal County 2001). In addition, the general plans for the cities of Tucson and Marana have been reviewed, though the IFNM lies outside the municipal boundaries of both cities (City of Tucson 2001; Town of Marana 2002). Relevant information from each of these plans is summarized below. The Tohono O'odham Nation, a neighboring jurisdiction, does not have a land use plan for areas near the IFNM. Planning decisions for land within the Tohono O'odham Indian Reservation typically are made on a case-by-case basis and involve community, district, and tribal leaders and elected officials in a decision-making process that parallels that of the Federal Government. Land is primarily administered by the Tohono O'odham Tribal Council and political subdivisions of the Tohono O'odham Nation, called districts. The Schuk Toak and Sif Oidak districts parallel the western boundary of the IFNM.

1.8.1 Federal

In 1986, the USFWS developed a Recovery Plan and Habitat Management Plan for the endangered Nichol Turk's head cactus (*Echinocactus horizonthalonius* var. *nicholii*), which occurs within the IFNM. The recovery plan and the habitat management plan exist "to remove the species from the federally threatened and endangered list by managing and protecting the essential habitat of the existing population and by decreasing collection pressure" (USDI, USFWS 1986). The recovery plan is achieved by protecting 75 percent of the existing known habitat. Alleviating threats to the species' habitat, enforcing laws against collection of the species, and developing a habitat management plan are included as species recovery actions. The habitat management plan identifies the following management objectives: (1) protect the habitat, (2) provide optimum habitat for naturally occurring populations, and (3) assist in the recovery of the plant (USDI, BLM 1986a).

In 1994, the USFWS developed a recovery plan for the lesser long-nosed bat (*Leptonycteris curasoae verbabuenae*). The plan requires protection of bat roost sites and columnar cacti (food source for bat), and monitoring and survey for undiscovered roost sites and bat populations. The plan also calls for public education and information about the beneficial aspects of the bat species. USFWS also must conduct ongoing research of the bats' life history, population census, and reproduction and mating systems to assist in species recovery (USDI, USFWS 1994).

1.8.2 State

ADWR establishes management plans for AMAs throughout Arizona. Two AMAs are relevant to the IFNM, the Pinal and Tucson AMAs. The overall goals of the AMAs are to (1) achieve a safe-yield groundwater supply by 2025 so that the amount of groundwater pumping that occurs within AMAs does not exceed the natural or artificial recharge amount, and (2) preserve future water supplies coupled with the preservation of existing agricultural economies (ADWR 1999a, 1999b). Both management plans

consist of water conservation programs for agriculture, industrial, and municipal programs along with plans for maintaining groundwater quality, aquifer recharge efforts, and implementation plans.

AGFD developed a Comprehensive Wildlife Conservation Strategy, which is a 10-year vision for managing Arizona's fish, wildlife and natural habitats. This effort included input and partnerships with various agency cooperators, sportsman and recreational groups, conservation organizations, special interest groups, Native American tribes, county and municipal governments, and the general public (AGFD 2006). The Comprehensive Wildlife Conservation Strategy serves to ensure that funds provided through the program are spent wisely and effectively on restoration and enhancement of wildlife populations and habitat. Projects supported by State wildlife grants can include restoration of degraded habitat, reintroduction of native wildlife, development of partnerships with private landowners, education of the public, and collection of data to find out more about declining species.

1.8.3 County and Local

1.8.3.1 Pima County

The Pima County Comprehensive Plan promotes the conservation and preservation of Sonoran Desert ecology through public policy and community programs that address water conservation, habitat protection, and preservation of washes and protected ridges and peaks (Pima County 1992). The plan offers strategies to incorporate consideration of the "desert community" into all urban planning efforts in recognition of the region's unique scenic beauty, desert ecology, and cultural heritage. The Conceptual Land Use element priority program is a design review mechanism included in the plan to ensure that development responds to its natural surroundings. Pima County has developed this regional comprehensive plan to encourage each jurisdiction within the county to recognize and protect the unique features that characterize the county (Pima County 1992).

Pima County also developed the Sonoran Desert Conservation Plan, which integrates six conservation elements to protect the County's natural resources (Pima County 1998). BLM is identified in the plan as an active governmental agency committed to acquiring additional land for the purpose of natural resource conservation which, in some cases, makes county action unnecessary. Pima County recognizes the benefits to the larger regional planning process of the efforts of other agencies, including elements of BLM plans and the actions of other Federal, State, and local entities.

Consistent with the Sonoran Desert Conservation Plan, Pima County's Conservation Land System (CLS) protects biodiversity and guides land uses. The CLS, as amended in 2005, designates a majority of the IFNM, as well as State Trust and private lands in the vicinity as Multiple Use Management Area. In multiple-use management areas, any land use approvals from Pima County (such as rezoning or comprehensive plan amendment requests) would require that 66.7 percent of the land area is conserved as undisturbed natural open space, which can be accomplisthed through on- or off-site cpmservation. In addition, an overlay applies to the IFNM, which designates the monument as a Special Status Species Management Area. In Special Status Species Management Areas, Pima County would require 80 percent of the area is conserved through on- or off-site conservation. As a result, the intensity of land uses in and surrounding the IFNM would not be expected to increase nor conflict with monument goals and objectives.

1.8.3.2 Pinal County

The Pinal County Comprehensive Plan states that growth is "transforming the region from an agricultural center to a vibrant commercial, industrial, and recreational hub. The comprehensive plan addresses the challenges facing the county and presents opportunities for the continuing success and diversity of the region." The natural environment element of the plan focuses on preserving and protecting the natural and cultural heritage of Pinal County through protection of scenic areas, cultural resources, wildlife habitat,

natural plant communities, wildlife corridors, and riparian areas. Goals and objectives have been developed to protect Pinal County's natural beauty and environmental quality and promote a balance between conservation of the natural environment and development (Pinal County 2001).

The Pinal County areas adjacent to the IFNM are designated as rural, a designation that includes lands that are non-urban and are suitable for lower density development including agriculture, grazing, mining, sand and gravel operations, large-acre home sites, small farms, minimal to nonexistent public services, open space, and selected industrial uses (i.e., those not requiring an industrial use permit). Areas designated as rural are not suitable for urban development, and only low-density housing is allowed. Single-family density housing cannot exceed one dwelling unit per acre and multiple-family development is "discouraged from locating in the rural land use category until it is reclassified to another land use."

1.8.3.3 City of Tucson

The City of Tucson has developed a general plan to provide guidance and balance in areas of growth. The plan recognizes the Pima Association of Governments' "Regional Vision Statement" and the benefits of coordinating with regional jurisdictions and agencies in planning for parks, recreation, open space, and trails. The plan encourages designation of natural preserves and establishment of large parks to complement open space on public lands.

The general plan provides for establishment of desert belts and expanded linear parks to link public lands while providing protection for plants and wildlife. It emphasizes Tucson's commitment to preservation of natural resources and establishes policy to preserve interconnected, undisturbed open spaces. These policies focus largely on providing open space for public use and the implementation of open space preservation principles to positively impact desert wildlife, natural habitats, cultural preservation, and critical and sensitive lands (City of Tucson 2001).

1.8.3.4 Town of Marana

The Town of Marana has developed a general plan and supplemental plans to provide specific regulations for development (Town of Marana 2002). The plans emphasize three main goals: community values, orderly growth, and economic opportunity. Growth and economic development are closely linked to the natural environment and conservation of the large natural open space surrounding Marana, primarily managed by Federal, State, and local entities.

The plan emphasizes the need for preservation of natural and cultural resources and the provision of open space with the intent to guide future development in an environmentally sensitive manner. More specifically, it recommends that guidelines and mitigation standards be created for any development within 1 mile of Saguaro National Park, IFNM, and the Tortolita Mountains in order to protect unique biological habitat areas within natural open space ecological areas and riparian corridors, protect viewsheds of natural open space and significant natural features (Town of Marana 2002).

CHAPTER 2.0 ALTERNATIVES

2.1 OVERVIEW OF THE ALTERNATIVES

Bureau of Land Management (BLM) has developed four alternative management strategies for managing public lands within the Ironwood Forest National Monument (IFNM). Alternative A is a "No Action Alternative"; that is, it proposes no new plan. Under this alternative, management of public land within the IFNM would continue under existing planning documents, as modified by Presidential Proclamation 7320 (Proclamation) and additionally guided by BLM's Interim Management Policy for BLM National Monuments and National Conservation Areas (Instruction Memorandum 2002-008). Alternatives B, C, and D (the "action alternatives") would each affect more change in management—each includes proactive responses to existing conditions and circumstances, which in many cases may have changed since the existing planning documents now in force were written. Establishment of the IFNM is, of course, the best example of this. Each alternative has a different emphasis, or theme, of management that reflects a different response to the Federal mandate to balance use and conservation of resources on public lands. All four alternatives protect objects of the monument and comply with the Proclamation and with all other applicable laws, regulations, and policies. However, Alternative B focuses on protecting monument objects through preservation by restricting public uses and access, while Alternative C focuses on allowing for public uses and access to the extent that monument objects can be protected with limited mitigation requirements. Alternative D provides for the greatest amount of accessibility and is less restrictive than Alternative C. Uses of land and resources that are not permitted by the Proclamation have been excluded from consideration under any of the alternatives.

Alternative A (No Action) – Alternative A would continue management of public land within the IFNM according to the management prescriptions of the 1989 Phoenix Resource Management Plan (RMP) and the Eastern Arizona Grazing Environmental Impact Statement (EIS), as amended by the Arizona Statewide Land Use Plan Amendment for Fire, Fuels, and Air Quality Management (USDI, BLM 2003a) and the Arizona Standards for Rangeland Health and Guidelines for Grazing Administration (USDI, BLM 1997). Alternative A also would include modifications to management mandated by the Proclamation, including protection of the objects of the monument. A description of this strategy outlines the current management guidance and the allowable uses as determined by the existing planning documents, as modified by the Proclamation. The Interim Management Policy for BLM National Monument and National Conservation Areas also would provide additional guidance until a new RMP takes effect. In other words, the No Action Alternative is current policy and would continue to be in effect until another RMP is approved (USDI, BLM 2002a).

Alternative B – The management theme of Alternative B is preservation—it is the most restrictive strategy, designed to protect the IFNM's resources by imposing the most limits to use of the monument's resources. This alternative places more restrictions on motorized and mechanized travel throughout the IFNM and favors dispersed, non-motorized recreational activities over motorized recreational activities. The types of allowable uses and the intensity of those uses are restricted to provide the strongest, reasonable protection for objects of historic, scientific, and aesthetic interest within the IFNM. Livestock grazing would be prohibited on public land upon expiration of existing leases. While developing this alternative, BLM sought to determine the minimum amount of allowable uses of monument resources to provide maximum protection to monument objects, while continuing to manage the area under the guiding principle of multiple use of public lands.

Alternative C – Alternative C is BLM's proposed plan except for utility corridors. The proposed plan for utility corridors is Alternative B. Alternative C incorporates elements from each of the other alternatives and ensures the long-term conservation of public land and resources within the IFNM, continues some compatible uses that have traditionally taken place on the land within the monument, such as grazing and

recreation, and allows for appropriate levels of access for the enjoyment, appreciation, and study of the objects of the monument. In sensitive resource areas, Alternative C would provide a higher level of resource protection and less public use; however, greater opportunities for public use would be allowed outside those areas. More routes would be designated as open for motorized and mechanized travel (although fewer miles would be designated for motorized and mechanized use as compared with Alternative D). Areas of public land within the West Silver Bell Mountains and the Roskruge Mountains would be managed to protect wilderness characteristics. Cultural resource sites would be open to scientific and public uses, and livestock grazing would be allowed perennially on nine allotments if they are meeting public land health standards and following guidelines for grazing administration; two allotments would remain ephemeral. The management goals and objective associated with Alternative C would protect the monument objects on a broad scale; that is, the geologic features, vegetative populations, sensitive wildlife populations, scenic vistas, and other objects described in the Proclamation would be retained even if some localize and negligible losses occurred. Management actions associated with Alternative C would include resource monitoring to ensure protection of the monument objects as a whole and the ability to adapt management if resource impacts are identified.

Alternative D – The management theme of Alternative D is access—it emphasizes the maintenance of existing public access to IFNM lands and resources. It identifies areas that are most appropriate to accommodate various uses—especially those identified as desirable during public scoping—and emphasizes those uses, particularly with respect to transportation and recreation. This alternative would include the most miles of roads designated for motorized and mechanized use and allow for establishment of more recreational sites (e.g., campsites); the entire monument would be available for grazing. When developing this alternative, BLM sought to define a maximum amount of allowable uses of IFNM resources that would still provide adequate protection of the monument's objects and conform to the guiding principle of sustained yield of renewable resources on public land, as set forth by the Proclamation and the Federal Lands Policy Management Act (FLPMA). That is, how many types of uses could be allowed (e.g., recreation and grazing) and how intense could those uses be (e.g., open versus restricted access, and year-round versus seasonal) without violating resource protection requirements, goals, and objectives. While the greaert public accessibility provided by Alternative D may result in more localized impacts to the objects of the monument than Alternatives B and C, on the scale of the monument as a whole, the objects would be protected through the identified management goals and objectives. These objectives include the application of adaptive management concepts that would provide for changes in management should monitoring identify unacceptable resource impacts.

2.2 ALTERNATIVES CONSIDERED BUT NOT ANALYZED IN DETAIL

This section briefly describes management actions that were recommended by the public through the scoping process or the preliminary draft alternatives workshop but were not incorporated in any of the alternatives carried forward for detailed analysis in this EIS. These are presented below, along with the rationale for excluding them from further detailed consideration.

2.2.1 Wilderness

BLM received suggestions from a citizen group that the new RMP establish new wilderness study areas (WSAs) within the IFNM. BLM has the authority under FLPMA Section 201 to inventory public land resources and other values, including characteristics associated with the concept of wilderness identified as naturalness, solitude, and primitive, unconfined recreation. The BLM Land Use Planning Handbook provides guidance on considering wilderness characteristics in the land-use planning process and directs BLM to identify decisions to protect or preserve wilderness characteristics. However, BLM has no authority to establish new WSAs or to report such areas to Congress. BLM can, however, protect areas in their natural state using a wide range of designations that offer the same protections. Therefore, in response to this citizen group request and as a general management concern, BLM has considered

management prescriptions in specific areas to protect wilderness characteristics, but has not included the establishment of new WSAs as part of any alternative.

2.2.2 Livestock Grazing

BLM received comments recommending the elimination of livestock grazing from the IFNM. BLM considered but eliminated an alternative that would immediately remove livestock grazing from the IFNM because it was determined to be unreasonable in terms of costs to BLM and IFNM lessees, manageability, enforcement, and various other issues. BLM opted to consider a more feasible approach to the elimination of livestock grazing on the IFNM through the removal of livestock grazing as existing leases expire (as part of Alternative B). Therefore, BLM has not considered an alternative that would immediately remove livestock grazing from the IFNM, but has instead considered removal of livestock grazing from the IFNM as existing leases expire (as part of Alternative B).

2.2.3 Route Designations

BLM received a map proposing a route network within the IFNM from a coalition of citizen groups. This specific network was not considered as an alternative because it did not consider access to private inholdings or State Trust land, where BLM could be required to provide access. BLM also received a suggestion to designate all routes in the IFNM as closed to motorized traffic. This alternative was not considered because it would not allow BLM to meet the management goals and objectives established for the IFNM. Instead, BLM developed a minimum route network that could be established to effectively manage the IFNM, which is included under Alternative B.

2.2.4 Visitor Facilities

Some members of the public requested the construction of visitor facilities throughout the monument, thereby allowing a greater level of access to restrooms, drinking water, and other essentials. This suggestion was not considered as an alternative because the IFNM is a unit within BLM's National Landscape Conservation System (NLCS), and is managed, in part, to maintain the character of the existing setting. Part of the overarching strategy and vision for NLCS units is for BLM to work with local communities with regard to amenities and visitor facilities, which would be located in communities adjacent to BLM lands. As such, BLM has not included construction or installation of any significant visitor use facilities in the plan (refer to the entries listed under Visitor Services in Table 2-14). The proposed recreation management zones (RMZs) indicate the character of the IFNM that will be preserved in order to achieve the targeted recreational benefits/outcomes. Generally, visitors will be expected to be self-sufficient, and no facilities will be provided. However, minimal facilities could be installed in the future if needed to protect public health and safety, and resources, particularly in the Roaded Natural RMZ where the greatest amount of visitation is expected to occur.

2.3 MANAGEMENT COMMON TO ALL ALTERNATIVES

The alternative selected by the BLM for management of the IFNM must heed and be in accordance with all relevant laws, regulations, and policies of other government entities with jurisdiction over the IFNM. This management, common to all alternatives, is described below.

2.3.1 Presidential Proclamation

Presidential Proclamation 7320 (see Appendix A for full text) recognizes all valid rights in existence at the time of the monument designation (June 9, 2000). The Proclamation did not revoke any existing withdrawal, reservation, or appropriation of public lands or interests in lands. However, it did establish the national monument as the dominant reservation (use of public land). The Proclamation also notes that

the jurisdiction of the State of Arizona with respect to fish and wildlife management and the rights of American Indian tribes are neither enlarged nor diminished by the monument designation.

All alternatives presented in the IFNM RMP/EIS are consistent with the guidance in the Proclamation, including provisions regarding mineral and geothermal leasing, land use authorizations, off-road motorized and mechanized vehicle use, transportation management and grazing.

2.3.2 Arizona Standards for Rangeland Health

Land health standards are the goals for the desired condition of the biological and physical components and characteristics of rangelands, and apply to all resources and resource uses. Standards are measurable and attainable and comply with various Federal and State statutes, policies, and directives applicable to BLM rangelands. The Arizona Standards for Rangeland Health and Guidelines for Grazing Administration (USDI, BLM 1997) establish three land health standards as indicators for rangeland health on public lands, as described below. The guidelines for grazing administration, which also are common to all alternatives, are presented in Appendix C.

2.3.2.1 Land Health Standard 1: Upland Sites

Upland soils exhibit infiltration, permeability, and erosion rates that are appropriate to soil type, climate and landform (ecological site).

Soil conditions support proper functioning of hydrologic, energy, and nutrient cycles. Many factors interact to maintain stable soils and healthy soil conditions, including appropriate amounts of vegetative cover, litter, and soil porosity and organic matter. Under proper functioning conditions, rates of soil loss and infiltration are consistent with the potential of the site.

Ground cover in the form of plants, litter or rock is present in pattern, kind, and amount sufficient to prevent accelerated erosion for the ecological site; or ground cover is increasing as determined by monitoring over an established period of time.

Signs of accelerated erosion are minimal or diminishing for the ecological site as determined by monitoring over an established period of time, as indicated by such factors as ground cover (including litter, live vegetation [amount and type, such as trees, shrubs, grasses], and rock) and signs of erosion (including flow pattern, gullies, rills, plant pedestaling).

2.3.2.2 Land Health Standard 2: Riparian-Wetland Sites

Riparian-wetland areas are in properly functioning condition.

Stream channel morphology and functions are appropriate for proper functioning condition for existing climate, landform, and channel reach characteristics. Riparian-wetland areas are functioning properly when adequate vegetation, landform, or large woody debris is present to dissipate stream energy associated with high water flows, as indicated by such factors as gradient, width/depth ratio, channel roughness and sinuosity of the stream channel, bank stabilization, reduced erosion, captured sediment, groundwater recharge, and dissipation of energy by vegetation.

Riparian-wetland functioning condition assessments are based on examination of hydrologic, vegetative, soil and erosion-deposition factors. BLM has developed a standard checklist to address these factors and make functional assessments. Riparian-wetland areas are functioning properly as indicated by the results of the application of the appropriate checklist (USDI, BLM 1997).

The two exemptions to Standard 2 include (1) dirt tanks, wells, and other water facilities constructed or placed at a location for the purpose of providing water for livestock and/or wildlife and which have not been determined through local planning efforts to provide for riparian or wetland habitat; and, (2) water impoundments permitted for construction, mining, or other similar activities.

2.3.2.3 Land Health Standard 3: Desired Resource Conditions

Productive and diverse upland and riparian-wetland plant communities of native species exist and are maintained.

Upland and riparian-wetland plant communities meet desired plant community objectives.

Plant community objectives are determined with consideration for all multiple uses.

Objectives also address native species, and the requirements of the Taylor Grazing Act, FLPMA, Endangered Species Act, Clean Water Act, and appropriate laws, regulations, and policies.

Desired plant community objectives will be developed to assure that soil conditions and ecosystem function described in Standards 1 and 2 are met. They detail a site-specific plant community, which when obtained, will assure rangeland health, State water quality standards, and habitat for endangered, threatened, and sensitive species. Thus, desired plant community objectives will be used as an indicator of ecosystem function and rangeland health, as indicated by composition, structure, and distribution.

The exception to Standard 3 includes ecological sites or stream reaches on which a change in existing vegetation is physically, biologically, or economically impractical.

2.3.3 BLM Poicy

BLM has policy guidance already established under various instruction memorandums and information bulletins from both the Washington and Arizona State offices. For example, one such policy is that “no domestic sheep or goat grazing should be allowed within buffer strips less than 9 miles surrounding desert bighorn habitat, except where topographic features or other barriers prevent physical contact (IM WO-98-140).” There are numerous policies that apply to the IFNM, and all cannot be described here in detail. For more information on BLM policies applicable to land use planning, refer to BLM Handbook H-1601-1, Land Use Planning Handbook (2005) and the information bulletins and instruction memorandums available on BLM websites for the Washington and Arizona offices (http://www.blm.gov/nhp/efoia/wo/woerr.html and http://www.blm.gov/nhp/efoia/az/, respectively).

2.3.4 Administrative Actions

Administrative actions are the day-to-day activities required to serve the public and to provide optimum management of the IFNM’s resources. These actions are allowable by regulation and do not require authorization within an RMP, and generally do not require site-specific analysis under the National Environmental Policy Act of 1969 (NEPA). For example, in day-to-day management of the IFNM, BLM is responsible for law enforcement activities that need not be authorized under the plan. Additionally, BLM may authorize or restrict access in certain areas in emergency situations (with publication of a notice in the Federal Register) or coordinate with other agencies and organizations, such as Arizona Game and Fish Department (AGFD), for specific activities that may not require site-specific NEPA documentation efforts. Other examples of administrative actions include, but are not limited to, mapping, surveying, inventory, monitoring, and research studies. These and other administrative actions will be conducted in the IFNM, sometimes in partnership with other landowners or agencies or entities. The degree to which these actions are carried out depends upon BLM policies, available personnel, funding

levels and further environmental analysis and decision-making, as appropriate. Administrative uses and actions are listed in Appendix D.

2.3.5 Monitoring and Adaptive Management

Monitoring is the repeated measurement of activities and conditions over time, with the implied purpose of using these measurements to adjust management, if needed, in order to achieve or maintain established objectives. The primary objective of monitoring in the IFNM is to detect change in the condition of monument objects as identified in Table 1-2, and to use this information to ensure continued protection of monument objects and to meet other resource objectives as identified in this plan. Two levels of monitoring will be used to meet this objective: implementation monitoring and effectiveness monitoring.

Implementation Monitoring in the IFNM – Implementation monitoring of land use planning decisions is used in order to determine whether management actions have been implemented and what management actions are pending implementation. (For example, the proposed plan states that specific actions, such as installation of barriers, will be taken to promote compliance with travel route designations. Implementation monitoring would determine if this actually occurs.) The BLM planning regulations (43 CFR Part 1610.4-9) call for monitoring RMPs on a continual basis and establishing intervals and standards based upon the sensitivity of the resource to the decisions involved. Implementation monitoring will be completed at least annually, and tracked in a log or report that is then made available to the public. Results of this evaluation will be used to develop annual budgets. BLM will also conduct a more intensive evaluation of the approved plan every five years to determine where management changes may be necessary and if the plan is in need of a major revision. These evaluations may occur more frequently based on changes in BLM policy or related plans that could affect the IFNM.

Effectiveness Monitoring in the IFNM – Effectiveness monitoring requires the collection of necessary data/information, and determines whether on-the-ground actions being taken are indeed achieving the desired goals and objectives of land use planning decisions. (For example, data would be collected in order to ensure that range conditions on IFNM are meeting the Arizona Standards for Rangeland Health and Guidelines for Grazing Administration.) Monitoring is an integral part of all actions and programs, used not only to measure the effectiveness of actions implemented, but also to record any impacts to resources. Taken as a whole, the management actions proposed in this plan are anticipated to protect and/or enhance monument objects, as described in detail in Chapter 4. BLM's monitoring program for the IFNM will measure any change in the condition of objects, after which BLM, working with its monitoring partners, will make determinations as to whether or not BLM's actions are indeed furthering protection of monument objects. If monitoring shows that objects are going to be or are being impacted at an unacceptable level, mitigation is initiated to reverse the situation. This may include a reduction in, or elimination of, the action or situation causing the impact. As a result, although there may be some short-term disturbance to resources, the flexible and responsive management approaches under all alternatives would protect monument objects and other resources and resource uses.

Monitoring Process, Timeline and Public Input

Many activities and events are currently monitored in the IFNM in order to evaluate and determine whether desired outcomes are being achieved: grazing utilization and vegetation trends are measured to support decisions on land health evaluations; off-highway vehicle (OHV) events are monitored to determine whether permit stipulations are followed and needed site rehabilitation occurs; and specific recreational activities and sites, such as shooting and shooting sites, are monitored to determine the associated impacts to resources. This plan proposes additional monitoring needs that are focused on monument objects, as well as land restoration activities, recreation, travel management, and several other resources and uses. See Table 1-2 for a general description of monument object indicators and protection thresholds to be used to determine if monument objects are being protected. See also Appendix D for

monitoring methods related to these objects and other resources and uses. Specific protocols and strategies to apply to these methods, including the identification of baselines and indicators that will be used to measure progress, appropriate monitoring time intervals, and protection thresholds, or triggers for action, will be included in a more detailed monitoring framework as part of the IFNM Approved Plan.

Within 90 days of the publication of the Approved Plan, BLM will develop an implementation strategy that will guide implementation of the actions approved in the plan. With the implementation plan in place, BLM will be prepared to initiate public input into developing a monitoring plan based on the framework included in the IFNM Approved Plan. Input from the public will include but not be limited to developing object and resource-specific monitoring designs, refining indicators, establishing limits of acceptable change, and developing monitoring and evaluation schedules. Initiation of public input into the monitoring plan will occur within six months of the publication of the IFNM Approved Plan. Monitoring activities on the IFNM will be ongoing thereafter. Public input in designing monitoring and evaluation plans and in conducting monitoring activities is critical to a successful and effective monitoring strategy. BLM will work with other agencies, as well as ranchers, organizations, volunteers and visitors to the IFNM to gather information that will aid monitoring efforts and allow BLM to more effectively execute adaptive management within the IFNM.

Adaptive Management

The implementation and effectiveness monitoring processes described above are at the heart of the adaptive management approach to be undertaken on the IFNM. Adaptive management is an integrated method for addressing uncertainty in natural resource management, and requires a robust monitoring program to succeed. It is a structured process for learning by doing, examining strategies for meeting measurable goals and objectives, and then, if necessary, adjusting future management actions according to what is learned. Adaptive management is also a preplanned process. It recognizes that changes in the resource base, management information, and/or other conditions are inevitable over time and that a preplanned process must be in place to measure these changes and develop appropriate responses to maintain or improve the program's effectiveness. An adaptive management program is essential for resources with information gaps and biological uncertainty involving a potentially significant risk to the resource. Under an adaptive management approach, the management actions in IFNM RMP can be refined continuously in response to changing conditions and varied effectiveness of plan implementation to ensure that only the most effective components of the plan are retained while less effective measures are dropped or replaced. Through adaptive management, decisions, actions, and results are carefully documented and communicated to others so that the knowledge gained through experience is passed on. The adaptive management "feedback loop" allows information obtained through the monitoring and evaluation of management actions to provide information on necessary changes that could further improve management. The adaptive management feedback loop can be portrayed as:

Action → Monitoring → Evaluation → Adjustment → Action

Ultimately, the goal of this adaptive management process is to move toward desired future conditions. Tracking the progress of actions and measuring changes resulting from these activities will be critical in either determining success in protecting monument objects or the need for a different management approach.

2.4 FORMAT OF THE ALTERNATIVES

RMPs are broad-scale land management plans that establish desired outcomes (goals and objectives) for resource management, and identify the measures deemed likely to achieve those outcomes. The following presentation of the alternatives identifies the goals and objectives for each resource and resource use, and the measures, including management actions, allowable uses, and land use allocations, that would achieve those goals and objectives. Once an alternative is selected, the broad, plan-level decisions included in that alternative—the management actions, allowable uses, and land use allocations—will become the RMP and provide the framework for subsequent, site-specific management decisions and actions. These site-specific management decisions and actions are known as implementation-level decisions, and typically occur following adoption of the RMP, but in some cases they are identified through this RMP process. For example, decisions about designating routes as motorized or non-motorized, which are implementation-level decisions, are part of the alternatives presented in this document. Prior to being initiated, all implementation actions are subject to the appropriate level of analysis based on the NEPA process. The implementation-level actions presented in the tables below are analyzed as part of each alternative. Through this process, BLM will determine the most appropriate method of implementation that achieves the goals of the project and is consistent with the Proclamation and other management goals and objectives for the IFNM.

As described above, four management alternatives have been developed for the IFNM. Goals and objectives, proposed allowable uses and management actions, and implementation-level actions are identified in each of the four alternatives described in tables 2-1 through 2-17 below. Each alternative addresses the management of the following 17 resources or resource uses:

- Air quality
- Geology and caves resources
- Soil and water resources
- Vegetation
- Wildlife and wildlife habitat
- Special status species
- Fire ecology and management
- Cultural resources
- Paleontological resources
- Scenic and visual resources
- Wilderness characteristics
- Energy and mineral resources
- Livestock grazing
- Recreation
- Lands and realty
- Travel management
- Special designations

As shown in the tables, the action alternatives (Alternatives B, C, and D) generally share the same goals and objectives (desired outcomes), which were identified through the planning and scoping process for this plan; the goals and objectives for the No Action Alternative are different because they are directly derived from the current land use plans (when goals and objectives are identified in those plans). The goals and objectives are followed by different sets of management actions, allowable uses, and use allocations for each alternative—these identify areas and acreages where certain land uses would be prohibited, restricted, or allowed, as well as proactive management measures. In cases where the existing management plans do not have a comparable management action, allowable use, or use allocation, the no-action alternative (Alternative A) states “No existing decisions specifically address this action.” Some implementation-level decisions have been included within the alternatives, and are analyzed as part of each alternative. The administrative actions that BLM is authorized to take outside of direction from a land use plan are listed in Appendix D.

Table 2-1. Resource Management Alternatives for AIR QUALITY

<table>
<tr><th colspan="4">Desired Outcomes: Management Goals and Objectives</th></tr>
<tr><td>NO ACTION

<u>Goal</u>:
No land use plan-level (LUP-level) goals for air quality are presented in the existing land use plan.</td><td colspan="3">ACTION ALTERNATIVES

<u>Goal 1:</u> Reduce fugitive dust production and manage uses to maintain Federal and State air quality standards.</td></tr>
<tr><td><u>Objective</u>:
No LUP-level objectives for air quality are presented in the existing planning document; however, law requires compliance with Federal and State air quality standards.</td><td colspan="3"><u>Objective 1:</u> Implement measures to reduce fugitive-dust within the monument, especially as they pertain to unpaved roads and other disturbed areas to less than 50 tons of PM_{10} dust per year.</td></tr>
<tr><th colspan="4">Decisions for Management Actions, Allowable Uses, and Use Allocations</th></tr>
<tr><th>Alternative A (No Action)</th><th>Action Alternative B</th><th>Action Alternative C
(Proposed Plan)</th><th>Action Alternative D</th></tr>
<tr><td>1. No existing decisions specifically address this action.</td><td>1. Control fugitive-dust emissions from unpaved roads and disturbed areas (e.g., parking pull-offs) regularly accessed by the public for various purposes (e.g., recreation) by using appropriate control methods, such as:
• posting signs or creating obstacles to speed (e.g. speed bumps)
• applying dust suppressants or gravel
• implementing road-use restrictions</td><td>1. Same as Alternative B.</td><td>1. Same as Alternative B.</td></tr>
</table>

Table 2-2. Management Alternatives for GEOLOGY AND CAVES

Desired Outcomes: Management Goals and Objectives			
NO ACTION	**ACTION ALTERNATIVES**		
Goal: No LUP-level goals for geologic resources are presented in the existing land use plan.	**Goal 1:** Manage geologic features to protect natural characteristics and processes and for public enjoyment (as opposed to mining or mineral potential).		
Objective: No LUP-level objectives for geologic resources are presented in the existing land use plan.	**Objective 1**: Unique or unusual geologic and cave resources are managed to protect their visual, wildlife habitat, or other values in accordance with the proclamation.		
Decisions for Management Actions, Allowable Uses, and Use Allocations			
Alternative A (No Action)	**Action Alternative B**	**Action Alternative C** (Proposed Plan)	**Action Alternative D**
1. No existing decisions specifically address this action	1. If geologic resources are discovered that warrant special management, identify appropriate management actions, allowable uses, and allocations for the resource or site.	1. Same as Alternative B.	1. Same as Alternative B.
2. No existing decisions specifically address this action. The Monument proclamation warns unauthorized persons not to remove any feature of the Monument.	2. Prohibit collection of geologic resources; however, when officially authorized by permit allow collection and removal of geological resources for legitimate scientific research or educational uses.	2. Same as Alternative B.	2. Same as Alternative B.
Implementation-Level Decisions			
1. No implementation-level decisions are established for geologic resources.	1. Provide adequate access to geologic sites and/or features for viewing and enjoyment where public access does not conflict with other resource goals or uses.	1. Same as Alternative B.	1. Same as Alternative B.

Table 2-3. Resource Management Alternatives for SOIL AND WATER RESOURCES

Desired Outcomes: Management Goals and Objectives			
NO ACTION	**ACTION ALTERNATIVES**		
Goal: 1. Land Health Standards (in Arizona Standards for Rangeland Health and Guidelines for Grazing Administration – see Section 2.3.2 of this Chapter) define desired outcomes for soil and water resources. 2. Ensure that all waters on public land meet or exceed Federal and State water quality standards.	**Goal 1:** Conserve sensitive soils, desert pavement and biological soil crusts. **Goal 2:** Manage land uses to protect the water supply needs of the biota and other natural resources. **Goal 3:** Manage watersheds to maintain healthy conditions and restore degraded areas.		
Objective: Management activities would maintain or promote ground cover that would provide for infiltration, permeability, soil moisture storage, and soil stability appropriate for the ecological sites within management units. The ground cover should maintain soil organisms and plants and animals to support the hydrologic and nutrient cycles, and energy flow.	**Objective 1:** Manage land uses such that erosion and sedimentation rates are appropriate to natural conditions, and so that areas returning to natural conditions, or areas under active restoration meet, or are making progress towards meeting, Land Health Standards within five years. **Objective 2:** Conserve areas of biological soil crusts and desert pavement with minimum disturbance so that stability of soil crusts and desert pavement is maintained. **Objective 3:** Limit fugitive-dust pollution by reducing disturbance to soils.		
Decisions for Management Actions, Allowable Uses, and Use Allocations			
Alternative A (No Action)	**Action Alternative B**	**Action Alternative C** (Proposed Plan)	**Action Alternative D**
1. No existing decisions specifically address this action.	1. Minimize surface disturbance during construction, recon-struction, or maintenance of facilities (including structures for recreation, livestock grazing, transportation, or any other structure within the IFNM). Develop mitigation plans and restore surfaces and stabilize soils in accordance with resource management and/or restoration objectives.	1. Same as Alternative B.	1. Same as Alternative B.

2. Maintain and improve soil cover and productivity through erosion-prevention measures and land treatments, and incorporate salinity control measures into erosion-prevention strategies and rehabilitation treatments.	2. Same as Alternative A.	2. Same as Alternative A.	2. Same as Alternative A.
3. No existing decisions specifically address this action.	3. In areas of sensitive or fragile soils, prohibit new ground-disturbing activities. Mitigate existing ground-disturbing activities.	3. In areas of sensitive or fragile soils, allow new and continuing ground-disturbing activities with mitigation.	3. Same as Alternative C.
4. No existing decisions specifically address this action.	4. Prohibit surface-water diversions and groundwater pumping that removes water from within the monument boundary to outside its boundary, or adversely affects the monument's values.	4. Same as Alternative B.	4. Same as Alternative B.
5. Designate the 16,699-acre Agua Blanca Ranch Multiple Resource Management Area.	5. Discontinue the Agua Blanca Ranch Multiple Resource Management Area.	5. Same as Alternative B.	5. Same as Alternative B.
6. Designate the 47,976-acre Cocoraque Butte-Waterman Mountains Multiple Resource Management Area.	6. Discontinue the Cocoraque Butte-Waterman Mountains Multiple Resource Management Area.	6. Same as Alternative B.	6. Same as Alternative B.
Implementation-Level Decisions			
1. Develop an activity plan for the Agua Blanco Ranch Multiple Resource Management Area and manage to improve watershed condition to satisfactory, increase soil cover, and reduce sediment.	1. Do not develop an activity plan for the Agua Blanca Multiple Resource Management Area.	1. Same as Alternative B.	1. Same as Alternative B.
2. Implement an activity plan for the Cocoraque Butte-Waterman Mountains Multiple Resource Management Area, and manage to improve watershed condition to satisfactory, increase soil cover, reduce sediment yield, improve ecological site condition to good, and promote the recovery of an endangered plant.	2. Do not implement the activity plan for Cocoraque Butte-Waterman Mountains Multiple Resource Management Area.	2. Same as Alternative B.	2. Same as Alternative B.

3. No implementation decisions specifically address this action.	3. Maintain or remove existing flood- and erosion-control structures, based on an analysis of their functionality.	3. Same as Alternative B.	3. Same as Alternative B.

Table 2-4. Resource Management Alternatives for VEGETATION

Desired Outcomes: Management Goals and Objectives			
NO ACTION	**ACTION ALTERNATIVES**		
Goal 1: Assure adequate vegetative cover with an approximate mix of natural plant species that meet acceptable range health standards based on current ecological conditions. **Goal 2:** Each vegetation community is maintained within its natural range of variation in plant composition, structure, and function. **Goal 3:** Follow Land Health Standards to achieve desired outcomes for vegetation resources.	**Goal 1:** Assure adequate vegetative cover with an approximate mix of natural plant species that meet acceptable range health standards based on current ecological conditions. **Goal 2:** Manage to protect, enhance and restore as appropriate vegetation communities to maintain their natural range of variation in plant composition, structure, and function. Communities within the monument include (1) paloverde–cacti-mixed scrub; (2) jojoba chaparral; (3) creosotebush–white bursage; (4) curly mesquite grass-scrub; and xeroriparian. **Goal 3:** Manage grazing, off-highway vehicles, and other uses to prevent the introduction and spread of noxious weeds and invasive species into and within the IFNM. **Goal 4:** Manage allowable and authorized uses of the monument to minimize potential impacts on vegetation.		
Objective: No LUP-level objectives for vegetation are presented in the existing land use plan.	**Objective 1:** Limit the impact of invasive species and noxious weeds on natural resources and processes by reducing the distribution and abundance of these species. Reduce known infestations by 10% annually. **Objective 2:** Priority habitats, vegetation assemblages, and species will be managed to maintain the vegetative community complex while recognizing valid existing rights and appropriate catastrophic wildfire dangers. **Objective 3:** Manage collection and/or salvage of desert vegetation for personal and commercial uses (including firewood) in accordance with monument objectives and the State of Arizona Native Plant Law, while taking into consideration potential traditional and/or cultural uses. **Objective 4:** Manage activities on the monument to maintain the following priority species and habitats: (1) dense or large ironwoods (*Olneya tesota*); (2) cholla forest; (3) cactus dunes; (4) creosote rings; (5) xeroriparian vegetation; (6) curly mesquite grassland; (7) jojoba chaparral; (8) the Ragged Top vegetation assemblage; and (9) Nichol Turk's head cactus; and special status species (discussed further in Table 2-6, Special Status Species). Ensure no net loss of high priority species and habitats throughout the IFNM. **Objective 5:** Restore the diversity and distribution of existing natural plant communities in disturbed areas to their ecological site potential, with conditions moving toward ecological site potential within 5 to 10 years.		
Decisions for Management Actions, Allowable Uses, and Use Allocations			
Alternative A (No Action)	**Action Alternative B**	**Action Alternative C** (Proposed Plan)	**Action Alternative D**
1. No existing decisions specifically address this action.	1. Minimize surface disturbance that results in loss of existing vegetation cover. Restrict surface-disturbing activities to methods that allow for re-sprouting of tree and shrub species unless permanent construction is required.	1. Same as Alternative B.	1. Same as Alternative B.

2. No existing decisions specifically address this action. The Monument proclamation warns unauthorized persons not to remove any feature of the Monument.	2. Removal and/or use of living or dead and down native plant material is prohibited, with the following exceptions, when specifically authorized: (1) non-commercial Native American traditional use/collection, (2) seed collection and transplant for revegetation projects within the IFNM, (3) collection for scientific purposes as authorized with a BLM Special Use Permit, (4) administrative vegetation treatment to ensure adequate side and overhead clearance along designated routes, (5) consumption by wildlife, and (6) consumption by livestock (until grazing leases expire).	2. Same as Alternative B, except (6) consumption by livestock.	2. Same as Alternative C, with the addition of: (7) collection of dead and down wood for firewood use while camping within the IFNM (except where BLM has determined through inventory and monitoring that firewood collection negatively impacts objects of the monument).
3. No existing decisions specifically address this action.	3. Pursue an integrated weed management approach to prevent the introduction of and control invasive species and noxious weeds using methods including mechanical, chemical, and biological treatments. Use biological control methods to control invasive plant species if appropriate safety measures are applied, and in coordination with appropriate Federal, State, County, municipal and tribal agencies.	3. Same as Alternative B.	3. Same as Alternative B.
4. No existing decisions specifically address this action.	4. Assign priority to the control of invasive species and noxious weeds 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. Prioritize treatment of species that are identified as aggressive invasive species or are considered noxious weeds, and are located within priority vegetative habitats. Schedule other species for action in coordination with partners.	4. Same as Alternative B.	4. Same as Alternative B.

5. Develop an activity plan for the Cocoraque Butte-Waterman Mountains Multiple Resource Management Area and manage to improve watershed condition to satisfactory, increase soil cover, reduce sediment yield, improve ecological site condition to good, promote the recovery of an endangered plant, and enhance water quality and stream flow.	5. Restore disturbed areas based on a restoration plan to be developed within two years following RMP approval. Include the following elements in the restoration plan: • identification of disturbed areas • inventory and description of the history of areas to be restored • objectives and success criteria for the restoration efforts at each site • restoration strategies to be implemented at each site • duration and severity of restricted uses after restoration activities are implemented • monitoring protocol to be used to assess restoration efforts against the objectives and success criteria • adaptive management strategies to address situations where success criteria are not met • priorities for restoration	5. Same as Alternative B, but restore disturbed areas based on a restoration plan to be developed within five years.	5. Restore areas on a case-by-case basis.
6. No existing decisions specifically address this action.	6. Emphasize passive restoration by natural processes to return sites to their desired resource conditions and hydrological functions; use active reclamation practices to stabilize and reclaim sites that are likely to be successfully reclaimed using active management methods due to their ecological characteristics, and that are • severely damaged, rapidly deteri-orating, or rapidly expanding • placing adjacent resources at risk • prone to invasion by nonnative species • heavily disturbed, such as mining sites • capable of improving habitat for special status species • a management priority and require accelerated restoration to meet a selected management	6. Same as Alternative B.	6. Same as Alternative B.

	objective, such as obliterating a route to effectively implement a route closure or restoring an important habitat function • identified as having high visual resource values that are being affected • located in priority vegetative habitats		
7. No existing decisions specifically address this action.	7. Use a variety of vegetation reclamation methods, as appropriate, to restore and promote a natural range of native plant associations. Methods may include mechanical, chemical, and biological treatments.	7. Same as Alternative B.	7. Same as Alternative B.
8. No existing decisions specifically address this action.	8. Use native plants for all restoration projects.	8. Same as Alternative B.	8. Use native plants as the first priority for all restoration projects. Non-intrusive, non-native 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. Allow use to the extent that it complies with the vegetation objectives and other management goals and objectives. In these situations, use of short-lived species in combination with native species would be preferred to facilitate the establishment of native species.
9. Fencing is evaluated and installed on a case-by-case basis.	9. Fence along designated routes, as necessary, to prevent damage to sensitive and unique vegetation and minimize the spread of invasive species and noxious weeds. Fencing would be designed and installed consistent with the procedures and configurations described in BLM Manual H-1741, Fencing.	9. Same as Alternative B.	9. Same as Alternative B.
10. No existing decisions specifically address this action.	10. Avoid projects or activities that could disturb priority species or habitats. Require mitigation when avoidance is not possible.	10. Same as Alternative B.	10. Same as Alternative B.

Table 2-5. Resource Management Alternatives for WILDLIFE AND WILDLIFE HABITAT

Desired Outcomes: Management Goals and Objectives			
NO ACTION	**ACTION ALTERNATIVES**		
Goal: No LUP-level goals for wildlife and wildlife habitat are presented in the existing land use plan.	**Goal 1:** Sustain ecological conditions within the IFNM that continue to support the wildlife populations and achieve Arizona Game and Fish Department wildlife management goals. **Goal 2:** Conserve, enhance, and, where appropriate, restore native wildlife and wildlife habitats. **Goal 3:** Maintain or enhance wildlife corridors between blocks of habitat.		
Objective: No LUP-level objectives for wildlife and wildlife habitat are presented in the existing land use plan.	**Objective 1:** Manage wildlife habitat in cooperation with adjacent land owners to minimize degradation, loss, and fragmentation throughout the monument. **Objective 2:** Manage and/or conserve areas identified as important for the viability of priority species and bighorn sheep populations, including, but not limited to lambing areas and movement corridors. Within 10 years, enhance habitat conditions in movement corridors so they are conducive to wildlife movement. **Objective 3:** Manage for wildlife water availability to sustain optimal wildlife population sizes as determined by AGFD. Minimize adverse impacts of current and potential waters on all wildlife species. **Objective 5:** Manage access and transportation, and implement use restrictions to protect wildlife habitat values, decrease human-wildlife conflicts, and reduce and/or minimize fragmentation of habitat. **Objective 6:** Manage allowable activities and uses to protect the following priority species: game species, bighorn sheep, mule deer, javelina, burrowing owls, migratory birds, and special status species (special status species as of the date of this document are listed in Chapter 3) to sustain healthy populations.		
Decisions for Management Actions, Allowable Uses, and Use Allocations			
Alternative A (No Action)	**Action Alternative B**	**Action Alternative C** (Proposed Plan)	**Action Alternative D**
1. No existing decisions specifically address this action.	1. Priority habitats for wildlife are bighorn sheep habitat (as allocated for the Wildlife Habitat Management Area [WHA] below), xeroriparian habitat, and desert tortoise habitat categories I and II (desert tortoise are discussed further in Table 2-6, Special Status Species).	1. Same as Alternative B.	1. Same as Alternative B.
2. Silver Bell Desert Bighorn Sheep Management Area includes 56,800 acres (of Federal, State Trust, and private land, of which approximately 41,470 acres are BLM managed surface estate within the IFNM), including areas outside the IFNM boundary (refer to Map 2-1; areas outside the IFNM boundary are not shown).	2. Discontinue the 41,470 acres Silver Bell Desert Bighorn Sheep Management Area. Instead, approximately 29,820 acres are allocated for the Desert Bighorn Sheep WHA (as shown on Map 2-2) to protect habitat, lambing areas, and movement corridors. The WHA would be managed in conjunction with appropriate agencies.	2. Same as Alternative B.	2. Same as Alternative B.

3. For the Silver Bell Desert Bighorn Sheep Management Area: develop an activity plan; prohibit surface occupancy for oil/gas development on 800 acres of Ragged Top; limit motorized vehicles to existing roads and trails, except close 800 acres on Ragged Top; acquire land.	3. For the Desert Bighorn Sheep WHA: In coordination with AGFD, implement closures to human entry from January 1 through April 30, as needed, based on information and monitoring data gathered on lambing areas within the WHA, as identified by available information and monitoring data. Lambing areas are closed to sheep and goats year-round. (NOTE: Adaptive management techniques would be used as lambing areas change over time).	3. Same as Alternative B.	3. Same as Alternative B.
4. No existing decisions specifically address this action.	4. As appropriate, BLM would coordinate the evaluation and implementation of proposals to enhance wildlife populations through partnerships with the AGFD and other agencies as necessary to determine what levels of wildlife introductions or habitat enhancements are appropriate for each desired plant community.	4. Same as Alternative B.	4. Same as Alternative B.
5. No existing decisions specifically address this action.	5. Dogs are prohibited on public land within the monument.	5. Dogs must be leashed when on public land within the monument, except when being used for hunting or when being used for livestock operations.	5. Same as Alternative C.
6. Modify existing waters (within the Cocoraque and Agua Dulce Ranches) as necessary to make the sources safer for use by wildlife. • escape ramps would be placed in troughs to prevent animal drowning • floating platforms would be placed in open top storage tanks to prevent bird drowning.	6. Evaluate and implement, as appropriate, proposals for wildlife waters including selecting sites and installing new waters; modifying, replacing, and/or repairing existing waters; and removing nonfunctioning waters. Coordinate with AGFD for this action. Any new or modified waters would be designed consistent with current standards for wildlife and public safety.	6. Same as Alternative B.	6. Same as Alternative B.

7. No existing decisions specifically address this action.	7. Remove fences, roads, and facilities that are no longer necessary for transportation, wildlife management, monument administration, or other purposes in their present locations.	7. Same as Alternative B.	7. Same as Alternative B.
8. If necessary, the BLM would modify those portions of existing fence lines found to be restricting deer or desert bighorn sheep travel. Fence lines creating hazards to wildlife because of maintenance needs would be repaired by the operator (within the Cocoraque and Agua Dulce Ranches).	8. Construct or modify fences as necessary to maintain safe, unrestricted travel by wildlife. Fencing would be designed and installed consistent with the procedures and configurations described in BLM Manual H-1741, Fencing.	8. Same as Alternative B.	8. Same as Alternative B.

Wildlife Habitat Management Alternative A

Ironwood Forest National Monument
PRMP/FEIS

Legend

Desert Bighorn Sheep Wildlife Habitat Management Area

Surface Management

- Bureau of Land Management
- National Park Service
- Bureau of Reclamation
- American Indian Reservation
- Military Reservation
- State Trust Land
- State, County, City; Wildlife, Park and Outdoor Recreation Area
- Private
- Pima County

Note:
Land use allocations, designations, and management prescriptions apply only to public lands administered by the BLM. If non-Federal lands are acquired, they would be managed according to the allocations depicted on the map.

Data Source:
Habitat Information: BLM 2003
Base Information: BLM 2003
Quadrangle Image: U.S. Geological Survey 1977 Tucson

General Reference

- County Boundary
- Central Arizona Project (CAP) Canal
- River
- Interstate 10
- Main public access routes to monument. County administered roads connecting monument travel route system to public highways.

Planning Area

- Ironwood Forest National Monument

Universal Tranverse Mercator
Zone 12, Units Meters
Clark 1866 Spheroid
NAD27 Datum
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0 1 2 4 Miles
0 2 4 8 Kilometers

Location in Arizona



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Map 2-1

Wildlife Habitat Management Alternatives B-D

Ironwood Forest National Monument
PRMP/FEIS

Legend

Desert Bighorn Sheep Wildlife Habitat Management Area

Surface Management

- Bureau of Land Management
- National Park Service
- Bureau of Reclamation
- American Indian Reservation
- Military Reservation
- State Trust Land
- State, County, City; Wildlife, Park and Outdoor Recreation Area
- Private
- Pima County

Note:
Land use allocations, designations, and management prescriptions apply only to public lands administered by the BLM. If non-Federal lands are acquired, they would be managed according to the allocations depicted on the map.

Data Source:
Habitat Alternative: BLM 2005
Base Information: BLM 2003
Quadrangle Image: U.S. Geological Survey 1977 Tucson

General Reference

- County Boundary
- Central Arizona Project (CAP) Canal
- River
- Interstate 10
- Main public access routes to monument. County administered roads connecting monument travel route system to public highways.

Planning Area

- Ironwood Forest National Monument

Universal Tranverse Mercator
Zone 12, Units Meters
Clark 1866 Spheroid
NAD27 Datum

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0 1 2 4 Miles
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Location in Arizona



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Map 2-2

Table 2-6. Resource Management Alternatives for SPECIAL STATUS SPECIES

Desired Outcomes: Management Goals and Objectives			
NO ACTION	**ACTION ALTERNATIVES**		
Goal: No LUP-level goals for special status species are presented in the existing land use plan.	**Goal 1:** Conserve special status species (including Federally listed species, Arizona's Wildlife of Special Concern, Priority Vulnerable Species in Pima County, BLM Sensitive Species, Arizona Department of Agriculture); where necessary, enhance or restore their habitats.		
Objective: Conservation of Federal threatened or endangered, proposed, candidate, and other special status species is promoted by the maintenance or restoration of their habitats.	**Objective 1:** Manage land uses to sustain adequate habitat for special status species. **Objective 2:** Restore large disturbed areas (> 1 acre) within priority special status species habitats within 10 years, including roads and other habitat alterations.		
Decisions for Management Actions, Allowable Uses, and Use Allocations			
Alternative A (No Action)	**Action Alternative B**	**Action Alternative C** (Proposed Plan)	**Action Alternative D**
1. No existing decisions specifically address this action.	1. Priority special status species habitats include: (1) 2,240 acres of Nichol Turk's head cactus habitat; (2) 58,810 acres of desert tortoise habitat categories I and II; and (3) lesser long-nosed bat foraging habitat (the IFNM in its entirety).	1. Same as Alternative B.	1. Same as Alternative B.
2. Manage approximately 3,342 acres as the Waterman Mountains Area of Critical Environmental Concern (ACEC) for the Nichol Turk's head cactus (Map 2-3). NOTE: This includes both Federal and non-Federal land; approximately 2,240 acres are administered by BLM.	2. Manage approximately 2,240 acres of Nichol Turk's head cactus habitat on BLM-administered public land as the Waterman Mountains Vegetation Habitat Management Area (VHA) for the protection of this species (Map 2-4).	2. Same as Alternative B.	2. Same as Alternative B (except refer to Map 2-5).

3. Within the Waterman Mountains ACEC: • Prohibit land use authorizations except along existing roads. • Acquire approximately 1,140 acres (of non-Federal land). • Continue implementing 1986 HMP.	3. Within Waterman Mountains VHA: • Prohibit land use authorizations except along routes designated for motorized use. • Acquire non-Federal land, which upon acquisition would be managed as part of the VHA. • Revise and implement the 1986 HMP. • Prohibit camping (on BLM-administered land) in the VHA.	3. Same as Alternative B, except: • Allow camping within the VHA. (Refer to Table 2-14, Recreation for more information regarding camping.)	3. Same as Alternative C.
4. No existing decisions specifically address this action.	4. Approximately 6,780 acres are allocated as the Ragged Top VHA as shown on Map 2-4.	4. Same as Alternative B.	4. Allocate 6,500 acres as the Ragged Top VHA as shown on Map 2-5.
5. No existing decisions specifically address this action.	5. Within Ragged Top VHA: • Acquire non-Federal land, which upon acquisition would be managed as part of the VHA. • Prohibit camping (on BLM-administered land) in the VHA.	5. Same as Alternative B, except: • Allow camping within the VHA. (Refer to Table 2-14, Recreation for more information regarding camping.)	5. Same as Alternative C.
6. No existing decisions specifically address this action. However, as a matter of policy, BLM would follow the efforts described in Alternative B.	6. Implement the applicable conservation measures found in the Lesser Long-nosed Bat Recovery Plan (USFWS 1994), including measures to protect columnar cacti and agaves. Refer to Appendix E.	6. Same as Alternative B.	6. Same as Alternative B.
7. No existing decisions specifically address this action. However, as a matter of policy, BLM would follow the efforts described in Alternative B.	7. Implement measures to conserve desert tortoise habitat, as prescribed in Desert Tortoise Habitat Management on the Public Lands: A Rangewide Plan (USDI, BLM 1988). Refer to Appendix E.	7. Same as Alternative B.	7. Same as Alternative B.
8. Minimize livestock impacts on listed or candidate plants by providing water sources away from existing populations. Move or replace livestock waters that are found to be causing habitat deterioration near rare plants.	8. No relocation or additional livestock water sources would be provided (BLM would not invest in range improvements because grazing leases would begin to expire in 2009).	8. Same as Alternative A.	8. Same as Alternative A.

9. Implement the Nichol Turk's head cactus recovery plan to increase soil cover, reduce sediment yield, improve ecological site condition to good, and promote the recovery of the endangered plant.	9. Implement the Nichol Turk's head cactus recovery plan to increase soil cover, reduce sediment yield, and improve ecological site conditions.	9. Same as Alternative B.	9. Same as Alternative B.
10. Implement conservation measures (refer to Appendix E) during fire suppression operations to reduce the effects of fire management actions on threatened and endangered species.	10. Same as Alternative A.	10. Same as Alternative A.	10. Same as Alternative A.

Special Status Species Management Alternative A

Ironwood Forest National Monument
PRMP/FEIS

Legend

Waterman Mountains Area of Critical Environmental Concern (ACEC)

Surface Management

- Bureau of Land Management
- National Park Service
- Bureau of Reclamation
- American Indian Reservation
- Military Reservation
- State Trust Land
- State, County, City; Wildlife, Park and Outdoor Recreation Area
- Private
- Pima County

Note:
Land use allocations, designations, and management prescriptions apply only to public lands administered by the BLM. If non-Federal lands are acquired, they would be managed according to the allocations depicted on the map.

Data Source:
ACEC: BLM 2005
Base Information: BLM 2003
Quadrangle Image: U.S. Geological Survey 1977 Tucson

General Reference

- County Boundary
- Central Arizona Project (CAP) Canal
- River
- Interstate 10
- Main public access routes to monument. County administered roads connecting monument travel route system to public highways.

Planning Area

- Ironwood Forest National Monument

Universal Tranverse Mercator
Zone 12, Units Meters
Clark 1866 Spheroid
NAD27 Datum
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0 1 2 4 Miles
0 2 4 8 Kilometers

Location in Arizona



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Map 2-3

Special Status Species Management Alternative B-C

Ironwood Forest National Monument
PRMP/FEIS

Legend

Vegetation Habitat Management Area (VHA)

Surface Management

- Bureau of Land Management
- National Park Service
- Bureau of Reclamation
- American Indian Reservation
- Military Reservation
- State Trust Land
- State, County, City; Wildlife, Park and Outdoor Recreation Area
- Private
- Pima County

Note:
Land use allocations, designations, and management prescriptions apply only to public lands administered by the BLM. If non-Federal lands are acquired, they would be managed according to the allocations depicted on the map.

Data Source:
VHMA Alternatives: BLM 2005
Base Information: BLM 2003
Quadrangle Image: US Geological Survey 1977 Tucson

General Reference

- County Boundary
- Central Arizona Project (CAP) Canal
- River
- Interstate 10
- Main public access routes to monument. County administered roads connecting monument travel route system to public highways.

Planning Area

- Ironwood Forest National Monument

Universal Tranverse Mercator
Zone 12, Units Meters
Clark 1866 Spheroid
NAD27 Datum

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0 1 2 4 Miles
0 2 4 8 Kilometers

Location in Arizona



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Map 2-4

Special Status Species Management Alternative D

Ironwood Forest National Monument
PRMP/FEIS

Legend

Vegetation Habitat Management Area (VHA)

Surface Management

- Bureau of Land Management
- National Park Service
- Bureau of Reclamation
- American Indian Reservation
- Military Reservation
- State Trust Land
- State, County, City; Wildlife, Park and Outdoor Recreation Area
- Private
- Pima County

Note:
Land use allocations, designations, and management prescriptions apply only to public lands administered by the BLM. If non-Federal lands are acquired, they would be managed according to the allocations depicted on the map.

Data Source:
VHMA Alternatives: BLM 2005
Base Information: BLM 2003
Quadrangle Image: US Geological Survey 1977 Tucson

General Reference

- County Boundary
- Central Arizona Project (CAP) Canal
- River
- Interstate 10
- Main public access routes to monument. County administered roads connecting monument travel route system to public highways.

Planning Area

- Ironwood Forest National Monument

Universal Tranverse Mercator
Zone 12, Units Meters
Clark 1866 Spheroid
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0 1 2 4 Miles
0 2 4 8 Kilometers

Location in Arizona



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Map 2-5

Table 2-7. Resource Management Alternatives for FIRE ECOLOGY AND MANAGEMENT

Desired Outcomes: Management Goals and Objectives			
NO ACTION	**ACTION ALTERNATIVES**		
Goal 1: Fuels in the wildland-urban interface are maintained at levels to provide for public and firefighter safety. **Goal 2:** Each vegetation community is maintained within its natural range of variation in plant composition, structure, and function, and fuel loads are maintained below levels that are considered to be hazardous.	**Goal 1:** Maintain fuels in the wildland-urban interface at levels to provide for public and firefighter safety. **Goal 2:** Maintain each vegetation community within its natural range of variation in plant composition, structure, and function, and maintain fuel loads below levels that are considered to be hazardous.		
Objective: No LUP-level objectives for fire management are presented in the existing land use plan.	**Objective 1:** All fuels treatment actions will prioritize public and firefighter safety. **Objective 2:** Maintain characteristics of Fire Regime Condition Class 1 (vegetation composition, structure, and fuels are similar to those of the historical regime and do not pre-dispose the system to risk of loss of key ecosystem components; wildland fires are characteristic of the historical fire regime behavior, severity, and patterns; disturbance agents, native species habitats, and hydrologic functions are within the historical range of variability; smoke production potential is low in volume). **Objective 3:** Suppress wildfire in the shortest practical time using minimum impact suppression tactics, while minimizing suppression costs.		
Decisions for Management Actions, Allowable Uses, and Use Allocations			
Alternative A (No Action)	**Action Alternative B**	**Action Alternative C** (Proposed Plan)	**Action Alternative D**
1. IFNM is allocated to Non-Wildland Fire Use (areas not suitable for wildland fire use for resource benefit). This allocation requires mitigation and suppression to prevent direct threats to life or property. It includes areas where fire never played a large role, historically, in the development and maintenance of the ecosystem, and some areas where fire return intervals were very long. It also includes areas (including some wildland urban interface [WUI] areas) where an unplanned ignition could have negative effects to the ecosystem unless some form of mitigation takes place.	1. Same as Alternative A.	1. Same as Alternative A.	1. Same as Alternative A.

2. Maintain full suppression in all areas in accordance with applicable conservation measures (refer to Appendix E).	2. Same as Alternative A.	2. Same as Alternative A.	2. Same as Alternative A.
3. Implement programs to reduce unwanted ignitions, and emphasize prevention, detection, and rapid suppression response techniques.	3. Same as Alternative A.	3. Same as Alternative A.	3. Same as Alternative A.
4. Where fuel loading is high, use biological, mechanical or chemical treatments to maintain non-hazardous levels of fuels, reduce the hazardous effects of unplanned wildland fires, and meet resource objectives. Use of prescribed fire is prohibited.	4. Same as Alternative A.	4. Same as Alternative A.	4. Same as Alternative A.
5. No existing decisions specifically address this action.	5. A Resource Advisor would be present on all fires within the IFNM.	5. Same as Alternative B.	5. Same as Alternative B.

Table 2-8. Resource Management Alternatives for CULTURAL RESOURCES

Desired Outcomes: Management Goals and Objectives			
NO ACTION	**ACTION ALTERNATIVES**		
Goal No LUP-level goals for cultural resources are presented in the existing land use plan.	**Goal 1:** Identify, preserve, and protect significant cultural resources and ensure that they are available for appropriate uses by present and future generations. **Goal 2:** Recognize the potential public and scientific uses of the cultural resources on monument lands, and manage those resources so that their values are not diminished, but rather are maintained and enhanced.		
Objective: The objective of cultural resources management in the RMP area is to protect the information potential or the public use values of properties or to manage them, where applicable, for conservation.	**Objective 1**: Allocate cultural resources to one of five use categories: (1) scientific use, (2) conservation for future use, (3) traditional use, (4) public use, (5) experimental use, or classify as discharged from management, according to the BLM Cultural Resource Manual 8110. **Objective 2:** Protect the variety of cultural resources on monument lands to preserve their integrity and historic and prehistoric context. **Objective 3:** On sites not allocated for scientific or public use, cultural resources are undisturbed, with any changes only attributable to natural causes. **Objective 4:** Research activities in the monument yield additional and new information regarding cultural resources and improve management and protection. **Objective 6:** Educational activities enhance public understanding and appreciation of cultural resources, and further protection of cultural resources.		
Decisions for Management Actions, Allowable Uses, and Use Allocations			
Alternative A (No Action)	**Action Alternative B**	**Action Alternative C** (Proposed Plan)	**Action Alternative D**
1. No existing decisions specifically address this action.	1. Sites would be allocated and re-allocated according to the BLM Cultural Resource Manual 8100 using the criteria pertinent to the specified use listed below and in response to changing resource conditions, public use, research opportunities, and other reasons.	1. Same as Alternative B.	1. Same as Alternative B.
Scientific Use	***Scientific Use***	***Scientific Use***	***Scientific Use***
2. No existing decisions specifically address this action.	2. Sites that are most important for the scientific or historical information they contain are allocated to scientific use. Sites are allocated to this category based on the following criteria: • significance and uniqueness of site	2. Same as Alternative B, in addition the Santa Ana de Cuiquiburitac site (640 acres) is allocated to scientific use.	2. Same as Alternative C.

	• potential to contribute toward scientific understanding • capability of currently available scientific methods to achieve research goals • appropriate research proposal that will further scientific understanding or resource management • existing threats to site, including vandalism, erosion, or other types of disturbance. The following general sites classes may be allocated to scientific use. Classes of prehistoric sites: • village sites, camp sites, agricultural sites, rock shelters or cave sites • lithic scatters, artifact scatters • groundstone manufacturing sites • rock features and alignments • food and other resource processing sites, roasting pits • hunting blinds and ambush sites • trail sites • tinaja and spring sites • petroglyph sites, pictograph sites • intaglio sites Classes of historic sites: • ranches, homesteads, and associated features and components • livestock raising related sites, agricultural features • mines and prospecting sites • settlements and camps • roads, trails, and driveways, railroads and associated features, stage stops and stations • public works sites, military camps and sites		

	• rock features and walls • facilities used in commerce • wells and water developments, water control features • artifact scatters • historic aboriginal sites • historic rock art • trash dumps		
3. No existing decisions specifically address this action.	3. Allow scientific and historical studies, which do not involve any ground-disturbing activities, by permitted qualified researchers at selected sites allocated to scientific use. Assign the highest priority for study to sites that are threatened with damage from human activities or natural processes, areas of scientific interest, sites eligible for the National Register of Historic Places, and areas where research may inform management actions or otherwise benefit IFNM management and resources. Use historic contexts and research designs to provide guidance for scientific studies.	3. Allow scientific and historical studies, including excavation if warranted, by permitted qualified researchers at selected sites allocated to scientific use. Assign the highest priority for study to sites that are threatened with damage from human activities or natural processes, areas of scientific interest, sites eligible for the National Register of Historic Places, and areas where research may inform management actions or otherwise benefit IFNM management and resources. Use historic contexts and research designs to provide guidance for scientific studies.	3. Same as Alternative C.
Public Use	***Public Use***	***Public Use***	***Public Use***
4. No existing decisions specifically address this action.	4. Sites managed for public use would be protected and developed as interpretive exhibits in place, or for related educational and recreational uses. No sites are allocated for public use at this time.	4. Sites managed for public use would be protected and developed as interpretive exhibits in place, or for related educational and recreational uses. Sites allocated to public use include: a. Segments of the Historic Sasco Railroad located on public land b. Historic sites associated with Silver Bell Mine on public land c. Historic ranching sites d. Certain agricultural use areas within the existing Avra Valley Other sites may be allocated to public use based on the following criteria: • the ability of the site to support public use while protecting monument objects	4. Same as Alternative C.

		• presence of aboveground features, such as structures or rock art, landscape characteristics, or other features that are of interest to the public and are amenable to interpretive development • the condition of the site and the feasibility of treating or stabilizing selected areas to withstand visitation • accessibility to travel routes; • visitor safety • compatibility of other land uses and site values, such as traditional use by Native Americans • feasibility of regular inspections by BLM staff and volunteers • partnership opportunities for interpretive and educational projects • unique site(s) and/or interpretive opportunity not available in the surrounding area	
5. No existing decisions specifically address this action.	5. No group tours of cultural sites would be allowed because no sites would be allocated to public use.	5. Restrict visitor access, group tours, and group size as needed to prevent any damage from visitor use. Require commercial tour operators to receive Arizona Site Steward training and provide appropriate educational information on archaeological site etiquette and resource conservation to their customers if cultural sites are included on tours. Require tour operators to report vandalism or damage to sites.	5. Same as Alternative C.

Traditional Use	***Traditional Use***	***Traditional Use***	***Traditional Use***
6. No existing decisions specifically address this action.	6. Allocate sites to traditional use that are important in maintaining the identity, heritage or well being of American Indian tribes or other cultural groups. Sites allocated for traditional use are managed in ways that recognize the importance ascribed to them and seek to accommodate their continuing traditional use.	6. Same as Alternative B.	6. Same as Alternative B.
7. No existing decisions specifically address this action.	7. Allocate sites to traditional use based on consultation with affiliated Indian tribes and consideration of other public uses.	7. Same as Alternative B.	7. Same as Alternative B.
8. No existing decisions specifically address this action.	8. Continue to consult with American Indian tribes to identify places of traditional importance and associated access needs. Develop measures for managing and protecting places that might be identified by tribes during the life of the plan. Honor tribal requests to protect the confidentiality of sensitive information, to the extent permitted by law.	8. Same as Alternative B.	8. Same as Alternative B.
Conservation for Future Use	***Conservation for Future Use***	***Conservation for Future Use***	***Conservation for Future Use***
9. No existing decisions specifically address this action.	9. Allocate sites to the conservation for future use category that are of singular historic importance, architectural interest or cultural importance. Their unusual significance makes them unsuitable for scientific or historical study that would result in their physical alteration. Allocate the Santa Ana de Cuiquiburitac site (640 acres) to Conservation for Future Use.	9. Allocate sites to the conservation for future use category that are of singular historic importance, architectural interest or cultural importance. Their unusual significance makes them unsuitable for scientific or historical study that would result in their physical alteration. No sites are allocated for conservation for future use at this time.	9. Same as Alternative C.
10. No existing decisions specifically address this action.	10. Sites would be conserved for the future until specified provisions were met such as the discovery of new information about the site, the development of new scientific techniques capable of fully realizing	10. Same as Alternative B.	10. Same as Alternative B.

	the research potential of the site, or damage to the site's integrity from vandalism or natural processes.		
Experimental Use	***Experimental Use***	***Experimental Use***	***Experimental Use***
11. No existing decisions specifically address this action.	11. Sites best suited for controlled experimental studies that would improve management of other sites would be allocated to the experimental use category.	11. Same as Alternative B.	11. Same as Alternative B.
12. No existing decisions specifically address this action.	12. Sites in this category would be considered for studies such as testing and measuring the rate of natural or human-caused deterioration, testing the effectiveness of certain protection measures, and testing the effects of fire. Studies would develop new research or interpretation methods or would generate similar kinds of practical management information. Experimental study would not be applied to cultural properties with strong research potential, traditional cultural importance, or good public use potential if it would significantly diminish those values. Justifications would be made in terms of weighing the benefits of specific information to be gained versus the loss of cultural attributes or data that may occur during the experiment or study.	12. Same as Alternative B.	12. Same as Alternative B.
Cultural Resource Management Areas	***Cultural Resource Management Areas***	***Cultural Resource Management Areas***	***Cultural Resource Management Areas***
13. Designate the 2,720-acre Avra Valley as a Cultural Resource Management Area.	13. Discontinue the designation of the Avra Valley as a Cultural Resource Management Area.	13. Same as Alternative B.	13. Same as Alternative B.

Table 2-9. Resource Management Alternatives for PALEONTOLOGICAL RESOURCES

Desired Outcomes: Management Goals and Objectives			
NO ACTION **Goal** No LUP-level goals for paleontology are presented in the existing land use plan.	**ACTION ALTERNATIVES** **Goal 1:** Protect paleontological resources.		
Objective: No LUP-level objectives for paleontology are presented in the existing land use plan.	**Objective 1**: Manage paleontological resources for their scientific, educational and recreational values.		
Decisions for Management Actions, Allowable Uses, and Use Allocations			
Alternative A (No Action)	**Action Alternative B**	**Action Alternative C** (Proposed Plan)	**Action Alternative D**
1. The collection of any objects, including… paleontological resources… should not be permitted, except where intended for legitimate scientific uses for which documentation is provided to the satisfaction of the responsible management official.	1. Same as Alternative A.	1. Same as Alternative A.	1. Same as Alternative A.
2. No existing decisions specifically address this action.	2. Require field surveys for paleontological resources prior to any ground-disturbing activities on IFNM lands and mitigate according to BLM guidelines.	2. Same as Alternative B.	2. Same as Alternative B.

Table 2-10. Resource Management Alternatives for SCENIC AND VISUAL RESOURCES

Desired Outcomes: Management Goals and Objectives	
NO ACTION	**ACTION ALTERNATIVES**
Goal: No LUP-level goals for scenic and visual resources are presented in the existing land use plan.	**Goal 1:** Preserve the monument's natural scenic and visual values, and where appropriate, rehabilitate disturbed areas that impact important views.
Objective: No LUP-level objectives for scenic and visual resources are presented in the existing land use plan.	**Objective 1:** Maintain or enhance opportunities to view those landscapes of the monument that may be valued for scenic, cultural, biological, recreation, or other reasons. Preserve the visual quality of those landscapes visible from important viewing areas or key observation points, which may include: • specific scenic road corridors • recreational sites and areas (perhaps as characterized by Recreational Management Zones [RMZs]) • designated motorized and non-motorized trails • cultural and historic areas • residences in and near the monument • other sites/areas with identified place-based values **Objective 2:** Prioritize disturbed areas for rehabilitation based on the following criteria: • Amount of visual contrast with the surrounding area • Distance the area is visible • Proximity to high recreation and/or visitor use areas or scenic routes and overlooks • High scenic quality **Objective 3:** Apply best management practices and visual design guidelines to minimize visual contrast of proposed projects to achieve Visual Resource Management (VRM) objectives to the greatest extent possible. **Objective 4:** Manage the transportation system to provide a variety of sightseeing opportunities.

Decisions for Management Actions, Allowable Uses, and Use Allocations			
Alternative A (No Action)	**Action Alternative B**	**Action Alternative C** (Proposed Plan)	**Action Alternative D**
VRM Classes	***VRM Classes***	***VRM Classes***	***VRM Classes***
1. Manage all public land as VRM Class III areas (Map 2-6).	1. Consistent with visual resources values and other resources and resource use allocations, manage visual resources on IFNM lands according to the following VRM class allocations: Class I: 36,990 acres Class II: 88,120 acres Class III: 3,290 acres The VRM Classes for this alternative are shown on Map 2-7.	1. Consistent with visual resources values and other resources and resource use allocations, manage visual resources on IFNM lands according to the following VRM class allocations: Class II: 124,900 acres Class III: 3,420 acres Class IV: 80 acres The VRM Classes for this alternative are shown on Map 2-8.	1. Consistent with visual resources values and other resources and resource use allocations, manage visual resources on IFNM lands according to the following VRM class allocations: Class II: 122,580 acres Class III: 4,220 acres Class IV: 1,600 acres The VRM Classes for this alternative are shown on Map 2-9.
2. No existing decisions specifically address this action.	2. Rehabilitate existing disturbed areas, as feasible, that attract attention to achieve visual contrast level consistent with designated VRM class.	2. Same as Alternative B.	2. Same as Alternative B.
3. No implementation decisions specifically address this action.	3. Manage activities that result in fugitive-dust (e.g., road route system) to protect visual quality in the monument (see also alternatives for air quality and transportation).	3. Same as Alternative B.	3. Same as Alternative B.

Visual Resources Management Aternative A

BLM Administered Land Only

Ironwood Forest National Monument PRMP/FEIS

Legend

Visual Resource Management Class

- Class III

R6E R7E R8E R9E R10E R11E

T9S T10S T11S T12S T13S T14S

Sunland Gin Rd.
Greene Reservoir Rd.
Curtis Rd.
Picacho Hwy.
Baumgartner Rd.
Cripple Creek Rd.
CAP CANAL
Coachway Rd.
Sasco Rd.
Aries Dr.
TOHONO O'ODHAM NATION BOUNDARY
Pinal County
Pima County
Trico-Marana Rd.
Silverbell Rd.
El Tiro Rd.
Pump Station Rd.
Trico Rd.
Avra Valley Rd.
Anway Rd.
Twin Peaks Rd.
CAP CANAL
Manville Rd.
Reservation Rd.
Mile Wide Rd.
Sandario Rd.
TOHONO O'ODHAM NATION BOUNDARY
TOHONO O'ODHAM NATION BOUNDARY

Data Source:
VRM Information: URS 2006
Base Information: BLM 2003
Quadrangle Image: U.S. Geological Survey 1977 Tucson

General Reference

- County Boundary
- Central Arizona Project (CAP) Canal
- River
- Interstate 10
- Main public access routes to monument. County administered roads connecting monument travel route system to public highways.

Planning Area

- Ironwood Forest National Monument

Universal Tranverse Mercator
Zone 12, Units Meters
Clark 1866 Spheroid
NAD27 Datum
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0 1 2 4 Miles
0 2 4 8 Kilometers

Location in Arizona



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Map 2-6

Visual Resources Management Alternative B

BLM Administered Land Only

Ironwood Forest National Monument PRMP/FEIS

Legend

Visual Resource Management Class

- Class I
- Class II
- Class III

R6E R7E R8E R9E R10E R11E

T9S T10S T11S T12S T13S T14S

Sunland Gin Rd.
Greene Reservoir Rd.
Curtis Rd.
Picacho Hwy.
Baumgartner Rd.
Cripple Creek Rd.
CAP CANAL
Aries Dr.
Coachway Rd.
Sasco Rd.
TOHONO O'ODHAM NATION BOUNDARY
Pinal County
Pima County
Trico-Marana Rd.
Silverbell Rd.
El Tiro Rd.
Pump Station Rd.
Trico Rd.
Avra Valley Rd.
Twin Peaks Rd.
Anway Rd.
CAP CANAL
Manville Rd.
Reservation Rd.
Mile Wide Rd.
Sandario Rd.
Saguaro National Park

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0 1 2 4 Miles

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Location in Arizona



Data Source:
VRM Alternative: URS 2006
Base Information: BLM 2003
Quadrangle Image: U.S. Geological Survey 1977 Tucson

General Reference

- County Boundary
- Central Arizona Project (CAP) Canal
- River
- Interstate 10
- Main public access routes to monument. County administered roads connecting monument travel route system to public highways.

Planning Area

- Ironwood Forest National Monument

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Map 2-7

Visual Resources Management Alternative C

BLM Administered Land Only

Ironwood Forest National Monument PRMP/FEIS

Legend

Visual Resource Management Class

- Class II
- Class III
- Class IV

R6E R7E R8E R9E R10E R11E

T9S T10S T11S T12S T13S T14S

Sunland Gin Rd.
Greene Reservoir Rd.
Curtis Rd.
Picacho Hwy.
Baumgartner Rd.
Cripple Creek Rd.
CAP CANAL
Coachway Rd.
Sasco Rd.
Aries Dr.
TOHONO O'ODHAM NATION BOUNDARY
Pinal County
Pima County
Trico-Marana Rd.
Silverbell Rd.
El Tiro Rd.
Pump Station Rd.
Trico Rd.
Avra Valley Rd.
Twin Peaks Rd.
Anway Rd.
CAP CANAL
Manville Rd.
Reservation Rd.
Mile Wide Rd.
Sandario Rd.

Data Source:
VRM Alternative: URS 2006
Base Information: BLM 2003
Quadrangle Image: U.S. Geological Survey 1977 Tucson

General Reference

- County Boundary
- Central Arizona Project (CAP) Canal
- River
- Interstate 10
- Main public access routes to monument. County administered roads connecting monument travel route system to public highways.

Planning Area

- Ironwood Forest National Monument

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Zone 12, Units Meters
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0 1 2 4 Miles
0 2 4 8 Kilometers

Location in Arizona



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Map 2-8

Visual Resources Management Alternative D

BLM Administered Land Only

Ironwood Forest National Monument PRMP/FEIS

Legend

Visual Resource Management Class

- Class II
- Class III
- Class IV

R6E R7E R8E R9E R10E R11E

T9S T10S T11S T12S T13S T14S

Sunland Gin Rd.
Greene Reservoir Rd.
Curtis Rd.
Picacho Hwy.
Baumgartner Rd.
Cripple Creek Rd.
CAP CANAL
Coachway Rd.
Sasco Rd.
Aries Dr.
TOHONO O'ODHAM NATION BOUNDARY
Pinal County
Pima County
Trico-Marana Rd.
Silverbell Rd.
El Tiro Rd.
Pump Station Rd.
Trico Rd.
Avra Valley Rd.
Twin Peaks Rd.
Anway Rd.
CAP CANAL
Manville Rd.
Reservation Rd.
Mile Wide Rd.
Sandario Rd.
TOHONO O'ODHAM NATION BOUNDARY
TOHONO O'ODHAM NATION BOUNDARY

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Zone 12, Units Meters
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0 1 2 4 Miles

0 2 4 8 Kilometers

Location in Arizona



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Data Source:
VRM Alternative: URS 2006
Base Information: BLM 2003
Quadrangle Image: U.S. Geological Survey 1977 Tucson

General Reference

- County Boundary
- CAP Canal
- River
- Interstate 10
- Main public access routes to monument. County administered roads connecting monument travel route system to public highways.

Planning Area

- Ironwood Forest National Monument

Map 2-9

Table 2-11. Resource Management Alternatives for LANDS MANAGED TO PROTECT WILDERNESS CHARACTERISTICS

Desired Outcomes: Management Goals and Objectives			
NO ACTION	**ACTION ALTERNATIVES**		
Goal: No LUP-level goals for areas with wilderness characteristics are presented in the existing land use plan.	**Goal 1**: Protect wilderness characteristics where they provide for the greatest opportunities for a combination of naturalness, opportunities for solitude, and/or opportunities for unconfined recreation. **Goal 2:** Allow land uses and authorizations compatible with wilderness characteristics and consistent with resource management objectives.		
Objective: No LUP-level objectives for areas with wilderness characteristics are presented in the existing land use plan.	**Objective 1:** Manage lands identified for protecting wilderness characteristics to preserve the following qualities: ***Naturalness:*** Lands and resources exhibit a high degree of naturalness when affected by the forces of nature and where the imprint of human activity is substantially unnoticeable. Naturalness attributes may include the presence or absence of roads and trails, fences and other improvements; the nature and extent of landscape modification; the presence of native vegetation communities; and the connectivity of habitats. Wildlife populations and habitats are recognized as important aspects of the naturalness and will be managed actively. ***Solitude:*** Visitors may have outstanding opportunities for solitude when the sights, sounds, and evidence of other people are rare or infrequent, where visitors can be isolated, alone or secluded from others. ***Primitive and Unconfined Recreation:*** Visitors may have outstanding opportunities for primitive and unconfined types of recreation where the use of the area is through non-motorized, non-mechanical means off designated routes and as specifically excepted, and where no or minimal developed recreation facilities are encountered.		
Decisions for Management Actions, Allowable Uses, and Use Allocations			
Alternative A (No Action)	**Action Alternative B**	**Action Alternative C** (Proposed Plan)	**Action Alternative D**
1. No existing decisions specifically address this action.	1. Manage 36,990 acres of IFNM to protect wilderness characteristics, as shown on Map 2-10.	1. Manage 9,510 acres of IFNM to protect wilderness characteristics, as shown on Map 2-11.	1. No areas would be managed to protect wilderness characteristics.
2. No existing decisions specifically address this action.	2. Visual changes from allowable uses and management activities to the characteristic landscape on lands managed to protect wilderness characteristics (36,990 acres, as shown on Map 2-7) must be very low and preserve existing character consistent with VRM Class I objectives.	2. Visual changes from allowable uses and management activities to the characteristic landscape on lands managed to protect wilderness characteristics (9,510 acres, as shown on Map 2-8) must be low and retain existing character consistent with VRM Class II objectives.	2. No management actions apply under this alternative.

3. No existing decisions specifically address this action.	3. Recreation setting conditions (particularly solitude, remoteness, facilities, encounters among visitors, evidence of use, and accessibility) in areas managed to protect wilderness characteristics would be in accordance with the Primitive RMZ objectives (as defined in Table 2-14).	3. Same as Alternative B.	3. No management actions apply under this alternative.

Lands Managed to Protect Wilderness Characteristics Alternative B

Ironwood Forest National Monument
PRMP/FEIS

Legend

- Lands Managed to Protect Wilderness Characteristics
- Existing Mining Claim
  (Areas would be removed from management to protect wilderness characteristics upon validity of the claim.)

Surface Management

- Bureau of Land Management
- National Park Service
- Bureau of Reclamation
- American Indian Reservation
- Military Reservation
- State Trust Land
- State, County, City; Wildlife, Park and Outdoor Recreation Area
- Private
- Pima County

Note:
Land use allocations, designations, and management prescriptions apply only to public lands administered by the BLM. If non-Federal lands are acquired, they would be managed according to the allocations depicted on the map.

Data Source:
Wilderness Characteristics Alternative: BLM 2005
Mining Claims: BLM 2003
Base Information: BLM 2003
Quadrangle Image: U.S. Geological Survey 1977 Tucson

General Reference

- County Boundary
- CAP Canal
- River
- Interstate 10
- Main public access routes to monument. County administered roads connecting monument travel route system to public highways.

Planning Area

- Ironwood Forest National Monument

Universal Tranverse Mercator
Zone 12, Units Meters
Clark 1866 Spheroid
NAD27 Datum
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0 0.5 1 2 Miles
0 2 4 8 Kilometers

Location in Arizona



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Map 2-10

Lands Managed to Protect Wilderness Characteristics Alternative C

Ironwood Forest National Monument
PRMP/FEIS

Legend

- Lands Managed to Protect Wilderness Characteristics
- Existing Mining Claim
  (Areas would be removed from management to protect wilderness characteristics upon validity of the claim.)

Surface Management

- Bureau of Land Management
- National Park Service
- Bureau of Reclamation
- American Indian Reservation
- Military Reservation
- State Trust Land
- State, County, City; Wildlife, Park and Outdoor Recreation Area
- Private
- Pima County

Note:
Land use allocations, designations, and management prescriptions apply only to public lands administered by the BLM. If non-Federal lands are acquired, they would be managed according to the allocations depicted on the map.

Data Source:
Wilderness Characteristics Alternative: BLM 2005
Mining Claims: BLM 2003
Base Information: BLM 2003
Quadrangle Image: U.S. Geological Survey 1977 Tucson

General Reference

- County Boundary
- CAP Canal
- River
- Interstate 10
- Main public access routes to monument. County administered roads connecting monument travel route system to public highways.

Planning Area

- Ironwood Forest National Monument

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0 0.5 1 2 Miles
0 2 4 8 Kilometers

Location in Arizona



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Map 2-11

Table 2-12. Resource Management Alternatives for ENERGY AND MINERAL RESOURCES

Desired Outcomes: Management Goals and Objectives			
NO ACTION	**ACTION ALTERNATIVES**		
Goal: No LUP-level goals for energy and minerals resources are presented in the existing land use plan.	**Goal 1:** Manage mining on the monument where valid existing rights occur.		
Objective: No LUP-level objectives for energy and minerals resources are presented in the existing land use plan.	**Objective 1:** Prevent unnecessary and undue degradation from mining activity on grandfathered mining claims that have established valid existing rights.		
Decisions for Management Actions, Allowable Uses, and Use Allocations			
Alternative A (No Action)	**Action Alternative B**	**Action Alternative C** (Proposed Plan)	**Action Alternative D**
1. Mining activities and mineral extraction for energy production within the IFNM would continue to be administered on a case-by-case basis for valid mining claims. (New mining claims, mineral leases and sales are prohibited in the IFNM; refer to Appendix A).	1. Same as Alternative A.	1. Same as Alternative A.	1. Same as Alternative A.
2. No existing decisions specifically address this action.	2. Reclaim abandoned mines having the greatest and immediate risk to human health or convert to another use protective of other resources.	2. Same as Alternative B.	2. Same as Alternative B.
Implementation-Level Decisions			
1. No implementation decisions specifically address this action.	1. Mitigate potential physical and chemical hazards related to mines in the monument and preserve wildlife habitat values where identified.	1. Same as Alternative B.	1. Same as Alternative B.

Table 2-13. Resource Management Alternatives for LIVESTOCK GRAZING

Desired Outcomes: Management Goals and Objectives	
NO ACTION	**ACTION ALTERNATIVES**
Goal: Provide forage on a sustained yield basis for livestock consistent with meeting Arizona Standards for Rangeland Health. Healthy, sustainable rangeland ecosystems would be maintained or improved to meet Land Health Standards and produce a wide range of public values such as wildlife habitat, livestock forage, recreation opportunities, clean water, and functional watersheds.	**Goal 1:** Manage and monitor livestock grazing, in areas open for this use, consistent with the Arizona Standards for Rangeland Health and Guidelines for Grazing Administration (see Section 2.3.2 of this Chapter), and with protection of monument objects. **Goal 2:** Manage grazing and range resources toward best possible ecological conditions for the local area given past uses and current potential. **Goal 3:** Acknowledge the cultural, historical and economic values of ranching through interpretive efforts.
Objective: Livestock use and associated management practices would be conducted in a manner consistent with multiple use needs and objectives to ensure that the health of rangeland resources is preserved or improved so that they are productive for all rangeland values. Where needed, public rangeland ecosystems would be improved to meet objectives.	**Objective 1:** Manage grazing and range resources to limit the amount of ephemeral forage used by livestock to no more than 30% of annual production. **Objective 2:** Manage grazing to maintain the integrity of monument objects over time, such that noticeable impacts are measurable only in small and localized areas.

Decisions for Management Actions, Allowable Uses, and Use Allocations			
Alternative A (No Action)	**Action Alternative B**	**Action Alternative C** (Proposed Plan)	**Action Alternative D**
1. All public lands within 11 allotments (approximately 128,400 acres) are available for livestock grazing.	1. All public lands within 11 allotments (only the portion within the IFNM, which includes approximately 128,400 acres) are unavailable for grazing to maximize the preservation of monument objects. Allotments would be unavailable for grazing only upon expiration of existing leases.	1. All public lands within 11 allotments (approximately 128,400 acres) are available for grazing.	1. Same as Alternative C.

2. Classify nine of 11 allotments as perennial/ephemeral and classify 2 as ephemeral (refer to Appendix F for classification criteria).	2. No management actions apply under this element for Alternative B.	2. Classify Agua Blanca, Agua Dulce, Blanco Wash, Claflin, Cocoraque, King, Old Sasco, Sawtooth Mountains, and Silver Bell allotments as perennial (refer to Appendix F for classification criteria). Morning Star and Tejon Pass allotments continue to be classified ephemeral. If the resource conditions within an allotment change due to implementation of management decisions or other factors, an allotment may be recategorized based on those conditions.	2. Same as Alternative C.
3. Following cancellation of a grazing lease, reallocate forage available for livestock use on a sustained yield basis within the associated allotment to a new grazing use applicant.	3. No management actions apply under this element for Alternative B.	3. Following cancellation or voluntary relinquishment of a grazing lease, BLM would determine if conditions within the associated allotment(s) are satisfactory based on applicable management objectives. If BLM determines that livestock grazing is preventing or hindering progress towards the achievement of applicable management objectives, BLM may decide to discontinue livestock grazing use on the allotment(s) if this action would help promote attainment of these objectives. Even if BLM initially decides to discontinue livestock use on some or all of an allotment, it may later decide to resume livestock use if it determines, based on its subsequent evaluation of ecological conditions and other pertinent factors, that it is appropriate to do so.	3. Same as Alternative C.

4. Allow only those new range improvements for livestock in (Desert Tortoise) Category I and II Habitat Areas that would not create conflicts with tortoise populations. Mitigation for such conflicts is permissible to make the net effect of the improvements positive or neutral to desert tortoise populations. Conflicting existing improvements should be eliminated as opportunities arise.	4. No new range improvements for managing livestock grazing would be authorized.	4. Same as Alternative A, with the following addition: Where range improvements are necessary and/or permitted, access and activities would be located and implemented to minimize additional disturbance to resources.	4. Same as Alternative C.
5. Provide additional (stock) water sources in the Twin Tanks and Cocoraque Pastures. Construct all additional waters to accommodate deer, javelina, and quail.	5. No management actions apply under this element for Alternative B.	5. p rovide additional (stock) water sources in the Twin Tanks and Cocoraque Pastures. All stock waters would be constructed to accommodate all wildlife species that might benefit from them. Current stock waters would be evaluated, and modified as necessary, to provide the maximum benefit and minimum adverse impact on wildlife.	5. Same as Alternative C.
6. No existing decisions specifically address this action.	6. No management actions apply under this element for Alternative B.	6. As necessary, increase the number and variety of wildlife and livestock exclosures to represent various ecosystems, and monitor these regularly. Exclosures would meet standard design configurations from manual H-1741-1.	6. Same as Alternative C.
7. No existing decisions specifically address this action.	7. No management actions apply under this element for Alternative B.	7. Maintain yearlong water sources in all pastures for livestock to ensure safe availability of water to wildlife. Minimize livestock impacts on priority plant species and habitats by providing water sources away from existing populations. Move or replace livestock waters that are found to be causing habitat deterioration near rare plants.	7. Same as Alternative C.

8. No existing decisions specifically address this action.	8. No management actions apply under this element for Alternative B.	8. Use of motorized vehicles by authorized users (livestock grazing, wildlife management activities, rights-of-way and special use permits) is subject to the OHV use and travel route designations, unless specifically authorized on a case-by-case basis. Administrative access to fence lines, corrals, wells, and water infrastructure for inspection and maintenance would be granted, as necessary. See Table 2-16 Travel Management for more information.	8. Same as Alternative C.
Implementation-Level Decisions			

Table 2-14. Resource Management Alternatives for RECREATION

Desired Outcomes: Management Goals and Objectives	
NO ACTION	**ACTION ALTERNATIVES**
Goal: No LUP-level goals for recreation are presented in the existing land use plans; however, recreation resources would be managed under an extensive recreation management area (ERMA) strategy, without specific objectives for recreation use, access to recreation opportunities, quality of experience, or quality of setting. Recreation use would be subject to regulations dictated primarily by resource protection objectives for the various monument values (watershed, cultural, VHA, VMA).	**Goal 1:** Manage monument lands to produce a variety of quality recreation experiences in largely natural settings, while protecting natural and cultural resources, and promoting safety and harmony among users. **Goal 2:** Manage recreation resources and visitor services to facilitate production and protection of appropriate recreation opportunities, activities, experiences and benefits that are that could be derived from the monument, and that are important to individuals and the communities affected. **Goal 3:** Make visitor information available to the public to aid in visitor use, and foster compliance with use restrictions, management objectives, and appreciation for resources. **Goal 4:** Coordinate visitor information, signing, and management with the Arizona State Lands Department, AGFD, counties, private land owners, and other interests to achieve desired recreation outcomes.
Objectives: No LUP-level objectives for recreation are presented in the existing land use plan.	**Objective 1:** Intensively manage the IFNM with an undeveloped recreation-tourism market strategy to sustain its distinctive undeveloped setting character, and produce targeted recreation opportunities, experiences and benefits. **Objective 2:** Identify Recreation Management Zones (RMZs) based on resource capability and accessibility, and prescribe the required settings to produce targeted recreation opportunities, experiences and benefits representing the range of opportunities currently available. **Objective 3:** When recreation use conflicts arise, promote communication, collaboration, and coordination among users to address them.

	Recreation Management Zone Objectives
No decisions from existing land use plan apply.	**Roaded Natural RMZ Objectives:** *Recreation Niche:* Scenic Sonoran Desert touring on improved roads for viewing the natural landscape, with wayside stops for interpretation of the monument's natural and cultural history, and access to dispersed recreation opportunities. *Recreation Management Objective:* This zone provides opportunities for visitors to engage in scenic road tours in a variety of modes of travel, and in interpretive programs available, with at least 75 percent of visitors realizing the targeted outcomes and/or benefits within the life of the RMP. *Primary Activities*: Driving passenger car and a variety of other motorized recreational vehicles for viewing scenery and points of interest. Stopping at wayside interpretive sites and overlooks to view scenery or wildlife. Driving to and staging for access to more remote and primitive settings. *Experiences:* Enjoying the natural Sonoran desert landscape and climate with family or friends; learning about the monument's natural and cultural history; taking low risks. *Benefits:* Enhanced sensitivity, awareness and appreciation of the monument's natural and cultural resources. High sense of personal responsibility for protecting monument objects. ***Recreation Setting Character required to produce recreation management outcomes:*** *Remoteness:* Areas are readily accessible with low sense of remoteness due to their location along collector or local improved and maintained roads that are accessible by passenger and recreational vehicles. *Naturalness:* Largely natural with a few developments in the foreground view, as needed for allowable IFNM land uses (range improvements, recreation sites, parking areas, signs, etc.) *Facilities:* Stabilized, improved and maintained roads and trails, parking turnouts, traffic control, interpretive signs/exhibits, trailheads to side trails. Minimal improvements provided for visitor convenience, and public health and safety. *Contacts:* Daily average no more than 50 parties passing along the road, and no more than 25 other parties at activity areas. *Group size:* Parties of 50 persons or more with special permit only, 100 persons maximum. *Evidence of use:* Maintained roads, parking turnouts, trailheads or staging areas, signs (portal, directional, informational, other), fence crossings without gates, stabilized or improved activity areas, intersections with side roads, or more primitive roads. *Accessibility:* Motorized vehicles and non-motorized vehicles licensed and insured to operate on a public road under Arizona law (ARS Title 28). Design vehicle is passenger car and recreational vehicle. Recreation sites and/or activity areas barrier free for persons with mobility impairments.

	Management Controls: Vehicle use and recreation activity areas limited to designated sites. Rules of conduct for developed sites implemented. Regulatory signs, other visitor control devices installed. *Visitor Services:* Regular visitor contact patrols by official personnel, with frequency depending on time of year. Regular law enforcement patrols. Regular clean-ups and trash collection. Self service on-site visitor information at recreation activity areas, special purpose sites, and access points to more remote settings.
No decisions from existing land use plan apply.	**Semi-Primitive Motorized RMZ Objectives:** *Recreation Niche:* Scenic Sonoran Desert touring on semi-primitive routes for viewing the natural and cultural landscape by a variety of off-highway vehicles, and access to dispersed recreation opportunities and more remote settings. *Recreation Management Objective:* This zone provides opportunities for visitors to engage in semi-primitive road touring on off-highway motorized vehicles (4WD, ATV, and trail motorcycle, or any other), with at least 75 percent of sampled visitors realizing the targeted outcomes and/or benefits within the life of the RMP. *Primary Activities:* Driving off-highway vehicles (4WD, ATVs, and trail motorcycles). Vehicle based semi-primitive camping and/or picnicking, hunting, viewing scenery and wildlife, access to more remote settings. *Experiences:* Enjoying self-directed desert adventure, exploring, taking moderate risks. *Benefits:* Self-reliance for survival and comfort. Improved or practicing outdoor recreation ethics and skills. Enhanced sensitivity, awareness, and appreciation of the monument's natural and cultural resources. Greater sense of personal responsibility for protecting monument objects. ***Recreation Setting Character Required to produce recreation management outcomes:*** *Remoteness:* Areas where physical access may require special equipment providing for a moderate sense of remoteness. Areas are located along resource access roads accessible to off-highway vehicles (high clearance, 4WD, ATV, trail-bike) and at least ½ mile away from maintained collector roads and/or county roads. *Naturalness*: Natural landscape with some modifications, consistent with VRM objectives. *Facilities:* Stabilized, minimally maintained single lane roads, trails. Rustic parking turnouts, traffic control, signs and trailheads. No visitor conveniences at recreation areas. Minimal public health and safety hazard mitigation. *Contacts:* Daily average, no more than 15 other parties passing along the road, and no more than 10 other parties at activity areas. *Group size:* Parties of 50 persons or more with special permit only, 100 persons maximum. *Evidence of use:* Single lane, semi-primitive roads, rustic parking turnouts, well worn and lightly worn and activity areas, signs.

	Accessibility: Motorized vehicles and non-motorized vehicles limited to routes designated for that use. Typical design vehicle is full size high clearance utility vehicle, with trailer combination vehicles for special purposes. Some recreation sites and/or activity areas barrier free for persons with mobility impairments. *Management Controls:* Regulatory signs and other visitor control devices installed. Regular law enforcement patrols. *Visitor Services:* Periodic patrols by BLM visitor services personnel, with frequency depending on time of year, on at least a bi-weekly basis during high use season. On-site visitor information at recreation activity areas, access points and special purpose sites, and access points to more remote settings.
No decisions from existing land use plan apply.	**Semi-Primitive Non-Motorized RMZ Objectives:** *Recreation Niche*: Scenic Sonoran Desert touring for viewing the natural and cultural landscape by a variety of non-motorized travel. *Recreation Management Objective*: This zone provides opportunities for visitors to engage in non-motorized touring (hiking, equestrian, mountain bike), with at least 75 percent of sampled visitors realizing the targeted outcomes and/or benefits within the life of the RMP. *Primary Activities*: Hiking, horseback riding, mountain biking, riding livestock pulled wagons to view scenery, access semi-primitive camping and picnicking, hunting, viewing landscape or wildlife, access more remote settings. *Experiences:* Enjoying self-directed desert adventure, exploring, taking moderately high risks. *Benefits:* Self-reliance for survival and comfort. Improved or practicing outdoor recreation ethics and skills. Enhanced sensitivity, awareness, and appreciation of the monument's natural and cultural resources. Greater sense of personal responsibility for protecting monument objects. ***Recreation Setting Character required to produce recreation management outcomes:*** *Remoteness:* Areas located along routes limited to non-motorized travel that are at least ½ mile away from resource access roads. *Naturalness*: Natural landscape with some modifications, consistent with VRM objectives. *Facilities:* Stabilized designated trails. Rustic parking turnouts, traffic control, signs and trailheads. No visitor conveniences at recreation activity areas. Minimal public health and safety hazard mitigation. *Contacts:* Daily average, no more than 15 other parties encountered along travel routes, and no more than 10 other parties at activity areas. *Group size:* Parties of 25 persons or more with special permit only, 50 persons maximum. *Evidence of use:*

	Single-track trails, converted use roadways, unimproved activity areas, minimal signs. *Accessibility:* Only by non-motorized travel, including non-motorized mechanized vehicles, on single track trails or converted single lane roadways. Typical design vehicles are equestrian and mountain bike, with full size utility vehicle for special administrative purposes. Some routes and recreation sites and/or activity areas with some barriers for persons with mobility impairments, requiring assistance, special equipment or exceptional ability. *Management Controls:* No restrictions on hiking and equestrian use, or dispersed camping and picnicking and other dispersed recreation activities, except as needed to mitigate potential impacts to fragile, sensitive resources. Mechanized vehicles (including mountain bikes) restricted to routes designated for that purpose. Regulatory signs and other visitor control devices installed at access points. Minimal law enforcement presence; regular patrols at access points. *Visitor Services:* Periodic patrols by BLM visitor services personnel with frequency depending on time of year; monthly basis or as needed for follow-up. On-site visitor information at access points and special purpose sites along travel route.
No decisions from existing land use plan apply.	**Ragged Top Wildlife Viewing RMZ Objectives:** *Recreation Niche*: Viewing and learning about a variety of desert wildlife in their natural habitat, in the most diverse and rugged Sonoran Desert mountain setting found in the IFNM. *Recreation Management Objective:* This zone provides opportunities for visitors to engage in wildlife viewing and nature study in a naturally appearing landscape with at least 75 percent of sampled visitors realizing the targeted outcomes and/or benefits within the life of the RMP. *Primary Activities:* Hiking, horseback riding, roadside or trailside stopping to view wildlife and the natural landscape, rough trekking and mountain climbing. *Experiences:* Learning about the Sonoran Desert ecology and wildlife. Enjoying the natural desert landscape. Enjoying self-directed desert adventure, exploring, taking moderately high risks. *Benefits:* Enhanced awareness and appreciation of the monument's wildlife and natural habitat resources. Increased self-reliance for survival and comfort. Greater sense of personal responsibility for protecting monument objects. Improved or practicing outdoor recreation ethics and skills. ***Recreation Setting Character required to produce recreation management outcomes:*** *Remoteness:* Areas where access is by way of walking or riding along trails, and by driving vehicle only along perimeter of area. *Naturalness*: Natural landscape with few modifications, consistent with VRM objectives. *Facilities:* No facilities within the area's interior, except gates at fences and interpretive signs. Rustic parking turnouts, trailheads, traffic control, interpretive signs, informational and other signs on the area's perimeter access points, or

	along the trails. *Contacts:* Daily average, no more than 15 other parties encountered along travel routes, and no more than 10 other parties at activity areas. *Group size:* Parties of 25 persons or more with special permit only, 50 persons maximum. *Evidence of use:* Paths and unimproved single-track trails, converted use roadways, parking turnouts and signs. *Accessibility:* Foot, horse and mountain bike travel on designated trails. Passenger car access to area's perimeter. Interior not accessible due to natural barriers for persons with mobility impairments. Perimeter accessible to persons with mobility impairments. *Management Controls:* Seasonal restrictions on hiking, equestrian use camping, and picnicking may apply as needed to mitigate potential impacts to fragile, sensitive resources. Regulatory signs and other visitor control devices installed at access points. Infrequent law enforcement presence; regular patrols at access points. *Visitor Services:* Regular patrols by BLM visitor services personnel with frequency depending on time of year. Weekly presence during high use season. On-site visitor information and interpretive sites at access points and special sites along travel routes.	
No decisions from existing land use plan apply.	**Primitive RMZ Objectives:** *Recreation Niche:* Hiking and riding excursions into the most remote, rugged and naturally appearing Sonoran Desert landscape found in the monument. *Recreation Management Objective:* This zone provides opportunities for visitors to engage in primitive recreation activities with a sense of remoteness and solitude, in a naturally appearing landscape with at least 75 percent of sampled visitors realizing the targeted outcomes and/or benefits within the life of the RMP. *Primary Activities:* Hiking, horseback riding, trailside semi-primitive camping and/or picnicking, hunting, viewing scenery and wildlife. *Experiences:* Enjoying self-directed desert adventure, exploring, opportunities for taking high risks. *Benefits:* Self-reliance for survival and comfort. Improved or practicing outdoor recreation ethics and skills. Enhanced sensitivity, awareness, and appreciation of the monument's natural and cultural resources. Greater sense of personal responsibility for protecting monument objects. ***Recreation Setting Character required to produce recreation management outcomes:*** *Remoteness:*	No decisions apply under Alternative D.

	Areas where access is by way of walking, horseback riding, and cross-country or non-motorized trail travel. Areas are located at least ½ mile away from local and resource access roads. *Naturalness*: Natural landscape with few modifications, consistent with VRM objectives. *Facilities:* No facilities within the area's interior, except gates on fences. Rustic parking turnouts, traffic control, signs and trailheads on boundary along perimeter. *Contacts:* Daily average, no more than 1 other party encountered along travel routes, and no more than 1 other parties at activity areas. *Group size:* Parties of 10 persons or more with special permit only, 25 persons maximum. *Evidence of use:* Paths and unimproved single-track trails, converted use roadways. *Accessibility:* Foot and horse cross country travel, no non-motorized mechanized vehicles. Not accessible due to natural barriers for persons with mobility impairments without extraordinary measures or risks. *Management Controls:* Seasonal restrictions on hiking, equestrian use dispersed camping and picnicking and other dispersed recreation activities may apply, as needed to mitigate potential impacts to fragile, sensitive resources. Regulatory signs and other visitor control devices installed at access points. Minimal law enforcement presence; regular law enforcement presence at access points. *Visitor Services:* Periodic patrols by BLM visitor services personnel with frequency depending on time of year. Presence limited to case-by-case condition surveys or follow up activities. On-site visitor information at access points and special purpose sites along travel route.	

Decisions for Management Actions, Allowable Uses, and Use Allocations			
Alternative A (No Action)	**Action Alternative B**	**Action Alternative C** (Proposed Plan)	**Action Alternative D**
1. No existing decisions specifically address this action.	1. Allocate the entire IFNM (approximately 128,400 acres) as a Special Recreation Management Area (SRMA). The SRMA is managed with a strategy targeting the local undeveloped recreation-tourism market. This market demands a variety of distinctive kinds of dispersed recreation opportunities produced by settings in open spaces with an undeveloped character, and a high degree of self-reliance. As non-Federal land in-holdings are acquired, they would be added to this allocation.	1. Same as Alternative B.	1. Same as Alternative B.
Recreation Management Zones (RMZs)	***Recreation Management Zones (RMZs)***	***Recreation Management Zones (RMZs)***	***Recreation Management Zones (RMZs)***
2. No existing decisions specifically address this action.	2. Allocate monument land to RMZs as follows (acreages are approximate): • Roaded Natural = 17,610 acres • Semi-Primitive Motorized = 14,540 acres • Semi-Primitive Non-Motorized = 60,000 acres • Ragged Top Wildlife Viewing = 6,780 acres • Primitive = 29,420 acres The RMZs for this alternative are shown on Map 2-12.	2. Allocate monument land to RMZs as follows (acreages are approximate): • Roaded Natural = 18,380 acres • Semi-Primitive Motorized = 36,230 acres • Semi-Primitive Non-Motorized = 57,450 acres • Ragged Top Wildlife Viewing = 6,780 acres • Primitive 9,510 acres The RMZs for this alternative are shown on Map 2-13.	2. Allocate monument land to RMZs as follows (acreages are approximate): • Roaded Natural = 19,060 acres • Semi-Primitive Motorized = 59,020 acres • Semi-Primitive Non-Motorized = 43,770 acres • Ragged Top Wildlife Viewing = 6,500 acres • Primitive = 0 acres The RMZs for this alternative are shown on Map 2-14.

Resources	***Resources***	***Resources***	***Resources***
3. No existing decisions specifically address this action; however, recreation resources are under basic custodial management throughout the IFNM. Recreation uses, activities and settings may change over time as needed to achieve other resource management objectives.	3. Implement recreation actions as necessary that sustain specific setting characteristics and achieve targeted outcomes for each RMZ.	3. Same as Alternative B.	3. Same as Alternative B.
Signing and Facilities	***Signing and Facilities***	***Signing and Facilities***	***Signing and Facilities***
4. No existing decisions specifically address this action; however, BLM would provide on-site signing, where needed, for visitor information, regulatory, or interpretation; provide portal information facilities at monument access points (such as informational kiosks); and develop materials and designs to blend in with the natural landscape.	4. For all RMZs, provide on-site signing, where needed, for visitor information, regulatory, or interpretation purposes in accordance with RMZ setting prescriptions; provide portal information facilities at monument access points (such as informational kiosks); maintain facilities to levels appropriate to the RMZ; and, develop materials and designs to blend in with the natural landscape.	4. Same as Alternative B.	4. Same as Alternative B.
Marketing	***Marketing***	***Marketing***	***Marketing***
5. No existing decisions specifically address this action.	5. For all RMZs, concentrate marketing strategies on delivering visitor information and other services once visitors arrive in the local area. Publicity is not attempting to position the monument as a major destination for a large volume of tourism or recreational use. Coordinate marketing efforts among the various providers.	5. Same as Alternative B.	5. Same as Alternative B.
Interpretation/Education	***Interpretation/Education***	***Interpretation/Education***	***Interpretation/Education***
6. No existing decisions specifically address this action.	6. Provide interpretive exhibits, signs or programs on-site at suitable locations in all RMZs. On-site programs may include BLM sponsored field trips or events, commercial interpretive or educational field trips or events, etc. Participate in off site interpretive or educational events with monument related themes.	6. Same as Alternative B.	6. Same as Alternative B.

Recreation Monitoring	***Recreation Monitoring***	***Recreation Monitoring***	***Recreation Monitoring***
7. No existing decisions specifically address this action.	7. Conduct baseline and follow-up intensive surveys of recreation sites and activity areas. Conduct resource condition, recreation use, and visitor surveys to determine if recreation and RMZ objectives are being achieved, and setting prescriptions are being maintained.	7. Same as Alternative B.	7. Same as Alternative B.
Visitor Services	***Visitor Services***	***Visitor Services***	***Visitor Services***
8. No existing decisions specifically address this action.	8. The level of visitor services within the IFNM would vary by zone, with the greatest presence of BLM staff within the roaded natural RMZ. Visitor center facilities would be provided offsite in coordination with the local communities.	8. Same as Alternative B.	8. Same as Alternative B.
Camping	***Camping***	***Camping***	***Camping***
9. No existing decisions specifically address this action; however, collection of dead and down firewood for use in campfires is allowed.	9. Prohibit wood campfires; allow camp stoves and/or charcoal fires only.	9. Allow wood campfires only when firewood is from a non-monument source.	9. Allow campfires using dead, down, and detached wood. Collection of wood for campfires may be restricted if needed as determined through monitoring.
10. No existing decisions specifically address this action; however, dispersed, vehicle-based camping is allowed throughout the monument. (Per State law, camping within ¼ mile of a natural water hole containing water, or a manmade watering facility containing water, in such a place that wildlife or domestic stock would be denied access to the only reasonably available water, is prohibited.)	10. Allow overnight vehicle-based camping (including RVs) at identified sites only. 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 IFNM. Approximately 30 sites potentially would be identified, subject to additional site-specific analysis and monitoring.	10. Same as Alternative B, except approximately 100 sites potentially would be identified, subject to additional site-specific analysis and monitoring.	10. Same as Alternative B, except approximately 150 sites potentially would be identified, subject to additional site-specific analysis and monitoring.
11. Dispersed non-motorized camping is allowed throughout the monument, subject to existing access.	11. Allow overnight, dispersed, non-motorized camping at identified campsites only, unless camping in an area is specifically prohibited for protection of resource values (e.g., signed sensitive closure areas, which could vary over time).	11. Allow overnight, dispersed, non-motorized camping throughout the monument unless camping in an area is specifically prohibited for protection of resource values (e.g., signed sensitive closure areas, which could vary over time).	11. Same as Alternative C.

12. No existing decisions specifically address this action.	12. Large group camping is allowed at identified group sites only. Special permit required for groups larger than prescribed by RMZ. Group size maximum varies depending on RMZ (see RMZ objectives above). Group camping could only occur at two identified large campsites located at Manville Road (within the roaded natural RMZ) and Reservation Road (within the roaded natural RMZ) (Map 2-12).	12. Same as Alternative B, with the following change: Group camping could only occur at three identified large campsites located at Manville Road (within the roaded natural RMZ), Reservation Road (within the roaded natural RMZ), and near the West Silver Bell Mountains (within the semi-primitive motorized RMZ) (Map 2-13).	12. Same as Alternative B, with the following change: Group camping could only occur at four identified large campsites located at Manville Road (within the roaded natural RMZ), Reservation Road (within the roaded natural RMZ), near the West Silver Bell Mountains (within the semi-primitive motorized RMZ), and in the Sawtooth Mountains (within the semi-primitive motorized RMZ). (Map 2-14).
Use and Discharge of Firearms/Target Shooting	***Use and Discharge of Firearms/Target Shooting***	***Use and Discharge of Firearms/Target Shooting***	***Use and Discharge of Firearms/Target Shooting***
13. Allow recreational shooting within the monument outside of developed areas in accordance with 43 CFR §8365. (Dispersed recreational shooting is allowed throughout the monument, subject to resource protection regulations; BLM may close areas for public safety.)	13. Prohibit the use and discharge of firearms within the IFNM, except for permitted or authorized hunting activities conducted in accordance with AGFD hunting regulations.	13. Same as Alternative B.	13. Allow recreational (target) shooting within two designated areas: Avra Hill (approximately 406 acres) and Cerrito Represo (approximately 223 acres). Allow permitted or authorized hunting activities conducted in accordance with AGFD hunting regulations.
Equestrian Use	***Equestrian Use***	***Equestrian Use***	***Equestrian Use***
14. Accommodations or staging areas for equestrian use may be considered on a case-by-case basis. No specific staging area improvements identified. Equestrian use cross country and on roads and trails is allowed.	14. Within the roaded natural RMZ, six areas are identified for access and/or staging locations for equestrian uses (Map 2-12) along Manville Road, Avra Valley Road, Reservation Road, Silverbell Road, near the West Silver Bell Mountains, and Aries Drive . Exact location would be subject to additional site-specific planning, design, and NEPA compliance.	14. Provide access and/or staging areas for equestrian uses same as under Alternative B (Map 2-13). Allow equestrian use cross country, on roads, primitive roads, administrative roads, and non-motorized trails, unless specifically prohibited and posted.	14. Same as Alternative C (Map 2-14).

	Prohibit equestrian use cross country. Allow equestrian use on roads, primitive roads, administrative roads, and non-motorized trails, unless specifically prohibited and posted.		
	Refer to Table 2-16 Travel Management for more information regarding equestrian use.	Refer to Table 2-16 Travel Management for more information regarding equestrian use.	Refer to Table 2-16 Travel Management for more information regarding equestrian use.
Collection of Objects	***Collection of Objects***	***Collection of Objects***	***Collection of Objects***
15. The Monument proclamation warns unauthorized persons not to remove any feature of the Monument. Collection of objects allowed under public land regulations at 43 CFR 8360 (commonly available renewal resources, nonrenewable resources, mineral materials or forest/woodland products) will not be allowed.	15. Prohibit collection of any renewable resources (such as flowers, berries, nuts, seeds, cones and leaves); nonrenewable resources (such as rocks, mineral specimens, fossils and semiprecious gemstones); mineral materials (such as stone, sand and gravel); forest/woodland products (such as firewood, posts, poles), except as specifically authorized to accommodate valid existing rights (such as mining claims), research, scientific, educational, or native American traditional purposes furthering Monument management objectives.	15. Same as Alternative B.	15. Same as Alternative B, except that dead, down and detached wood may be collected for campfire use in the Monument, subject to restrictions deemed necessary through adaptive management.
General Recreation	***General Recreation***	***General Recreation***	***General Recreation***
16. Retain and acquire additional areas in the Sawtooth Mountains, outside the Silver Bell Resource Conservation Area (RCA), as a Cooperative Recreation Management Area (CRMA) with state or local agencies. Designate the Silver Bell Mountains RCA in part to provide extensive areas of public land for dispersed, unstructured recreation activities.	16. Discontinue the CRMA and RCA allocations. NOTE: BLM would seek cooperative management of the IFNM through administrative actions (refer to Appendix D).	16. Same as Alternative B.	16. Same as Alternative B.

Recreation Management Zones Alternative B

BLM Administered Land Only

Ironwood Forest National Monument PRMP/FEIS

Legend

Recreation Management Zone (RMZ)

- Roaded Natural (RN)
- Semi-Primitive Motorized (SPM)
- Semi-Primitive Non-Motorized (SPNM)
- Ragged Top Watchable Wildlife
- Primitive

Recreation Sites

- Campsite with Mororized Access on BLM Land
- Group Campsite with Mororized Access on BLM Land
- Equine Staging Area

Route Designations

- Motorized
- Non-Motorized
- Closed for Reclamation

Reference Information

- Industrial

Data Source:
RMZ Alternative: URS 2008
Transportation Alternatives: BLM 2009
Base Information: BLM 2003
Quadrangle Image: U.S. Geological Survey 1977 Tucson

General Reference

- County Boundary
- Central Arizona Project (CAP) Canal
- River
- Interstate 10
- Main public access routes to monument. County administered roads connecting monument travel route system to public highways.

Planning Area

- Ironwood Forest National Monument

Universal Tranverse Mercator
Zone 12, Units Meters
Clark 1866 Spheroid
NAD27 Datum
No warranty is made by the Bureau of Land Management (BLM) for the use of this map for purposes not intended by BLM, or to the accuracy, reliability, or completeness of the information shown. Spatial information may not meet National Map Accuracy Standards. This information may be updated without notification.

0 1 2 4 Miles

0 2 4 8 Kilometers

Location in Arizona



P:\BLM\Ironwood\GIS\Plots\PRMP_FEIS\Chapter_2\ROS_Alt_B.pdf

Map 2-12

Recreation Management Zones
Alternative C

BLM Administered Land Only

Ironwood Forest National Monument
PRMP/FEIS

Legend

Recreation Management Zone (RMZ)

- Roaded Natural (RN)
- Semi-Primitive Motorized (SPM)
- Semi-Primitive Non-Motorized (SPNM)
- Ragged Top Watchable Wildlife
- Primitive

Recreation Sites

- Campsite with Motorized Access on BLM Land
- Group Campsite with Motorized Access on BLM Land
- Equine Staging Area

Route Designations

- Motorized
- Non-motorized
- Closed for Reclamation

R6E R7E R8E R9E R10E R11E

T9S T10S T11S T12S T13S T14S

Sunland Gin Rd.
Greene Reservoir Rd.
Curtis Rd.
Picacho Hwy.
Baumgartner Rd.
Cripple Creek Rd.
Coachway Rd.
Aries Dr.
Sasco Rd.
CAP CANAL
Pinal County
Pima County
Trico-Marana Rd.
Silverbell Rd.
El Tiro Rd.
Pump Station Rd.
Trico Rd.
Avra Valley Rd.
Twin Peaks Rd.
Anway Rd.
Manville Rd.
Reservation Rd.
Mile Wide Rd.
Sandario Rd.

TOHONO O'ODHAM NATION BOUNDARY

Universal Tranverse Mercator
Zone 12, Units Meters
Clark 1866 Spheroid
NAD27 Datum

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0 1 2 4 Miles
0 2 4 8 Kilometers

Location in Arizona



Data Source:
RMZ Alternative: URS 2008
Transportation Alternatives: BLM 2009
Base Information: BLM 2003
Quadrangle Image: U.S. Geological Survey 1977 Tucson

General Reference

- County Boundary
- Central Arizona Project (CAP) Canal
- River
- Interstate 10
- Main public access routes to monument. County administered roads connecting monument travel route system to public highways.

Planning Area

- Ironwood Forest National Monument

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Map 2-13

Recreation Management Zones
Alternative D

BLM Administered Land Only

Ironwood Forest National Monument
PRMP/FEIS

Legend

Recreation Management Zone (RMZ)

- Roaded Natural (RN)
- Semi-Primitive Motorized (SPM)
- Semi-Primitive Non-Motorized (SPNM)
- Ragged Top Watchable Wildlife

Recreation Sites

- Campsite with Mororized Access on BLM Land
- Group Campsite with Mororized Access on BLM Land
- Equine Staging Area

Route Designations

- Motorized
- Non-motorized
- Closed for Reclamation

Data Source:
RMZ Alternative: URS 2008
Transportation Alternatives: BLM 2009
Base Information: BLM 2003
Quadrangle Image: U.S. Geological Survey 1977 Tucson

General Reference

- County Boundary
- Central Arizona Project (CAP) Canal
- River
- Interstate 10
- Main public access routes to monument. County administered roads connecting monument travel route system to public highways.

Planning Area

- Ironwood Forest National Monument

Universal Tranverse Mercator
Zone 12, Units Meters
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0 1 2 4 Miles

0 2 4 8 Kilometers

Location in Arizona



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Map 2-14

Table 2-15. Resource Management Alternatives for LANDS AND REALTY

Desired Outcomes: Management Goals and Objectives			
NO ACTION	**ACTION ALTERNATIVES**		
Goal: No LUP-level goals for lands and realty are presented in the existing land use plan.	**Goal 1:** Secure non-Federal land and interests in land to further the natural and cultural resource and public and administrative access goals for the monument. **Goal 2:** Manage utility corridors and rights-of-way to avoid or minimize impacts on monument objects.		
Objective: No LUP-level objectives for lands and realty are presented in the existing land use plan.	**Objective 1:** Acquire lands and interest in land from willing sellers to further protection of monument objects and/or achieve management objectives. Priority lands for consideration (1) contain ecologically or administratively important areas (e.g., riparian movement corridors); (2) expand undisturbed blocks of public land; (3) protect existing blocks of habitat; or (4) provide legal access to monument lands. **Objective 2:** Construction and maintenance activities for utilities occur in locations that utilize established rights-of-way and corridors (if applicable) so that they do not conflict with the natural and cultural resource goals for the monument. **Objective 3:** Manage land use authorizations to accommodate use, maintenance, and operation with minimal impacts to monument objects.		
Decisions for Management Actions, Allowable Uses, and Use Allocations			
Alternative A (No Action)	**Action Alternative B (Proposed Plan for Utility Corridors Only)**	**Action Alternative C (Proposed Plan for all but Utility Corridors)**	**Action Alternative D**
Land Tenure	***Land Tenure***	***Land Tenure***	***Land Tenure***
1. Retain public lands (surface and subsurface estate) in the Silver Bell RCA.	1. Retain all Federal land (surface and subsurface) except in special instances where land exchanges could be used to further the natural and cultural resource goals of the monument.	1. Same as Alternative B.	1. Same as Alternative B.
2. Pursue acquisition of all State land in the Silver Bell RCA primarily through exchange. • Consider acquisition of private land in the Silver Bell RCA on a case-by-case basis. • Acquire 1,140 acres of State and private land in the Waterman Mountains ACEC. • Retain 15,188 acres in the Sawtooth Mountains and	2. Acquire non-Federal land or interests in land within the boundaries of the IFNM from willing sellers by purchase, exchange, or donation, as opportunities arise. Where land cannot be acquired, secure conservation easements.	2. Same as Alternative B.	2. Same as Alternative B.

acquire 640 acres of State land, outside the RCAs, as a CRMA with state or local agencies. • Acquire up to 2,280 acres of private and State land in the Agua Blanco Ranch Multiple Resource Management Area. • Acquire up to 13,227 acres of private and State land in the Cocoraque Butte-Waterman Mountains Multiple Resource Management Area. • Acquire up to 7,630 acres of state and private land in the Silver Bell Desert Bighorn Sheep Management Area. • Acquire three State sections [9, 15, and 16 in T.11S., R.7E.] in crucial bighorn sheep habitat in the West Silver Bell Mountains.			
3. Acquire through exchange, non-Federal mineral estate underlying Federal surface holdings in the Silver Bell RCA.	3. Acquire through exchange, or other means, non-Federal mineral estate underlying Federal surface holdings throughout the monument.	3. Same as Alternative B.	3. Same as Alternative B.
4. No existing decisions specifically address this action.	4. Do not acquire surface estate unless mineral estate can be acquired concurrently (or is already Federally owned).	4. Same as Alternative B	4. Do not consider acquisition of mineral estate as a factor in surface estate acquisitions.
5. There is no existing decision for this action; however, there are two existing withdrawals for a total of approximately 300 acres for military uses.	5. Military withdrawals exist on approximately 300 acres; if and when the land is returned to BLM the area would be managed consistent with the management of adjacent public land.	5. Same as Alternative B.	5. Same as Alternative B.
6. There is no existing decision for this action; however, there is one existing recreation and public purposes (R&PP) lease for the Tucson Soaring Club/glider park.	6. R&PP leases (existing at the time of monument designation) would be renewed at the discretion of BLM. (NOTE: No new R&PP leases would be granted within the monument per the Proclamation.)	6. Same as Alternative B.	6. Same as Alternative B.

Corridors and Rights-of-Way	*Corridors and Rights-of-Way*	*Corridors and Rights-of-Way*	*Corridors and Rights-of-Way*
7. Utility corridors follow existing transmission line and pipeline facilities within the boundaries of the Silver Bell RCA; all corridors would be 1 mile in width (Map 2-15).	7. No utility corridors would be designated as shown on Map 2-16.	7. Designated corridors, shown on Map 2-17, would be as follows: • Corridor 1: 200-feet wide and the width of the corridor begins from the west edge of the western existing pipeline right-of-way and extends easterly. One additional major right-of-way may be granted, underground only; additional non-major rights-of-way may be granted. • Corridor 2: 400-feet wide and the width of the corridor begins from the western edge of the existing authorized electrical line right-of-way and extends easterly. Additional major right-of-way facilities above or below ground are allowed; additional non-major rights-of-way may be granted.	7. Designated corridors, shown on Map 2-18, would be as follows: • Corridor 1: ¼-mile wide, centered on the center line of the existing pipeline right-of-way; additional major rights-of-way may be granted underground only; additional non-major rights-of-way may be granted • Corridor 2: ¼-mile wide, centered on the center line of the existing power line right-of-way; additional major rights-of-way may be granted above or below ground; additional major right-of-way may be granted underground only; additional non-major rights-of-way may be granted • Corridor 3 (two segments, one in the Sawtooth Mountains and one near the West Silver Bell Mountains): ¼-mile wide, centered on the center line of existing power line rights-of-way; additional non-major rights-of-way may be granted
8. Rights-of-way would be issued to promote the maximum use of existing right-of-way routes, including joint use whenever possible.	8. No new rights-of-way would be authorized within the monument, except where required by law.	8. All rights-of-way for access and utilities, including for inholdings, would be considered and issued on a case-by-case basis in accordance with the goals of the monument, including renewal of rights-of-way established prior to monument designation.	8. Same as Alternative C.

Avoidance and Exclusion Areas	*Avoidance and Exclusion Areas*	*Avoidance and Exclusion Areas*	*Avoidance and Exclusion Areas*
9. No existing decisions specifically address this action.	9. The entire monument is an exclusion area; however, valid pre-existing authorizations (i.e., rights-of-way) would be recognized. Existing rights-of-way may be renewed in accordance with 43 CFR 2800.	9. The entire monument, with the exception of the designated corridors, is an avoidance area; however, valid pre-existing authorizations (i.e., rights-of-way) would be recognized. Existing rights-of-way may be renewed in accordance with 43 CFR 2800.	9. Same as Alternative C.
10. Designate the 160 acre Pan Quemado communication site at T.13.S., R.9.E., sections 1, 2, 11, and 12, inside the Silver Bell RCA.	10. The Pan Quemado communication site is located on 2 acres and includes one facility with one tower; the Confidence Peak communication site is located on 3 acres and includes one multi-user right-of-way with one facility. No additional facilities such as towers and buildings would be allowed.	10. Same as Alternative B.	10. The Pan Quemado communication site is located on 2 acres and includes one facility; the Confidence Peak communication site is located on 3 acres and could include up to two facilities.
11. Require the implementation of mitigation measures to ensure that maintenance of established rights-of-way does not conflict with the natural and cultural resource goals for the monument.	11. As part of the land use authorization process, construction and maintenance activities would include protective measures to minimize the following: • spread of noxious weeds • soil erosion • air quality degradation • water quality degradation (e.g., limited disturbance in washes) • vegetation disturbance and/or removal • extensive or loud noise from heavy equipment • impacts on wildlife (i.e., wildlife-friendly design) • disturbance of cultural resources • visual intrusions A reclamation plan would be required on a site-specific basis. In addition, communication site plans would be updated as necessary.	11. Same as Alternative B.	11. Same as Alternative B.

12. Land use authorizations for permits and easements would be considered on a case-by-case basis, and must be compatible with the natural and cultural resource goals for the monument.	12. Same as Alternative A.	12. Same as Alternative A.	12. Same as Alternative A.
13. On land retained or acquired, communication facility development would be limited to designated sites.	13. Upon acquisition of land, designate that land as exclusion area for rights-of-way.	13. Upon acquisition of land, designate that land as avoidance area for rights-of-way, unless that land is within designated corridors.	13. Same as Alternative C.

Utility Corridors and Right-of-Way Authorizations Alternative A

BLM Administered Land Only

Ironwood Forest National Monument PRMP/FEIS

Legend

- Communication Site
- Utility Corridor (One-Mile Wide)
- Utility Corridor - Underground Only (One-Mile Wide)
- Existing Electrical Transmission Line
- Existing Natural Gas Pipeline

Surface Management

- Bureau of Land Management
- National Park Service
- Bureau of Reclamation
- American Indian Reservation
- Military Reservation
- State Trust Land
- State, County, City; Wildlife, Park and Outdoor Recreation Area
- Private
- Pima County

Data Source:
Utility and Corridor Information: BLM 2003
Base Information: BLM 2003
Quadrangle Image: U.S. Geological Survey 1977 Tucson

General Reference

- County Boundary
- Central Arizona Project (CAP) Canal
- River
- Interstate 10
- Main public access routes to monument. County administered roads connecting monument travel route system to public highways.

Planning Area

- Ironwood Forest National Monument

Universal Tranverse Mercator
Zone 12, Units Meters
Clark 1866 Spheroid
NAD27 Datum
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0 0.5 1 2 Miles

0 1.5 3 6 Kilometers

Location in Arizona



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Map 2-15

Utility Corridors and Right-of-Way Authorizations Alternative B

BLM Administered Land Only

Ironwood Forest National Monument PRMP/FEIS

Legend

- Communication Site
- Existing Electrical Transmission Line
- Existing Natural Gas Pipeline

Surface Management

- Bureau of Land Management
- National Park Service
- Bureau of Reclamation
- American Indian Reservation
- Military Reservation
- State Trust Land
- State, County, City; Wildlife, Park and Outdoor Recreation Area
- Private
- Pima County

Data Source:
Utility and Corridor Alternatives: BLM 2005
Base Information: BLM 2003
Quadrangle Image: U.S. Geological Survey 1977 Tucson

General Reference

- County Boundary
- CAP Canal
- River
- Interstate 10
- Main public access routes to monument. County administered roads connecting monument travel route system to public highways.

Planning Area

- Ironwood Forest National Monument

Universal Tranverse Mercator
Zone 12, Units Meters
Clark 1866 Spheroid
NAD27 Datum
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0 1 2 4 Miles
0 2 4 8 Kilometers

Location in Arizona



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Map 2-16

Utility Corridors and Right-of-Way Authorizations Alternative C

BLM Administered Land Only

Ironwood Forest National Monument PRMP/FEIS

Legend

- Communication Site
- Utility Corridor (300-Feet Wide)
- Utility Corridor - Underground Only (200-Feet Wide)
- Existing Electrical Transmission Line
- Existing Natural Gas Pipeline

Surface Management

- Bureau of Land Management
- National Park Service
- Bureau of Reclamation
- American Indian Reservation
- Military Reservations
- State Trust Lands
- State, County, City; Wildlife, Park and Outdoor Recreation Areas
- Private
- Pima County

Data Source:
Utility and Corridor Alternatives: BLM 2005
Base Information: BLM 2003
Quadrangle Image: U.S. Geological Survey 1977 Tucson

General Reference

- County Boundaries
- CAP Canal
- River
- Interstate 10
- Main public access routes to monument. County administered roads connecting monument travel route system to public highways.

Planning Area

- Ironwood Forest National Monument

R6E R7E R8E R9E R10E R11E

T9S T10S T11S T12S T13S T14S

Sunland Gin Rd. Greene Reservoir Rd. Curtis Rd. Picacho Hwy. Baumgartner Rd. Cripple Creek Rd. Coachway Rd. Aries Dr. Sasco Rd. CAP CANAL

TOHONO O'ODHAM NATION BOUNDARY

Pinal County
Pima County

Corridor 1

Confidence Peak

Silverbell Rd. El Tiro Rd. Pump Station Rd. Trico Rd. Trico-Marana Rd.

Avra Valley Rd. Anway Rd. Twin Peaks Rd. CAP CANAL

Pan Quemado Site

Manville Rd. Reservation Rd. Saguaro National Park

Mile Wide Rd. Sandario Rd.

Corridor 2

Universal Tranverse Mercator
Zone 12, Units Meters
Clark 1866 Spheroid
NAD27 Datum

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0 0.5 1 2 Miles

0 2 4 8 Kilometers

Location in Arizona



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Map 2-17

Utility Corridors and Right-of-Way Authorizations Alternative D

BLM Administered Land Only

Ironwood Forest National Monument PRMP/FEIS

Legend

- Communication Site
- Utility Corridor (¼-Mile Wide)
- Utility Corridor - Underground Only (¼-Mile Wide)
- Existing Electrical Transmission Line
- Existing Natural Gas Pipeline

Surface Management

- Bureau of Land Management
- National Park Service
- Bureau of Reclamation
- American Indian Reservation
- Military Reservation
- State Trust Land
- State, County, City; Wildlife, Park and Outdoor Recreation Area
- Private
- Pima County

Data Source:
Utility and Corridor Alternatives: BLM 2005
Base Information: BLM 2003
Quadrangle Image: U.S. Geological Survey 1977 Tucson

General Reference

- County Boundary
- CAP Canal
- River
- Interstate 10
- Main public access routes to monument. County administered roads connecting monument travel route system to public highways.

Planning Area

- Ironwood Forest National Monument

Universal Tranverse Mercator
Zone 12, Units Meters
Clark 1866 Spheroid
NAD27 Datum

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0 0.5 1 2 Miles

0 2 4 8 Kilometers

Location in Arizona



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Map 2-18

Table 2-16. Resource Management Alternatives for TRAVEL MANAGEMENT

Desired Outcomes: Management Goals and Objectives			
NO ACTION	**ACTION ALTERNATIVES**		
Goal: No LUP-level goals for transportation and public access are presented in the existing land use plan.	**Goal 1:** Provide a comprehensive transportation system for the monument that is protective of monument objects. **Goal 2:** Provide adequate, legal, and safe access for allowable public use and administrative purposes while protecting monument objects.		
Objective: No LUP-level objectives for transportation and public access are presented in the existing land use plan.	**Objective 1:** Improve on-the-ground travel management operations and maintenance programs to protect monument objects, and to manage visitor access, safety, and recreation opportunities and experiences. **Objective 2:** Give priority to establishing, improving, or maintaining designated routes or access points to protect monument objects and accommodate allowable uses. **Objective 3:** Secure legal and safe access, appropriate for achieving and maintaining monument management objectives, for both motorized and non-motorized entry into the monument. Provide and maintain connectivity of the IFNM transportation system with the surrounding public highway system (interstate, Federal, State and county roads).		
Decisions for Management Actions, Allowable Uses, and Use Allocations			
Alternative A (No Action)	**Action Alternative B**	**Action Alternative C** (Proposed Plan)	**Action Alternative D**
OHV Area Designations	***OHV Area Designations***	***OHV Area Designations***	***OHV Area Designations***
1. Monument lands are designated as open, limited, or closed in accordance with definitions and criteria in 43 CFR 8340. Limit vehicular travel on public land to existing roads and trails with the exception of areas that are specifically identified as closed or where travel would be limited to designated roads and trails. Close the 20-acre Santa Ana de Cuiquiburitac Special Management Area and 800 acres surrounding Ragged Top to motorized vehicles. Limit motorized vehicles to existing roads and trails: within (a) 39,170 acres of Federal land within the Silver Bell Bighorn Sheep Management Area; (b) 2,720-acre Avra Valley Cultural Resource Management Area; (c) 14,419 acres of Federal land in Agua Blanco Ranch Multiple Resource Management Area; (c) and	1. Monument lands are designated as open, limited, or closed in accordance with definitions and criteria in 43 CFR 8340. Area designations to manage motorized vehicle use would be as follows: **Open:** 0 acres. **Limited to designated routes:** 90,360 acres. **Closed:** 38,040 acres, including: • 37,060 acres to protect wilderness characteristics and wildlife habitat • 340 acres to protect cultural resources at Cocoraque Butte • 640 acres to protect other cultural resources These area designations are shown on Map 2-20.	1. Monument lands are designated as open, limited, or closed in accordance with definitions and criteria in 43 CFR 8340. Area designations to manage motorized vehicle use would be as follows: **Open:** 0 acres. **Limited to designated routes:** 117,520 acres. **Closed:** 10,880 acres, including: • 9,900 acres to protect wildlife habitat • 340 acres to protect cultural resources at Cocoraque Butte • 640 acres to protect other cultural resources These area designations are shown on Map 2-21.	1. Monument lands are designated as open, limited, or closed in accordance with definitions and criteria in 43 CFR 8340. Area designations to manage motorized vehicle use would be as follows: **Open:** 0 acres. **Limited to designated routes:** 128,400 acres. **Closed:** 0 acres. These area designations are shown on Map 2-22. As non-Federal lands are acquired, lands would be designated for OHV use consistent with the maps presented in the RMP.

(e) within 34,749 acres of Federal land in Cocoraque Butte – Waterman Mountains Multiple Resource Management Area. Limit motorized vehicles to allocated roads and trails within 1,960 acres of Federal land in the Waterman Mountains ACEC. Area designations to manage motorized vehicle use are as follows (acreages are approximate): **Open:** 0 acres **Limited to existing routes:** 127,580 acres **Closed:** 820 acres These area designations are shown on Map 2-19.	As non-Federal lands are acquired, lands would be designated for OHV use consistent with the maps presented in the RMP.	As non-Federal lands are acquired, lands would be designated for OHV use consistent with the maps presented in the RMP.	
Public Access Locations	***Public Access Locations***	***Public Access Locations***	***Public Access Locations***
2. No existing decisions specifically address this action.	2. Public access is subject to route designations, travel restrictions, and acquisition of legal access. Public access onto IFNM from non-IFNM lands or from routes without public legal access is subject to easement acquisition, or acquisition of the non-Monument land inholding.	2. Same as Alternative B.	2. Same as Alternative B.
Development of New Routes and Rehabilitation of Closed Routes	***Development of New Routes and Rehabilitation of Closed Routes***	***Development of New Routes and Rehabilitation of Closed Routes***	***Development of New Routes and Rehabilitation of Closed Routes***
3. No existing decisions specifically address this action.	3. Develop new routes only when a new segment is needed to provide legal public access to monument lands or provide access to a non-Federal land inholding or other locations specified in a land use authorization or if needed for administrative use or to meet a specific management objective. Construction of new routes would be considered on a case-by-case basis.	3. Same as Alternative B.	3. Same as Alternative B.

4. No existing decisions specifically address this action.	4. Rehabilitate or restore identified routes using the most appropriate method based on ecological site conditions.	4. Same as Alternative B.	4. Same as Alternative B.
Recreational Access	***Recreational Access***	***Recreational Access***	***Recreational Access***
5. No existing decisions specifically address this action.	5. Allow motorized, mechanized, and recreational livestock access into the IFNM from areas of urban interface only via public or community access points to be designated through the travel management planning process. Types of access (i.e., motorized or non-motorized) would depend on the Recreation Management Zone (RMZ). New access would be considered on a case-by-case basis.	5. Same as Alternative B.	5. Same as Alternative B.
6. No existing decisions specifically address this action.	6. Provide minimum improvements for, and maintain monument access staging areas or facilities, to accommodate multi-mode access to monument lands consistent with RMZ objectives.	6. Same as Alternative B.	6. Same as Alternative B.
7. No existing decisions specifically address this action.	7. Take measures or install appropriate barriers to promote compliance with travel route use designations and restrictions consistent with RMZ objectives.	7. Same as Alternative B.	7. Same as Alternative B.
8. No existing decisions specifically address this action.	8. Provide signing along travel routes for directional, informational, regulatory purposes consistent with RMZ objectives.	8. Same as Alternative B.	8. Same as Alternative B.

Equestrian Use	***Equestrian Use***	***Equestrian Use***	***Equestrian Use***
9. No existing decisions specifically address this action.	9. Prohibit cross-country equestrian use and allow for equestrian uses on routes designated motorized or non-motorized. No new equestrian trails would be constructed. Equestrian uses may be restricted where BLM has determined through inventory and monitoring that such use is adversely impacting monument objects. Allow equestrian use to retrieve lawfully taken game in all areas of the IFNM.	9. Allow equestrian uses on routes designated as motorized or non-motorized; cross-country equestrian travel is allowed in all areas of the monument open to public use. New trails for equestrian uses would be considered on a case-by-case basis. Equestrian uses may be restricted where BLM has determined through inventory and monitoring that such use is adversely impacting monument objects.	9. Same as Alternative C.
Non-Motorized, Mechanized Use	***Non-Motorized, Mechanized Use***	***Non-Motorized, Mechanized Use***	***Non-Motorized, Mechanized Use***
10. Use of non-motorized wheeled game carriers to retrieve lawfully taken game is allowed in all areas of the monument.	10. Same as Alternative A.	10. Same as Alternative A.	10. Same as Alternative A.
Implementation-Level Decisions			
Motorized and Non-Motorized Use Route Designations	***Motorized and Non-Motorized Use Route Designations***	***Motorized and Non-Motorized Use Route Designations***	***Motorized and Non-Motorized Use Route Designations***
1. Limit motorized vehicle use in the IFNM to existing roads and trails (Map 2-19).	1. Travel route designations: Designate 63 miles of existing travel routes for motorized access/use. Allow motorized use by all types of vehicles on these routes. Designate 266 miles for non-motorized use. Allow non-motorized use and non-motorized mechanized use on these routes except in areas where restricted. (Mechanized use of trails would be prohibited.) Motorized use for administrative access is allowed on a case-by-case basis provided route is not subject to improvements 17 miles of existing routes would be obliterated and/or revegetated.	1. Travel route designations: Designate 124 miles of existing travel routes for motorized access/use. Designate 205 miles for non-motorized use. Allow non-motorized use and non-motorized mechanized use on these routes except in areas where restricted. (Mechanized use of trails would be prohibited.) Motorized use for administrative access is allowed on a case-by-case basis provided route is not subject to improvements. 17 miles of existing routes would be obliterated and/or revegetated.	1. Travel route designations: Designate 226 miles of existing travel routes for motorized access/use. Designate 116 miles for non-motorized use. Allow non-motorized use and non-motorized mechanized use on these routes except in areas where restricted. (Mechanized use of trails would be prohibited.) Motorized use for administrative access is allowed on a case-by-case basis provided route is not subject to improvements. 4 miles of existing routes would be obliterated and/or revegetated.

	Motorized use would be required to 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. Travel on all designated routes is subject to route-specific designations for type of use, functional class, maintenance level and route standard (refer to Appendix G for more information). Route designations are shown on Map 2-20. NOTE: mileage shown above is for BLM land only.	Motorized use would be required to 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. Travel on all designated routes is subject to route-specific designations for type of use, functional class, maintenance level and route standard (refer to Appendix G for more information). Route designations are shown on Map 2-21 (also see Appendix G Maps G-1 through G-4 for enlarged maps). NOTE: mileage shown above is for BLM land only.	Motorized use would be required to 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. Travel on all designated routes is subject to route-specific designations for type of use, functional class, maintenance level and route standard (refer to Appendix G for more information). Route designations are shown on Map 2-22. NOTE: mileage shown above is for BLM land only.

Travel Management Alternative A

BLM Administered Land Only

Ironwood Forest National Monument PRMP/FEIS

Legend

Off-highway Vehicle Designations

- Limited to Existing Roads and Trails
- Limited to Designated Roads and Trails
- Closed
- Existing Road, Trail, or Route

Surface Management

- Bureau of Land Management
- National Park Service
- Bureau of Reclamation
- American Indian Reservation
- Military Reservation
- State Trust Land
- State, County, City; Wildlife, Park and Outdoor Recreation Area
- Private
- Pima County

Data Source:
OHV Designations: BLM 2003
Route Inventory: Gimblett 2004
Base Information: BLM 2003
Quadrangle Image: U.S. Geological Survey 1977 Tucson

General Reference

- County Boundary
- Central Arizona Project (CAP) Canal
- River
- Interstate 10
- Main public access routes to monument. County administered roads connecting monument travel route system to public highways.

Planning Area

- Ironwood Forest National Monument

Universal Tranverse Mercator
Zone 12, Units Meters
Clark 1866 Spheroid
NAD27 Datum
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0 1 2 4 Miles

0 2 4 8 Kilometers

Location in Arizona



P:\BLM\Ironwood\GIS\Plots\PRMP_FEIS\Chapter_2\OHV.pdf

Map 2-19

Travel Management Alternative B

BLM Administered Land Only

Ironwood Forest National Monument PRMP/FEIS

Legend

Off-highway Vehicle Designations

- Limited to Designated Roads and Trails
- Closed

Route Designations

- Motorized
- Non-motorized
- Closed for Reclamation

Surface Management

- Bureau of Land Management
- National Park Service
- Bureau of Reclamation
- American Indian Reservation
- Military Reservation
- State Trust Land
- State, County, City; Wildlife, Park and Outdoor Recreation Area
- Private
- Pima County

Data Source:
OHV and Route Alternative Designations: BLM 2006
Base Information: BLM 2003
Quadrangle Image: U.S. Geological Survey 1977 Tucson

General Reference

- County Boundary
- Central Arizona Project (CAP) Canal
- River
- Interstate 10
- Main public access routes to monument. County administered roads connecting monument travel route system to public highways.

Planning Area

- Ironwood Forest National Monument

Universal Tranverse Mercator
Zone 12, Units Meters
Clark 1866 Spheroid
NAD27 Datum
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0 1 2 4 Miles
0 2 4 8 Kilometers

Location in Arizona



P:\BLM\Ironwood\GIS\Plots\PRMP_FEIS\Chapter_2\Routes_AltB.pdf

Map 2-20

Travel Management Alternative C

BLM Administered Land Only

Ironwood Forest National Monument PRMP/FEIS

Legend

Off-highway Vehicle Designations

- Limited to Designated Roads and Trails
- Closed

Route Designations

- Motorized
- Non-motorized
- Closed for Reclamation

Surface Management

- Bureau of Land Management
- National Park Service
- Bureau of Reclamation
- American Indian Reservation
- Military Reservation
- State Trust Land
- State, County, City; Wildlife, Park and Outdoor Recreation Area
- Private
- Pima County

Data Source:
OHV and Route Alternative Designations: BLM 2006
Base Information: BLM 2003
Quadrangle Image: U.S. Geological Survey 1977 Tucson

General Reference

- County Boundary
- Central Arizona Project (CAP) Canal
- River
- Interstate 10
- Main public access routes to monument. County administered roads connecting monument travel route system to public highways.

Planning Area

- Ironwood Forest National Monument

Universal Tranverse Mercator
Zone 12, Units Meters
Clark 1866 Spheroid
NAD27 Datum

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0 1 2 4 Miles

0 2 4 8 Kilometers

Location in Arizona



P:\BLM\Ironwood\GIS\Plots\PRMP_FEIS\Chapter_2\Routes_AltC.pdf

Map 2-21

Travel Management Alternative D

BLM Administered Land Only

Ironwood Forest National Monument PRMP/FEIS

Legend

Off-highway Vehicle Designations

- Limited to Designated Roads and Trails

Route Designations

- Motorized
- Non-motorized
- Reclamation

Surface Management

- Bureau of Land Management
- National Park Service
- Bureau of Reclamation
- American Indian Reservation
- Military Reservation
- State Trust Land
- State, County, City; Wildlife, Park and Outdoor Recreation Area
- Private
- Pima County

Data Source:
OHV and Route Alternative Designations: BLM 2006
Base Information: BLM 2003
Quadrangle Image: U.S. Geological Survey 1977 Tucson

General Reference

- County Boundary
- Central Arizona Project (CAP) Canal
- River
- Interstate 10
- Main public access routes to monument. County administered roads connecting monument travel route system to public highways.

Planning Area

- Ironwood Forest National Monument

Universal Tranverse Mercator
Zone 12, Units Meters
Clark 1866 Spheroid
NAD27 Datum

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0 1 2 4 Miles

0 2 4 8 Kilometers

Location in Arizona



P:\BLM\Ironwood\GIS\Plots\PRMP_FEIS\Chapter_2\Routes_AltD.pdf

Map 2-22

Table 2-17. Resource Management Alternatives for SPECIAL DESIGNATIONS

Desired Outcomes: Management Goals and Objectives			
NO ACTION **Goal**: No LUP-level goals for special area designations are presented in the existing land use plan.	**Goals COMMON TO ALL ACTION ALTERNATIVES** **Goal 1:** Manage special designations, as applicable, to protect resources for which they are established.		
Objective: No LUP-level objectives for special area designations are presented in the existing land use plan.	**Objective 1:** No LUP-level objectives for special designations have been developed.		
Decisions for Management Actions, Allowable Uses, and Use Allocations			
Alternative A (No Action)	**Action Alternative B**	**Action Alternative C** (Proposed Plan)	**Action Alternative D**
1. Designate ACEC to Protect the habitat, provide optimum habitat for naturally occurring populations of Nichol Turk's head cactus on approximately 2,240 acres of BLM-administered public land, and assist in the recovery of this subspecies. (Refer to Appendix H for additional information.)	1. Remove the ACEC designation.	1. Same as Alternative B.	1. Same as Alternative B.

Table 2-18: Summary Comparison of Impacts Table

Table 2-18 provides a summary of the impacts on the human and natural environment in terms of environmental, social, and economic consequences that are projected to occur from implementing the proposed alternatives presented in Tables 2-1 through 2-17. These environmental consequences are described in detail in Chapter 4.

Topic	Alternative A	Alternative B	Alternative C	Alternative D
Air Quality	Vehicle travel on existing routes in the 26,630 acres of PM_{10} nonattainment area and recreation-al use could result in the release of particulate matter (dust) and emissions of other pollutants in localized areas from surface disturbance. Surface disturbance in the 8,240 acres of utility corridors, development of rights-of-ways, fuel treatments and livestock grazing could increase exposure of soils where vegetation is removed resulting in release of particulate matter in localized areas, generally through wind erosion. Closing 820 acres to motorized use and limiting vehicles to existing routes through-out the remainder of the IFNM would limit vehicle-generated emissions (including dust) to areas near existing routes.	Vehicle travel on designated routes in the 10,630 acres of the PM_{10} nonattainment area that is managed as Roaded Natural or Semi-Primitive Motorized could result in localized degradation of air quality from vehicle emissions, including fugitive dust. Prohibiting surface disturbance on the 11,340 acres with fragile or sensitive soils, managing 38,040 acres closed to vehicle travel, and managing 29,420 acres a Primitive RMZ could reduce wind erosion and decrease fugitive dust compared to Alternative A. A lack of utility corridors and allocating the IFNM as an exclusion area for rights-of-way would limit opportunities for surface-disturbing activities that could generate fugitive dust within the IFNM, but more of those activities could occur outside the IFNM potentially resulting in increased particulate matter emissions in localized areas.	Vehicle travel in the 17,750 acres of the PM_{10} nonattainment area managed as Roaded Natural or Semi-Primitive Motorized could result in localized degradation of air quality from emissions, including fugitive dust. Allowing surface disturbance but requiring mitigation on the 11,340 acres with fragile or sensitive soils, managing 10,880 acres closed to vehicle travel, and managing 9,510 acres a Primitive RMZ could reduce wind erosion and decrease fugitive dust compared to Alternative A, but increase erosion and dust compared to Alternative B. Managing 241 acres as utility corridors and allocating the IFNM as an avoidance area for rights-of-way could limit surface-disturbing activities within the IFNM, but more surface-disturbing activities could occur outside the IFNM potentially resulting in increased emissions of particulate matter in localized areas.”	Vehicle travel in the 21,560 acres of the PM_{10} nonattainment area managed as Roaded Natural or Semi-Primitive Motorized could result in localized degradation of air quality from emissions, including fugitive dust. Allowing surface disturbance but requiring mitigation on the 11,340 acres with fragile or sensitive soils, and managing 10,880 acres closed to vehicle travel, could reduce wind erosion and decrease fugitive dust compared to Alternative A, but increase erosion and dust compared to Alternative B. Managing 2,660 acres as utility corridors and allocating the IFNM as an avoidance area for rights-of-ways could reduce surface-disturbing activities. This could reduce wind erosion and decrease fugitive dust within the IFNM compared to Alternative A, though localized increases in fugitive dust could occur in the Sawtooth Mountains because of the new corridor within that area.

Table 2-18: Summary Comparison of Impacts Table (cont.)

Topic	Alternative A	Alternative B	Alternative C	Alternative D
Geology and Caves	Designating 128,400 acres of the IFNM to meet VRM Class III objectives and allocating 8,240 acres of utility corridors could result in surface-disturbing activities that would generate localized erosion. This could result in the loss of geologic resources or values in localized areas. Closing 820 acres to vehicle travel would eliminate the potential for vehicle travel to cause erosion or disturbance to geologic resources in localized areas. The disturbance to geological objects of the monument (rugged mountains, including Ragged Top and the Silver Bell Mountains) resulting from management actions would be undetectable or measurable only in localized areas; this would be consistent with "protection of the monument objects."	Designating 125,110 acres of the IFNM to meet VRM Class I or Class II objectives, minimizing the loss of vegetation, and adopting mitigation plans that minimize erosion could limit surface-disturbing activities and localized erosion. This could help protect geologic resources or values. Closing 38,040 acres to vehicle travel and managing 36,990 acres to protect wilderness characteristics also could reduce surface disturbance and protect geologic resources and values to a greater extent than Alternative A. The disturbance to geological objects of the monument (rugged mountains, including Ragged Top and the Silver Bell Mountains) resulting from management actions would be undetectable or measurable only in localized areas; this would be consistent with "protection of the monument objects."	Designating 124,900 acres of the IFNM to meet VRM Class II objectives, minimizing the loss of vegetation, and adopting mitigation plans that minimize erosion could limit surface-disturbing activities and localized erosion. This could help protect geologic resources or values. Closing 10,880 acres to vehicle travel and managing 9,510 acres to protect wilderness characteristics also could reduce surface disturbance and maintain geologic resources and values to a greater extent than Alternative A, but to a lesser extent than Alternative B. Allocating 241 acres as utility corridors could result in surface disturbance, localized erosion, and the loss of geologic resources and values. The disturbance to geological objects of the monument (rugged mountains, including Ragged Top and the Silver Bell Mountains) resulting from management actions would be undetectable or measurable only in localized areas; this would be consistent with "protection of the monument objects."	Designating 122,580 acres of the IFNM to meet VRM Class II objectives, minimizing the loss of vegetation, and adopting mitigation plans that minimize erosion could limit surface-disturbing activities and localized erosion. This could help protect geologic resources or values. Managing vehicle travel on 128,400 acres as limited to designated routes also could reduce surface disturbance and maintain geologic resources and values to a greater extent than Alternative A, but to a lesser extent than Alternatives B or C. Allocating 2,660 acres as utility corridors could result in surface disturbance, localized erosion, and the loss of geologic resources and values. The disturbance to geological objects of the monument (rugged mountains, including Ragged Top and the Silver Bell Mountains) resulting from management actions would be undetectable or measurable only in localized areas; this would be consistent with "protection of the monument objects."

Table 2-18: Summary Comparison of Impacts Table (cont.)

Topic	Alternative A	Alternative B	Alternative C	Alternative D
Soil and Water Resources	Designating 128,400 acres of the IFNM to meet VRM Class III objectives and allocating 8,240 acres as utility corridors could result in surface-disturbing activities causing the loss of soil resources or degradation of water quality. Closing 820 acres to vehicle travel and limiting vehicle travel to exiting routes in the remainder of the IFNM could reduce surface disturbance and erosion in localized areas. Allocating 8,230 acres for utility corridors could result in surface disturbance and erosion in localized areas causing a loss of soil resources or degradation of water quality in localized areas.	Designating 125,110 acres of the IFNM to meet VRM Class I or Class II objectives, minimizing the loss of vegetation, adopting mitigation plans that minimize erosion, and managing 36,990 acres to protect wilderness characteristics could reduce surface-disturbing activities throughout a majority of the IFNM, which would protect soil and water resources more than Alternative A. Closing 38,040 acres to vehicle travel and limiting vehicle travel to designated routes in the remainder of the IFNM could limit surface disturbance and erosion in localized areas. Prohibit the granting of rights-of-way or easements for the construction of surface water diversions or conveyances which remove surface water from the monument or adversely affect the monument's values, subject to valid existing rights, unless such conveyances further the protective purposes of the monument. Prohibit the pumping of groundwater from monument lands that removes water from the monument boundary or adversely affects monument values.	Designating 124,900 acres of the IFNM to meet VRM Class II objectives, minimizing the loss of vegetation, adopting mitigation plans that minimize erosion, and managing 9,510 acres to protect wilderness characteristics could reduce surface-disturbing activities throughout a majority of the IFNM, which would protect soil and water resources more than Alternative A, but less than Alternative B. Closing 10,880 acres to vehicle travel and limiting vehicle travel to existing routes in the remainder of the IFNM could limit surface disturbance and erosion in localized areas. Allocating 241 acres as utility corridors could result in surface disturbance and erosion in localized areas causing the loss of soil resources or degradation of water quality in localized areas.	Designating 122,580 acres of the IFNM to meet VRM Class II objectives, minimizing the loss of vegetation, and adopting mitigation plans that minimize erosion could reduce surface-disturbing activities, which would protect soil and water resources more than Alternative A, but less than Alternatives B or C. Allocating 2,660 acres as utility corridors could result in surface disturbance and localized erosion causing the loss of soil resources or degradation of water quality in localized areas.

Table 2-18: Summary Comparison of Impacts Table (cont.)

Topic	Alternative A	Alternative B	Alternative C	Alternative D
Vegetation	Designating 128,400 acres of the IFNM to meet VRM Class III objectives and allocating 8,240 acres as utility corridors could result in surface-disturbing activities, including vegetation removal. This could alter vegetation community structure and/or diversity and provide opportunities for noxious weed and invasive species establishment. Allowing dispersed recreational target shooting could result in damage to vegetation resources. Closing 820 acres to vehicle travel and limiting vehicles to existing routes in the remainder of the IFNM could reduce disturbance to vegetation. Managing 3,340 acres, including 2,240 acres of Nichol Turk's head cactus could help retain existing vegetation resources by restricting surface-disturbing activities. The anticipated impacts to vegetative objects of the monument would not reduce the viability or result in the loss of a population of these species or the natural range of variation in vegetative communities, but would require the implementation of mitigation measures to comply with the Proclamation. With mitigation, impacts on those objects would be reduced to the extent that they would be measurable only in small localized areas, and vegetative communities would be conserved for future generations, and would provide for "protection of the monument objects."	Designating 125,110 acres of the IFNM to meet VRM Class I or Class II objectives, minimizing the loss of vegetation, adopting mitigation plans that minimize erosion, and managing 36,990 acres to protect wilderness characteristics could reduce surface-disturbing activities compared to Alternative A. This could help protect vegetation and reduce opportunities for noxious weed and invasive species establishment compared to Alternative A. Closing 38,040 acres to vehicle travel and limiting vehicles to designated routes in the remainder of the IFNM could reduce surface disturbance and protect vegetation resource conditions. Managing 9,020 acres on the Waterman and Ragged Top VHAs could help maintain existing vegetation resources by restricting surface-disturbing activities. The anticipated impacts to vegetative objects of the monument would be undetectable or measurable only in localized areas and would not reduce the viability or result in the loss of a population of these species, a vegetative community, or the natural range of variation in vegetation communities. The localized nature of impacts on vegetative objects of the monument would provide for "protection of the monument objects."	Designating 124,900 acres of the IFNM to meet VRM Class II objectives, minimizing the loss of vegetation, adopting mitigation plans that minimize erosion, and managing 9,510 acres to protect wilderness characteristics could reduce surface-disturbing activities compared to Alternative A, but to a lesser extent than Alternative B. This could help protect vegetation and reduce opportunities for noxious weed and invasive species establishment compared to Alternative A, but less than Alternative B. Closing 10,880 acres to vehicle travel and limiting vehicles to designated routes in the remainder of the IFNM could reduce surface disturbance, including vegetation trampling or removal, in localized areas. Allocating 241 acres as utility corridors could result in disturbance to vegetation in localized areas. Managing 9,020 acres as the Waterman and Ragged Top VHAs could retain existing vegetation resources. However, allowing camping in these areas could result in localized surface disturbance. The anticipated impacts to vegetative objects of the monument would be greater than those under Alternative B, but would provide for "protection of monument objects."	Designating 122,580 acres the IFNM as to meet VRM Class II objectives, minimizing the loss of vegetation, and adopting mitigation plans that minimize erosion could reduce surface-disturbing activities and localized erosion. This could help protect vegetation and reduce opportunities for noxious weed and invasive species establishment compared to Alternative A, but less than Alternatives B or C. Managing 2,660 acres as utility corridors and allowing recreational shooting in site-specific areas could result in disturbance to vegetation in localized areas. Managing 5,740 acres as the Waterman and Ragged Top VHAs could retain existing vegetation resources by restricting surface-disturbing activities. However, this would be 3,280 acres less than Alternatives B and C. The anticipated impacts to vegetative objects of the monument would be greater than those under Alternatives B or C, but would provide for "protection of monument objects."

Table 2-18: Summary Comparison of Impacts Table (cont.)

Topic	Alternative A	Alternative B	Alternative C	Alternative D
Wildlife and Wildlife Habitat	Designating 128,400 acres of the IFNM to meet VRM Class III objectives and allocating 8,240 acres as utility corridors would provide opportunities for surface-disturbing activities, including vegetation removal. This could reduce the quantity and/or quality of wildlife habitat from present conditions in localized areas. Closing 820 acres to vehicle travel and limiting vehicles to existing routes in the remainder of the IFNM could limit surface disturbance and maintain existing wildlife habitat conditions in these areas. In addition, managing 41,470 acres as the Desert Bighorn Sheep Management Area would limit or prohibit surface disturbance, and maintain or continue to improve wildlife habitat conditions. Allocating 8,240 acres for utility corridors could increase surface disturbance and localized erosion, which could degrade the quantity and/or quality of wildlife habitat. The anticipated impacts to wildlife and wildlife habitat, as objects of the monument, would not change the types, or relative distributions of wildlife habitats within the IFNM, but would require the implementation of mitigation measures to comply with the Proclamation. With mitigation, impacts on those objects would be reduced to the extent that they would be measurable only in small localized areas, and would provide for "protection of the monument objects."	Designating 125,110 acres of the IFNM to meet VRM Class I or Class II objectives, minimizing the loss of vegetation, adopting mitigation plans that minimize erosion, and managing 36,990 acres to protect wilderness characteristics could reduce surface-disturbing activities compared to Alternative A. This could help maintain wildlife habitat and reduce disruptions to wildlife populations. Closing 38,040 acres to vehicle travel and limiting vehicles to designated routes in the remainder of the IFNM could reduce surface disturbance resulting in greater protection of existing wildlife habitat conditions compared to Alternative A. In addition, allocating 29,820 acres as the Desert Bighorn Sheep WHA and 2,240 acres as the Waterman Mountains VHA would limit or prohibit surface disturbance, and maintain or improve wildlife habitat conditions in this area. The anticipated impacts to wildlife and wildlife habitat, as objects of the monument, would be undetectable or measurable only in localized areas and would not change the types, or relative distributions, of wildlife habitats within the IFNM. The localized nature of impacts on vegetative objects of the monument would provide for "protection of the monument objects."	Designating 124,900 acres the IFNM to meet VRM Class II objectives, minimizing the loss of vegetation, adopting mitigation plans that minimize erosion, and managing 9,510 acres to protect wilderness characteristics could reduce surface-disturbing activities compared to Alternative A, but less than Alternative B. This could help maintain wildlife habitat. Closing 10,880 acres to vehicle travel and limiting vehicles to designated routes in the remainder of the IFNM could reduce surface disturbance resulting in greater protection of existing wildlife habitat conditions and reduce disruption to wildlife populations compared to Alternatives A or B. Allocating 241 acres as a utility corridor could result in surface disturbance and localized erosion, which could degrade the quantity and/or quality of wildlife habitat. In addition, allocating 29,820 acres as the Desert Bighorn Sheep WHA and 2,240 acres as the Waterman Mountains VHA would limit or prohibit surface disturbance, and maintain or improve wildlife habitat conditions in this area. The anticipated impacts to wildlife and wildlife habitat objects of the monument would be greater than those under Alternative B, but would provide for "protection of monument objects."	Designating 122,580 acres the IFNM to meet VRM Class II objectives, minimizing the loss of vegetation, adopting mitigation plans that minimize erosion could reduce surface-disturbing activities compared to Alternative A, but less than Alternatives B or C. This could help maintain wildlife habitat and reduce disruption to wildlife populations. Allocating 2,660 acres as a utility corridor could result in surface disturbance and localized erosion, which could degrade the quantity and/or quality of wildlife habitat In addition, allocating 29,820 acres as the Desert Bighorn Sheep WHA and 2,240 acres as a VHA would limit or prohibit surface disturbance, and maintain or improve wildlife habitat conditions in this area. Damage to vegetation associated with recreational shooting in designated areas could result in habitat degradation and the disturbance associated with frequent human presence and firearm noise could disturb wildlife in the vicinity of the designated shooting areas. The anticipated impacts to wildlife and wildlife habitat, as objects of the monument, would be similar to Alternative A and require the implementation of mitigation measures to comply with the Proclamation and provide for "protection of the monument objects."

Table 2-18: Summary Comparison of Impacts Table (cont.)

Topic	Alternative A	Alternative B	Alternative C	Alternative D
Special Status Species	Designating 128,400 acres of the IFNM to meet VRM Class III objectives and allocating 8,240 acres as utility corridors would provide opportunities for surface-disturbing activities and vegetation removal. This could reduce the quantity and or quality of special status species habitat, depending on the area of disturbance. Closing 820 acres to vehicle travel and limiting vehicles to existing routes in the remainder of the IFNM could limit surface disturbance and protect existing special status species habitat conditions. Managing 2,240 acres of public land as the Waterman Mountains ACEC would help protect special status species habitat. The anticipated impacts to special status species objects of the monument (including Nichol Turk's head cactus, lesser long-nosed bat, and Sonoran desert tortoise) resulting from management actions would range from undetectable to measurable at a broad scale (i.e., disturbance in mile-wide utility corridors). The anticipated impacts would not result in the loss of a population of the special status species. BLM's implementation of management actions for vegetation, including control of invasives, would mitigate the potential for broad-scale impacts. Mitigation measures would be implemented to reduce impacts on special status species and limit impacts to small and localized areas to provide for "protection of the monument objects."	Designating 125,110 acres of the IFNM to meet VRM Class I or Class II objectives, minimizing the loss of vegetation, adopting mitigation plans that minimize erosion, and managing 36,990 acres to protect wilderness characteristics could reduce surface-disturbing activities. This could help protect special status species habitat and reduce disruptions to special status species habitat and populations compared to Alternative A. Closing 38,040 acres to vehicle travel and limiting vehicles to designated routes in the remainder of the IFNM could reduce surface disturbance and protect special status species habitat to a greater extent than Alternative A. In addition, managing approximately 2,240 acres of Nichol Turk's head cactus habitat as a VHA in the Waterman Mountains and 6,780 acres as a VHA at Ragged Top also could help protect special status species habitat. The anticipated impacts to special status species objects of the monument (including Nichol Turk's head cactus, lesser long-nosed bat, and Sonoran desert tortoise) resulting from management actions would range from undetectable to measurable at a local scale and would not cause the loss of special status species from the monument. BLM may implement mitigation measures to provide for "protection of the monument objects."	Designating 124,900 acres the IFNM as to meet VRM Class II objectives, minimizing the loss of vegetation, adopting mitigation plans that minimize erosion, and managing 9,540 acres to protect wilderness characteristics could reduce surface-disturbing activities. This could help protect special status species habitat and reduce disruption to special status species populations. Closing 10,880 acres to vehicle travel and limiting vehicles to designated routes in the remainder of the IFNM could reduce surface disturbance and protect special status species habitat to a greater extent than Alternative A, but less than Alternative B. Allocating 241 acres as utility corridors could result in surface disturbance and localized erosion. This could reduce the quantity and/or quality of special status species habitat. The anticipated impacts to special status species objects of the monument (including Nichol Turk's head cactus, lesser long-nosed bat, and Sonoran desert tortoise) resulting from management actions would be similar to those under Alternative B.	Designating 122,580 acres the IFNM to meet VRM Class II objectives, minimizing the loss of vegetation, and adopting mitigation plans that minimize erosion could reduce surface-disturbing activities and localized erosion. This could help protect special status species habitat and reduce disruption to special status species populations. Managing 2,660 acres as utility corridors could result in surface disturbance and localized erosion. This could reduce the quantity and or quality of special status species habitat. The anticipated impacts to special status species objects of the monument (including Nichol Turk's head cactus, lesser long-nosed bat, and Sonoran desert tortoise) resulting from management actions would range from undetectable to measurable at a broad scale (i.e., disturbance in utility corridors). The anticipated impacts would not result in the loss of a population of the special status species. BLM's implementation of management actions for vegetation, including control of invasives, would mitigate the potential for broad-scale impacts. Mitigation measures would be implemented to reduce impacts on special status species and limit impacts to small and localized areas to provide for "protection of the monument objects."

Table 2-18: Summary Comparison of Impacts Table (cont.)

Topic	Alternative A	Alternative B	Alternative C	Alternative D
Fire Ecology	Managing 41,470 acres as the Silver Bell Desert Bighorn Sheep Management Area and improving ecological site conditions in the Cocoraque Butte–Waterman Mountains Multiple Resource Management Area would limit surface disturbance and reduce opportunities for the establishment of noxious weeds and invasive species in these areas. These decisions would indirectly help retain FRCC I and maintain the current fire regime. The potential for ignitions that originate from motorized vehicles would be reduced on approximately 820 acres that are closed to motorized vehicles.	Managing 2,240 acres as the Waterman Mountains VHA and 29,820 acres as the Desert Bighorn Sheep WHA along with an integrated noxious weed management approach throughout the IFNM, would reduce opportunities for the establishment of noxious weeds and invasive species. These decisions would indirectly help maintain current FRCC I ratings in site-specific areas. The potential for ignitions that originate from motorized vehicles would be reduced on approximately 38,040 acres that would be closed to motorized vehicles. Managing 36,990 acres to protect wilderness characteristics could preclude some types of fire suppression and fuels treatment activities. Managing 60,000 acres as Semi-Primitive Non-Motorized could increase the response time to wildfire ignitions in those areas. In addition, making 11 allotments unavailable for livestock grazing after existing grazing leases expire could increase the amount of fine fuels available for ignition.	Managing 2,240 acres as the Waterman Mountains VHA and 29,820 acres as the Desert Bighorn Sheep WHA along with an integrated noxious weed management approach throughout the IFNM, would reduce opportunities for the establish-ment of noxious weeds and invasive species. These decisions would indirectly help maintain current FRCC I ratings in site-specific areas. The potential for ignitions that originate from motorized vehicles would be reduced on approximately 10,880 acres that would be closed to motorized vehicles. Managing 9,510 acres to protect wilderness characteristics could preclude some types of fire suppression and fuels treatment activities. Managing 57,450 acres as Semi-Primitive Non-Motorized could increase the response time to wildfire ignitions in those areas. In addition, managing nine allotments as perennial livestock grazing could decrease the amount of fine fuels available for ignition compared to Alternative B.	Managing 2,240 acres as the Waterman Mountains VHA and 29,820 acres as the Desert Bighorn Sheep WHA along with an integrated noxious weed management approach throughout the IFNM, would reduce opportunities for the establishment of noxious weeds and invasive species. These decisions would indirectly help maintain current FRCC I ratings in site-specific areas Managing 43,770 acres as Semi-Primitive Non-Motorized could increase the response time to wildfire ignitions in those areas. In comparison with Alternative B, managing nine allotments as perennial livestock grazing could decrease the amount of fine fuels available for ignition.

Table 2-18: Summary Comparison of Impacts Table (cont.)

Topic	Alternative A	Alternative B	Alternative C	Alternative D
Cultural Resources	Closing 820 acres to motorized vehicles and allocating the 2,720-acre Avra Valley Cultural Resource Management Area would help protect cultural resources by reducing surface disturbance in these areas. Maintaining the Waterman Mountains ACEC also provides some coincidental protection of cultural resources on approximately 2,240 acres of public lands. Surface-disturbing activities within 8,240 acres managed as utility corridors, from right-of-way construction and use, and resulting from livestock grazing could disturb cultural resources; however, mitigation would be required for impacts to cultural resources. Dispersed recreation and OHV use also would have the potential to disturb cultural resources. The anticipated impacts to cultural objects of the monument, including rock art, archaeological sites, archaeological districts, and Mission Santa Ana would range from undetectable to measurable at a local scale. BLM would implement mitigation measures to reduce threats or conflicts, providing for the "protection of monument objects."	Closing 38,040 acres to motorized vehicles and managing 36,990 acres to protect wilderness characteristics would help protect cultural resources by reducing surface disturbance in these areas. No sites would be allocated to public use, limiting opportunities for public interpretation. For sites allocated to scientific use, ground-disturbing activities for research would not be permitted, potentially limiting the understanding of the resource. Managing the IFNM as an exclusion area with no utility corridors designated, and limiting the opportunities for authorization of new rights-of-way, could coincidentally protect cultural resources by reducing surface disturbance compared to Alternative A. Managing 60,000 acres for Semi-Primitive Non-Motorized recreation could reduce surface disturbance and subsequent impacts on cultural resources in these areas. The anticipated impacts to cultural objects of the monument, including rock art, archaeological sites, archaeological districts, and Mission Santa Ana would range from undetectable to measurable at a local scale; less ground-disturbance would be expected under Alternative B compared to other alternatives. BLM would implement mitigation measures to reduce threats or conflicts, providing for the "protection of monument objects."	Closing 10,880 acres to motorized vehicles and managing 9,510 acres to protect wilderness characteristics would help protect cultural resources by reducing surface disturbance in these areas. Ground-disturbing activities would be allowed for research at sites allocated to scientific use, by promoting long-term preservation of the informational values to these sites and increase understanding of the cultural history. Managing the IFNM as an avoidance area, but allocating 241 acres as utility corridors could cause surface disturbance and the loss of cultural resources in localized areas to a lesser extent than Alternative A, but to a greater extent than Alternative B. Managing 57,450 acres for Semi-Primitive Non-Motorized recreation could reduce surface disturbance and subsequent impacts on cultural resources in these areas. The anticipated impacts to cultural objects of the monument, including rock art, archaeological sites, archaeological districts, and Mission Santa Ana would range from undetectable to measurable at a local scale, but fewer impacts than current management (Alternative A). BLM would implement mitigation measures to reduce threats or conflicts, providing for the "protection of monument objects."	Managing the IFNM as an avoidance area with 2,660 acres allocated as utility corridors could cause surface disturbance and the loss of cultural resources. Ground-disturbing activities (i.e., excavation) would be allowed for research at sites allocated to scientific use, which would promote long-term preservation of the informational values to these sites and increase understanding of the regional cultural history. Managing 43,770 acres for Semi-Primitive Non-Motorized recreation could reduce surface disturbance and subsequent impacts on cultural resources in these areas. Ground-disturbing activities (i.e., excavation) would be allowed for research at sites allocated to scientific use, which would promote long-term preservation of the informational values to these sites and increase understanding of the regional cultural history. The anticipated impacts to objects of the monument, including rock art, archaeological sites, archaeological districts, and Mission Santa Ana would range from undetectable to measurable at a local scale, with slightly greater potential for impacts compared to Alternatives B and C. BLM would implement mitigation measures to reduce threats or conflicts, providing for the "protection of monument objects."

Table 2-18: Summary Comparison of Impacts Table (cont.)

Topic	Alternative A	Alternative B	Alternative C	Alternative D
Paleontological Resources	Closing 820 acres to motorized vehicles and allocating 2,720-acre Avra Valley Cultural Resource Management Area would help protect paleontological resources by limiting surface disturbance in these areas. Designating the Waterman Mountains ACEC also provides some coincidental protection of paleontological resources on approximately 2,240 acres of public lands. Surface-disturbing activities within 8,240 acres of utility corridors, from right-of-way construction and use, and resulting from livestock grazing could disturb paleontological resources; however, mitigation would be required for impacts. Dispersed recreation and OHV use would have the potential to disturb paleontological resources.	Closing 38,040 acres to motorized vehicles and managing 36,990 acres to protect wilderness characteristics would help protect paleontological resources by reducing surface disturbance in these areas. Managing the IFNM as an exclusion area with no utility corridors, and limiting the opportunities for authorization of new rights-of-way, could coincidentally protect paleontological resources by reducing surface disturbance. Managing 60,000 acres for Semi-Primitive Non-Motorized recreation could reduce surface disturbance and impact to paleontological resources in these areas.	Closing 10,880 acres to motorized vehicles and managing 9,510 acres to protect wilderness characteristics would help protect paleontological resources by reducing surface disturbance in these areas. Managing the IFNM as an avoidance area, but allocating 241 acres as utility corridors could cause surface disturbance and the loss of paleontological resources in localized areas. Managing 57,450 acres for Semi-Primitive Non-Motorized recreation could reduce surface disturbance and impact to paleontological resources.	Managing the IFNM as an avoidance area, but allocating 2,660 acres as utility corridors could cause surface disturbance and the loss of paleontological resources in localized areas. Managing 43,770 acres for Semi-Primitive Non-Motorized recreation could reduce surface disturbance and impact to paleontological resources.

Table 2-18: Summary Comparison of Impacts Table (cont.)

Topic	Alternative A	Alternative B	Alternative C	Alternative D
Visual Resources	VRM Class III designation on 128,400 acres would partially retain visual characteristics of the landscape, allowing a moderate level of change to the characteristic landscape. Mile-wide corridors for utility rights-of-way have highest potential for visual impacts by increasing contrasts. Prohibiting land use authorizations (except along existing roads) within the Waterman Mountains ACEC would limit the potential for new structures and activities that could introduce contrasting elements into the surrounding landscape on approximately 2,240 acres of public land. The anticipated impacts to objects of the monument (including visual resources) would range from undetectable to measurable at a broad scale (i.e., continuing management of the IFNM as VRM Class III, which would allow for greater modifications to the landscape). BLM would evaluate specific projects as they are proposed and implement mitigation measures to minimize or reduce human-caused impacts on visual resources and provide for "protection of the monument objects."	VRM Class I designation would preserve the character of the landscape on about 36,990 acres of the most scenic, natural appearing, and visually sensitive parts of the public lands in the IFNM. VRM Class II designation would retain the existing character of the landscape approximately 88,120 acres of the public lands in the IFNM. Visual contrasts generated from recreational activities would be most noticeable in approximately 17,610 of the public lands in the IFNM in the Roaded Natural zone. Managing the IFNM as a right-of-way exclusion area would help retain visual and scenic resources. The anticipated impacts to objects of the monument (including visual resources) would range from undetectable to measurable at a local scale. The visual quality of natural landscapes would be maintained, consistent with the VRM categories, which would provide "protection of the monument objects."	VRM Class II designation would retain the existing character of the landscape approximately 124,900 acres of the public lands in the IFNM. Visual contrasts generated from recreational activities would be most noticeable in approximately 18,380 acres of the public lands in the IFNM in the Roaded Natural zone. Managing the IFNM as a right-of-way avoidance area would help retain visual and scenic resources. Though slightly greater impacts would be anticipated compared to Alternative B, the impacts on objects of the monument (including visual resources) would range from undetectable to measurable at a local scale. The visual quality of natural landscapes would be maintained, consistent with the VRM categories, which would provide "protection of the monument objects."	VRM Class II designation would retain the existing character of the landscape approximately 122,580 acres of the public lands in the IFNM. Visual contrasts generated from recreational activities would be most noticeable in approximately 19,060 acres of the public lands in the IFNM in the Roaded Natural zone, but visual contrast would also be expected within the approximately 629 acres designated for recreational shooting. Managing the IFNM as a right-of-way avoidance area would help retain visual and scenic resources. Though slightly greater impacts would be anticipated compared to Alternative C, the impacts on objects of the monument (including visual resources) would range from undetectable to measurable at a local scale. The visual quality of natural landscapes would be maintained, consistent with the VRM categories, which would provide "protection of the monument objects."

Table 2-18: Summary Comparison of Impacts Table (cont.)

Topic	Alternative A	Alternative B	Alternative C	Alternative D
Wilderness Characteristics	Designating 128,400 acres as VRM Class III would provide for limited protection of lands with wilderness characteristics. Limiting motorized traffic to existing routes and closing 820 acres to OHV use could provide some coincidental protection of lands with wilderness characteristics. Allowing rights-of-way within areas with wilderness characteristics would diminish naturalness in localized areas, as well as opportunities for solitude during construction and maintenance of the facility. Allowing dispersed non-motorized camping throughout the IFNM would promote retention of wilderness characteristics by providing opportunities for primitive and unconfined recreation.	Designating 125,110 acres as VRM Class I or Class II would help protect areas with wilderness characteristics. Limiting motorized traffic to designated routes and closing 38,040 acres to OHV use could provide some coincidental protection of areas with wilderness characteristics to a greater extent than Alternative A. Managing the IFNM as an exclusion area for rights-of-way would retain naturalness, as well as opportunities for solitude. Managing 29,420 acres for Primitive recreation and 60,000 acres for Semi-Primitive Non-Motorized recreation use would promote retention of lands with wilderness characteristics by providing opportunities for primitive and unconfined recreation.	Designating 124,900 acres as a VRM Class II area would help protect areas with wilderness characteristics. Limiting motorized traffic to designated routes and closing 10,880 acres to OHV use could provide some coincidental protection of areas with wilderness characteristics to a greater extent than Alternative A, but less than Alternative B. Managing the IFNM as an avoidance area for rights-of-way could help retain naturalness, as well as opportunities for solitude. Managing 9,510 acres for Primitive recreation and 57,450 acres for Semi-Primitive Non-Motorized recreation use would promote retention of lands with wilderness characteristics by providing opportunities for primitive and unconfined recreation.	Designating 122,580 acres as a VRM Class II area would help protect areas with wilderness characteristics. Limiting motorized traffic to designated routes could provide some coincidental protection of areas with wilderness characteristics to a greater extent than Alternative A, but less than Alternatives B or C. Managing 43,770 acres for Semi-Primitive Non-Motorized recreation use would promote retention of wilderness characteristics by providing opportunities for primitive and unconfined recreation.

Table 2-18: Summary Comparison of Impacts Table (cont.)

Topic	Alternative A	Alternative B	Alternative C	Alternative D
Livestock Grazing	Designating 128,400 acres as VRM Class III and continuing custodial management of recreation could allow for surface-disturbing activities that reduce forage in site-specific areas. In addition, managing 8,240 acres in nine allotments as utility corridors could result in surface disturbance from construction and development of rights-of-way within the corridors. Closing 820 acres to motorized use and managing approximately 2,240 acres of public land as the Waterman Mountains ACEC could reduce surface-disturbing activities and maintain forage for livestock grazing in these areas.	Making the IFNM unavailable to livestock grazing after leases expire would reduce the number of livestock operators in the IFNM. Designating 3,290 acres as VRM Class III and managing 17,610 acres for Roaded Natural recreation could allow for surface-disturbing activities that reduce forage in site-specific areas. Closing 36,990 acres to motorized use and managing the IFNM as exclusion area for rights-of-way activities could reduce surface-disturbing activities and maintain forage for livestock grazing to a greater extent than Alternative A. Managing 2,240 acres as a VHA and 29,820 acres as a WHA could reduce surface disturbance and help retain forage for livestock grazing.	Designating 3,420 acres as VRM Class III and 80 acres as VRM Class IV, and managing 18,380 acres for Roaded Natural recreation could allow for surface-disturbing activities that reduce forage in site-specific areas. Closing 10,880 acres to motorized use and managing the IFNM as an avoidance area for rights-of-way activities could reduce surface-disturbing activities and maintain forage for livestock grazing to a greater extent than Alternative A, but less than Alternative B. Managing 2,240 acres as a VHA and 29,820 acres as a WHA could reduce surface disturbance and help retain forage for livestock grazing.	Designating 4,220 acres as VRM Class III and 1,600 acres as VRM Class IV, and managing 19,060 acres for Roaded Natural recreation could allow for surface-disturbing activities that reduce forage in site-specific areas. Managing the IFNM as an avoidance area for rights-of-way activities could reduce surface-disturbing activities and maintain forage for livestock grazing to a greater extent than Alternative A, but less than Alternatives B or C. Managing 2,240 acres as a VHA and 29,820 acres as a WHA could reduce surface disturbance and help retain forage for livestock grazing.

Table 2-18: Summary Comparison of Impacts Table (cont.)

Topic	Alternative A	Alternative B	Alternative C	Alternative D
Recreation	Custodial recreation management could increase the number of vehicle-based campsites in areas near existing routes, providing opportunities for vehicle-based camping. However, this dispersed use could result in increased surface disturbance in localized areas, degrading the natural landscape and diminishing recreational settings over time. Managing 127,580 acres as limited to designated or existing routes would continue to provide opportunities for motorized recreation along approximately 346 miles of road or primitive road. No specific trails would be managed, but non-motorized recreation opportunities would be available along motorized routes Closing 820 acres to OHV use would help maintain the existing recreational settings by preserving natural landscapes; and provide a setting for non-motorized recreational opportunities. Designating 128,400 acres as VRM Class III and continuing the designation of utility corridors on 8,240 acres would allow for activities, including surface disturbance, which could reduce naturalness and degrade recreational settings. Continuing to allow dispersed recreational shooting throughout IFNM would not change the existing recreational opportunity, but would continue to have the potential to conflict with other recreational uses.	Managing 90,360 acres as limited to designated routes would maintain opportunities for motorized recreation along approximately 63 miles of road or primitive road, Closing 38,040 acres to OHV use and managing 60,000 acres for Semi-Primitive Non-Motorized recreation would sustain the undeveloped recreational settings, and provide trail touring opportunities on approximately 270 miles of trail. Designating 3,290 acres as VRM Class III would allow surface disturbance, reducing naturalness and degrading some primitive recreational settings in localized areas. Prohibiting recreational target shooting within IFNM would eliminate a currently available recreational opportunity.	Managing 117,520 acres of the IFNM as limited to designated routes would maintain opportunities for motorized recreation along approximately 124 miles of road or primitive road. Closing 10,880 acres to OHV use and managing 57,450 acres for Semi-Primitive Non-Motorized recreation would sustain undeveloped settings and provide non-motorized opportunities for touring on 210 miles of trail. Designating 3,420 acres as VRM Class III would allow surface disturbance, reducing naturalness and degrading some primitive recreational settings in localized areas. Prohibiting recreational target shooting within IFNM would eliminate a currently available recreational opportunity.	Managing the IFNM as limited to designated routes would maintain opportunities for motorized recreation along approximately 226 miles of road or primitive road. Managing 43,770 acres for Semi-Primitive Non-Motorized recreation would help sustain the undeveloped settings and-provide non-motorized opportunities along 100 miles of trail. Designating 4,220 acres as VRM Class III and 1,600 acres as VRM Class IV would allow surface disturbance, reducing naturalness and degrading recreational settings in localized areas. Providing two specially designated areas for recreational target shooting would provide an ongoing recreational opportunity, but concentrating shooting within approximately 629 acres would change the experience from the dispersed opportunity that currently exists.

Table 2-18: Summary Comparison of Impacts Table (cont.)

Topic	Alternative A	Alternative B	Alternative C	Alternative D
Lands and Realty	Land tenure adjustments would focus on acquisition of non-Federal land in the Waterman Mountains, Sawtooth Mountains, Agua Blanca Ranch area, Cocoraque Butte area, Silver Bell Mountains, and three sections of land in the West Silver Bell Mountains. Acquisitions would be driven by opportunities or land availability in these geographic areas. Closing 820 acres to could effectively restrict land use authorizations in these areas as a result of access limitations that would be enforced as part of the OHV closure.	Land tenure adjustments would focus on acquisition of non-Federal land throughout the IFNM, on an opportunistic basis, rather than within specific areas. This would provide greater flexibility for BLM in prioritizing land for acquisition and would account for changing conditions in and around the IFNM. Allocating approximately 128,400 acres as an exclusion area (without any designated utility corridors), would result in the consideration of land use authorizations such as rights-of-way only when required by law. Closing 38,040 acres to OHV travel could effectively restrict land use authorizations in these areas as a result of access limitations that would be enforced as part of the OHV closure.	Land tenure adjustments would focus on acquisition of non-Federal land throughout the IFNM, on an opportunistic basis, rather than within specific areas. This would provide greater flexibility for BLM in prioritizing land for acquisition and would account for changing conditions in and around the IFNM. Allocating the IFNM as an avoidance area (except 241 acres within identified utility corridors) would limit opportunities for rights-of-way to situations where no viable alternatives exist to avoiding placement of facilities within the IFNM. Corridors on 241 acres would provide limited opportunities for major utilities. Closing 10,880 acres to OHV travel could effectively restrict land use authorizations in these areas as a result of access limitations that would be enforced as part of the OHV closure.	Land tenure adjustments would focus on acquisition of non-Federal land throughout the monument, on an opportunistic basis, rather than within specific areas. This would provide greater flexibility for BLM in prioritizing land for acquisition and would account for ongoing changing conditions in and around the monument. Allocating the IFNM as an avoidance area (except areas within identified utility corridors) would limit opportunities for rights-of-way to situations where no viable alternatives exist to avoiding placement of facilities within the IFNM. Corridors on 2,660 acres would provide limited opportunities for major utilities.
Travel Management	Closing 820 acres to OHV travel and limiting motorized vehicle travel to existing or designated routes on the remaining approximately 127,580 acres would provide an extensive travel network (346 miles) throughout the IFNM, with very few areas where motorized travel would be prohibited.	Closing 38,040 acres to OHV travel and limiting motorized vehicles to designated routes on the remaining approximately 90,360 acres would provide vehicle access on 63 miles of road or primitive road, and non-motorized access on approximately 270 miles of trail throughout the IFNM (plus County-administered routes and routes on State Trust land).	Closing 10,880 acres to OHV travel and limiting motorized vehicles to designated routes on the remaining approximately 117,520 acres would provide vehicle access on 124-miles road or primitive road, and non-motorized access on 210 miles of trail throughout the IFNM (plus County-administered routes and routes on State Trust land).	Limiting motorized vehicle travel to designated routes would provide motor vehicle access on 226 miles of road or primitive road, and non-motorized access on 100 miles of trail throughout the IFNM (plus County-administered routes and routes on State Trust land).

Table 2-18: Summary Comparison of Impacts Table (cont.)

Topic	Alternative A	Alternative B	Alternative C	Alternative D
Special Designations	The Waterman Mountains ACEC (approximately 2,240 acres of public land) would continue to be designated for the protection of the Nichol Turk's head cactus.	The 2,240 acres of public land in the Waterman Mountains ACEC designation would not continue because the IFNM designation and management proposed for the IFNM would provide protection of the special status species for which the ACEC was established.	The 2,240 acres of public land in the Waterman Mountains ACEC designation would not continue because the IFNM designation and management proposed for the IFNM would provide protection of the special status species for which the ACEC was established.	The 2,240 acres of public land in the Waterman Mountains ACEC designation would not continue because the IFNM designation and management proposed for the IFNM would provide protection of the special status species for which the ACEC was established.
Public Safety	Allowing vehicle travel on existing or designated routes within 127,580 acres (820 acres would be closed to vehicle travel) would present risks to public safety in the form of vehicle-based accidents. Allowing recreational shooting could present risks of exposure to hazardous materials and injuries in areas of intense recreational use.	Allowing vehicle travel on designated routes within 90,360 acres (38,040 acres would be closed to vehicle travel) would present risks to public safety in the form of vehicle-based accidents. Prohibiting recreational shooting except for permitted hunting would limit risks of exposure to hazardous materials and minimize risks to public safety from shooting activities.	Allowing vehicle travel on existing or designated routes within 117,520 acres (10,880 acres would be closed to vehicle travel) would present risks to public safety in the form of vehicle-based accidents. Prohibiting recreational shooting except for permitted hunting would limit risks of exposure to hazardous materials and minimize risks to public safety from shooting activities.	Allowing vehicle travel on existing or designated routes within 128,400 acres would present risks to public safety in the form of vehicle-based accidents. Designating specific areas for recreational shooting would minimize risks of exposure to hazardous materials and injuries associated with shooting activities in most areas of IFNM, but could intensify the risks in the designated areas due to the concentration of shooting activity.

Table 2-18: Summary Comparison of Impacts Table (cont.)

Topic	Alternative A	Alternative B	Alternative C	Alternative D
Social and Economic Conditions	Grazing would continue to generate economic gains from livestock operations, depending on stocking rates, which could vary. Social values of ranching would continue within the IFNM. Continued custodial management of recreation would result in minor economic impacts (generally from fees for permits); socially, conflicts if use increases among users would continue, and possibly escalate over time. Land use authorizations, such as rights-of-way, would generate economic activity; development within existing or new rights-of-way could influence other development and infrastructure.	After grazing leases expire, there would be a loss of economic activity associated with livestock grazing, as well as a loss of the social value of ranching, within in the IFNM. Managing 36,990 acres to protect wilderness characteristics would recognize the social values of these areas; however, opportunities for uses that could generate economic returns could be limited in these areas, but, nonmarket values could increase. Management of recreation would limit social experiences because of the prohibition on having dogs in the IFNM, limiting camping (both vehicle-based and non-vehicle-based) to identified sites, and limiting group camping to two sites, and restrictions on recreational shooting. This would represent a loss of these experiences compared to Alternative A, but may result in fewer user conflicts. Closing VHAs to camping and closing the bighorn sheep lambing areas seasonally could limit valued social experiences (e.g., wildlife viewing) in those areas. Allocating 128,400 acres as exclusion area for rights-of-way and not establishing any corridors for major utilities would preclude opportunities for such facilities, and the associated economic impacts.	Grazing would continue to generate economic gains from livestock operations, depending on stocking rates, which could vary. Social values of ranching would continue. Managing 9,510 acres to protect wilderness characteristics would recognize the social values of these areas; however, opportunities for uses that could generate economic returns could be limited in these areas, but, nonmarket values could increase. Management of recreation would provide for increased social experiences compared to Alternative B, because dogs (on leashes) and non-vehicle-based camping would be allowed in the IFNM, and group camping could occur at three sites, but social impacts would occur from restrictions on recreational shooting. Closing the bighorn sheep lambing areas seasonally could limit valued social experiences (e.g., wildlife viewing) in those areas. Allocating the IFNM as an avoidance area for rights-of-way, except on 241 acres of identified utility corridors would limit, but not preclude, opportunities for such facilities, and the associated economic impacts.	Grazing would continue to generate economic gains from livestock operations, depending on stocking rates, which could vary. Social values of ranching would continue. Management of recreation would provide for increased social experiences compared to Alternative B, because dogs would be allowed in the IFNM (on leashes), non-vehicle-based camping would be allowed throughout the IFNM, group camping could occur at four sites, and recreational shooting would be allowed in designated areas. Closing the bighorn sheep lambing areas seasonal could limit valued social experiences (e.g., wildlife viewing) in those areas. Allocating the IFNM as an avoidance area for rights-of-way, except on 2,660 acres of identified utility corridors would limit, but not preclude, opportunities for such facilities, and the associated economic impacts.

CHAPTER 3.0 AFFECTED ENVIRONMENT

This chapter provides an overview of the existing environment within the planning area. The level of detail has been limited to that which is necessary to support, clarify, and provide context for (1) the issues listed in Chapter 1, (2) the goals and objectives and the alternatives presented in Chapter 2, and (3) the impact analysis provided in Chapter 4.

BLM uses the best available data when preparing a resource management plan (RMP). The data for this plan and Environmental Impact Statement (EIS) were provided by several sources: the Tucson Field Office of Bureau of Land Management (BLM); Federal, State, county, and local agencies, including the U.S. Geological Survey (USGS), U.S. Fish and Wildlife Service (USFWS), Arizona Game and Fish Department (AGFD), other State agencies, and counties; and other public and private sources. The data include published and unpublished reports, maps, and data in digital format. Geographic information system (GIS) technology was used extensively to capture, manage, analyze, and display the geographic data for this plan. Acreages used for analysis purposes reflect the best available GIS data maintained by the BLM.

In accordance with the National Environmental Policy Act of 1969 (NEPA) regulations codified in Title 40, Code of Federal Regulations, Section 1502.15 (40 CFR 1502.15), this chapter discusses the existing condition of the human and natural environment that potentially could be affected, beneficially or adversely, by the management strategies presented in the alternatives. Many, though not all, of the sections within this chapter correlate with programs for which BLM intends to make management decisions through the planning process. The following aspects of the existing environment were considered:

Resources

Air quality

Geology and cave resources

Soil and water resources

Biological resources (including vegetation, non-native vegetation, wildlife and wildlife habitats, and special status species)

Fire ecology and management

Cultural resources

Paleontological resources

Visual resources

Wilderness characteristics

Resource Uses

Energy and minerals

Livestock grazing

Recreation

Lands and realty

Travel management

Special Designations

Areas of critical environmental concern (ACECs)

Tribal Interests

Social and Economic Conditions

Economic value

Social and demographic conditions

Public Safety

Active and abandoned mines and prospects

Unexploded ordinances

Wildcat dumping

3.1 RESOURCE CONDITIONS

3.1.1 Air Quality

For most of the planning area and locations in the surrounding region (the air quality study area), relatively complete information resources are available, in the form of air quality monitoring data, air permit data, and regional emission inventories. The existing conditions in air quality within the Ironwood Forest National Monument (IFNM) are characterized based on the following quantifiable indicators:

- Monitored ambient concentrations of the criteria air pollutants as defined by the National Ambient Air Quality Standards (NAAQS) identified in the Clean Air Act and regulated by the U.S. Environmental Protection Agency (EPA)
- Observed levels of visibility, as a measure of air quality, which is monitored in most Class I areas (i.e., areas meeting criteria for relatively pristine air quality designated as Class I areas under the Federal Clean Air Act).
- Visibility data from monitoring stations operated by the Cooperative Institute for Research in the Atmosphere
- Data from remote automatic weather stations (RAWS) that indicate prevailing wind patterns

The discussion below also identifies emission sources in the study area with potential to impact air quality within the IFNM.

3.1.1.1 NAAQS – Attainment, Nonattainment, and Unclassified Areas

The 1990 Federal Clean Air Act requires that air quality throughout the United States meet certain standards with respect to criteria air pollutants in order to protect public health and the environment. In compliance with that act, the EPA has set levels for six criteria air pollutants: sulfur dioxide (SO_2), particulate matter equal to or less than 2.5 microns in diameter and equal to or less than 10 microns in diameter ($PM_{2.5}$ and PM_{10}), carbon monoxide (CO), nitrogen dioxide (NO_2), lead (Pb), and ozone (O_3). For each of these pollutants, there is a primary standard (set to protect public health) and a secondary standard (set to protect the environment). (The NAAQS standards, are presented in Table 3-1.) Geographic areas are designated as “attainment,” “nonattainment,” or “unclassified” with respect to each criteria pollutant. Areas where concentrations of criteria pollutants exceed the NAAQS are designated as nonattainment. An unclassified designation indicates that the status of attainment has not been verified through data collection. As a result of exceedances in the standards for PM_{10}, the Rillito nonattainment

area has been designated within Pima County; this nonattainment area for PM_{10} partially overlaps the IFNM (Map 3-1: Nonattainment Areas).

Table 3-1: National Ambient Air Quality Standards

Pollutant	Averaging Period	NAAQS	
		Primary	***Secondary***
Sulfur Dioxide (SO_2)	3-hour	—	0.5 ppm
	24-hour	0.14 ppm	—
	Annual	0.03 ppm	—
Particulate Matter less than or equal to 10 microns in diameter (PM_{10})	24-hour	150 $\mu g/m^3$	150 $\mu g/m^3$
	Annual	50 $\mu g/m^3$	50 $\mu g/m^3$
Particulate matter less than or equal to 2.5 Microns in Diameter ($PM_{2.5}$)	24-hour	65 $\mu g/m^3$	65 $\mu g/m^3$
	Annual	15 $\mu g/m^3$	15 $\mu g/m^3$
Carbon Monoxide (CO)	1-hour	35 ppm	—
	8-hour	9 ppm	—
Nitrogen Dioxide (NO_2)	Annual	0.053 ppm	0.053 ppm
Lead (Pb)	Quarterly	1.5 $\mu g/m^3$	1.5 $\mu g/m^3$
Ozone (O_3)	1-hour	0.12 ppm	0.12 ppm
	8-hour	0.08 ppm	0.08 ppm

SOURCES: U.S. Environmental Protection Agency 2003a, 2003b, 2003c, 2003d, 2003e, 2003f, 2003g, 2003h, 2003i
NOTES: ppm = parts per million
$\mu g/m^3$ = micrograms per cubic meter
NAAQS = National Ambient Air Quality Standards

3.1.1.2 Visibility in Class I Areas

Under the Federal Clean Air Act, areas meeting criteria for relatively pristine air quality may be designated as Class I areas. The Clean Air Act defines Class I areas as certain wilderness areas greater than 5,000 acres, national memorial parks greater than 5,000 acres, national parks greater than 6,000 acres, and international parks that were in existence on or before August 7, 1977. The planning area does not include any Class I areas. However, there is one Class I area located just east of the planning area, the Saguaro National Park (West Unit) Class I Area.

3.1.1.3 Visibility in the Region, as Indicated by IMPROVE Data

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 show that visible haze patterns measured in the Sonoran Desert are representative of arid sites in the Southwest, such as the IFNM. The monitoring results revealed the following (IMPROVE 2000):

- Fine and coarse particulate concentrations were the largest contributors to poor visibility in the spring, 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 lowest in the winter.
- The haziest days in the Sonoran Desert occur in the summer and the best visibility occurs in the winter.

There are no air quality monitors located within the IFNM, but there are numerous monitors located in several areas surrounding the IFNM for different criteria pollutants that are representative of conditions in the vicinity. The ambient air pollutant concentration data from 2001 for areas surrounding the planning area, as reported in Arizona Department of Environmental Quality's (ADEQ's) Fiscal Year (FY) 2002 Air Quality Report (ADEQ 2002), are summarized in Table 3-2.

3.1.1.4 Meteorological Conditions—Wind Patterns

The meteorological conditions of the planning area are typical of the Sonoran Desert areas of central Arizona with a dry, desert climate. The highest average humidity occurs during the winter months, and also are slightly higher during July and August, which are the months during which the monsoon season normally occurs (Western Regional Climate Center [WRCC] 2003a, 2003b) Similarly, the greatest average wet bulb temperatures, which represent the lowest temperature that can be obtained when evaporating water into air, occur during the months of July and August, which also correlates with the normal monsoon season (WRCC 2003c).

Data from three remote automatic weather stations (RAWS) monitors near the IFNM that best represent the prevalent wind patterns within the IFNM from areas such as the metropolitan Phoenix area, the metropolitan Tucson area, and the Mexican border (WRCC 2003d) were evaluated, with the following conclusions:

> ***Haley Hills RAWS Monitor:*** Based on wind patterns reported at the Haley Hills RAWS monitor, winds from the north/east directions (which occur approximately 30 percent of the year) may convey pollutants from Interstate 10 and isolated stationary sources toward the IFNM. In contrast, there are no substantive pollutant sources located west/southwest of the monitor (where wind blows from approximately 19 percent of the year).
>
> ***Saguaro RAWS Monitor:*** To the extent that the observed wind patterns at the Saguaro RAWS monitor may represent conditions on the east side of the IFNM, there would be relatively little transport of pollutants from industrial and mobile sources in the developed areas in Tucson, and generally only during periods when there are northeasterly winds. (There is a slight prevalence of winds from the north/east and south/west quadrants).
>
> ***Selles RAWS Monitor:*** The wind pattern observed at the Selles RAWS monitor (which is relatively dominant from the northeast sector about one-third of the time) would tend to transport pollutants to the planning area from the relatively less developed areas and major highways located southwest of the IFNM.

3.1.1.5 Emission Sources

There are no stationary industrial emission sources located within the planning area, but there are several near the planning area that are among the larger sources in Arizona.

Major and Minor Sources. There are no major sources in the planning area. However, a number of major sources encompassing many industrial categories—such as gas- and coal-fired power plants, natural gas pipeline compressor stations, landfills, and a portland cement plant—are located in the vicinity of the planning area. Minor sources located in developed areas outside the planning area include rock and construction-product industries (e.g., portable crushing and screening plants), hot-mix asphalt plants, and concrete batch plants. Stationary minor sources include manufacturing facilities, paint shops, and dry cleaners. Other minor sources located near the planning area include cattle feedlot operations, cotton gins, and miscellaneous manufacturing facilities.

Nonattainment Areas

Ironwood Forest National Monument
PRMP/FEIS

Legend

Rillito Particulate Matter (PM_{10}) Nonattainment Area

Surface Management

- Bureau of Land Management
- National Park Service
- Bureau of Reclamation
- American Indian Reservation
- Military Reservation
- State Trust Land
- State, County, City; Wildlife, Park and Outdoor Recreation Area
- Private
- Pima County

Data Source:
Non-Attainment Area Information: ADEQ 2003b
Base Information: BLM 2003
Quadrangle Image: US Geological Survey 1977 Tucson

General Reference

- County Boundary
- CAP Canal
- River
- Interstate 10
- Main public access routes to monument. County administered roads connecting monument travel route system to public highways.

Planning Area

- Ironwood Forest National Monument

Universal Tranverse Mercator
Zone 12, Units Meters
Clark 1866 Spheroid
NAD27 Datum

No warranty is made by the Bureau of Land Management (BLM) for the use of this map for purposes not intended by BLM, or to the accuracy, reliability, or completeness of the information shown. Spatial information may not meet National Map Accuracy Standards. This information may be updated without notification.

0 1 2 4 Miles

0 2 4 8 Kilometers

Location in Arizona



P:\BLM\Ironwood\GIS\Plots\PRMP_FEIS\Chapter_3\NonAttainmentMap.pdf

Map 3-1

Table 3-2: 2001 Air Quality Monitor Data from Monitors near the Planning Area

	CO (ppm)		NO_2 (ppm)			SO_2 (µg/m^3)			O_3 (ppm)		PM_{10} (µg/m^3)		$PM_{2.5}$ (µg/m^3)	
Identifier	***1-Hour Average***	***8-Hour Average***	***1-Hour Average***	***24-Hour Average***	***Annual Average***	***3-Hour Average***	***24-Hour Average***	***Annual Average***	***1-Hour Average***	***8-Hour Average***	***24-Hour Average***	***Annual Average***	***24-Hour Average***	***Annual Average***
IW1	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	89/77	33.6/26.0	N/A	N/A
IW2	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	113/134	24.7/31.0	N/A	N/A
IW3	5.8	3.0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
IW4	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	120	26.0	N/A	N/A
IW5	3.9	2.8	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
IW6	2.9	1.7	0.060	0.031	0.015	N/A	N/A	N/A	0.084	0.071	N/A	N/A	17.5	6.8
IW7	3.7	1.9	0.058	0.031	0.017	16	8	3	0.089	0.075	115	22.8	N/A	N/A
IW8	5.6	2.7	N/A	N/A	N/A	N/A	N/A	N/A	0.083	0.071	N/A	N/A	N/A	N/A
IW9	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	111	29.0	20.9	7.6
IW10	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	125	33.0	N/A	N/A
IW11	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	131	26.0	N/A	N/A
IW12	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.078	0.069	81	17.0	N/A	N/A
IW13	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	122	25.1	N/A	N/A
IW14	1.5	0.7	N/A	N/A	N/A	N/A	N/A	N/A	0.085	0.078	N/A	N/A	N/A	N/A
IW15	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	104	29.2	18.1	7.7
IW16	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	146	47.2	N/A	N/A
IW17	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	73	32.0	N/A	N/A
IW18	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	142	35.1	N/A	N/A
IW19	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	103	26.7	N/A	N/A
IW20	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	134	41.9	N/A	N/A

SOURCE: Arizona Department of Environmental Quality 2002

NOTES: N/A = Not Applicable

For CO, the following monitor is a seasonal monitor that is operational from January 1 to April 1 and September 1 to December 31: IW5.

For PM_{10}, the IW1 monitor shows data recorded at the monitor operated by the ADEQ followed by the data recorded at the monitor operated by Arizona Portland Cement Company.

For PM_{10}, the IW2 monitor shows data recorded at the monitor operated by the ADEQ followed by the data recorded at the monitor operated by the Pima County Department of Environmental Quality.

For $PM_{2.5}$, the following monitors collected data every third day: IW6 and IW10; and the following monitor collect data every sixth day: IW16 .

For $PM_{2.5}$, the IW6 monitor's data did not satisfy the U.S. Environmental Protection Agency's summary criteria, usually meaning less than 75 percent valid data recovery was available in one or more calendar quarters.

Units: µg/m^3 = micrograms per cubic meter; ppm = parts per million.

Pollutants: CO = carbon monoxide; NO_2 = nitrogen dioxide; O_3 = ozone; SO_2 = sulfur dioxide; PM_{10} = particulate matter less than 10 microns in diameter; $PM_{2.5}$ = particulate matter less than 2.5 microns in diameter.

Monitors: IW1 = Rillito; IW2 = South Tucson; IW3 = Tucson-Alvernon; IW4 = Tucson-Broadway and Swan; IW5 = Tucson-Cherry; IW6 = Tucson-Children's Park; IW7 = Tucson-Craycroft; IW8 = Tucson-Downtown; IW9 = Tucson-Orange Grove; IW10 = Tucson-Prince Road; IW11 = Tucson-Santa Clara; IW12 = Tucson-Tangerine; IW13 = Tucson-University of Arizona Central; IW14 = Casa Grande-Airport; IW15 = Casa Grande-Downtown; IW16 = Casa Grande-Eleven Mile Corner; IW17 = Coolidge-Maintenance Yard; IW18=Eloy-City Complex; IW19 = Pinal Air Park; IW20 = Stanfield.

Within the planning area, on-road vehicles represent the largest single air-pollutant-source category. Emissions from vehicles consist of NO_2, CO, and PM_{10}, which may warrant consideration in any assessment of ambient air quality. Since there are no major traffic routes located within the planning area, consideration of mobile source emissions in the vicinity of the planning area is limited to the Interstate 10 corridor and the public access routes that run throughout the IFNM. Vehicles traveling on unpaved roads are the largest sources of PM_{10} emissions within the planning area. Current fugitive-dust control measures, such as posted speed limits, reduce the amount of PM_{10} emissions generated.

Nonpermitted Sources. There are many small stationary emission sources that are not required to have an operating permit. These sources do not produce levels of air pollution that would substantially affect regional air quality. Agricultural operations are widespread throughout the study area, outside the IFNM, and represent a category of emission sources that are exempt from permitting and that likely affect local and regional air quality.

3.1.1.6 Global Climate Change

Ongoing scientific research has identified the potential impacts of climate changing pollutants on global climate. These pollutants are commonly called "greenhouse gases" and include carbon dioxide, CO_2; methane; nitrous oxide; water vapor; and several trace gas emissions. Through complex interactions on a regional and global scale, these emissions cause a net warming effect of the atmosphere, primarily by decreasing the amount of heat energy radiated by the earth back into space. Although climate changing pollutant levels have varied for millennia (along with corresponding variations in climatic conditions), recent industrialization and burning of fossil carbon sources have caused CO_2 concentrations to increase dramatically, and are likely to contribute to overall climatic changes, typically referred to as global warming. Increasing CO_2 concentrations also lead to preferential fertilization and growth of specific plant species.

Global mean surface temperatures have increased nearly 1.0°C (1.8°F) from 1890 to 2006 (Goddard Institute for Space Studies 2007). Without additional meteorological monitoring systems, it is difficult to determine the spatial and temporal variability and change of climatic conditions, but increasing concentrations of these "greenhouse gases" are likely to accelerate the rate of climate change.

The Intergovernmental Panel on Climate Change (IPCC) has recently completed a comprehensive report assessing the current state of knowledge on climate change, its potential impacts, and options for adaptation and mitigation. At printing of this PRMP/FEIS, this assessment is available on the IPCC web site at http://www.ipcc.ch/. According to this report, global climate change may ultimately contribute to a rise in sea level, destruction of estuaries and coastal wetlands, and changes in regional temperature and rainfall patterns, with major implications to agricultural and coastal communities. The IPCC has suggested that the average global surface temperature could rise 1 to 4.5 degrees Fahrenheit (°F) in the next 50 years, with significant regional variation. The National Academy of Sciences (2006) has confirmed these findings, but also indicated that there are uncertainties regarding how climate change may affect different regions. Computer models indicate that such increases in temperature will not be equally distributed globally, but are likely to be accentuated at higher latitudes, such as in the Arctic, where the temperature increase may be more than double the global average (BLM 2007c). Also, warming during the winter months is expected to be greater than during the summer, and increases in daily minimum temperatures is more likely than increases in daily maximum temperatures. Vulnerabilities to climate change depend considerably on specific geographic and social contexts.

BLM recognizes the importance of climate change and the potential effects it may have on the natural environment. Several activities occur within the planning area that may generate emissions of climate changing pollutants. For example, recreation using combustion engines and wildfires can potentially generate CO_2 and methane. Other activities may help sequester carbon, such as managing vegetation to

favor perennial grasses and increase vegetative cover, which may help build organic carbon in soils and function as "carbon sinks."

3.1.2 Geology and Cave Resources

Within the IFNM, there are many geological resources of interest for scientific study, preservation, scenic observation, recreational enjoyment, and/or economic development. The discussion of geological resources in Section 3.1.2.1 is focused on those with scientific, historical, or scenic value. Caves are discussed in Section 3.1.2.2. Paleontological resources are discussed in Section 3.1.9. Geological resources that may have potential uses or economic value for development are discussed in Section 3.2.1.

3.1.2.1 Geology

The Arizona Geological Survey (Richard et al. 2000) has prepared a geologic map of Arizona, which includes the surface geologic resources of the IFNM. Scarborough (2002) prepared a report on the geologic aspects of the IFNM and compiled a detailed geologic map of the western portion of the monument that provides more geologic detail in select areas west of the Silver Bell Mountains.

The IFNM is located within the Basin and Range physiographic province, which is characterized by long, narrow, block-faulted mountain ranges oriented northwest-southeast that are separated by broad, relatively flat valleys containing several thousand feet of alluvial sediments.

The jagged mountaintops and steep cliffs, such as Ragged Top and Wildcat Peak, are composed of resistant Cretaceous to Tertiary volcanic plugs or necks, while the Samaniego Hills and Sawtooth Mountains consist of thick sequences of volcanic flows and sediments. The Silver Bell Mountains are formed from Laramide-age granitic and volcanic rocks that host a major porphyry copper deposit.

Scarborough (2002) identified three unusual geologic features of scientific interest in the IFNM:

- Rarely preserved relict bar and swale structures characteristic of alluvial fan deposition
- Relict sand dune fields
- A large expanse of desert varnish on several styles of desert pavement

The Sawtooth Mountains also contain various small stone windows, or arches, as well as natural rock shelters that have been formed by weathering and erosion over time. Ragged Top also contains at least four small arches.

3.1.2.2 Caves

There are memorandums of understanding (MOUs) between the National Speleological Society and the BLM (dated June 11, 1984) for caves throughout the United States. The MOUs will help carry out the responsibilities under the 1988 Federal Cave Resources Protection Act to preserve our Nation's significant caves, and to improve cooperation between cavers, cave researchers, and the Federal Government. Some of these MOUs may be applicable to any caves that may exist in the planning area.

No caves have been reported in the IFNM, but several have been noted in other portions of southern and eastern Arizona. There are two caves, Silver Bell and Rattlesnake, in the Waterman Peak area adjacent to the IFNM (Mount 2003; USDI, BLM 2003b).

Additional caves may occur within the Paleozoic sedimentary deposits or within some volcanic rocks in the IFNM. There may be other caves in the area that remain undiscovered or undisclosed. The scientific,

educational, and recreational value of potential caves is expected to be quite variable and would need to be assessed individually.

3.1.3 Soil and Water Resources

3.1.3.1 Soil Resources

Soils in the planning area are primarily the product of the climate, the underlying bedrock lithology, and the landscape. They are the subject of three Natural Resource Conservation Service (NRCS) Soil Surveys: Pinal County – Western Part (NRCS 1991); Pima County – Eastern Part (NRCS 2003); Tohono O'odham Nation – Parts of Maricopa, Pima, and Pinal Counties (NRCS 1999).

The soils of this region support some of the designated uses of public lands such as recreation, wildlife management, livestock grazing, and mining. The soil associations mapped by NRCS for the region are closely correlated to the various landforms of the planning area. Soils in the planning area are defined as sensitive and/or fragile if they are rated highly or severely erodible by wind or water (Map 3-2: Sensitive and Fragile Soils). The soils of greatest concern are those in the severe and mixed classes. These soils make up about half of the IFNM as shown in Table 3-3. Sensitive and/or fragile soils do not include biological soil crusts or desert varnish and pavement areas, as these soil features have not been comprehensively inventoried, nor mapped, within the IFNM. Problems with sensitive and fragile soils are compounded when they are close to surface water channels and sources. When eroded sediments flow directly into arroyos and stream channels, subsequent increases in sediment can be dramatic. These eroded soils can be deposited on the surface of active alluvial fans by mudflow, debris flow, and normal stream channel processes within the IFNM (Scarborourgh 2002). This is a concern because increases in sediment can make water unsuitable for beneficial uses, such as irrigation or livestock and wildlife watering.

Table 3-3: Acres of Erosive Soils

Wind Erodibility Group	Dust Prone Class	Acres	Percentage of BLM Lands
3	Severe	18,978	14.8%
4	Severe	588	0.5%
5	Severe	8,008	6.2%
6	Mixed	35,114	27.3%
	Total Severe	27,574	21.5%
	Total Sever and Mixed	62,688	48.8%
	Not Prone to Dust	65,712	51.2%

More than half of the planning area is composed of fan terraces. The soils in fan terraces are used primarily for rangeland; fan terrace landforms are relatively smooth alluvial fans that have been incised by drainages. Basin floors primarily form the perimeter of the planning area and areas between mountain ranges in the planning area, such as Avra Valley. Basin soils are very deep and well drained, with a moderately fine texture, formed in unconsolidated material or granite. Piedmont soils are prevalent in the rolling hills and mountains of the planning area, covering approximately one third of the planning area in Pima County. These soils are shallow and well drained, and often contain gravel.

Prime farmland is a distinction made by the U.S. Department of Agriculture as necessary for the preservation of the Nation's domestic food and other supplies, specifically the capacity to preserve high yields of food, seed, forage, fiber, and oilseed, with minimal agricultural amendment of the soil, adequate water, and a sufficient growing season. The planning area does not contain soils that qualify as prime farmland soils.

Sensitive and Fragile Soils

Ironwood Forest National Monument
PRMP/FEIS

Legend

Soils

Soils Highly Prone to Wind Erosion and Fugitive Dust When Disturbed
(Ground disturbing activities may be prohibited or restricted, or special measures may be required to prevent or minimize the generation of fugitive dust.)

Surface Management

- Bureau of Land Management
- National Park Service
- Bureau of Reclamation
- American Indian Reservation
- Military Reservation
- State Trust Land
- State, County, City; Wildlife, Park and Outdoor Recreation Area
- Private
- Pima County

Data Source:
Soils: Natural Resources Conservation Service - BLM 2006
Base Information: BLM 2003
Quadrangle Image: US Geological Survey 1977 Tucson

General Reference

- County Boundary
- CAP Canal
- River
- Interstate 10
- Main public access routes to monument. County administered roads connecting monument travel route system to public highways.

Planning Area

- Ironwood Forest National Monument

Universal Tranverse Mercator
Zone 12, Units Meters
Clark 1866 Spheroid
NAD27 Datum
No warranty is made by the Bureau of Land Management (BLM) for the use of this map for purposes not intended by BLM, or to the accuracy, reliability, or completeness of the information shown. Spatial information may not meet National Map Accuracy Standards. This information may be updated without notification.

0 1 2 4 Miles
0 2 4 8 Kilometers

Location in Arizona



P:\BLM\Ironwood\GIS\Plots\PRMP_FEIS\Chapter_3\Soils.pdf

Map 3-2

Biological soil crusts can be composed of cyanobacteria, green algae, lichens, mosses, microfungi, and other bacteria (Belnap et al. 2001). Biological soil crusts lie dormant most of the time but are physiologically "awakened" with rainfall, and these organisms typically remain active for only a day or two before the soil surface again dries. The properties of biological soil crusts make soils less susceptible to erosion; however, they are easily damaged and slow to recover (Phillips and Comus 2000). Functionally, biological soil crusts tend to fix nitrogen and contribute to the sparse nutrients available to desert plants. Biological soil crust occurrence in the planning area was noted in a geological survey performed for the BLM (Scarborough 2003). Biological soil crusts require considerable time to revegetate when disturbed—up to 56 years according to one study (Kade and Warren 2002). Damage caused by less-frequent and less-intensive disturbance may be more easily corrected. Vehicle tires are particularly destructive to biological soil crusts (Belnap et al. 2001; Kade and Warren 2002).

Desert pavement is a flat surface covered with a more or less complete layer of pebbles, gravel, or rocks that are varnished by a slow accumulation of black films and clear protein-rich coatings where exposed to air. Small patches of weakly varnished youthful desert pavement occur in the IFNM, but display very little true varnish effects. Varnished pavements occur in two areas: (1) on the bajada on the south side of the West Silver Bell Mountains and (2) on the west side of the Sawtooth Mountains, where the most extensive and interesting varnished pavements occur. The latter site has been disrupted by road and tower construction for the dual powerlines that cross Aguirre Valley (Scarborough 2003).

3.1.3.2 Water Resources

3.1.3.2.1 Groundwater

In the arid Southwest, most rural communities and individual residents rely entirely upon groundwater for domestic and other noncommercial water uses. The Groundwater Management Act of 1980 gives the State of Arizona authority to regulate the beneficial use of groundwater, as administered by the Arizona Department of Water Resources (ADWR). Under the Groundwater Management Act, specific groundwater management regions, or Active Management Areas (AMAs), were delineated, in which groundwater usage was to be managed such as to attain or preserve a "safe yield" of groundwater withdrawal. Safe yield is defined by the annual amount of water discharged, balanced by the amount of natural and engineered recharge to the AMA aquifer system. Two of these AMAs, the Pinal AMA and the Tucson AMA, are within the boundaries of the IFNM.

Groundwater within and around the planning area serves a variety of beneficial uses, including a number of other public land resources (Table 3-4). However, exclusive of irrigation, Pinal County is still primarily supplied by wells (78 percent). Irrigation in Pinal County consumes the highest percentage of groundwater (89 percent), even though surface water use is higher. About a quarter of the groundwater use in Pima County goes to irrigation; over half of the groundwater use in Pima County goes to domestic/municipal uses.

The abundance of soil moisture and shallow groundwater presence vary greatly from location to location. However, both of these water sources are essential to rangeland and ecological health. Therefore, the best assessment of the current conditions of soils moisture in the IFNM is through the existing allotment assessments. These allotment assessments are discussed in Section 3.2.2, Livestock Grazing.

In the Pinal AMA, ADWR recognizes five groundwater subbasins (ADWR 1999a). Groundwater-level lowering has caused subsidence, earth fissuring, and ground collapse in the region. The primary areas of subsidence in central Arizona include the Harquahala Plain, Luke Air Force Base area, the Stanfield area (11.8 feet in 1977), Eloy, Queen Creek/Apache Junction, and Picacho (Carpenter 1999). Subsidence in Avra Valley also has been postulated (ADWR 1999b). Based on computer models used by USGS, subsidence from groundwater pumping in portions of central Arizona could reach 12 feet by 2025 (ADWR 1998).

Table 3-4: Water Use in Pima and Pinal Counties

Water Resource Use Units are million gallons/day unless otherwise indicated	Counties		Subbasins		
	Pima	Pinal	Lower Santa Cruz	Brawley Wash	Aguirre Valley
Public Supply					
Total population, in thousands	752.43	131.21	51.40	29.95	0.98
Population served by groundwater, in thousands	726.08	101.71	44.81	19.61	0
Population served by surface water, in thousands	0	1.95	0	0	0
Per-capita withdrawal, in gallons per day	142.08	147.50	147.96	113.72	0
Commercial Water Use					
Total withdrawals, groundwater	9.28	3.20	3.95	0	0
Domestic Water Use					
Per-capita use, self-supplied, in gallons per day	110.82	140.47	139.61	110.25	112.24
Per-capita use, public-supplied, in gallons per day	82.77	82.19	65.61	68.84	0
Industrial Water Use					
Total withdrawals plus deliveries	20.29	1.18	4.88	7.12	0
Reclaimed wastewater	1.57	0	0	0	0
Thermoelectric Power Water Use (Fossil Fuel)					
Total withdrawals, groundwater	1.17	0.31	0.31	0	0
Power generation, gigawatt hours	564.44	98.91	98.91	0	0
Number of facilities	3	1	1.00	0	0
Thermoelectric Power Water Use (Nuclear)					
Power generation, gigawatt hours	0	0	0	0	0
Reclaimed wastewater	0	0	0	0	0
Number of facilities	0	0	0	0	0
Mining Water Use					
Total withdrawals, groundwater	35.39	21.87	1.03	0.19	0
Total withdrawals, surface water	1.11	0.17	0.00	0	0
Livestock Water Use (Total)					
Total withdrawals, groundwater	0.88	11.53	0.11	2.77	0.09
Total withdrawals, surface water	0.03	0.01	0	0	0
Irrigation Water Use					
Total withdrawals, groundwater	58.28	443.40	160.28	13.39	0
Total withdrawals, surface water	35.25	761.87	329.14	0	0
Consumptive use, total	60.83	605.05	252.68	8.62	0
Conveyance loss	13.15	180.77	73.41	2	0
Acres irrigated, total, in thousands	29.33	255.24	106.49	4.27	0
Reclaimed wastewater	7.41	2.86	3.77	0	0
Hydroelectric Power Water Use					
Instream water use	0	0	0.00	0	0
Power generation, total, gigawatt hours	0	0	0.00	0	0
Number of facilities, total	0	0	0.00	0	0
Wastewater Treatment					
Returns by public wastewater facilities	51.71	4.62	2.76	0.8	0
Reclaimed wastewater released by publicly owned treatment works	9.99	2.92	2.16	0	0
Number of wastewater facilities, total	26	68	22.00	2	0
Totals					
Total withdrawals, groundwater	227.37	499.84	178.08	26.76	0.20
Total withdrawals, surface water	36.39	762.33	329.14	0	0
Reclaimed wastewater	8.98	2.86	3.77	0	0
Conveyance losses	13.15	180.77	73.41	2	0

SOURCE: Solley et al. 1998

Issues related to the quality of shallow groundwater in areas throughout the planning area are primarily related to the infiltration of agricultural wastewater. The combination of irrigation seepage and dissolution and the high evaporation rates of central Arizona tend to concentrate salts in groundwater. Although not regulated, high total dissolved solids can make water unsuitable for certain uses. Nitrates from agricultural operations also might be migrating with groundwater.

The Tucson AMA report lists exceedance of the groundwater standard for nitrate from wells "northwest of Marana," which would be down slope of the IFNM boundary. Groundwater beneath the north end of Brawley Wash also is cited in the same report as high in nitrate and total dissolved solids (salt) concentration. The perched water bodies are the most likely source of agriculturally derived pollutants.

ASARCO Silver Bell Mining LLC operates three open-pit mines adjacent to and down gradient from the IFNM. The company has applied for an ADEQ Aquifer Protection Permit that requires the determination of baseline water quality for the aquifers most likely to be affected by the mine. Since the mine is hydrogeologically down gradient, there is little likelihood of any impact on the eastern and southern parts of the IFNM.

There are no wells located within the IFNM that are routinely monitored by either ADEQ or the USGS. Two wells near the east boundary that appear in the Environmental Protection Agency's STORET database were last sampled in January of 1998. Nitrate ranged from 3.5 to 9.6 milligrams per liter, below the Arizona Aquifer Water Quality Standard of 10 milligrams per liter, indicating there were no groundwater quality problems related to nitrate in the IFNM at that time.

3.1.3.2.2 Surface Water

Although perennial surface water is uncommon in central Arizona, ephemeral, intermittent, and effluent-dependent (including irrigation return flow) streams and standing water are common and essential components of surface water in desert washes. Desert washes primarily function as areas of overland flow collection and recharge for the surrounding watershed (Osterkamp 1994). Ephemeral pools, either in-channel or in the uplands (i.e., tinajas), are essential as to provide watering sites for wildlife and to support amphibians and aquatic invertebrates. There are parts of four USGS subbasins in the planning area (Map 3-3: Surface Water Basin). Surface water flows within the IFNM are entirely ephemeral. In addition to these naturally occurring intermittent flows, there are 59 developed livestock water sources maintained by ranchers and 15 developed wildlife waters maintained by the AGFD in the IFNM.

During the late 1800s, the Santa Cruz River underwent a period of pronounced arroyo entrenchment associated with changes in agricultural practices and land use. During that time, streamflows in the region were diverted by tribes in the area. Modifications to streamflow included dams and diversions of the Santa Cruz River to irrigate crops and the pumping of river water from wells near the banks (Minckley 1999).

3.1.4 Vegetation

Classification of the biological communities of the IFNM follows the Brown, Lowe, and Pace system (1979). Community descriptions are based on Brown (1994) and Dimmitt et al. (2003).

3.1.4.1 Upland Plant Communities

3.1.4.1.1 Sonoran Desertscrub

Shreve (1951) recognized two subdivisions of Sonoran desertscrub vegetation: the Arizona Upland and Lower Colorado River Valley. Transitional plant communities found in the planning area possess characteristics of both subdivisions. The subdivisions and their minor communities are discussed below and shown on Map 3-4: Vegetation.

Arizona Upland Subdivision: This subdivision, which occupies about one-half of the IFNM, is characterized by saguaros and legume trees growing on slopes and bajadas. Plants dominating the landscape are primarily a combination of paloverde and saguaro or paloverde and mixed cacti. There are two minor plant communities within this subdivision.

- *Paloverde-Cacti – Mixed Scrub*. This community is dominated by foothill paloverde (*Cercidium microphyllum*) with scattered cacti, mostly saguaro, and contains other associated species such as mesquite and ironwood. It occurs as patches of dense vegetation, with a well-developed canopy layer interspersed with open areas, and is suitable habitat for a wide variety of wildlife, especially birds.
- *Jojoba Chaparral*. This minor community is found only near the summit of Silver Bell Peak in the IFNM. The dominant plant, jojoba (*Simmondsia chinensis*), forms continuous stands that have the same form and structure as chaparral.

Lower Colorado River Valley Subdivision: This subdivision occupies about one-half of the IFNM. It is composed mostly of creosotebush and bursage, and is found in broad valleys between mountain ranges. Slopes are covered with low, open vegetation, with the lower bajadas and valley floors supporting scattered saguaros and ironwoods. This subdivision has one minor plant community:

- *Creosotebush–White Bursage*. This community consists of medium to low, open vegetation cover dominated by creosotebush (*Larrea tridentata*) and white bursage (*Ambrosia dumosa*). Scattered triangle-leaf bursage (*Ambrosia deltoidea*), ocotillo (*Fouquieria splendens*), and prickly pear (*Opuntia* spp.) are also present.

3.1.4.1.2 Riparian and Xeroriparian Plant Communities

Although the IFNM has no riparian areas (as defined by Technical Reference 1737-15: Riparian Area Management), xeroriparian communities exist. Xeroriparian areas are identified in the planning area are shown on Map 3-4. The term “xeroriparian” (dry wash) is used to describe this plant community within the IFNM because both riparian scrublands and riparian woodlands lack surface water most of the year. Washes have surface water only immediately following winter and summer rains, when runoff carries seeds and nutrients into the washes, resulting in increased soil moisture and greater densities of plant and animal life than adjacent lands. All washes are important as wildlife movement corridors and provide more habitat components for nesting, foraging, cover, and food than adjacent uplands. Vegetation in the xeroriparian areas is composed of a combination of low mesquite and catclaw. Some washes have mesquites; others are dominated by either blue paloverde or ironwood, or a combination of both.

3.1.4.2 Priority Plant Communities

Priority plant communities, identified and described by Dimmitt et al. (2003), occur on approximately 39,647 acres within the planning area. These communities were found to be sensitive because of their rarity, ecological diversity, or vulnerability to disturbance by human trampling, fire, or invasion by exotic plants. These communities, identified on Map 3-4 as Sensitive and Unique Vegetation Communities, include the following:

- *Dense Patches*. These areas support above-average densities of saguaro and ironwood trees, species that contribute to the uniqueness of the community as well as being important to the overall health of the ecosystems of which they are a part.

Surface Water Basins

Ironwood Forest National Monument
PRMP/FEIS

Legend

Wash

Hydrographic Unit Codes

- Lower Santa Cruz (USGS Cataloging Unit: 15050303)
- Brawley Wash (USGS Cataloging Unit: 15050304)
- Aguirre Valley (USGS Cataloging Unit: 15050305)
- Santa Rosa Wash (USGS Cataloging Unit: 15050306)

R6E R7E R8E R9E R10E R11E

T9S T10S T11S T12S T13S T14S

Sunland Gin Rd.
Greene Reservoir Rd.
Curtis Rd.
Picacho Hwy.
Baumgartner Rd.
Cripple Creek Rd.
CAP CANAL
Aries Dr.
Coachway Rd.
Sasco Rd.
TOHONO O'ODHAM NATION BOUNDARY
Pinal County
Pima County
Trico-Marana Rd.
Silverbell Rd.
El Tiro Rd.
Pump Station Rd.
Trico Rd.
Avra Valley Rd.
Anway Rd.
Twin Peaks Rd.
CAP CANAL
Manville Rd.
Reservation Rd.
Mile Wide Rd.
Sandario Rd.

Universal Tranverse Mercator
Zone 12, Units Meters
Clark 1866 Spheroid
NAD27 Datum
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0 1 2 4 Miles
0 2 4 8 Kilometers

Location in Arizona



Data Source:
Hydrology: BLM 2003
Base Information: BLM 2003
Quadrangle Image: US Geological Survey 1977 Tucson

General Reference

- County Boundary
- Central Arizona Project (CAP) Canal
- River
- Interstate 10
- Main public access routes to monument. County administered roads connecting monument travel route system to public highways.

Planning Area

- Ironwood Forest National Monument

P:\BLM\Ironwood\GIS\Plots\PRMP_FEIS\Chapter_3\SurfaceWater.pdf

Map 3-3

Vegetation

Ironwood Forest National Monument
PRMP/FEIS

Legend

Upland Plant Communities

Sonoran Desertscrub

Arizona Upland Subdivision

- Paloverde - Cacti-Mixed Scrub
- Jojoba Chaparral

Lower Colorado River Valley Subdivision

- Cresotebush - White Bursage

Wetland Plant Communities

- Xeroriparian

Other Classifications

- Sensitive and Unique Vegetation Communities
- Agricultural Land

Data Source:
Vegetation: Brown and Lowe 1980
Sensitive Vegetation: ASDM 2003
Agricultural Land: AZGAP 1996
Xeroriparian Inventory: Harris 2000 *
*Inventory for Pima County Only.
Base Information: BLM 2003
Quadrangle Image: US Geological Survey 1977 Tucson

General Reference

- County Boundary
- Central Arizona Project (CAP) Canal
- River
- Interstate 10
- Main public access routes to monument. County administered roads connecting monument travel route system to public highways.

Planning Area

- Ironwood Forest National Monument

Universal Tranverse Mercator
Zone 12, Units Meters
Clark 1866 Spheroid
NAD27 Datum

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0 1 2 4 Miles

0 2 4 8 Kilometers

Location in Arizona



P:\BLM\Ironwood\GIS\Plots\PRMP_FEIS\Chapter_3\Vegetation.pdf

Map 3-4

- *Large Ironwoods.* The largest individuals of this species occur in lower elevation valley drainages. They are also found in braided washes and non-channelized, sheet-flooded areas.
- *Jojoba Chaparral*. This community, described previously, is a rare occurrence in the planning area. It is undetermined whether this community is a true chaparral or an unusual association of the Arizona Upland Subdivision.
- *Xeroriparian.* Xeroriparian plant communities are dense ribbons of vegetation in washes supported by seasonal surface water. The dominant tree is typically mesquite, but paloverde or ironwood may also dominate, or a mixture of all three species may be present equally.
- *Cactus Dunes.* This unique community is located southwest of the Sawtooth Mountains where flat, loose, pinkish sand is densely vegetated with several cactus species and scattered foothill paloverde trees.
- *Curly-Mesquite Grassland.* This community, consisting of a large, nearly pure stand of curly-mesquite grass, is found in the Roskruge Mountains. Most lower elevation desert grasslands have been converted into desertscrub communities that include saguaros, foothill paloverde trees, and triangle-leaf bursage.
- *Cholla Forests.* These dense stands of cholla occur in several areas of the IFNM, with the largest such area in the Pan Quemado Mountains. An intermittent band of chainfruit cholla nearly encircles these mountains.
- *Creosote Rings.* Rings of creosotebush are found near the north end of the Silver Bell Mountains. Individual plants exhibit clone-like growth through new growth from the old base of old stems that then spread outward in the shape of a circular or elliptical ring. Generally, radiocarbon dating of old individuals is possible, and many have been dated as old as several thousand years (Robichaux 1999).
- *Ragged Top.* A total of 401 plant species have been found on Ragged Top, which is approximately 72 percent of the total flora found in the IFNM. The high diversity, structure, and composition of plants in this area support both a high abundance and high diversity of wildlife. Though not a vegetation community, Ragged Top is a sensitive and unique area.

In addition to these priority plant communities, there is value to dead and decaying plant material within all plant communities for the provision of nest sites and nest material, feeding sites, escape cover, habitat for ground-dwelling wildlife, and soil nutrients. A biological survey for the IFNM found that the production and decay rates of downed woody material are very slow in the Sonoran Desert. In the case of ironwood trees, the availability of dead and downed wood is low because this is a long-lived species and individual trees are typically widely spaced, although the decay cycle can take centuries, providing long-term value to certain wildlife species (Dimmitt 2000). In another study conducted in Sonoran Desert National Monument, researchers found that after mortality, foothill paloverde and saguaro were major contributors to increasing localized soil fertility during the decomposition process, whereas triangle-leaf bursage and creosote were low to moderate suppliers of soil nutrients and barrel cactus was an insignificant soil nutrient producer post-mortem. The differences may be due to biomass quality (Butterfield and Briggs 2008). There are also indirect values associated with dead and decaying plant material. The dead and downed wood of the IFNM provides habitat for a number of small mammals and reptiles which, in turn, provide prey for predators such as the cactus ferruginous pygmy owl.

3.1.4.3 Agricultural Lands

In addition to the native vegetative communities, approximately 1,200 acres of agricultural fields have been identified in the western portion of the planning area, located on both State Trust and private lands. These fields, which currently are being farmed, have few characteristics of natural plant communities,

except for incidental plants growing along the perimeter and along irrigation canals. Mostly non-native and other weedy species initially invade abandoned fields. Eventually a few native species from adjacent lands may become established. Agricultural lands are shown on Map 3-4.

3.1.4.4 Non-native Vegetation

Based on vegetation surveys conducted, 54 non-native plant species occur within the IFNM. Some of these species may be able to quickly invade areas and out-compete native species. Nine non-native species established in the monument are considered to pose the greatest threat, which include buffelgrass (*Pennisetum ciliare*), Sahara mustard (*Brassica tournefortii*) and Bermuda grass (*Cynodon dactylon*).

The potential for non-native species to become invasive is often difficult to predict. In a study conducted near Tucson, an approximately 800-acre natural area was surveyed for exotic (non-native) plant species in 1983 and the survey was repeated 22 years later in 2005. During that time, the proportion of ornamental exotics doubled even though eight species documented in 1983 were no longer found in the study area in 2005. Two of the species encountered in 2005 had become invasive since the 1983 survey, but three invasive species had declined, potential in response to climatic factors. Historical documents regarding the study site (which was founded as a biological research station in the early 1900s) indicate that the number of exotic flora increased from a total of 4 in 1909 to 52 in 1991 (Bowers et al. 2006). Studies such as these demonstrate the dynamic nature of non-native species and the challenges that they may represent in controlling or eradicating them.

3.1.5 Wildlife and Wildlife Habitat

The fauna of the IFNM include a diversity of game and nongame wildlife species, as well as migratory birds, typically found in the Sonoran Desert. Several species are restricted to certain locales within the biotic subdivisions; others occur widely in suitable habitats of both subdivisions described in Section 3.1.4. An example is the desert tortoise, which occurs in suitable habitat of both the Arizona Upland and Lower Colorado River Valley subdivisions. The ironwood-bursage habitat in the Silver Bell Mountains is associated with more than 674 species, including 64 mammalian and 57 bird species (BLM 2001). These species are typical of Sonoran desertscrub habitats in southern Arizona. Bird and wildlife species, in addition to those referenced, also may occur within the IFNM. Additional research and studies may also discover species as indicated in the Proclamation.

3.1.5.1 Game Species

Big game species known to occur in the planning area include desert bighorn sheep, mule deer, and javelina. Small game species that occur in the planning area include desert cottontails, jackrabbits, and quail.

The desert bighorn sheep prefer the rocky, mountainous habitats in the IFNM, primarily the Silver Bell Mountains. Sheep typically use the highest ridges of the mountains as a lookout. Desert bighorn sheep diet consists of shrubs, forbs, cacti and grasses. Globemallow, desert agaves, range ratany, buckwheat, foothill paloverde, prickly pear, desert ironwood, and elephant tree also are consumed by desert bighorn sheep (Tarango et al. 2002). Lambing areas are primarily selected to provide safety from predators as well as to provide distance from human disturbances. Individuals from the Silver Bell herd have been documented crossing valley floors from one mountain to another inside the IFNM. Several ewes were observed during the non-breeding season, browsing along the lower bajada of the Silver Bell Mountains (Jansen 2004).

According to 2004 data provided by AGFD, sheep lambing and female concentration areas are regarded as potential birthing sites depending on individual female preference, and are not considered discrete units. Travel corridors are used infrequently, and at times, a preference is shown by animals that make repeated and habitual movements from one mountain range to another (Jansen 2004).

BLM has a rangewide plan for managing desert bighorn sheep habitat on public land. Based on viability estimates, BLM has classified bighorn sheep habitat into three categories:

Category 1: Habitats where existing viable populations occur

Category 2: Habitats where remnant herds occur and are capable of supporting more than 80 individuals

Category 3: Unoccupied habitat that is capable of supporting more than 80 individuals.

The goal of BLM's rangewide plan for managing desert bighorn sheep is to maintain and/or enhance habitat for bighorn sheep in Category 1 areas, enhance habitat in Category 2 areas, and maintain and enhance habitat to allow reintroduction and reestablishment of viable populations in Category 3 areas (USDI, BLM 1988). The IFNM includes habitat within each of the three categories.

Mule deer are primarily browsers, with a majority of their diet composed of forbs (herbaceous plants excluding grasses) and browse (e.g., woody plants like shrubs). Across the xeric habitat of the IFNM where mule deer are found, which occurs throughout the IFNM, they rely on three key habitat components: cover, water, and available food year-round. Ideal habitat for mule deer includes components that are interspersed in such a way that they provide adequate nutrition and cover to reproduce successfully (Hoffmeister 1986).

Javelina are commonly found in the desertscrub, especially in thickets near or along streambeds or washes and along bajadas adjacent to rocky hillsides. These are used for cover and retreat from potential predators and human disturbances. Javelina travel in herds and typically utilize the washes to move from one location to another on a daily basis. Thick stands of cacti provide both food and moisture. Plants commonly found in javelina habitat include prickly pear, paloverde, mesquite, jojoba, catclaw, and ocotillo. In creosote-bursage-paloverde–mixed cacti communities, prickly pear made up 95 percent of their diet (Hoffmeister 1986).

Typically, small game species prefer habitats that provide thick, brushy vegetation mixed with grasses, forbs, and browse. Populations of small game species that occur on the IFNM include Gambel's quail (*Callipepla gambelii*), desert cottontail (*Sylvilagus audubonii*), eastern cottontail (*Sylvilagus floridanus*), white-winged dove (*Zenaida asiatica*), mourning dove (*Zenaida macroura*), blacktail jackrabbit (*Lepus californicus*), and antelope jackrabbit (*Lepus alleni*).

3.1.5.2 Non-game Species

Vegetation provides foraging, roosting, and nesting habitat for a vast array of non-game species including songbirds and raptors found in the IFNM. There is a strong correlation between bird species diversity and abundance, and density and structure of vegetation. In general, increased complexity of the ecosystem increases bird abundance and diversity. Migration and breeding periods change the abundance and types of birds that occupy the IFNM at any given time. Due to lack of permanent surface water, aquatic birds are not often found except as incidental occurrences. However, at least 70 upland bird species are known to occur in the Silver Bell Mountains alone. The most frequently observed resident bird species have been cactus wren (*Campylorhynchus brunneicapillus*), gilded flicker (*Colaptes chrysoides*), Gila woodpecker (*Melanerpes uropygialis*), curve-billed thrasher (*Toxostoma curvirostre*), and black-throated sparrow

(*Amphispiza bilineata*). Bird species within the monument use xeroriparian habitat and other areas with dense shrubby vegetation for breeding, foraging, and nesting.

One amphibian and 29 reptiles were observed in the IFNM during the 2002 desert tortoise survey (Averill-Murray and Averill-Murray 2002). The most frequently observed reptiles were western whiptail lizard (*Cnemidophorus tigris*), common side-blotched lizard (*Uta stansburiana*), and zebra-tailed lizard (*Callisaurus draconoides*). Several possible eastern fence lizards (*Sceloporus undulatus*) were observed in the desert flats in the southern portion of the IFNM. The Colorado River toad (*Bufo alvarius*) was an incidental occurrence found along the roadside.

In 2003, a total of 29 different species of reptiles and amphibians were observed in the IFNM (Rosen 2003). Rosen states in his report that the best populations of true desert reptiles occur in the Sawtooth Mountains region, and on valley floors. They include the desert iguana (*Dipsoosaurus dorsalis*), long-tailed brush lizard (*Urosaurus graciosus*), four species of desert horned lizards (*Phrynosoma* spp.) and spiny lizards (*Sceloporus* spp.), western shovel-nosed snake (*Chionactis occipitalis*), spotted leaf-nosed snake (*Phyllorhynchus decurtatus*- not confirmed), speckled rattlesnake (*Crotalus mitchellii*- not observed during survey), and chuckwalla (*Sauromalus obesus*). The lesser earless lizard (*Holbrookia maculata*) and the Sonoran spotted whiptail (*Cnemidophorus* [=*Aspidoscelis*] Sonoras) were found only in desert grassland habitats in the Roskruge Mountains area. In this desert grassland community, the plant composition is a blend of dry tropic scrub plants, typical Sonoran Desert plants, and perennial grasses. The only amphibian documented in the IFNM was the Colorado River toad (*Bufo alvarius*), which was found along the eastern bajada of the Roskruge Mountains and in Aguirre Valley (Rosen 2003).

3.1.5.3 Migratory Birds

Various species of migratory birds summer, winter, and/or migrate through the IFNM. The habitat diversity provided by the broad expanses of Sonoran Desertscrub vegetation zones (including paloverde-cacti-mixed scrub, jojoba chaparral, creosote-white bursage, and xeroriparian communities) support numerous species of migratory birds. The most characteristic species include turkey vulture (*Cathartes aura*), northern harrier (*Circus cyaneus*), Cooper's hawk (*Accipiter cooperii*), white-winged dove (*Zenaida asiatica*), elf owl (*Micrathene whitneyi*), lesser nighthawk (*Chordeiles acutipennis*), black-chinned hummingbird (*Archilochus alexandri*), ash-throated flycatcher (*Myiarchus cinerascens*), purple martin (*Progne subis*), Bell's vireo (*Vireo atricapillus*), Lucy's warbler (*Vermivora luciae*), and sage sparrow (*Amphispiza belli*). Species such as killdeer (*Charadrius vociferous*), great blue heron (*Ardea herodias*), mallard (*Anas platyrhynchos*), and black-necked stilt (*Himantopus mexicanus*) may be found where suitable habitat exists (Phillips 1964). BLM considers migratory birds to include those listed in 50 CFR 10.13 (Wildlife and Fisheries, List of Migratory Birds).

3.1.5.4 Habitat Connectivity and Fragmentation

Land use patterns on the IFNM influence wildlife habitat connectivity. Factors contributing to fragmentation of wildlife habitats within the IFNM include roads, residential development, mines, undocumented immigrant (UDI) traffic, and off-road driving. As a result of fragmentation, habitats which were once continuous become divided into smaller isolated patches of habitat.

The primary function of wildlife corridors is to connect fragmented habitat areas, which moderates some of the ecological effects of habitat fragmentation. All washes in the IFNM serve as corridors for wildlife. These corridors facilitate dispersal of individuals between patches of remaining habitat, allowing for both long-term genetic interchange and individuals to re-colonize habitat patches from which populations have been locally extirpated. Wildlife corridors could connect habitats between the Silver Bell Mountains, West Silver Bell Mountains, and Sawtooth Mountains. Regional and statewide habitat corridors that connect to the IFNM have been identified by Arizona's Linkages Workgroup (Arizona Wildlife Linkages

Workgroup 2006). This includes potential habitat corridors between the IFNM and Picacho State Park (Arizona Wildlife Linkages Workgroup 2006). Future efforts and reports from Arizona's Wildlife Linkages Workgroup could aid in a landscape-level, multijurisdictional approach to wildlife corridor conservation and management in the IFNM.

3.1.6 Special Status Species

Special status species include the following: (1) species currently listed or considered for listing as threatened or endangered by USFWS; (2) species listed as sensitive by BLM; (3) species listed as Wildlife of Special Concern in Arizona by AGFD; (4) Priority Vulnerable Species in Pima County; and (5) plants that have special protection under the Arizona Native Plant Law. Federally listed and proposed species and their designated or proposed critical habitats receive protection under the Endangered Species Act of 1973, as amended. The BLM Sensitive Species are those species that may or may not have Federal status (under the Endangered Species Act), but are designated by the BLM State Director for special management consideration. Pima County's list of Priority Vulnerable Species includes species addressed in the biological evaluation for the Sonoran Desert Conservation Plan. The Wildlife of Special Concern in Arizona are those species whose occurrence in Arizona is or may be in jeopardy, or those species with known or perceived threats or population declines, as described by the AGFD. The AGFD list is intended to guide management decisions that involve these species.

As identified by BLM, USFWS, AGFD, and Pima County's Sonoran Desert Conservation Plan, 122 special status species occur in Pima and Pinal Counties. Of this total, two species with Federal status have the potential of occurring in the planning area: lesser long-nosed bat and Nichol Turk's head cactus. Of those special status species that are not federally listed, 36 with potential of occurring in the planning area have been identified, and are included below in Table 3-5.

Table 3-5: Special Status Species that Occur or Have the Potential of Occurring in the IFNM

Name of Species	Status	Habitat Requirements
Amphibians		
Lowland leopard frog *Rana yavapaiensis*	SC, WSCA	Desert, grasslands, permanent pools of foothill streams, rivers, and permanent stock tanks.
Birds		
Abert's towhee *Pipilo aberti*	SC, PV	Sonoran riparian deciduous woodland and riparian scrubland with a dense understory of shrubs.
American peregrine falcon *Falco peregrinus anatum*	SC, S, WSCA	Found in Arizona wherever sufficient prey is found near cliffs. Optimum peregrine habitat is generally considered to be steep, sheer cliffs overlooking woodlands, riparian areas or other habitats supporting avian prey species in abundance. As Arizona's population grows, peregrines seem to be breeding in less optimal habitat; either small broken cliffs in ponderosa pine forest or large, sheer cliffs in very xeric areas. The presence of an open expanse is critical
Bell's vireo *Vireo belli*	SC, PV	Dense, low, shrubby vegetation in riparian areas. Typically found in dense shrubland or woodland along lowland stream courses with willows, mesquites, and seep willows.
Cactus ferruginous pygmy-owl *Glaucidium brasilianum cactorum*	S, WSCA	Streamside cottonwoods and willows and adjacent mesquite bosques, usually with saguaros on nearby slopes. Less often found along dry washes with large mesquite, paloverde, ironwood, and saguaro.

Name of Species	Status	Habitat Requirements
Crested caracara *Caracara cheriway*	WSCA	Open country, including pastureland, cultivated areas, and semidesert, in both arid and moist habitats but more commonly in the former. Habitat characterized by low-profile ground vegetation and scattered tall vegetation suitable for nesting. Scattered trees, poles, and fences with unimpeded view favored as perches, particularly near nest sites. In Arizona, inhabits paloverde-saguaro desert. They can frequently be found near stock tanks and *charcos* (puddles or natural pools), especially during the hot, dry summer.
Mississippi kite *Ictinia mississippiensis*	WSCA	Tall forest, open woodland, prairie, semiarid rangeland, shelterbelts, wooded areas bordering lakes and streams in more open regions, scrubby oaks and mesquite, and lowland/floodplain forests. Requires open areas near nesting sites for foraging. Breeding habitat in Arizona consists of riparian deciduous forests that border desertscrub upland habitats. Man-made habitat in central Arizona consists of pecan orchards.
Rufous-winged sparrow *Aimophila carpalis*	PV	Flat or gently hilly desertscrub. Grasses like tobosa grass are essential components. Territories typically include some riparian and xeroriparian habitat, farmland, and deep soil sites (mesquites with clumps of sacaton grass).
Swainson's hawk *Buteo swainsoni*	SC, PV	Open grasslands and desertscrub that sustains a grassland component.
Tropical kingbird *Tyrannus melancholicus*	WSCA	Areas with scattered trees, savanna, open woodland, forest edge, plantations, residential areas and agricultural lands. Occurs in lowlands near water in Arizona, often nests in cottonwoods.
Western burrowing owl *Athene cunicularia hypugaea*	SC, S, PV	Grasslands, pastures, desertscrub, and edges of agricultural fields and vacant lots.
Invertebrates		
Talus snails *Sonorella baboquivariensis berryi*	PV	Isolated, undisturbed areas of rocks, generally, or exclusively, limestone, mostly, but not exclusively, on north-facing or north-trending slopes, usually near hilltops or in rocky canyons. Located in Roskruge Mountains area.
Mammals		
Big free-tailed bat *Nyctinomops macrotis*	SC, S	Desertscrub, ponderosa pine, and piñon-juniper. Prefers to roost in rugged, rocky areas in desertscrub with vegetation components consisting of saguaro, creosotebush, and mesquite.
California leaf-nosed bat *Macrotus californicus*	SC, S, WSCA	Typically found in several habitats of desertscrub. Roosts in mines and caves. Feeds on insects. This species neither hibernates nor migrates, spending winters in warm, humid caves or mine tunnels.
Cave myotis *Myotis velifer*	SC, S	Mine shafts, tunnels, caves, and under bridges in desert areas of creosotebush, paloverde, brittlebush, and cactus. More commonly found in xeric areas, never more than a few miles/kilometers away from a water source. Forages low over vegetation in pursuit of moths and other insects.
Greater western mastiff *Eumops perotis californicus*	SC	Resident in Arizona year-round; it lives in manmade and natural crevices, typically in desertscrub. Feeds on insects. Long forage periods of up to 6.5 hours each night.
Lesser long-nosed bat *Leptonycteris curasoae yerbabuenae*	LE, S, WSCA	Mainly grasslands and shrublands, chaparral, and lower-elevation oak woodland and associated habitats. In Arizona, are found mostly in areas with flowering saguaros and organ pipe cactus at elevations below about 3,500 feet.

Name of Species	Status	Habitat Requirements
Mesquite mouse *Peromyscus merriami*	PV	Mesquite mouse is found almost entirely in mesquite forests or bosques in Pima, Pinal, and Santa Cruz Counties. It is rarely seen in dry brushland.
Mexican long-tongued bat *Choeronycteris mexicana*	SC, S, WSCA	Mainly in oak-pine communities but also found in saguaro-paloverde associations in desertscrub. Caves and abandoned mine shafts are typical roosts. Feeds on nectar and pollen, but occasionally insects.
Pale Townsend's big-eared bat *Plecotus townsendii pallescens*	SC	Typically roosts in caves, mines, and abandoned buildings through a range of elevations and vegetation communities. Found in the Arizona Upland and Lower Colorado River Valley subdivisions of Sonoran desertscrub. Feeds primarily on moths, but will also take insects off of vegetation while in flight.
Pocketed free-tailed bat *Nyctinomops femorosaccus*	S	Roosts in caves, buildings, and crevices along rocky cliffs in semiarid desert lands. Feeds mostly on moths and other insects.
Western red bat *Lasiurus blossevillii*	WSCA	Broadleaf riparian deciduous forests and woodlands. Occasionally roosts in saguaro boots and other cavities, but more commonly in dense clumps of foliage in riparian or wooded areas. Feeds mainly on flying insects.
Western small-footed myotis *Myotis ciliolabrum*	SC, S	Oaks, chaparral, and riparian areas, but not in desertscrub in the southwestern part of the state. Hibernates in caves and old mines; summers in crevices, cracks, holes, under rocks, and in buildings. Feeds on insects.
Western yellow bat *Lasiurus xanthinus*	WSCA	Not clearly understood; may be associated with Washington fan palm trees, other palms or other leafy vegetation such as sycamores, hackberries and cottonwoods which provide roost sites. Individuals have been found roosting about 15 feet above the ground in a hackberry (*Celtis reticulata*) and sycamores (*Platanus wrightii*).
Yuma myotis *Myotis yumanensis*	SC	In summer, found near water, where it forages for insects. Prefers to roost in old buildings and abandoned cliff swallow nests. Rarely roosts in caves or mines.
Plants		
Aravaipa wood fern *Thelypteris puberula* var. *sonorensis*	S	Moist soil in the shade of boulders in mesic canyons. Also found on riverbanks, seepage areas, and meadow habitats at elevations ranging from 2,200 to 4,500 feet. Substrates are exclusively granitic. Easily disturbed and can be affected by during collection for landscape use or by livestock grazing.
Arizona giant sedge *Carex spissa* var. *ultra*	S	Saturated soil near or in perennial seeps, streams, and springs at elevations between 2,500 and 6,000 feet.
Arizona Sonoran rosewood *Vauquelinia californica* ssp. *sonorensis*	S	Known from southwestern Arizona in the Ajo, Diablo, Mesquite, and Santa Rosa mountains of Pima County, and Sand Tank Mountains of Maricopa County. Desertscrub and desert grassland, in woodland or forest at base of cliffs, along canyon bottoms and on moderate to steep slopes from 2,328 – 3,720 feet.
Bartram stonecrop *Graptopetalum bartramii*	S	Known from Santa Cruz County: Patagonia, Santa Rita and Tumacacori Mountains; Pima County: Baboquivari, Dragoon, Mule and Rincon Mountains; Cochise County: Chiricahua Mountains. Occurs in cracks in rocky outcrops in shrub live oak-grassland communities along meandering arroyos on sides of rugged canyons from 3,650 - 6,700 feet. Usually found in heavy litter cover and shade where moisture drips from rocks, often with Madrean evergreen woodland.

Name of Species	Status	Habitat Requirements
California barrel cactus *Ferocactus cylindraceus* var. *cylindraceus*	SR	Found on gravelly or rocky hillsides, canyon walls, alluvial fans, and wash margins in the Mohave and Sonoran deserts, on igneous and limestone substrates.
Common fishhook cactus *Mammillaria tetrancistra*	SR	Known from Mojave and Sonoran Deserts, alluvium and outcrops, valley floors, hills, mountainsides.
Candy barrel cactus *Ferocactus wislizeni*	SR	Barrel cactus is primarily found in desert grassland and desert shrub habitats in the Sonoran and Chihuahuan deserts. It also extends into communities at higher elevations in interior chaparral and is found in the Madrean evergreen woodland in encinal woodlands with a mixture of evergreen oaks (*Quercus* spp.) and junipers (*Juniperus* spp.)
Dollarjoint pricklypear *Opuntia chlorotica*	SR	Desert grasslands, woodlands, chaparral, desert flats, rocky ledges, hills, canyons.
Emory's barrel cactus *Ferocactus emoryi*	SR	Known from hillsides, wash margins, alluvial fans, mesas, or flats, gravelly rocky or sandy soils, rocky slopes and adjacent bajadas, Sonoran desert scrub, igneous substrates
Engelmann's hedgehog cactus *Echinocereus engelmannii*	SR	Known from the Sonoran and Mojave deserts, chaparral, piñon-juniper woodlands.
Engelmann's pricklypear *Opuntia engelmannii* var. *engelmannii*	SR	Found on deserts, grasslands, woodlands, plains, sandy soils to rocky hillsides, lower to midslopes of mountains.
False grama *Cathestecum erectum*	S	Dry, rocky hills and plains, in tropical and subtropical communities. Populations associated with saguaro, goldenhills, and desert hibiscus. Ragged Top Mountain is the only location for this plant in Arizona.
Gentry indigo bush *Dalea tentaculoides*	SC, S, HS	Along canyon bottoms on primary terraces subject to occasional flooding. Possibly on rocky slopes at elevations between 3,600 and 4,000 feet.
Graham nipple cactus *Mammillaria grahamii*	SR	Chihuahuan and Sonoran desert scrub, grasslands, interior chaparral, oak woodlands, alluvial slopes, hills, canyons, silty, sandy, gravelly, or rocky soils of igneous or calcareous origin
Lemmon cloak fern *Notholaena lemmonii*	SC	Limestone cliff crevices, slopes, and cliffs of igneous rocks usually on granitic or volcanic substrates at elevations ranging from 2,840 to 6,000 feet. Associated species include desert grasslands and oak woodland species. Fairly restricted to Tucson Basin area, Santa Cruz River.
Magenta-flower hedgehog cactus *Echinocerus fasciculatus.*	SR	Three varieties of this species occur in Pima County: one occurs in sand, gravel, and rocks of hillsides and washes in the desert; one occurs mostly in desert grassland; the third overlaps desert and grassland. Elevations range from 2,000 to 6,000 feet collectively. *E.f.* var. *fasciculatus* and *E.f.* var. *boyce-thompsonii* have the potential of occurring in the IFNM.
Needle-spined pineapple cactus *Echinomastus erectocentrus* var. *erectocentrus*	SC, SR	Alluvial fans usually associated with limestone in upper desert grasslands at elevations ranging from 3,000 to 4,300 feet.
Nichol hedgehog cactus *Echinocereus nicholii*	SR	Known from Arizona Upland Subdivision of Sonoran Desert, exposed slopes, bajadas, hills, mountains, desert scrub, igneous and sedimentary substrates

Name of Species	Status	Habitat Requirements
Nichol Turk's head cactus *Echinocactus horizonthalonius* var. *nicholii*	LE, HS	Desertscrub on limestone outcropping and limestone-derived soils in incline terraces, saddles, and alluvial fans at elevations from 2,400 to 4,100 feet. The range of the Nichol Turk's head cactus is restricted to the Vekol and Waterman Mountains in Arizona.
Night-Blooming cereus *Peniocereus greggii*	SR	Desert flats and washes, often in the shade of desert shrubs like creosote.
Organ pipe cactus *Stenocereus thurberi*	SR	Widespread in Sonoran Desert, adjacent thorn forests mostly on hills and bajadas
Pima Indian mallow *Abutilon parishii*	SC, SR	Steep, rocky slopes and canyon bottoms in desertscrub and semidesert grassland at elevations between 2,477 and 4,856 feet. Found in the Silver Bell and Roskruge Mountains
Pima pineapple cactus *Coryphantha scheeri* var. *robustispina*	LE	Along ridges in semidesert grasslands and alluvial fans in the Arizona Upland subdivision of Sonoran desertscrub at elevations ranging from 2,300 to 5,000 feet. Occurs on flat ridgetops with little slope and in soils that are mostly rocky loams.
Purple pricklypear *Opuntia macrocentra*	SR	Desert uplands, grasslands, oak woodlands, sandy desert flats, rocky hills and valleys.
Saguaro *Cereus giganteus*	HS, SR	Saguaro cactus are known from rocky or gravelly soils located throughout the foothills, and canyons. The saguaro is generally located on the south-facing slopes where it is protected from the winter cold. Crested saguaro are listed Highly Safeguarded under the Arizona Native Plant Law.
Thornber fishhook cactus *Mammillaria thornberi*	SR	Known from Sonoran desert, grasslands, bajadas, valleys, washes, and alluvial fans.
Tulip pricklypear *Opuntia phaeacantha*	SR	Deserts, chaparral, surrounding mountains, plains, sandy to rocky soils.
Tumamoc globeberry *Tumamoca macdougalii*	S, SR	This species occurs in xeric situations, in the shade of a variety of nurse plants along gullies and sandy washes of hills and valleys in Sonoran desertscrub and Sinaloan thornscrub communities.
Reptiles		
Chuckwalla *Sauromalus ater*	S	Known from Western half of the state. An interior population is found south of the Gila and Salt Rivers including the Gila, Maricopa, Santan, and South Mountains, and the Tule Desert. Predominantly found near cliffs, boulders or rocky slopes, where they use rocks as basking sites and rock crevices for shelter from sea level to 6,000 feet. They can be found in rocky desert, lava flows, hillsides and outcrops. Creosote bush occurs throughout most of range.
Desert tortoise (Sonoran population) *Gopherus agassizii*	SC, S, WSCA	Paloverde–saguaro cactus communities in the Arizona Upland and Lower Colorado River Valley subdivisions of Sonoran desertscrub. Requires firm, but not hard, ground for construction of burrows or uses shelters among rocks and exposed, eroded caliche layers in walls of washes. Also requires adequate ground moisture for survival of eggs and young; and herbs, grass, cacti, and other plants for food. Frequents washes and rocky slopes. Populations of tortoises are documented within the IFNM.
Giant spotted whiptail *Cnemidophorus burti stictogrammus*	S, PV	Grassy portions of riparian areas, mountain canyons, arroyos, and mesas in arid and semiarid regions. Prefers dense, shrubby vegetation, often among rocks near permanent and intermittent streams. Feeds on insects and spiders.

Name of Species	Status	Habitat Requirements
Ground snake *Sonora semiannulata*	PV	Mostly near mountains with higher slopes and areas with poorly drained soils. Vegetation may be sparse or dense, from creosotebush to mesquite thickets. On the Tohono O'odham Reservation, the snake has been found in tobosa grass communities over silty, loamy clay soils. Diet includes eggs, adult vertebrates, and arthropods.
Mexican rosy boa *Charina trivirgata trivirgata*	SC, S	Rocky shrublands and desert. Attracted to water sources, but is not dependent on permanent water. Has been observed on blacktop roads in rocky canyons or along rocky buttes or lower mountain slopes. Diet includes small mammals, reptiles, amphibians, and birds.
Red-backed whiptail *Cnemidophorus burti xanthonotus*	SC, S	Portions of western Pima County from juniper-oak woodland down to desert edge, among dense shrubby vegetation near or on banks of semiarid permanent springs and arroyos, and in canyons. In Pima County, habitat also includes rocky slopes from 2,000 to 4,000 feet. Occasionally seen in semidesert grassland. Feeds on insects and spiders.
Texas horned lizard *Phrynosoma cornutum*	SC, S	In Arizona, Chihuahuan Desert and desert-grassland; sandy to gravelly flat ground with or without rocky cover, usually with scattered desert and grassland shrubs or on mesquite dominated flats. Often found in habitat with the round-tailed horned lizard (*Phrynosoma modestum*).
Tucson shovel-nosed snake *Chionactis occipitalis klauberi*	PV	Open sandy sites, flat and sparsely vegetated areas of xeroriparian communities of the Arizona Upland and Lower Colorado River Valley subdivisions of Sonoran desertscrub. Common associated vegetation includes creosotebush, desert grasses, forbs, cacti, and mesquite. It is absent or infrequent in rocky desert terrain.

SOURCES: The federally listed species list was obtained from the U.S. Fish and Wildlife Service, Arizona Ecological Service Field Office Website. Priority Vulnerable Species were obtained from the Pima County Sonoran Desert Conservation Plan. All other sensitive species lists were obtained from AGFD's Heritage Data Management System website and response to the AGFD coordination letter.

STATUS DEFINITIONS: LE= Federally listed as Endangered; LT= Federally listed as Threatened; PE= Federally proposed as Endangered; C= Federal Candidate; SC= Federal Species of Concern; S= BLM Sensitive; WSCA= Wildlife of Special Concern in Arizona (AGFD 1996); PV= Priority Vulnerable Species, Pima County's Sonoran Desert Conservation Plan; SR= Salvage Restricted under Arizona Native Plant Law; HS= Highly Safeguarded under Arizona Native Plant Law.

The following are special status species known to occur in the IFNM and are most pertinent to the goals and objectives and alternatives under consideration in this plan. They include two Federal endangered species (Nichol Turk's head cactus and lesser long-nosed bat), two wildlife species of concern in Arizona (Sonoran desert tortoise (Sonoran population) and cactus ferruginous pygmy owl), and one species considered as priority vulnerable under Pima County's Sonoran Desert Conservation Plan (Tucson shovel-nosed snake).

3.1.6.1 Federally Listed Species

3.1.6.1.1 Nichol Turk's Head Cactus (Echinocactus horizonthalonius var. *nicholii).*

The Nichol Turk's head cactus has been listed as endangered by the USFWS since 1979. It currently occupies two areas in south-central Arizona: the Waterman Mountains in the IFNM and the Vekol Mountains in southwestern Pinal County.

In the IFNM, it occurs in limestone-derived alluvium between 2,000 and 3,600 feet in elevation. The IFNM contains approximately 5,000 acres of suitable habitat (USDI, BLM 1986a). The cactus is patchily distributed within the IFNM; occurrence ranges from rare to locally abundant, with three major concentrations documented within the Waterman Mountains ACEC (Dimmitt et al. 2003). The Waterman Mountains ACEC contains approximately 1,900 acres of suitable habitat for the Nichol Turk's head cactus. A recovery plan for the plant, completed in 1986, identified the following threats: (1) mining, (2) off-highway vehicle (OHV) use, (3) collecting, and (4) other factors, such as damage from bullets when it is used for target shooting. The Nichol Turk's Head Cactus Habitat Management Plan, which was completed in 1986, identified the following management objectives: (1) protect the habitat, (2) provide optimum habitat for naturally occurring populations, and (3) assist in the recovery of the plant (USDI, BLM 1986a).

3.1.6.1.2 Lesser Long-nosed Bat (Leptonycteris curasoae yerbabuenae).

The lesser long-nosed bat was listed as endangered by the USFWS in 1988. It is a migratory species that migrates into northern Sonora, Mexico, and southern Arizona each spring to establish maternity roosts, or colonies, where female bats congregate and give birth to their young. While in southern Arizona, the bats occupy desertscrub, semidesert grassland, and oak woodlands, where they forage in areas of saguaro, ocotillo, paloverde, prickly pear, and (later in the summer) among agaves at elevations between 3,500 and 5,500 feet. The bat is capable of flying distances of 30 miles (48 kilometers) or more one way during a single night's foraging excursion. They roost in caves, mines, and occasionally in old buildings. Known maternity roost sites occur at four locations along the United States/Mexico border. In the planning area, occasional sightings have been reported, but no maternity roosts have been documented. The closest maternity roost site to the IFNM is at Old Mammon Mine, located approximately 10 miles (16 kilometers) southwest of the Sawtooth Mountains. Based on a report by the Arizona Sonoran Desert Museum, "historically, 10,000 bats were known to occupy this roost" (ASDM 2003). Estimated exit counts from 1991 to 2000 have varied from 3,600 to 6,000 bats (USFWS 1994).

Recent surveys have determined that nectar bats utilize the IFNM as night roosts and foraging areas (Averill-Murray and Averill-Murray 2002; Krebbs and Petryszyn 2003). Between December 2001 and May 2003, studies were conducted by Arizona Sonoran Desert Museum and the University of Arizona to determine presence of foraging and roosting bats inside the IFNM (Krebbs and Petryszyn 2003). Results showed that a night roost for nectar bats was located in the Waterman Mountains, and a nectar bat was heard and observed for two evenings in the Ragged Top area. According to the report, there could be more nectar bats utilizing the area, and the IFNM may be an important stopover area for migrating bats (Krebbs and Petryszyn 2003).

Disturbance of roost sites is often deleterious to lesser long-nosed bats. Lesser long-nosed bats often abandon roosts sites with minimal levels of human disturbance. The use of only a small number of communal roosts by lesser long-nosed bats makes them particularly vulnerable to adverse effects from disturbance. Additionally, lesser long-nosed bats are thought to be negatively affected by excess harvest of agaves and the conversion of habitat for agricultural uses, livestock grazing, wood-cutting, and other development uses. Excessive browsing on the flower stalks of agaves by wildlife and livestock has also been suggested as possibly decreasing foraging opportunities and thus contributing to declines among these bats (USFWS 1994). Within IFNM, biological surveys have found that the density of agave is extremely low, and there was no observed impact from livestock on the limited number of agave or on the recruitment of young saguaro into the population (Dimmitt et al. 2003). Though cattle grazing remains a potential threat to the welfare of habitat for the lesser long-nosed bat throughout its range where excessive browsing on the flower stalks occurs (by wildlife or livestock), this was not a documented threat in the IFNM.

3.1.6.2 Other Special Status Species

3.1.6.2.1 Desert Tortoise – Sonoran Population (Gopherus agassizii)

The Sonoran desert tortoise is listed by BLM as a sensitive species and by AGFD as a wildlife species of concern in Arizona. It is found south and east of the Colorado River, from locations near Pearce Ferry in Mojave County, to the south beyond the international border, and at many scattered locations in between. The tortoise occurs primarily on rocky slopes and bajadas of Sonoran desertscrub consisting of paloverde–mixed cacti associations at elevations up to approximately 5,400 feet. Mostly herbivorous, they consume grasses, cacti, composite flowers, forbs, succulents, and parts of trees and shrubs. They eat many of the same plants as cattle, burros, deer, and bighorn sheep, wherein there is some potential for competition if food sources are limited. Native plants tend to provide better nutrition for tortoise than exotics. Tortoises and their primary habitat (paloverde-mixed cacti of the Arizona Upland Subdivision of the Sonoran Desert) are not fire-adapted. Important habitat components include suitable shelter sites, suitable forage plants, and unfragmented habitat (AGFD 2001). BLM has categorized habitat in the IFNM for the Sonoran desert tortoise as shown on Map 3-5: Sonoran Desert Tortoise Habitat, based on the criteria listed in Table 3-6 below.

Table 3-6: Sonoran Desert Tortoise Habitat Within the IFNM

	Category 1	Category 2	Category 3
Criterion 1: Importance of the habitat to maintaining viable populations	Habitat areas essential to maintenance of large, viable populations	Habitat area may be essential to maintenance of viable populations	Habitat area not essential to maintenance or viable populations
Criterion 2: Resolvability of management conflicts	Conflicts resolvable	Most conflicts resolvable	Most conflicts not resolvable
Criterion 3: Perceived desert tortoise density	Medium to high density or low density contiguous with medium or high density	Medium to high density or low density contiguous with medium or high density	Low to medium density not contiguous with medium or high density
Criterion 4: Population status	Increasing, stable, or decreasing populations	Stable or decreasing populations	Stable or decreasing populations
Acres[1]	14,540	30,890	35,350

SOURCES: BLM 2003b; Averill-Murray and Averill-Murray 2002.
NOTE: [1] Acres based on BLM surface managed lands.

Sonoran desert tortoises are particularly vulnerable to human activities because of the limited nature of their population numbers and habitats. They can move long distances (more than 3 miles), and they need homes that include hillsides with boulders. Expansion of urban areas and encroachment of recreation, roads, grazing, mining, and fire have adversely impacted some areas (USDI, BLM 1988). Tortoises tend to get run over by vehicles, picked up, illegally collected, shot, attacked by dogs, and vandalized. The proliferation of vehicle routes can fragment their habitat and increase mortality, collection and vandalism. Loss of reproductive-aged adults is the most serious threat to their populations. Upper respiratory disease, cutaneous dyskeratosis (a fungal shell disease), and a herpes virus also are threats to the species in some areas (Brown et al. 1994). Tortoise populations tend not to bounce back from mortality events as they have a low reproductive potential. Subsidized predators such as unleashed or feral dogs can have serious impacts locally.

Currently, desert tortoises are found in eight mountain ranges within the IFNM: West Silver Bell Mountains, Sawtooth Mountains, Silver Bell Mountains (including Ragged Top), Samaniego Hills, Waterman Mountains, Pan Quemado, Roskruge Mountains, and near Malpais Hill (Averill-Murray and Averill-Murray 2002). According to AGFD, the population density of tortoises has been the highest in the West Silver Bell Mountains, Ragged Top (Silver Bell Mountains), and the Sawtooth Mountains. These

Sonoran Desert Tortoise Habitat Management Units

Ironwood Forest National Monument
PRMP/FEIS

Legend

Habitat Category

- Category 1
- Category 2
- Category 3

Data Source:
Habitat Information: BLM 2003
Base Information: BLM 2003
Quadrangle Image: US Geological Survey 1977 Tucson

General Reference

- County Boundary
- Central Arizona Project (CAP) Canal
- River
- Interstate
- Main public access routes to monument. County administered roads connecting monument travel route system to public highways.

Planning Area

- Ironwood Forest National Monument

Universal Tranverse Mercator
Zone 12, Units Meters
Clark 1866 Spheroid
NAD27 Datum
No warranty is made by the Bureau of Land Management (BLM) for the use of this map for purposes not intended by BLM, or to the accuracy, reliability, or completeness of the information shown. Spatial information may not meet National Map Accuracy Standards. This information may be updated without notification.

0 1 2 4 Miles
0 2 4 8 Kilometers

Location in Arizona



P:\BLM\Ironwood\GIS\Plots\PRMP_FEIS\Chapter_3\Tortoise.pdf

Map 3-5

mountains may have more emigration and immigration. In addition, low-density areas (Samaniego Hills, Waterman Mountains, Roskruge Mountains, and Pan Quemado) may be more dependent on immigration for long-term stability (Averill-Murray 2004; Averill-Murray and Averill-Murray 2002).

3.1.6.2.2 Cactus Ferruginous Pygmy-Owl (Glaucidium brasilianum cactorum)

The cactus ferruginous pygmy-owl is listed by BLM as a sensitive species and by AGFD as a wildlife species of concern in Arizona. The historic range of the cactus ferruginous pygmy-owl in Arizona extends north from the U.S.-Mexico border to New River, to the Gila Box (East) and to the Cabeza Prieta Mountains (West). The current documented distribution of pygmy-owls is limited to Pima and Pinal counties. Within its range in Arizona, the cactus ferruginous pygmy-owl currently occupies riparian woodlands, mesquite bosques, Sonoran desertscrub, semidesert grasslands, and Sonoran savanna grassland communities below 4,000 feet (USFWS 2003). Their diet includes other birds, lizards, insects, and small mammals. In desertscrub communities, plant diversity, composition, and structure play a critical role in providing the most suitable habitat components for the owl. In addition, habitat connectivity between currently occupied areas in northwest Tucson and the Tohono O'odham Nation is important. Typically, riparian corridors are used for movement, protection, cover, and foraging.

The cactus ferruginous pygmy-owl is threatened by present and potential future destruction and modification of its habitat throughout a significant portion of its range in Arizona. The destruction of riparian woodlands played a role in the decline of pygmy-owls in Arizona. Current threats to the cactus ferruginous pygmy-owl in Arizona include the loss and fragmentation of upland and xeroriparian vegetation from large scale and commercial developments. Wildland fires alter desert habitat, destroying saguaro, trees, and other important habitat components. Dispersing pygmy-owls may avoid non-vegetated areas such as golf courses, residential developments, and roads. Human-caused mortality has been documented. Such incidents include collisions with windows and fences, shootings, and predation by domestic cats. Human activities near nests at critical periods of the nesting cycle may cause pygmy-owls to abandon their nest sites. Outdoor recreational activities such as OHV and motor bike use, firearm target practicing, and jeep tours may disturb pygmy-owls.

3.1.6.2.3 Tucson Shovel-nosed Snake (Chionactis occipitalis klauberi)

The Tucson shovel-nosed snake is listed by Pima County as a priority vulnerable species and the USFWS has issued a 90-day finding that the species may warrant listing as a threatened or endangered species protected by the ESA. The Tucson shovel-nosed snake is distributed from west of Tucson northward along Avra Valley to Pinal County. Its current range in the IFNM is poorly known. However, the area between the West Silver Bell Mountains and the Santa Rosa Mountains may have supported this species. It is believed to be eliminated from Avra Valley due to habitat loss and most of its range now lies in southern Pinal County.

The primary habitat is sandy-silty flats on valley floors and, sand dunes below 2,200 feet. This species also will frequent washes and rocky hillsides where there are sand gullies or pockets of sand among the rocks. There may be limited vegetation, consisting mostly of creosote, desert grasses, cacti, mesquite and other shrubs. The diet consists of cockroaches, crickets, spiders, scorpions, centipedes, buried moth larvae and other insects.

The Tucson shovel-nosed snake exists only in lowland valley floors which are rapidly diminishing due to clearing for agriculture and development. Preservation of this habitat is the biggest factor in halting the decline of this subspecies. Off-road vehicle activities could adversely impact this species. Road building could destroy and fragment habitat, while increased traffic could increase road kills. The species is being considered for protection under the Sonoran Desert Conservation Plan, currently being developed by Pima County.

3.1.6.3 Migratory Birds

Various species of migratory birds summer, winter, and/or migrate through the IFNM. The habitat diversity provided by the broad expanses of Sonoran Desertscrub vegetation zones (including paloverde-cacti-mixed scrub, jojoba chaparral, creosote-white bursage, and xeroriparian communities) support numerous species of migratory birds. The most characteristic species include turkey vulture (*Cathartes aura*), northern harrier (*Circus cyaneus*), Cooper's hawk (*Accipiter cooperii*), white-winged dove (*Zenaida asiatica*), elf owl (*Micrathene whitneyi*), lesser nighthawk (*Chordeiles acutipennis*), black-chinned hummingbird (*Archilochus alexandri*), ash-throated flycatcher (*Myiarchus cinerascens*), purple martin (*Progne subis*), Bell's vireo (*Vireo atricapillus*), Lucy's warbler (*Vermivora luciae*), and sage sparrow (*Amphispiza belli*). Species such as killdeer (*Charadrius vociferous*), great blue heron (*Ardea herodias*), mallard (*Anas platyrhynchos*), and black-necked stilt (*Himantopus mexicanus*) may be found where suitable habitat exists.

3.1.7 Fire Ecology and Management

The BLM categorizes historic/natural fire regimes current for fire conditions in Arizona based on the results of a nationwide coarse-scale assessment and mapping effort (Schmidt et al. 2002; USGS 1999). In Arizona, BLM lands fall into four of the five identified historic/natural fire regimes, ranging from Category I (0 to 35 year frequency and low severity) to Category IV (35 to 100+ year frequency, stand replacement severity). The IFNM is characterized as a Category III historic/natural fire regime (i.e., having a 35- to 100-year frequency with a mixed severity of fires).

The current condition classes include Class 1 (i.e., lands where vegetation species, composition, and structure are intact and functioning within historic range), Class 2 (i.e., lands where fire size, frequency, intensity, severity, and/or landscape pattern and vegetation have been moderately modified), and Class 3 (i.e., lands where fire size, frequency, intensity, severity, and/or landscape pattern and vegetation have been significantly altered from historical range). All of the lands within the IFNM Decision and planning areas are designated as current condition Class 1. The BLM's Arizona Statewide Land Use Plan Amendment for Fire, Fuels and Air Quality Management provides general direction for fire management to meet statewide goals (USDI, BLM 2003a). Fuels treatments would occur on a case-by-case basis, generally in areas where treatments would be necessary for removal of invasive or exotic species.

3.1.8 Cultural Resources

Research in the Tucson vicinity and southern Arizona has outlined the cultural history of the region (Reid and Whittlesey 1997). Human occupation of the area can be separated into six periods that represent changing adaptations and lifeways. These include the Paleoindian (circa 12,000–8000 B.C.), Archaic (circa 8000–1500 B.C.), Late Archaic/Early Agricultural (circa 1500 B.C.–A.D. 650), Formative (circa A.D. 650–1400), Ethnohistoric (aboriginal protohistoric and historic, circa A.D. 1400–1950), and Euro-American historic (circa A.D. 1500–1950) eras.

Paleoindian occupation began at least as early as 12,000 B.C. during the late Pleistocene era when expansive ice sheets were retreating from the North American continent. Paleoindians hunted species that became extinct at the end of the Ice Age, such as mammoths. Although significant Paleoindian hunting sites have been found in southeastern Arizona, evidence of the Paleoindian era in the vicinity of the IFNM is limited to isolated spear points (Agenbroad 1967; Ayres 1970; Doelle 1985; Huckell 1984).

The subsequent Archaic era, beginning at approximately 8000 B.C., represents an adaptation based on hunting wild game and gathering indigenous plant foods within a climatic regime similar to modern conditions (Sayles 1983; Sayles and Antevs 1941).

Several Late Archaic/Early Agricultural era sites have been discovered along the course of the Santa Cruz River southeast of the IFNM (Gregory and Mabry 1998; Mabry et al. 1997). Late Archaic/Early Agricultural sites on the Santa Cruz River include some of the oldest canal systems and oldest pottery vessels found in southern Arizona (Gregory 1999; Heidke 1997; Heidke and Ferg 1998; Mabry 1999).

Sites of the Formative era dominate the regional archaeological record. These sites reflect an adaptation focused on farming villages, although wild game and indigenous plant foods continued to be exploited. Around A.D. 500, a culture known as the Hohokam began to flourish and occupied much of what is today southern and central Arizona for approximately a millennium. Marine shell jewelry, obsidian flaked stone artifacts, turquoise, copper bells, and macaws indicate the Hohokam traveled well beyond their core area of settlement or traded with groups in surrounding areas.

The current condition of cultural resources is characterized by discussing three indicators: (1) inventory and evaluation, (2) threats to the historical integrity of resources and responses to those threats, and (3) public and professional interpretation of cultural resources.

3.1.8.1 Extent of Inventory and Evaluation

Cultural resource survey is labor intensive and costly, and simple inventory and evaluation is a major challenge for managing cultural resources. Archaeological sites reflecting both prehistoric and historic-era occupation of the region are abundant, and the sites that have been recorded represent only a small percentage of the cultural resources within the IFNM. Twenty-one documented surveys have, in the aggregate, inventoried approximately 21,194 acres (33.1 square miles) for cultural resources within the IFNM (Table 3-7). (Approximately 30 additional cultural investigations have been conducted in the IFNM, but are not well documented.) The surveys encompass about 12 percent of the public land and about 9 percent of the nonpublic lands within the IFNM.

Table 3-7: Summary of Cultural Resource Inventory Data

	State and Private Lands	Federal Public Lands (Surface Estate)	Planning Area (Entire IFNM)
Size (acres)	60,221	128,398	188,619
Size (square miles)	94	201	295
Surveyed for cultural resources (acres)	5,622	15,572	21,194
Surveyed for cultural resources (square miles)	8.8	24.3	33.1
Percentage surveyed	9.3%	12.1%	11.2%
Recorded cultural resources	64	279	343
Density (sites/square mile)	7	11	10
Projected number of resources	700	2,300	3,000

SOURCES: AZSITE 2003; Dart and Gibson 1988; Gibson 1987a, 1987b; Heilen 2004; U.S. Department of the Interior, Bureau of Land Management 2004a

NOTE: Numerous errors regarding site jurisdiction were noted in the AZSITE database. Jurisdiction was determined by overlaying a current geographic information system jurisdictional map onto the site locations. If any part of a site was on public land, it was treated as being within the decision area. BLM has no authority or responsibility to manage cultural resources on State Trust and private lands within IFNM.

The various surveys within the IFNM have recorded a total of 343 archaeological and historical sites. More than 80 percent of the recorded sites (279) are on BLM surface estate, and the other are on State Trust land (61) and private lands. The average density is about 11 sites per square mile on public land and about 7 sites per square mile on State and private land. The survey data suggest there could be approximately 3,000 sites within the IFNM (with about 2,300 on the BLM surface estate. The University of Arizona recently completed a more statistically rigorous sample survey that indicates that there could be about twice that many sites within the IFNM (Heilen and Reid 2006). The survey also recorded almost

3,400 isolated finds indicating that there could be on the order of 125,000 isolated artifacts and features within the IFNM.

About 89 percent of the 343 sites recorded within the IFNM reflect the aboriginal occupation of the region, and about 7 percent reflect historical Euro-American occupation. About 3 percent of the sites have both aboriginal and Euro-American components, and the cultural and temporal affiliations of the remaining sites are unknown.

The only possible evidence of Paleoindian occupation identified in the IFNM is a broken spear point found on sites with Archaic and Hohokam components. Five recorded sites have been identified as dating to the Archaic era and 19 other Archaic components have been recognized on other multicomponent sites.

Evidence of the Hohokam occupation of the region dominates the archaeological record of the IFNM; 201 of the recorded sties have been classified as Hohokam or probably Hohokam sites, and 34 other Hohokam components have been recorded at multicomponent sites. The cultural affiliations of 63 other recorded sites and 2 components at sites with historical Euro-American components have been classified as reflecting unidentified prehistoric occupation. Nine sites have been classified as reflecting protohistoric or historic period O'odham use of the IFNM, and 13 other O'odham components have been identified at multicomponent sites. Two components at sites with O'odham components have been tentatively identified as possibly reflecting affiliations with the Patayan culture, which was centered along the lower Colorado River west of the Hohokam territory, and a possible Apache component has been recorded on a Hohokam site.

About 25 to 30 of the sites recorded in the IFNM appear to represent Hohokam habitation sites, ranging from small farmsteads to large villages. Features noted at these sites include trash mounds, roasting pits, rock piles, rock alignments, and petroglyphs (rock art), along with numerous artifacts. A focus of Hohokam habitation that overlaps the northeastern corner of the IFNM has been designated as the Los Robles Archaeological District. About 130 archaeological sites have been recorded within the 20.7-square-mile district. Many of the sites within the district are on State Trust land, including the large villages known as Cerro Prieto and Pan Quemado. The Los Robles platform mound site at the core of the district also in on State Trust land north of the IFNM. Twenty-one of the significant sites within the Los Robles Archaeological District are located on BLM surface estate.

Another Hohokam habitation focus has been designated as the Cocoraque Butte Archaeological District. There are at least two Hohokam habitation sites and many petroglyphs in the district, which encompasses two large buttes, three smaller hills, and the surrounding flats on public and private land in the southeastern part of the IFNM.

Most of the other aboriginal sites appear to reflect seasonal habitation or camps, or temporary work locations where activities such as collection and processing of indigenous resources (such as cactus fruits) were pursued. These sites consist of scatters of artifacts such as broken pottery and pieces of flaked and ground stone. About one-third of the artifact scatters have archaeological features of various types, such as roasting pits, rock piles, rock alignments, clearings, check dams, petroglyphs, stone tool quarries, and bedrock grinding stones. About 45 of the recorded sites have petroglyphs.

A unique historic-period site is the Santa Ana de Cuiquiburitac Mission, which was the location of a *visita* (chapel served by a visiting priest) built in 1810-1811. The building is no longer extant, but artifacts and features are scattered across the site, which also has an O'odham component.

Twenty-four historic-period sites have been classified as having or probably having Euro-American affiliations. These sites include the Silver Bell Cemetery and the alignment of an abandoned railroad that

served the mining town of Silver Bell, located in the Silver Bell Mountains just outside the IFNM. Other Euro-American sites include a gravesite, a camp, three mining prospects, a road segment, and trash scatters. Two minimally recorded sites have yielded no clues about their cultural affiliations.

There is limited information pertaining to specific places within the IFNM identified as having traditional cultural significance, but an inventory study has not been conducted. Tribes with traditional cultural affiliations with the region are known to have concerns about treatment of human remains, funerary objects, sacred objects, and objects of cultural patrimony that are sometimes present within archaeological sites. Members of the Tohono O'odham Nation, which borders the IFNM, also might consider some places within the IFNM that were used traditionally, such as stands of saguaro where fruit was collected, as having cultural significance (Nabhan 1987, 1982). The Cocoraque Butte area is also known to have some significance as a traditional cultural place. BLM plans to work closely with the Tohono O'odham Nation and other concerned tribes to implement cultural resource management that accounts for the extensive historic use of the area by local tribes, and that acknowledges tribal knowledge of and concern for the cultural resources of the IFNM. Additional discussion of tribal interests is provided in Section 3.4.

Prior to the designation of the IFNM, which provides recognition and a measure of protection for all of the cultural resources within the IFNM, three historic properties had been recognized as having special significance by being listed in the National Register of Historic Places (Table 3-8). These include the Los Robles Archaeological District, Cocoraque Butte Archaeological District, and the Santa Ana de Cuiquiburitac Mission Site. The transfer of cultural resources eligible for the National Register is, by regulatory definition, an "adverse effect." BLM approval of the land exchange implies that overall it resulted in public benefits. In 1986, the Arizona State Legislature authorized development of a state park to preserve and publicly interpret the Los Robles Archaeological District, but development of the park was not pursued and it was declassified as a state park in 1988.

Table 3-8: National Register Status of Cultural Resources Recorded within the IFNM

National Register Status	Total Sites	%	Owner			
			BLM	%	Private/ State	%
Properties listed						
Los Robles Archaeological District						
Sites within IFNM identified as contributing properties	53	15%	21	40%	32	60%
Sites within IFNM identified as noncontributing properties	4	1%		0%	4	100%
Sites within IFNM not identified in nomination	1	<1%		0%	1	100%
Subtotal of sites within Los Robles Archaeological District in IFNM[1]	59	17%	21	36%	38	64%
Cocoraque Butte Archaeological District	1	<1%	1	100%		0%
Santa Ana de Cuiquiburitac Mission Site	1	<1%	1	100%		0%
Recommended eligible	175	51%	175	100%		0%
Recommended ineligible	22	6%	22	100%		0%
Unknown or unevaluated	86	25%	59	69%	27	31%
Totals	343	100%	279	81%	64	19%

SOURCES: AZSITE 2003; Dart and Gibson 1988; Gibson 1987a, 1987b; Heilen 2004; U.S. Department of the Interior, Bureau of Land Management 2004a

NOTE: [1] The Los Robles Survey assigned a total of 158 sites numbers. Some of these were combined when site numbers were assigned in the Arizona State Museum survey system. A total of 119 sites with Arizona State Museum numbers are classified as contributing sites in the Los Robles District, and 10 as noncontributing sites. Approximately 45 percent of the sites within the listed district are within IFNM.

The recorders of 175 other sites have recommended that they be considered eligible for the National Register, and 22 sites have been evaluated as ineligible. The eligibility of the remaining sites within the IFNM has not been evaluated.

Subsequent to the issuance of the draft EIS, two surveys inventoried cultural resources along 126.25 miles of selected roads within and adjacent to the INFM (Fischler and French 2007; Whitney and others 2008). The surveys covered 30-foot-wide corridors along approximately 111.5 miles of roadways on Federal public land managed by BLM within the IFNM, 7 miles of roadways on State Trust land within the IFNM, and 7.75 miles on Arizona State Trust land adjacent to the IFNM. With the completion of those surveys, all but about 15 miles that the proposed Alternative C designates as remaining open for motorized use have been inventoried for cultural resources.

The surveys found 10 previously recorded sites and discovered 80 other archaeological and historical sites (Table 3-9). (Thirty-five of the other previously recorded archaeological and historical sites are located along 21.4 miles of roads covered by prior surveys on public land within the INFM.) Fifty-seven of the discovered sites were along roads on public land managed by BLM within the IFNM. Nine of the sites are on State Trust land within the IFNM, and the other 14 sites are on State Trust land adjacent to the IFNM.

Table 3-9: Summary of Supplemental Cultural Resource Road Surveys

	Federal Public Land	State Land within IFNM	State Land adjacent to IFNM	Totals
Extent of Supplemental Survey				
Miles surveyed within IFNM	111.5	7.0	7.75	126.25
Sites Discovered				
Archaic	2	0	0	2
Hohokam artifact scatter	19	5	6	30
Hohokam habitation	3	0	3	6
Prehistoric (unidentified period)	9	0	3	12
Historical O'odham	11	1	0	12
Historical Euro-American	10	2	0	12
Prehistoric/Historic	3	1	2	6
Total Sites Discovered	57	9	14	80
National Register of Historic Places Evaluations				
Recommended eligible	50	9	14	73
Recommended potentially eligible	5	0	0	5
Recommended not eligible	2	0	0	2

The discovered sites were similar to those previously recorded on the IFNM. Fifty of the sites reflect prehistoric occupation of the area. Twelve of those could not be more precisely dated, but 2 were identified as dating to the Archaic period and 36 to the Hohokam period. Twelve sites were identified as historical Tohono O'odham sites, and 12 were identified as historical Euro-American sites. Six sites had both prehistoric and historical components.

Most of the prehistoric sites seem to reflect seasonal camps or temporary use locations, but six sites appear to be remnants of permanently occupied Hohokam habitations. The historical sites include trash dumps, camps, windmills, cairns, mine shafts and prospects, and other features associated with mining and ranching activities.

The BLM has not formally evaluated the National Register eligibility of the 80 discovered sites, but the recorders evaluated 73 of them as having potential to yield important information and recommended that they be considered eligible for the National Register under Criterion D. The recorders recommended that five of the historical Euro-American sites be considered potentially eligible pending the results of further

archival research, and they also concluded that two historical trash dumps had no values that warrant preservation, and recommended that they be considered ineligible for the National Register.

3.1.8.2 Extent of and Responses to Threats

Three factors threaten the integrity of cultural resources, including (1) disturbance or destruction by various types of development projects or land uses (including travel by undocumented immigrants and smugglers), (2) natural erosion, and (3) unauthorized excavating and artifact collecting by vandals or uninformed recreational users.

Review of potential impacts on cultural resources due to authorized uses of public land within what is now the IFNM began in the 1970s in response to the passage of the National Historic Preservation Act. Prior to that time, the most substantial use of the area was related to livestock grazing and prospecting and the most substantial impacts on cultural resources probably were due to development of roads. Projects or land uses reviewed since the 1970s have included electrical transmission lines, microwave communication sites, roads, mineral exploration, range improvements (such as fences, cattle guards, waterlines, and reseeding projects), and an ultralight airfield. The only approved project that has resulted in an adverse effect on cultural resources in the vicinity of IFNM was a land exchange with ASARCO for expansion of the Silver Bell Mine. Three prehistoric and eight historical sites immediately adjacent to IFNM were studied before they were transferred from Federal ownership (Slawson and Ayres 1994, 1992). Two sites on the National Register have sustained notable damage over the last few years. Petroglyphs within the Los Robles Archeological District on BLM land have been vandalized and defaced by imposter (new) petroglyphs. Other sites on State Trust land within the District have also been extensively damaged. BLM regularly monitors this site. The Santa Ana de Cuiquiburitac Mission site was damaged by the creation of an unauthorized immigration route through the foundation of the chapel. In collaboration with the Tohono O'odham Nation, BLM has placed a barrier of approximately 35 boulders around the chapel foundation to prevent vehicular travel across the site. This barrier has proven to be an effective protection measure. Both the BLM and Tohono O'odham Nation currently monitor the site. Additionally, BLM and the Tohono O'odham Nation intensively mapped the site and surface features as part of the stabilization process.

There are only meager data regarding the extent to which erosion is threatening the historic integrity of cultural resources within the IFNM. Responses to the threats of erosion include stabilization and restoration.

Unauthorized collection of cultural materials by persons uninformed of cultural resource protection laws and intentional vandalism, such as target shooting and graffiti, are the most serious threats to cultural resources on public land within the IFNM. However, there is little quantitative data about the extent of the problem. Current responses to the threat of vandalism include site monitoring, reconnaissance, and law enforcement. BLM cooperates with the State Historic Preservation Office in supporting a statewide site-steward program. Volunteers regularly monitor selected sites and report vandalism or other damage to appropriate land managing agencies. This has been one of the most successful strategies for protecting cultural resources on public land. The Tucson Field Office currently is working with approximately six volunteer site stewards and a local landowner who monitor archaeological sites within the IFNM. Sites are monitored throughout the IFNM with a special focus on the Los Robles and Cocoraque Butte Archaeological Districts and Silver Bell Cemetery. When vandal excavations and damaged or stolen cultural materials are noted, they are reported to BLM rangers for follow-up investigations.

Other protection measures include placing signs at sites to inform visitors of laws protecting cultural resources and penalties for unauthorized collection and excavation. The only signs, fences, and gates installed to protect cultural resources within the IFNM are in the vicinity of the Cocoraque Butte Archaeological District; but installation of signs to protect other sites is planned. Administrative measures

such as road closures or special management designations also can be used to protect cultural resources. Roads have been closed at Cocoraque Butte, but these closures have been difficult to enforce.

3.1.8.3 Interpretation of Cultural Resources

The primary motivation for protecting and preserving cultural resources is to enhance public and professional interpretation and appreciation of our cultural heritage. Public interpretation within the IFNM has been limited primarily to occasional guided tours of Hohokam petroglyph sites. Future opportunities for public interpretation include heritage publications, other media products, interpretive signs and kiosks, and visitor centers.

Professional interpretation of cultural resources within the IFNM has been more intensive. The IFNM has been used as an "outdoor laboratory" for training student and avocational archaeologists. University of Arizona faculty and students have conducted two major research investigations of archaeological resources within IFNM. One of these studies involved an extensive survey that documented the Hohokam Los Robles platform mound community and the Cerro Prieto trincheras site, and resulted in the listing of the Los Robles Archaeological District in the National Register (Downum 1993). The second study was a University of Arizona research project that surveyed 5,186 acres in sample parcels distributed throughout the IFNM in order to better understand the distribution of archaeological resources within the IFNM (Heilen 2005; Heilen and Reid 2006). The survey doubled the number of recorded sites within the IFNM. The third study involved an evaluation of the Santa Ana de Cuiquiburitac visita site (Reid and Heilen 2005).

3.1.9 Paleontological Resources

Paleontological resources constitute a fragile and nonrenewable scientific record of the history of life on earth. Once damaged, destroyed, or improperly collected, the scientific and educational values of these resources are reduced greatly or lost forever. In addition to their scientific, educational, and recreational values, paleontological resources can be used to understand interrelationships between the biological and geological components of ecosystems over long periods of time.

The fossils found on public lands are considered part of our national heritage and are therefore afforded protection. Vertebrate fossils or other noteworthy occurrences of invertebrate and plant fossils are considered significant by the BLM. Invertebrate and plant fossils are typically more abundant, and therefore, the BLM does not ordinarily consider them to be of significance.

Areas containing vertebrate fossils or noteworthy occurrences of invertebrate or plant fossils are managed under one of four management classes:

> ***Class 1 (low sensitivity)***: Igneous and metamorphic geologic units and sedimentary geologic units where vertebrate fossils or uncommon nonvertebrate fossils are unlikely to occur
>
> ***Class 2 (moderate sensitivity)***: Sedimentary geologic units that are known to contain or have unknown potential to contain fossils that vary in significance, abundance, and predictable occurrence
>
> ***Class 3 (moderate sensitivity)***: Areas where geologic units are known to contain fossils but have little or no risk of human-caused adverse impacts and/or low risk of natural degradation
>
> ***Class 4 (high sensitivity)***: Areas where geologic units regularly and predictably contain vertebrate fossils and/or uncommon nonvertebrate fossils, and are at risk of natural degradation and/or human-caused adverse impacts

The IFNM is mainly Class 1 and Class 2, though there are a few Class 3 areas. Acres within each management class are summarized in Table 3-10.

Table 3-10: Classification of Lands within the IFNM for Fossil Sensitivity

Management Class	Approximate acres within the Planning Area	Approximate acres administered by BLM
Class 1	62,610	43,800
Class 2	107,050	71,630
Class 3	20,040	12,970

SOURCE: U.S. Department of the Interior, Bureau of Land Management 2005

Paleontological resources in southern Arizona are typically found in the Quaternary deposits. There are a few limited known occurrences of paleontological resources on the IFNM; however, no significant fossils are known to occur within the monument. Several neotoma (packrat) middens located in late Pleistocene and subrecent deposits have yielded various animal and plant species in the Wolcott Peak area of the IFNM (USDI, BLM 1980a). Vertebrate fossils in southern Arizona include remnants of early horses, elephants, dogs, gomphotheres, camels, mammoths, llamas, birds, fish, beavers, rats, foxes, weasels, squirrels, lizards, snakes, chipmunks, mice, gophers, tortoises, bats, marmots, wolves, bears, badgers, skunks, ground sloths, woodchucks, cats, donkeys, rhinoceros, peccaries, deer, elk, and bison. These are typically found in the unconsolidated silt, sand, and gravel deposits of the Quaternary (Holocene and Pleistocene), as well as the Tertiary sedimentary units. Some of these have been discovered during major earth-moving activities, such as during highway and building construction projects. Others have been discovered as ongoing erosional processes expose fossil remnants (Ratkevich 1993; Scarborough 2003; USDI, BLM 1980a). Some of the Jurassic-aged sedimentary units in southern Arizona have yielded fragments of dinosaur (believed to be tritylodontid) and crocodile (McCord and Tegowski 1996). Some Cretaceous-aged dinosaurs (stegosaurian or archosaurian) have been found in the Comobabi Mountains to the west of Tucson (McCord and Tegowski 1996). These older fossils are not abundant, but they may occur in some geologic units in the planning area. Mammal tracks have been reported in Tertiary volcanic sedimentary rocks in the Sawtooth Mountains (Scarborough 2002).

Various invertebrate fossils have been noted in southern Arizona and include corals, brachiopods, gastropods, foraminifera, holothurians, ostracods, bryozoans, crinoids, trilobites, cephalopods, pelecypods, echinoids, blastoids, and others.

The BLM has developed objectives for paleontological resources (BLM Manual H-8270-1, General Procedural Guidance for Paleontological Resource Management) to provide protection of the resources. It is the policy of BLM to manage paleontological resources for these values and to mitigate adverse impacts on them.

3.1.10 Visual Resources

The IFNM is a landscape of contrasts. Its broad, flat valleys are interrupted by rugged, steep-sloped mountains, and punctuated by isolated hills. The gently sloping bajadas that soften the transitions between jagged mountain and valley floor are dissected by dry, desert washes that nevertheless support a variety of colors. A variation of green-hued vegetation is found in abundance, and the reds and yellows of native flowers appear in their seasons. The richness of the ecosystem is manifest in the sometimes dramatic, sometimes subtle variations in colors and textures that cover, yet fail to obscure, the striking landforms that hint at the geological processes that formed this southwestern region of the United States. The sculptural forms of Sonoran Desert cacti add an almost museum quality to some of the landscapes within the IFNM.

The topography of the IFNM is a visually exciting variation of line and form, much of it visible from populated areas in the vicinity of the Monument, including Avra and Santa Cruz valleys, Tucson, Marana, Oro Valley, Casa Grande, and other nearby communities. The prominent landforms within the IFNM—including the Sawtooth, Waterman, Roskruge, Silver Bell, and West Silver Bell Mountains, Pan Quemado, the Samaniego Hills, and the Avra and Aguirre Valleys—vary in elevation from 4,261 feet in the Silver Bell Mountains to 1,800 feet in the valleys. Small hills rising a few hundred feet pleasantly dot the bajadas and valleys, looking like scattered piles of mountain-building material left behind by an untidy artist. Ragged Top is the most prominent landmark, visible from many places in the IFNM. The medium to dark grays of the weathered basalt-rock mountains and hills contrast with the underlying, lighter material exposed by erosion or excavations. Basalt desert pavement occasionally appears is patches on the light gray soils of the bajadas.

The textures and colors of vegetation in the IFNM contribute greatly to its scenic quality. Legumes (foothill paloverde, blue paloverde, and ironwood trees) and saguaros dominate the mountain ranges, and dense stands of ironwood trees populate the bajadas near the Ragged Top, Roskruge, Waterman, and Silver Bell Mountains. Exceptionally large ironwood trees are found in the bajadas north of the West Silver Bell Mountains and east of the Samaniego Hills. A rich understory layer of shrubs and cacti softens the landscape, occasionally joined by the many annuals that appear in abundance in wet years. High quality examples of large and dense dry-wash vegetation of both the Lower Colorado River Valley and Arizona Upland Subdivisions (described in Section 3.1.4) are found in bajadas and flats in Avra Valley, and in the lower elevations of Aguirre Valley. The light browns and neutral tones of the sand and cobble of the washes contrast with a density of greens along the corridors. Relatively vibrant wildflower displays occur seasonally throughout the IFNM, contrasting with the medium to dark browns of the mountains. Vegetation colors vary according to time of year and with rainfall amounts, and are characterized by light, muted green-yellow foliage, and the medium-to-dark grays and browns of branches when plants are out of leaf.

Existing landscape modifications on public land are mainly related to access roads, present mining and past minerals exploration, electric transmission lines and service (distribution) lines, buried pipelines, range improvements (fences, wells, water storage tanks and troughs, corrals, earthen dams, past vegetative treatments, salt licks, and livestock loafing areas), wildlife water developments, mountaintop communication sites, and OHV use tracks. Existing landscape modifications on lands adjacent to and within the planning area include residential development, agricultural fields, public utilities, and modifications related to mining operations. The Silver Bell and Happy Jack Mines in the mountains are the most noticeable landscape modifications within the IFNM. The strong color contrast of the cuts and fills can be seen from over 15 miles away.

3.1.10.1 Visual Resource Inventory

The visual resources of the planning area were inventoried in 2004 and classified in accordance with procedures outlined in BLM Handbook 8410-1 (USDI, BLM 1986b) and Technical Note 407 (USDI, BLM 2001b), as part of the preparation of this plan. The inventory identified the area's scenic quality, visual sensitivity, visibility, viewing distance, and visual resource inventory classes. All lands in the planning area were assigned to one of four visual resource inventory (VRI) classes (Map 3-6). These classes did not establish management direction, but provided information regarding the on-the-ground conditions for visual resources. VRI classes characterize the landscape's relative importance based on the combination of scenic quality, visual sensitivity and viewing distance. Scenic quality classes are used to describe the visual character, diversity, attractiveness and appeal of the landscape. Scenic quality is described in classes based on the landscape's landform, vegetation, water, color, adjacent scenery, scarcity, and cultural modification features in the landscape. Much of the planning area has retained its scenic quality, even though numerous cultural modifications and changes to the landscape are evident

within the IFNM. A cultural modification is any human-caused change to landform, water features, or vegetation, or the addition of a structure that is in visual contrast to the natural landscape (including contrast in form, line, color, or texture) (USDI, BLM 1984). Manmade features do not necessarily detract from a landscape's beauty; some may even complement the natural landscape and enhance its scenic value (USDI, BLM 1986b). Views of cultural modifications on lands adjacent to the planning area may or may not be considered interesting (i.e., views of aircraft within the airpark), depending on the viewer. The Silver Bell mine in is the most noticeable cultural modification adjacent to the monument, with strong color contrast between disturbed earthwork areas and the surrounding land.

Class A scenery has the highest scenic quality, with many outstanding features, and Class C scenery has the lowest scenic quality. In the IFNM, the Ragged Top and Sawtooth Mountain areas have the highest scenic quality, and the creosote flats have the lowest scenic quality.

Table 3-11: Scenic Quality Classes for Public Lands in the IFNM

Scenic Quality Class	Sum (acres)
A	6,558
B	89,215
C	32,627
Total	128,400

SOURCE: VRI inventory 2005, BLM/URS

Visual sensitivity is the second factor considered in determining an area's VRI class. Visual sensitivity is primarily based on the type of viewer affected, the type and amount of viewing, and special considerations. Sensitivity levels range from low, moderate to high, and provide a measure of overall public concern regarding the area's scenery. The planning area receives high viewing volume, public interest, and is under a special area designation as a national monument. Therefore, visual sensitivity for all lands in the planning area is considered to be high.

Viewing distance is the third factor considered in determining an area's VRI class, and is classified as foreground, middle ground, and background. The details of landform and vegetation features are easily discerned in the landscape viewed in the foreground/middle ground distance, and visual impacts to the landscape are more noticeable. Because of the numerous public travel routes and populated areas within and adjacent to the monument and its surrounding area, most of the monument lands are viewed in the foreground/middle ground distance zone. Lands east of the mountain ranges are the most exposed to viewing from off-site travel corridors, communities, and recreational destinations in the valley along Interstate 10.

These three factors were considered in determining VRI classes in the IFNM, as shown in Table 3-12 below. VRI Class II areas include the most important visual resources values, and Class IV areas include the least important. No VRI Class I areas were identified in the monument; Class I is reserved for special congressional or administrative designations specifically mandating the preservation of the landscape, and is independent of scenic quality and visibility.

Table 3-12: Visual Resource Inventory Classes in the IFNM

VRI	Acres
II	95,656
III	32,744
Total	128,400

3.1.10.2 Visual Resource Management

This visual values derived from the visual resource inventory are taken into consideration along with other land use allocations and desirable outcomes when designating Visual Resource Management (VRM) classes. VRM classes may differ from VRI classes. They are used to identify visual contrast thresholds to preserve the visual quality of the landscape, and they establish objectives for managing visual resources on public lands, as described below:

Class I Objective: To preserve the existing character of the landscape. The level of change to the characteristic landscape should be very low and must not attract attention.

***Class II Objective*:** To retain the existing character of the landscape. The level of change to the characteristic landscape should be low.

Class III Objective: To partially retain the existing character of the landscape. The level of change to the characteristic landscape should be moderate.

Class IV Objective: To provide for management activities which require major modification of the existing character of the landscape. The level of change to the characteristic landscape can be high.

At present, the entire monument is managed as Class III under the existing land use plan.

3.1.11 Wilderness Characteristics

The BLM Land Use Planning Handbook (H-1601-1) provides guidance on considering wilderness characteristics in the land-use planning process. The Handbook states with regard to "Wilderness Characteristics":

> 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.

The BLM received a wilderness proposal from the Arizona Wilderness Coalition (AWC) in September 2002 that included four areas in the IFNM. The proposal recommended the Sawtooth Mountains, Ragged Top, West Silver Bell Mountains, and Silver Bell Mountains for consideration as wilderness study areas.

BLM completed a wilderness characteristics assessment to determine if lands with wilderness characteristics are present in the planning area, including the areas proposed by the AWC. The assessment utilized data gathered for the plan in the visual, recreation, vegetation, ecological site, and wildlife habitat resource inventories.

The wilderness characteristics assessment confirmed the presence of the wilderness characteristics of size, naturalness and outstanding opportunities for solitude in the areas proposed by the AWC and in an additional area of the Roskruge Mountains. Based on this assessment, approximately 36,990 acres of BLM-administered land possess wilderness characteristics (refer to Map 2-10).

Outstanding opportunities for primitive recreation were not found in the IFNM due to the accessibility of the landscape and proximity to motorized travel routes. Existing fences, maintained and primitive roads, and developments somewhat confine dispersed recreation use, particularly movement by equestrian and foot traffic throughout the IFNM.

Areas that have the highest quality of naturalness, solitude, and semi-primitive recreation opportunities are found in the West Silver Bell Mountains and Roskruge Mountains.

Visual Resource Inventory Classes

BLM Administered Land Only

Ironwood Forest National Monument PRMP/FEIS

Legend

Visual Resource Inventory Class

- Inventory Class II
- Inventory Class III

Data Source:
VRI Information: URS 2005
Base Information: BLM 2003
Quadrangle Image: US Geological Survey 1977 Tucson

General Reference

- County Boundary
- Central Arizona Project (CAP) Canal
- River
- Interstate 10
- Main public access routes to monument. County administered roads connecting monument travel route system to public highways.

Planning Area

- Ironwood Forest National Monument

Universal Tranverse Mercator
Zone 12, Units Meters
Clark 1866 Spheroid
NAD27 Datum
No warranty is made by the Bureau of Land Management (BLM) for the use of this map for purposes not intended by BLM, or to the accuracy, reliability, or completeness of the information shown. Spatial information may not meet National Map Accuracy Standards. This information may be updated without notification.

0 1 2 4 Miles
0 2 4 8 Kilometers

Location in Arizona



P:\BLM\Ironwood\GIS\Plots\PRMP_FEIS\Chapter_3\VRI.pdf

Map 3-6

3.2 RESOURCE USE CONDITIONS

3.2.1 Energy and Minerals

3.2.1.1 Renewable Energy Resources

3.2.1.1.1 Solar Energy

Solar energy is a renewable energy resource that has excellent potential for generating electricity in Pima and Pinal Counties. The region including the planning area has recently been identified as having a large total land area for high-potential concentrating solar power and/or photovoltaic sites (U.S. Department of Energy 2003). Installation of solar energy facilities on public land requires a right-of-way grant (rather than a lease).

Solar energy resources in the planning area are considered adequate for generating electricity using photovoltaic cells. Commercial solar generating stations have been constructed and operate in Arizona and other states, particularly in desert locations. Existing solar array technology can place approximately 125 to 150 kVs of photovoltaic cells per acre. Such an array will generate 250 to 300 megawatt-hours of electricity per year (Arizona Public Service 2002).

3.2.1.1.2 Wind Energy

Wind energy is a renewable energy resource with excellent potential for generating electricity. The National Renewable Energy Laboratory has mapped wind speed zones in the United States through development of a wind power classification system, based on annual average wind speeds. Class 1 areas have the lowest wind speed, Class 7 areas the highest. As in most of Arizona, the wind resources on the IFNM are limited. The planning area and vicinity is identified as a Class 1 wind power zone, which is generally not suitable for wind energy development (Duncan and Mancini 1991).

3.2.1.2 Mineral Resources

BLM manages Federal mineral estate (leasable, locatable, and salable minerals) regardless of surface jurisdiction. Map 3-7: Federal Mineral Estate shows the Federal mineral estate (approximately 149,360 acres) within the planning area. Generally, the Federal mineral estate lies under areas already managed by BLM. However, there are areas within the IFNM where Federal minerals underlie State Trust land (approximately 14,680 acres) or private land (approximately 3,220 acres); this is considered split estate, which is part of BLM's decision area. In areas of split-estate where BLM administers Federal mineral estate, management of the mineral development must be consistent with the surface management agency's land use plan. All of the lands and interests in lands (e.g., federal minerals) within the IFNM boundaries have been withdrawn from location, entry, and patent under the mining laws, and from disposition under all laws relating to mineral and geothermal leasing and mineral material disposal (Office of the President 2000). Thus, no new mining claims can be located on the Federal mineral estate within the IFNM. Mineral development can only occur on mining claims that BLM has determined are valid.

3.2.1.2.1 Leasable Minerals

Leasable Minerals are defined as: 1) all minerals other than salable minerals (see section 3.2.1.2.3 below) on acquired lands; 2) all minerals on the Outer Continental Shelf; 3) coal, phosphate; oil, gas, chlorides, sulphates, carbonates, borates, silicates or nitrates of potassium and sodium; sulphur in the states of Louisiana and New Mexico; native asphalt, solid and semi solid bitumen and bituminous rock including oil-impregnated rock or sands from which oil is recoverable only by special treatment after the deposit is mined; and 4) geothermal resources and associated by-products.

The only leasable minerals with potential for occurrence in the planning area are oil and gas, geothermal resources and sodium.

Oil and Gas. Oil and gas are fluid mineral resources that typically are discovered and exploited by drilling exploratory and development wells into oil- and/or gas-bearing sedimentary rocks. No oil or gas has been discovered in the decision area. However, the potential for discovery is rated as moderate because it is located within the Bisbee Basin and a portion of the Tucson Basin (Rauzi 2001).

Geothermal Resources. Geothermal resources are nonrenewable energy resources, derived from the natural heat of the earth. Geothermal resources are typically underground reservoirs of hot water or steam created by heat from the earth, but geothermal resources also include subsurface areas of dry hot rock.

Geothermal steam and hot water can naturally reach the earth's surface in the form of hot springs, geysers, mud pots, or steam vents, creating abnormally high heat flow from the ground (USDI 2008). These areas, known as geothermal anomalies, occur in areas of active or recent volcanism and in places where the earth's crust has been thinned by extensional stresses, such as the Basin and Range physiographic province, in which the planning area is located.

There are no official Known Geothermal Resource Areas in the planning area. However, Avra Valley, located in the eastern portion of the planning area, has been identified as having potential for the development of geothermal resources. There are no significant geothermal energy resources currently in use within the planning area. Potential uses include residential and commercial space heating, greenhousing, aquaculture, crop and food processing, and leaching of copper ore. However, geothermal resources in the planning area are not applicable for power generation because the temperatures are not high enough to produce steam.

Sodium. Sodium is a nonrenewable leasable solid mineral resource. Sodium typically occurs as salt (halite) in marine evaporite sediment sequences or continental closed basin evaporite sediment. One known salt deposit exists in the subsurface near the planning area: the Tertiary-age Picacho Basin, centered near the Town of Eloy in south-central Pinal County (Rauzi 2002). Potential subsurface salt deposits also may exist in the Red Rock Basin, centered approximately in the Town of Red Rock and extending north into Pinal County and south into Avra Valley.

3.2.1.2.2 Locatable Minerals

Locatable minerals are defined as: 1) uncommon varieties of sand, stone, gravel, cinders, pumice or pumicite and 2) all "valuable mineral deposits" that are locatable under the General Mining Law of 1872 except leasable and salable minerals. Examples might include both metallic minerals (e.g., gold, silver, lead, uranium) and nonmetallic minerals (e.g., gemstones, kaolin, fluorspar, perlite).

Metallic Minerals. The planning area has five locales historically designated as mineral districts, including the Sawtooth mineral district in Pinal County, and the Magonigal, Silver Bell, Waterman, and Roskruge mineral districts in Pima County (Map 3-8: Mineral Districts, Mining Claims, and Salable Mineral Material Source Areas). All of the mineral districts, with the exception of the Silver Bell District, have been mined historically but are no longer active.

A 2004 LR2000 report indicated a total of 225 existing mining claims exist within the IFNM boundaries (USDI, BLM 2004b). The USGS Mineral Resource Data System lists 33 mine sites in the planning area (USGS 1999). Mine sites are mining claims that have been developed. There are no active metallic mineral mines in the decision area. The only active mine near the IFNM (adjacent to the IFNM boundary) is the Silver Bell Mine, a copper mine.

Federal Mineral Estate

Ironwood Forest National Monument
PRMP/FEIS

Legend

Federal Mineral Estate

- Federal Minerals

Surface Management

- Bureau of Land Management
- National Park Service
- Bureau of Reclamation
- American Indian Reservation
- Military Reservation
- State Trust Land
- State, County, City; Wildlife, Park and Outdoor Recreation Area
- Private
- Pima County

Data Source:
Federal Minerals: Premier Data Services, Inc. 2004
Base Information: BLM 2003
Quadrangle Image: US Geological Survey 1977 Tucson

General Reference

- County Boundary
- Central Arizona Project (CAP) Canal
- River
- Interstate 10
- Main public access routes to monument. County administered roads connecting monument travel route system to public highways.

Planning Area

- Ironwood Forest National Monument

Universal Tranverse Mercator
Zone 12, Units Meters
Clark 1866 Spheroid
NAD27 Datum

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0 1 2 4 Miles
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Location in Arizona



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Map 3-7

Mineral Districts, Mining Claims, and Salable Mineral Material Source Areas

Ironwood Forest National Monument
PRMP/FEIS

Legend

Mineral Districts

Copper

- 1a — Porphyry with or without Molybdenum, Manganese, Gold and Peripheral Lead-Zinc-Silver
- 4 — Lead-Zinc-Silver Veins and Replacements
- 5 — Silver with or without Lead and Zinc; Veins and Replacements

} Distinction based on Silver/Silver, Lead, and Zinc Ratios

- 5* — Significant Copper Production

Manganese

- 6a — Veins with or without Barium, Lead, Silver

Mining Claims

- Jaba
- Sally Meeks
- Silver Bell Mining L.L.C.

Data Source:
Mineral Districts: BLM 2003; Modified URS 2004
Mineral Claims: BLM 2006
Base Information: BLM 2003
Quadrangle Image: US Geological Survey 1977 Tucson

General Reference

- County Boundary
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0 1 2 4 Miles
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Location in Arizona



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Map 3-8

Nonmetallic Minerals. Nonmetallic locatable minerals include barite, feldspar, gemstones, mica, perlite, silica (quartz), and industrial-grade limestone and clay. Nonmetallic locatable mineral locations and associated geologic deposits are reported by Phillips (1987). Barite has been found at two locations in the decision area, both in the Silver Bell Mountains. No production has occurred from either locality. Quartz, mica, and feldspar have been identified in pegmatites at the Tinker Bell and J & D Mines, both located within the decision area. One industrial-grade limestone property is located in the Waterman Mountains at the Happy Jack Mine. The mine is located within the decision area and has not been commercially developed. Currently there are no active nonmetallic mineral mines in the planning area.

3.2.1.2.3 Salable Minerals

Salable minerals include common varieties of sand, stone, gravel, cinders, pumice, pumicite and clay.

A search of Case Recordation files on the BLM Land and Mineral Records LR 2000 database identified four salable mineral pit permits in the decision area, only one of which was active. The Silver Bell Pit produced crushed granite and other decorative landscape rock. This pit lies off Silverbell Road, and inside, the decision area boundary. That pit is now closed and has been partially reclaimed; any additional reclamation would be completed by BLM.

3.2.2 Livestock Grazing

Livestock grazing on the IFNM is authorized at the levels presented in the Rangeland Program Summary (USDI, BLM 1987). Grazing leases are held for 11 allotments (Map 3-9: Grazing Allotments). Grazing use for each allotment is assigned in terms of Animal Unit Months (AUMs). An AUM is the amount of forage needed to sustain one cow, five sheep, or five goats, for a month. These allotments support 8,042 AUMs (670 cattle), of which an estimated 7,748 AUM (646 cattle), or 96 percent, are within the IFNM boundaries (Tersey 2004; USDI, BLM 2001a). All allotments within the IFNM are Section 15 leases, meaning they are located outside of an established grazing district and are administered in accordance with Section 15 of the Taylor Grazing Act of 1934.

As part of the land use planning and grazing management processes, BLM designates grazing allotments as ephemeral or perennial allotments, and classifies them into one of three selective management status categories. Table **3-13** presents the current designations and selective management category of the allotments in the IFNM. Two allotments are classified as *ephemeral*, indicating grazing is allowed only when special criteria are met and when forage is available in sufficient volume to support soil protection, browsing by wildlife, and wildlife or livestock grazing pressure. The remaining nine allotments are classified as *perennial/ephemeral*, indicating that a base level of grazing is allowed year-round. In a *perennial* or a *perennial/ephemeral* allotment, the lessee could request authorization to graze additional AUMs if criteria are met and forage is available in sufficient volume to support soil protection, browsing by wildlife, and wildlife or livestock grazing pressure (Appendix F). No ephemeral AUMs have been issued on BLM-administered land in the IFNM since 1995.

Based on recent guidance in BLM Instruction Memorandum 2009-018, the selective management status for each BLM allotment was reevaluated. This resulted in changes to the selective management status category of almost all allotments within the IFNM from when the Draft RMP was published in March 2007. All eleven allotments are now classified as *maintain*, indicating that land health standards are met on the allotments, or livestock grazing on public land is not a significant causal factor for not meeting the standards, and current livestock management is in conformance with Arizona Guidelines for Grazing Administration. The *maintain* classification is also used where an evaluation of land health standards has not been completed, but existing monitoring data indicates that resource conditions are satisfactory. While all allotments in the IFNM are currently classified as *maintain*, allotments can also be classified as *improve* (where current livestock grazing management or level of use on public land 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) or *custodial* (where public lands produce less than 10 percent of the forage in the allotment or are less than 10 percent of the land area; an allotment should not be designated *custodial* if the public land in the allotment contains critical habitat for a threatened or endangered species, or wetlands negatively affected by livestock grazing).

Table 3-14 presents information on the results of the most recent allotment evaluations for each allotment. All of the allotments have been evaluated against the Arizona Standards and Guidelines in the past few years, though some of the evaluation reports have not been completed to date. In all cases the allotment evaluations concluded that the standards were met and no substantial issues to be addressed were identified. In some cases, the range improvements on the allotments were identified as being in fair or poor condition. Condition of range improvements does not factor into whether standards are met; however, BLM can and will work with lessees to improve the condition of range improvements where necessary.

Table 3-13: Management Status of the Allotments within the IFNM

Name	No.	Expires	Selective Management Status Category[1]	Grazing Authorization Status[2]	Allotment acres (BLM)[3]	Active (Perennial) AUMs	2004 Actual AUMs
Agua Blanca	6183	02/28/2012	Maintain	Perennial/Ephemeral	14,419	1,356	1,352
Agua Dulce	6126	02/28/2020	Maintain	Perennial/Ephemeral	16,144	814	318
Blanco Wash	6010	02/28/2016	Maintain	Perennial/Ephemeral	2,278	195	195
Claflin	6029	02/28/2019	Maintain	Perennial/Ephemeral	6,036	437	234
Cocoraque	6020	02/28/2020	Maintain	Perennial/Ephemeral	9,181	527	527
Tejon Pass	6077	02/28/2019	Maintain	Ephemeral	11,494	0	0
King	6153	02/28/2019	Maintain	Perennial/Ephemeral	12,737	1,452	240
Morning Star	6060	02/28/2019	Maintain	Ephemeral	16,175	0	201
Old Sasco	6102	02/28/2010	Maintain	Perennial/Ephemeral	4,471	384	0
Sawtooth Mtns.	6068	02/28/2020	Maintain	Perennial/Ephemeral	32,127	2,328	2,328
Silver Bell	6203	02/28/2012	Maintain	Perennial/Ephemeral	4,835	350	350
Totals					**129,897**	**7,843**	**5,745**

SOURCES: Tersey 2010; U.S. Department of the Interior, Bureau of Land Management 2002a, 2001c, d, 2000a, b

NOTES:[1] Management Category

Maintain: Manage to maintain the current satisfactory condition of the resources in the allotment.

[2] Grazing Authorization Status

Ephemeral: Grazing is allowed only when precipitation patterns generate seasonal production of forage available for livestock.

Perennial/Ephemeral: Grazing is authorized on ephemeral forage above the grazing preference when precipitation patterns generate seasonal production of additional forage available for livestock.

[3] Acreages

Acreages are approximate. The IFNM contains 128,398 acres of public (BLM-administered) land; the grazing allotments contain public land outside of the IFNM boundary.

Grazing Allotments

Ironwood Forest National Monument
PRMP/FEIS

Legend

- Grazing Allotment
- Fence

Surface Management

- Bureau of Land Management
- National Park Service
- Bureau of Reclamation
- American Indian Reservation
- Military Reservation
- State Trust Land
- State, County, City; Wildlife, Park and Outdoor Recreation Area
- Private
- Pima County

Note:
Not all fences are shown. Only those encountered along travel routes presently used for administrative purposes by the public are represented.

Data Source:
Grazing Allotments: BLM 2006
Fence Line Information: BLM 2003
Base Information: BLM 2003
Quadrangle Image: US Geological Survey 1977 Tucson

General Reference

- County Boundary
- Central Arizona Project (CAP) Canal
- River
- Interstate 10
- Main public access routes to monument. County administered roads connecting monument travel route system to public highways.

Planning Area

- Ironwood Forest National Monument

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0 1 2 4 Miles
0 2 4 8 Kilometers

Location in Arizona



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Map 3-9

Table 3-14: Allotments Evaluated under Arizona Standards For Rangeland Health and Guidelines for Grazing Administration, Summary of Results

Allotment No.	Allotment Name	Total Acres	BLM Acres	Active AUMs	Evaluation Date	Condition of Range Improvements	Standards Met?			Grazing Management System
							1	2	3	
6183	Agua Blanca	16,784	14,419	1,356	5/9/01	Good	Y	N/A	Y	Deferred Rotation
6153	King	26,801	12,737	1,452	3/29/99	Fair to Good	Y	N/A	Y	Rest Rotation.
6060	Morning Star	8,646	6,035	0	5/20/09	Fair	Y	N/A	Y	Ephemeral.
6102	Old Sasco	43,074	4,471	384	3/22/00	Fair	Y	N/A	Y	Deferred Rotation.
6068	Sawtooth Mtns	178,886	32,127	2,328	3/22/00	Poor	Y	N/A	Y	Deferred Rotation.
6203	Silver Bell	7,683	4,835	350	5/9/01	Good	Y	N/A	Y	Deferred Rotation.
6077	Tejon Pass	21,010	11,591	0	5/20/09	Fair	Y	N/A	Y	Ephemeral.
6029	Claflin	8,646	6,036	437	2/15/09	Fair	Y	N/A	Y	Deferred Rotation.
6126	Agua Dulce	18,021	16,144	814	2/7/03	Fair	Y	N/A	Y	Rest Rotation.
6010	Blanco Wash	10,020	2,278	195	2/14/03	Good	Y	N/A	Y	Deferred Rotation.
6020	Cocoraque	13,783	9,181	527	2/7/03	Fair	Y	N/A	Y	Rest Rotation.

SOURCES: Tersey 2004; U.S. Department of the Interior, Bureau of Land Management 2002a; 2001a ,b; 2000a, b

NOTES: Standard 1 – Upland Sites
Standard 2 – Riparian-Wetland Sites
Standard 3 – Desired Resource Condition
Allot. = allotment
Y = meets standard
N = does not meet standard
N/A = not applicable

3.2.3 Recreation

The IFNM is easily accessible from both Tucson and Marana, and provides outstanding recreational opportunities to the residents of those urban areas. Visitors are able to enjoy the scenic beauty of the IFNM through a variety of authorized recreational activities, including camping, hunting, target shooting, horseback riding, hiking, biking, and touring by a variety of vehicles. BLM issues special recreation permits on a case-by-case basis for certain 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 commercial and organized group activities during the past five years has been light, limited to two commercial operations under special recreation permits within the IFNM – one for cattle drive/horseback riding activities and one for orienteering activities. One time use special recreation permits have been issued for OHV sightseeing and equestrian activities (USDI, BLM 2001a; Mendoza and Tersey 2004).

3.2.3.1 Recreation Opportunity Spectrum Existing Conditions

BLM uses a planning tool known as the Recreation Opportunity Spectrum (ROS) that inventories, classifies, and maps public lands according to their suitability for various types of recreational activity. Inventory results are then used to develop management decisions. The system defines six classes of recreation opportunity ranging from natural, low-use areas to highly developed, intensive use areas: these include 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. A 2004 ROS inventory identified three classes of recreation opportunity on public land within the IFNM: Semi-Primitive Non-Motorized, Semi-Primitive Motorized, and Roaded Natural, as defined below (URS Corporation 2004).

Semi-Primitive Non-motorized: The setting is predominantly a semi-remote natural landscape of moderate to large scale. The frequency of encounters with other users is low, and few management controls exist. Motorized-vehicle use is not allowed. Temporary primitive roads may be used for resource management on a limited basis, but use of such roads is restricted as incompatible with this recreational opportunity. The setting allows recreationists to experience solitude, isolation, challenge, and a high degree of interaction with nature through activities such as backpacking, camping, nature viewing, backcountry hunting, climbing, and hiking.

Semi-Primitive Motorized: This setting is a mostly natural landscape of moderate to large scale, within one-half mile of primitive roads and two-track vehicle trails. The setting offers a moderate degree of isolation from others; contact with others remains low to moderate and there are few management controls. The use of motorized recreational equipment is allowed. Recreationists can experience a high degree of interaction with the natural environment while enjoying activities such as hunting, climbing, vehicle trail riding, backcountry driving, mountain biking, and hiking.

Roaded Natural: The setting is generally an area of natural appearance near improved and maintained roads. The frequency of encounters between parties of visitors is moderate to high. Some modifications are evident and management controls and developments are visible. Motorized as well as non-motorized vehicles are allowed. The recreation experience includes activities such as picnicking, automobile touring, hang gliding, interpretive use, and vehicle camping. (Wood gathering for campfire use while camping on public lands is generally allowed on BLM land unless specifically prohibited. The RMP is the basis for restricting this activity as deemed necessary to protect monument objects.)

Areas where these opportunities are available have been mapped and are shown on Map 3-10: Recreation Opportunity Spectrum. This map describes the inventory of existing conditions within the monument and is not a designation denoting what is allowed and/or prohibited. The acreage for each classification is listed in Table 3-15.

Table 3-15: Existing ROS Inventory Acreage for Public Land Administered by BLM

ROS Category	Acres
Semi-Primitive Non-Motorized	31,450
Semi-Primitive Motorized	74,910
Roaded Natural	18,910
Other[1]	3,130

SOURCE: URS Corporation 2004
NOTE: [1] Includes agricultural, residential, and industrial uses with limited public recreational opportunities.

3.2.3.2 Recreational Use

A 2004 study conducted by the University of Arizona identified recreational use characteristics for the IFNM, including information on activities visitors engaged in, what they thought of the area, and the geographic pattern of use. Activities included (in order of expressed preference) hiking/walking/running, sightseeing, wildlife viewing, camping, vehicle touring, picnicking, target shooting, hunting, and horseback riding. The study identified the Ragged Top Mountain area as the primary destination within the IFNM for wildlife viewing (Gimblett 2004). Due to highly intermingled land ownership, recreational use occurs on monument lands in conjunction with use on Arizona State Trust lands, which are open to hunting, and other recreational use by the public under a permit required by the Arizona State Land Department.

Recreation Opportunity Spectrum

BLM Administered Land Only

Ironwood Forest National Monument
PRMP/FEIS

Legend

Recreation Opportunity Spectrum

- Roaded Natural (RN)
- Semi-Primitive Motorized (SPM)
- Semi-Primitive Non-Motorized (SPNM)

Recreation Sites

- Campsite with Mororized Access on BLM Land
- Group Campsite with Mororized Access on BLM Land

Reference Information

- Agricultural
- Industrial
- Road, Trail, or Route

Data Source:
ROS: BLM 2007
Camp Sites: BLM 2008
Base Information: BLM 2003
Quadrangle Image: US Geological Survey 1977 Tucson

General Reference

- County Boundary
- CAP Canal
- River
- Interstate 10
- Main public access routes to monument. County administered roads connecting monument travel route system to public highways.

Planning Area

- Ironwood Forest National Monument

Universal Tranverse Mercator
Zone 12, Units Meters
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0 0.5 1 2 Miles

0 2.5 5 10 Kilometers

Location in Arizona



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Map 3-10

The study also identified approximately 175 campsites on public land throughout the monument established by use over time. Sites exhibited varying intensity of use from reclaiming sites to heavily impacted, large sites (Gimblett 2004). These sites continue to be used, many having become more heavily impacted, and some new sites have been created. Many sites are used only seasonally, particularly during the various hunting seasons.

Recreational use on IFNM lands is subject to regulations at 43 CFR 8300 that provide for a variety of recreational opportunities as well as general rules for preventing conflicts with resource protection. In addition, State laws pertaining to hunting apply on IFNM lands, including restrictions on camping near wildlife waters and the discharge of firearms near occupied residences. Supplementary rules for public lands in Arizona generally limit camping to no more than a period of 14 days within any period of 28 consecutive days.

The 2004 study found that approximately 12,000 to 15,000 people visited the IFNM, primarily in the cooler months of November to April, with most of the use occurring on weekends). The average number of hunting permits issued by the Arizona Game and Fish Department in 2004 to 2005 for Game Management Unit 37B was 200 for mule deer, 800 for javelina, and one for bighorn sheep (IFNM lands represent approximately 12% of the unit). Hunting accounts for approximately 1,100 visitor days, and is typically targeted toward cottontail rabbit, dove, quail, javelina, mule deer, bighorn sheep, and predators. Recreation use related to hunting decreased by approximately 27% from 2004 to 2008. Recreation use appears to be increasing for most of the activities reported in 2004, particularly target shooting and OHV use. A majority of the visitation occurs at Ragged Top Mountain and the Waterman Mountains (Gimblett 2004). Most visitor use impacts are concentrated along the more easily accessible lands bordering Avra Valley.

Reasons for visiting the Monument reported by visitors in the 2004 study included enjoyment of nature, stress relief, and physical activity. Visitors in the study also indicated that they come to the IFNM to find peace and quiet or experience the feeling of remoteness, and to feel a part of the natural environment. Almost 19 percent of the visitors in 2004 reported bringing at least one dog with them. Most of the survey respondents were Arizona residents; only 9 of the 106 respondents reported that they were seasonal visitors to southern Arizona. More than 40 percent of the visitors to the IFNM use four-wheel-drive vehicles or other off highway vehicles (Gimblett 2004).

3.2.4 Lands and Realty

3.2.4.1 Land Tenure

BLM occasionally makes land tenure adjustments where public land is sold or exchanged, or nonpublic lands or interests are acquired. The BLM administers approximately 128,398 acres of public land (surface estate) in the IFNM. Management of minerals in subsurface estate is discussed in Section 3.2.1. BLM administers all of the Federal acreage with the exception of approximately 300 acres in the Waterman Mountains area, which were withdrawn by the Department of Defense in the 1960s (U.S Air Force 2004). Refer to Table 1-1 and Map 1-2 for additional information on surface management within the IFNM.

BLM adjustments to land tenure in the planning area occur or can occur under a variety of realty actions. Under the Proclamation, all land and interests in land (i.e., surface and subsurface estate) in the decision area will remain under BLM's administration (i.e., all will be retained) unless an exchange would further the protective purposes of the monument.

Acquisitions can occur through land exchanges, purchases, easements, and other land transfers.

3.2.4.2 Recreation and Public Purposes Act Leases

There is one Recreation and Public Purposes (R&PP) Act lease within the boundaries of the IFNM. The R&PP Act lease is issued to and allows for the operation of the Tucson Soaring Club on 182 acres, and will expire in 2013 (Bernal 2006; USDI, BLM 2001a).

3.2.4.3 Utility Corridors, Rights-of-Way, and Communication Sites

BLM manages existing corridors and the Pan Quemado and Confidence Peak communication sites in the IFNM to protect the objects of biological, scientific, and historical interest cited in the Proclamation. Title V of Federal Land Policy and Management Act (FLPMA) authorizes the Secretary of the Interior to issue right-of-way grants (i.e., authorizations to use specific pieces of public land for specific facilities for specific periods of time), over, upon, under, or through public lands (except land designated as wilderness). Section 503 of FLPMA (43 U.S.C. 1763) authorizes the formal designation of utility corridors, which are identified as the preferred routing for utilities. BLM has designated corridors to accommodate linear infrastructure/utilities (e.g., pipelines, roads, electrical transmission lines) that traverse the IFNM, as shown on Map 2-15: Utility Corridors and Right-of-way Authorizations – Alternative A. Three 1-mile-wide corridors cross the IFNM planning area.

The Proclamation allows existing rights-of-way to be maintained within the IFNM without being subject to the higher standard that may be applied to future right-of-way grants by virtue of the monument designation. At the time the Proclamation was signed, several rights-of-way for roads, pipelines, power lines, and communication facilities were in place. The type and number of rights-of-way within the IFNM are listed in Table 3-16.

Table 3-16: Existing Rights-of-Way

Type	Number
Road	10
Electric	8
Gas Pipeline	4
Communication Site/Telephone	4
Irrigation	1

3.2.5 Travel Management

This section addresses travel management, including access, within the IFNM for motorized and non-motorized surface travel and air transportation. The study area for this section extends beyond the planning area to include surface access routes that link the IFNM to major public roadways and to airspace considerations that originate outside of the planning area.

The existing route network is illustrated on Map 2-19: Travel Management–Alternative A. There are 347 miles of existing routes. Some of the routes illustrated on this map did not exist at the time of the 1989 Phoenix RMP and therefore were not authorized as open under that RMP. However, they have been created since that time, and are currently in use and serving existing access needs. As a result, they were identified during the route inventory and included in the route baseline. For more information on the IFNM route inventory, refer to Appendix G.

The majority of routes within the IFNM have a dirt surface. These are typically single-lane routes that are passable by two-wheel-drive, high-clearance vehicles, but not by passenger vehicles or larger vehicles, and that show no evidence of improvement or regular maintenance. Nine percent are light duty but maintained roadways; these travelways are improved and graded, and provide reliable access for school bus and passenger vehicles. Only six percent of the routes in the IFNM are primitive four-wheel-drive,

where surface conditions require four-wheel-drive vehicles, due to roughness, grade, or drainage crossings or other obstructions (Gimblett 2004).

Main public access roads, including Sasco, Avra Valley, Silverbell, Manville, Mile Wide, El Tiro, and Pump Station Roads, link the IFNM to Interstate 10. These roads are administered by Pinal County or Pima County. Gimblett's University of Arizona study (2004) notes that the majority of the roads in the planning area are not maintained to any standard. Almost all routes inventoried were in some state of rehabilitation or primitive condition, with vegetation encroaching on the side clearances and established in the travelways.

There are many access points into the IFNM, but the most heavily used include Manville Road, the Tohono O'odham Nation border near the Waterman Mountains, and Avra Valley Road.

Civilian aviation occurs at El Tiro Gliderport, which is located within the planning area. This facility is along the eastern boundary of the IFNM and is accessed by El Tiro Road. The Tucson Soaring Club is a private group that uses this facility regularly and holds an R&PP Act lease. Soaring activities occur in sailplanes that are designed for sustained flight without the use of a motor, although launches are by motorized tow planes.

3.3 SPECIAL DESIGNATIONS

BLM special designations include ACECs, backcountry byways, national recreation areas, national trails, wild and scenic rivers, lands with wilderness characteristics, and WSAs. The 3,342-acre Waterman Mountains ACEC (of which 2,240 acres are public land) is the only special designation within the IFNM. It was established in the 1989 Phoenix RMP primarily for the protection of the Nichol Turk's head cactus, and is one of the most popular destinations within the IFNM. Access routes provide entry to approximately 28 campsites within the ACEC (Gimblett 2004). Within the ACEC there are range improvements (i.e., livestock stock waters) located along existing roads within the Agua Dulce allotment, grandfathered mining claims (though there is no current mineral development activity), and regular traffic from UDIs. The current condition of the Nichol Turk's head cactus populations in the IFNM is addressed in Section 3.1.5.4. The ACEC is shown on Map 2-3: Special Status Species Management – Alternative A.

3.4 TRIBAL INTERESTS

This section describes interests of federally recognized Indian tribes potentially affected by the management alternatives for the IFNM.

Tribal interests in the RMP/EIS process can range from broad-scale concerns about management of landscapes, ecosystems, and viewsheds, to concerns connected with discrete locations on public lands. This includes issues such as reasonable access to ceremonial places and the freedom to collect, possess, and use natural resources. Tribal interests may align with general public interests, but they may vary in sociocultural context. Tribal interests include "traditional cultural properties," as described in Section 3.1.8.

Tribal interests that have been identified in the IFNM planning process to date are as follows:

- The Tohono O'odham Nation has interest in areas of the IFNM with indigenous plant resources used by the Tohono O'odham in the past (Steere 2005).
- Tohono O'odham ranchers have interest in retaining occasional access to the IFNM from the Schuk Toak District to retrieve cattle that have strayed off the reservation (Steere 2005).

- The Tohono O'odham have interest in protecting archaeological sites that reflect Tohono O'odham occupation and use of the land within IFNM (Steere 2005).
- There was a Tohono O'odham settlement around the Santa Ana de Cuiquiburitac Mission site. Tribal members have retained historical knowledge about this village and expressed concerns about protecting that site (Steere 2005).
- There is interest in protecting sites related to Tohono O'odham mining activities within and near the IFNM (Steere 2005).
- There is interest in preservation of sites related to historic (Territorial period) ranching as it relates to Tohono O'odham history (Steere 2005).
- The Tohono O'odham Nation is interested in coordination of the management of archaeological sites that overlap the boundary of the IFNM and the Tohono O'odham Indian Reservation.
- The Tohono O'odham Nation is generally concerned about the impacts of encroaching development and has suggested that Pinal and Pima Counties establish a no-development buffer zone up to a mile wide around the IFNM. The Nation is upset by the destruction of the unauthorized land clearing that occurred in 2004 for a development on the northeastern edge of the IFNM in the Los Robles Archaeological District, which is listed in the National Register (Steere 2005).

In addition to these specific concerns, tribes with traditional cultural affiliations with the region are known to have concerns about treatment of human remains, funerary objects, sacred objects, and objects of cultural patrimony that are sometimes present within archaeological sites.

3.5 SOCIAL AND ECONOMIC CONDITIONS

The social and economic context in which planning decisions occur is characterized by the needs, demands, and values of the local, regional, and national publics as well as the economic opportunities, benefits, and constraints that are represented by the IFNM. The programs with the strongest correlation between BLM management and social and economic conditions are the programs for energy and minerals, grazing, recreation, and lands and realty. The social and economic context is characterized through indicators of economic health (such as the economic value of commodities, employment and income, and economic diversity and stability) as well as fiscal benefits earned for local jurisdictions and markets due to economic activity on the IFNM. BLM management decisions with regard to economic programs also may affect social conditions, lifestyle, and quality of life. Conversely, current and projected demographic changes may affect the management of the IFNM in terms of the scope and volume of demands for different uses, and the perceived value of opportunities provided by the monument.

The area of potential effects for socioeconomics is further defined by the relationships between the BLM management decisions under consideration in this RMP/EIS and current and trends in uses of the IFNM. For example, changes to energy and mineral, grazing, recreation, and lands and realty programs could affect economic activity and/or social effects resulting from alterations to the ways in which people live, work, play, relate to one another; or cultural norms, values, and beliefs relative to the IFNM. The baseline for these economic and social variables are characterized herein to the extent possible using available data; however, the relatively minor magnitude and scale of economic activity at the IFNM are such that they often are not evident in baseline social and economic data sets for the study area. Input received during public scoping (see Section 1.7) and ongoing public involvement for this RMP/EIS provide some degree of context on the social importance of certain issues.

The baseline is defined by direct, indirect, and (in some cases) secondary effects of social and economic activity with the area of potential effect. In brief, direct effects are those that relate to direct use of IFNM lands and/or resources (e.g., grazing operations); in terms of economics, direct are typically tied to a single economic sector (e.g., agriculture). Indirect effects relate to use of IFNM lands and/or resources (e.g., recreation) but are somewhat removed from that direct use (e.g., purchase of services and equipment); in terms of economics they are specific to single economic sector (e.g., tourism). Secondary effects are those that disperse into the larger social and economic environment and include multiple economic sectors (e.g., professional services and utilities supporting mineral resource development). Economic trend analysis is presented for the most recent three decennial censuses (1970 to 2000). This is supplemented by more recently available data for specific economic sectors. Because there has been a marked resurgence in the copper-mining industry between the time that the baseline for the Draft RMP/EIS was prepared (2003) and the publication date for this Final RMP/EIS, appropriate updates to the mining sector were incorporated into the Final RMP/EIS. However, the mining industry continues to see fluctuations based on the price of metals.

The study area for social and economic conditions extends beyond the planning area to allow for evaluation of local factors in the immediate vicinity of the planning area and nearby communities. Data have been gathered for the following levels of analysis:

***United States**:* Provides a baseline for comparison to national trends

***State of Arizona**:* Provides a baseline for comparison to statewide trends

***Pinal and Pima Counties**:* Provides regional context of south-central Arizona

***City of Eloy, Town of Marana, and the unincorporated Avra Valley area*:** Provides local context for the planning area and highlights the communities most likely to be affected by RMP decisions, due to their proximity

***Tohono O'odham Nation*:** Provides information about tribal lands bordering the western and southern boundaries of the planning area

Overall, social and economic trends for the study area during the 30-year period between 1970 and 2000 indicate a shift among the dominant employment sectors and the major sources of personal income. As shown in Table 3-17 and Table 3-18, employment in Pima and Pinal Counties during this period has been characterized by a large increase in jobs in the services and professional sector, which generally are lower-paying jobs than other sectors. This trend is statewide; the services and professional sector has provided approximately 75 percent of new jobs in Arizona from 1970 to 2000. Conversely, employment in the mining sector declined (although a resurgence in the copper industry began in 2003). New job growth in the government sector has occurred over this 30-year timeframe in both counties. The farm and agricultural services sector remained flat in Pima County but declined in Pinal County.

Table 3-17: Pima County Employment by Industry: Changes from 1970 to 2000

	No. of Jobs in 1970	Percent of Total	No. of Jobs in 2000	Percent of Total	New Employment[1]	Percent of Jobs Gained[2]
Total Employment	**144,273**	**-**	**444,118**	**-**	**299,845**	**-**
Wage and salary employment	126,320	87.6	363,641	81.9	237,321	79.1
Proprietors' employment	17,953	12.4	80,477	18.1	62,524	20.9

	No. of Jobs in 1970	Percent of Total	No. of Jobs in 2000	Percent of Total	New Employment[1]	Percent of Jobs Gained[2]
Farm and agricultural services	**2,054**	**1.4**	**5,983**	**1.3**	**3,929**	**1.3**
Farm	1,087	0.8	955	0.2	-132	N/A
Agricultural Services	967	0.7	5,028	1.1	4,061	1.3
Mining	**6,972**	**4.8**	**2,410**	**0.5**	**-4,562**	**N/A**
Manufacturing (including forest products)	**9,295**	**6.4**	**35,144**	**7.9**	**25,849**	**8.5**
Services and professional	**78,120**	**54.1**	**297,840**	**67.1**	**219,720**	**72.1**
Transportation	5,872	4.1	14,504	3.3	8,632	2.8
Wholesale trade	3,514	2.4	12,581	2.8	9,067	3.0
Retail trade	25,342	17.6	73,947	16.7	48,605	16.0
Finance, insurance, and real estate	10,947	7.6	37,386	8.4	26,439	8.7
Services (health, legal, business, others)	32,445	22.5	159,422	35.9	126,977	41.7
Construction	**11,064**	**7.7**	**28,081**	**6.3**	**17,017**	**5.6**
Government	**36,768**	**25.5**	**74,660**	**16.8**	**37,892**	**12.4**

SOURCE: Bureau of Economic Analysis 2000
NOTES: [1] New employment includes new jobs minus job losses.
[2] The percentage of new employment for each sector is the proportion of new jobs added.
Numbers may not add up due to rounding.

Table 3-18: Pinal County Employment by Industry: Changes from 1970 to 2000

	No. of Jobs in 1970	Percent of Total	No. of Jobs in 2000	Percent of Total	New Employment[1]	Percent of Jobs Gained[2]
Total employment	**25,980**	**-**	**51,293**	**-**	**25,313**	**-**
Wage and salary Employment	23,040	88.7	42,890	83.6	19,850	78.4
Proprietors' employment	2,940	11.3	8,403	16.4	5,463	21.66
Farm and agricultural services	**3,978**	**15.3**	**3,451**	**6.7**	**-527**	**N/A**
Farm	3,426	13.2	2,391	4.7	-1,035	N/A
Agricultural Services	552	2.1	1,060	2.1	508	1.6
Mining	**6,086**	**23.4**	**1,423**	**2.8**	**-4,663**	**N/A**
Manufacturing (including forest products)	**1,482**	**5.7**	**3,476**	**6.8**	**1,994**	**6.4**
Services and Professional	**7,411**	**28.5**	**26,621**	**51.9**	**19,210**	**61.8**
Transportation	585	2.3	1,206	2.4	621	2.0
Wholesale trade	213	0.8	1,343	2.6	1,130	3.6
Retail trade	3,075	11.8	7,905	15.4	4,830	15.5
Finance, insurance and real estate	678	2.6	2,535	4.9	1,857	6.0
Services (health, legal, business, others)	2,860	11.0	13,632	26.6	10,772	34.7
Construction	**2,117**	**8.1**	**2,046**	**4.0**	**-71**	**N/A**
Government	**4,906**	**18.9**	**14,276**	**27.8**	**9,370**	**30.1**

SOURCE: Bureau of Economic Analysis 2000
NOTES: [1] New employment includes new jobs less job losses.
[2] The percentage of new employment for each sector is the proportion of new jobs added.
Numbers may not add up due to rounding.
N/A = Not available.

The employment figures in Table 3-17 and Table 3-18 generally correlate with income by industry figures for the labor categories. However, there are other sources of income from non-labor categories, including transfer payments (primarily related to retirement) and dividends, interest, and rent (money earned from investments). When evaluated in these terms, non-labor income is the fastest growing source of income in both counties, followed by the services and professional sector. The significant increase in non-labor income suggests that the area is attracting retirees.

3.5.1 Economic Value

Economic value associated with the IFNM is assessed differently for each resource and resource use managed by BLM (e.g., energy and minerals, grazing, recreation, and lands and realty). The direct market value of each activity in the planning area and determinants of this value, such as volume of the commodity or other factors, are estimated and placed in context of their larger market value.

3.5.1.1 Energy and Minerals – Current Conditions

Energy and minerals programs may include those that regulate locatable, leasable, and salable minerals, as well as permitting activity for renewable energy infrastructure. In accordance with the Proclamation, the IFNM is withdrawn from location, entry, and patent under the mining laws, and from disposition under all laws relating to mineral and geothermal leasing. There are 225 mining claims within the planning area that predate the establishment of the IFNM. However, there is no active metallic or nonmetallic mineral mining activity within the planning area.

ASARCO's Silver Bell Mine is located immediately outside the planning area boundary. Copper is the primary commodity produced at the mine, but lead, zinc, and other metallic minerals are also present in the mine. Table 3-19 provides copper production and the associated values for 2001 and 2006. The price of copper was at 77 cents per pound in 2001 and increased to $3.1475 per pound in 2006. In 2005, the Arizona copper industry had a combined direct and indirect impact of $3.5 billion on the Arizona economy and accounted for 62 percent of the U.S. copper production (Niemuth 2007a).

Table 3-19: Copper Production and Value (2001 and 2006)

	2001			2006		
	Copper Production (tons)	Value ($1,000s)	% of Total Value in Arizona	Copper Production (tons)	Value ($1,000s)	% of Total Value in Arizona
Planning Area	0	0	0	0	0	0
Silver Bell Mine (Asarco)	20,950	$32,263	2.2	23,450	147,618	2.1
State of Arizona	965,000	$1,470,000	100	784,900	6,900,000	100

SOURCE: Phillips et al. 2002 and Niemuth 2007b

There is currently no development of salable minerals, such as decorative rock, in the planning area, but four non-active salable mineral pit permits were identified. One of these pits, located near Silverbell Road and operated by the Jenott Mining Company, was active from 1996 through 2000. Approximately 47,820 tons of decorative rock was produced from this pit, which is now closed and has been partially reclaimed; any additional reclamation would be completed by BLM.

No leasing and development activity for fluid minerals or permitting activity for energy resources, such as solar and wind energy infrastructure, has occurred within the planning area.

A non-market social value is also attached to the mining industry in Arizona that is tied to the state's associated history, lifestyle, sense of place, and community values.

3.5.1.2 Livestock and Grazing

Statistics available from 2002 indicate that agricultural products generate more than $2.3 billion in Arizona. Pinal County provided approximately 17.7 percent of this total, and Pima County just 2.9 percent of State sales (U.S. Department of Agriculture [USDA] 2004c). In 2002, the market value of cattle and calves accounted for approximately $404 million of this revenue statewide, or about 16.9 percent. Pinal County accounted for almost 50 percent of the total State market value of cattle and calves, or about $199.1 million. Figures for the market value of cattle and calves in Pima County were not available for 2002, but in 1997 Pima County accounted for only two percent of the State total, or just over $7 million (USDA 2004b).

The University of Arizona (Mortensen 2004) has recently evaluated the economic impact of the entire agribusiness system (i.e., the primary agricultural sector plus the closely related industries that depend on agricultural activity) in Arizona. Value added (i.e., the production process owing to the combination of labor and property assets) was used as the basis for the analysis. In terms of value added, agribusiness's total economic impact was $3.0 billion in 2000, of which $1.7 billion was direct agribusiness activity. Indirect ripple effects added $0.5 billion (32 percent) to direct value added in agribusiness, while induced impacts added 49 percent. The total indirect and induced value added impact is 81 percent of the activity in agribusiness (Mortensen 2004).

On average, the estimated annual value added for livestock ranches in Arizona in 1997 was $17,000; the average annual sales receipts for ranches were $43,000; almost 75 percent of ranches had annual sales receipts under $25,000; and 8 percent of ranches had annual sales receipts exceeding $100,000. Other agribusiness in farms (feedlots, dairy farms, and crops) together averaged $3.1 million in value added per farm (Mortensen 2004).

In terms of jobs tied to agribusiness, it was estimated that, for every job in primary agriculture, more than 2.5 jobs in the rest of the economy were dependent on agricultural production. Although there were 20,600 jobs in agriculture, the total job impact of agribusiness was 72,900 in 2000. Of these, 8,300 jobs were caused by ripple effects from agribusiness and 16,900 jobs were generated by spending of incomes earned in agribusiness industries (Mortensen 2004).

Grazing on the IFNM is authorized at the levels presented in the Range Program Summary (USDI, BLM 1987). The grazing allotments in the vicinity of the planning area are able to support 8,042 AUMs (670 cattle), of which an estimated 7,748 AUMs (646 cattle), or 96 percent, are within the IFNM boundaries (USDI, BLM 2001a). Grazing permits and leases issued by BLM represent an important proportion of permits in Pinal and Pima Counties (Table 3-20). A majority of the permits are issued by the Arizona State Land Department. Of the current holders of grazing leases within the IFNM, only two also use allotments outside of the monument. The remaining permittees are wholly reliant on IFNM allotments.

Grazing fees per allotment are determined by AUM. In 2004, the grazing fee was $1.42 per AUM. Between 2001 and 2003, the fee was $1.35 per AUM. Table 3-21 provides the total grazing fees received from allotments on IFNM for the years 2001 through 2004.

Table 3-20: Farms with Grazing Leases or Permits

	Pinal County	Pima County	Arizona
Number of farms with cattle and calves	179	166	2,881
Number of farms with grazing leases or permits	63	91	1,372
Source of leases or permits			
Forest Service	18	23	466
Taylor Grazing (BLM)	28	38	533
American Indian lands	2	2	195
Other[1]	44	58	643

SOURCE: U.S. Department of Agriculture 1997

NOTE: [1] Many of the farms or ranches in Pinal and Pima Counties have been issued permits or leases from both the ASLD and BLM, which accounts for the number of permits not adding up to the number of farms.

Table 3-21: Grazing Fees Received from Allotment

	2001	2002	2003	2004
Total AUMs	3,222	5,493	5,921	5,745
Grazing fees received	$4,349.70	$7,415.55	$7,993.35	$8,157.90

SOURCE: Calculated from U.S. Department of the Interior, Bureau of Land Management 2001a

3.5.1.2.1 Social Value of Ranching

Ranching conveys value to local communities through the conservation of open spaces and the connection to historic ranching in Arizona or a "western" quality of life. Pima County's Sonoran Desert Conservation Plan highlights the protection of ranchlands to preserve western heritage and cultural resources, maintain a traditional industry, diversify the economy, and preserve unfragmented open space (Mayro 1999).

3.5.1.3 Recreation

Current visitation in the IFNM is estimated to be between 12,000 and 15,000 annually. Visitors typically come to the IFNM alone or with one other person, and most daytime visits occur on the weekends. Visitation peaks during the more temperate fall, winter, and spring seasons (Gimblett 2004). As noted in Section 3.2.3, recreation opportunities available on the IFNM (such as hiking, nature viewing, recreational driving, hunting, and target shooting) are available elsewhere in the region, but there are place connections to the IFNM.

3.5.1.3.1 Regional and Statewide Tourism

Tourism is an important part of the Arizona economy. Pollack (2002) estimates the overall economic impact of the 29.5 million domestic and international overnight visitors and the 19.3 million day-trip visitors to Arizona in 2000 to be nearly $30 billion. In addition, the fiscal impact (revenues from local, county, and State government taxes) totaled $1.3 billion. Tourist spending is considered "new" dollars injected into the economy each year because non-local dollars are used in spending on hotels, restaurants, retail shops, car rental agencies, and similar outlets. According to the Arizona Office of Tourism, tourism expenditures in 2000 were $15.8 billion for domestic, international, and day-trip travelers (Pollack 2002).

The south-central/east Arizona area, defined in the Statewide Economic Study to include the planning area, Tucson, and the southeastern corner of the State, receives 4.3 million visitors annually. It is estimated that more than 67 percent are from out of state. Generally, a large portion of tourism in rural communities originates in the Phoenix and Tucson metropolitan areas (Arizona Department of Commerce [ADOC] 2003).

3.5.1.3.2 Economic Impacts of Recreation

Several studies have reported the economic impact of recreational activity in the planning area. Expenditures associated with visitation may include lodging and food purchase, equipment purchase, and travel costs. Secondary impacts of visitation have the potential to be more significant than commercial impacts due to the high percentage of hikers and other primitive- or low-equipment–recreation users that do not require the commercial permitted services.

The National Survey of Hunting, Fishing, and Wildlife-Associated Recreation reported that in 2001, wildlife recreationists spent $108 billion on trips, equipment, and other items. In Arizona, 1.7 million resident and nonresident 16-year-old-and-older participants spent in excess of $1.6 billion for fishing, hunting, or watchable wildlife forms of recreation. Of that total, trip-related expenditures were $512.0 million and equipment purchases totaled $1.0 billion. The remaining $67.0 million was spent on licenses, contributions, land ownership and leasing, and other items and services (USFWS 2001).

A study conducted for AGFD found the total economic effect (including secondary effects) from 2001 watchable wildlife activities in Arizona to be $1.5 billion ($1.1 billion by residents and $434.7 million by nonresidents) (Southwick Associates 2003). (Watchable wildlife recreation is defined in the study as observing, photographing, and/or feeding fish and/or other wildlife.) Arizona resident expenditures for watchable wildlife recreation in 2001 totaled $594.5 million and nonresident expenditures totaled $226.2 million. In addition to this statewide data, this study provided county-based estimates of the economic impact of watchable wildlife recreation in 2001. Table 3-22 includes the county-level data applicable to the planning area.

Table 3-22: Economic Effects from All Watchable Wildlife Recreation in Arizona, by County, in 2001 (Participants 16 Years Old and Older)

	County Residents	Residents from Other Counties	Visitors from Other States	TOTAL[1]
Pinal County				
Retail sales	$20,687,736	$12,133,344	$18,075,961	**$50,897,041**
Total multiplier effect	$38,535,190	$22,694,280	$34,735,654	**$95,965,124**
Salaries and wages	$10,838,913	$6,407,698	$9,368,291	**$26,614,902**
Full- and part-time jobs	353	210	385	**949**
State sales and fuel tax revenues	$1,177,490	$683,445	$1,050,972	**$2,911,907**
State income tax revenues	$282,476	$166,580	$216,275	**$665,331**
Federal income tax revenues	$1,982,471	$1,168,656	$1,487,257	**$4,638,383**
Pima County				
Retail sales	$85,322,023	$36,240,245	$51,982,423	**$173,544,691**
Total multiplier effect	$158,809,428	$67,834,927	$99,891,973	**$326,536,328**
Salaries and wages	$44,645,190	$19,140,009	$26,941,109	**$90,726,309**
Full- and part-time jobs	1,454	635	1,107	**3,196**
State sales and fuel tax revenues	$4,856,514	$2,029,235	$3,022,361	**$9,908,109**
State income tax revenues	$1,150,771	$495,093	$621,958	**$2,267,822**
Federal income tax revenues	$8,072,475	$3,470,619	$4,277,017	**$15,820,112**

SOURCE: Southwick Associates 2003
NOTE: [1] Some totals may vary due to rounding.

In addition to watchable wildlife recreation, additional economic impact is generated by fishing and hunting has been evaluated in another 2003 study prepared for AGFD. This study found that fishing and hunting created a statewide impact of $1.34 billion, including secondary impacts. The breakdown of these impacts is shown in Table 3-23 for Arizona and Pinal and Pima Counties. A subset of these data focusing

on hunting trip expenditures (food, gasoline, lodging, etc.) is most relevant to economic activity that may occur as a result of hunting in the IFNM as a share of the county-wide activity. In Pima County, where hunting trip expenses totaled $9.4 million, an equal distribution of $3.6 million was attributed to Pima County residents and residents of other Arizona counties, and the remaining $2.3 million were from out of state. The $4.5 million in hunting trip expenditures in Pinal County was mostly spent by Arizonans traveling from another county ($3 million), followed by out of state hunters ($0.8 million), and then Pinal County residents ($0.7 million) (AGFD 2003).

Table 3-23: 2001 Economic Impacts of Hunting and Fishing (in $ millions)

	Fishing and Hunting Expenditures	Total Multiplier Effect	Full- and Part-Time Jobs	Salaries and Wages	State Tax Revenues
Pima County	$84.5	$105.0	1,187	$18.3	$5.4
Pinal County	$20.0	$22.9	296	$3.8	$0.9
Total for Arizona	**$958.5**	**$1,340.0**	**17,190**	**$314.0**	**$58.2**

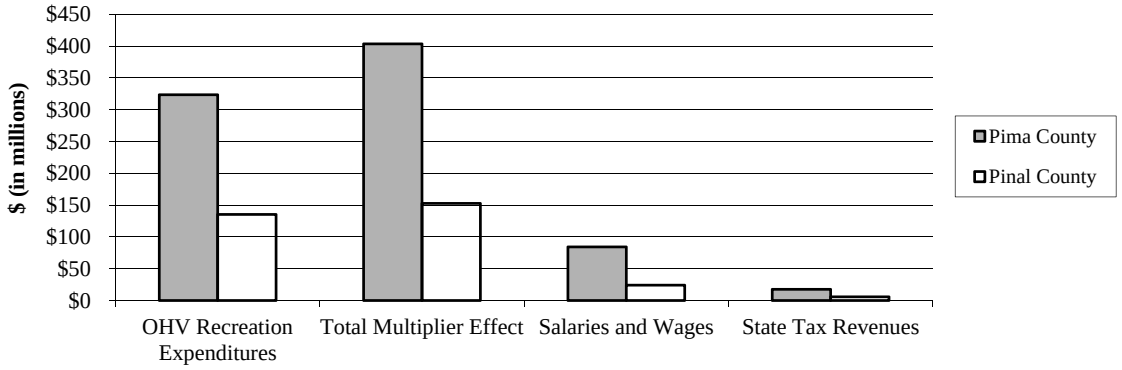
SOURCE: Arizona Game and Fish Department 2003

AGFD and Arizona State Parks (2003) estimated that OHV recreational activity in Arizona generated nearly $3 billion in retail sales during 2002. When secondary impacts are considered, the statewide economic impact is estimated at $4.25 billion, which is a much larger economic impact than reported for watchable wildlife recreation and hunting/fishing. Table 3-24 provides a breakdown of the estimated economic impacts.

BLM estimates that expenditures by hunters on BLM land in Arizona in FY 2002 totaled $41.8 million, expenditures by anglers totaled $16.2 million, and wildlife viewing and related expenditures totaled $145.1 million. These estimates were developed using the 1996 National Survey of Fishing, Hunting, and Wildlife-Associated Recreation, and weighing the statewide estimates by the GIS-calculated proportion of BLM-managed lands in Arizona (USDI, BLM 2002b).

Table 3-24: 2002 Economic Impact of OHV Recreation Activity (in $ millions)

	OHV Recreation Expenditures	Total Multiplier Effect	Full- and Part-Time Jobs	Salaries and Wages	State Tax Revenues
Pima County	**$323.6**	**$403.5**	**3,307**	**$84.3**	**$17.7**
Pinal County	**$135.3**	**$152.7**	**1,099**	**$24.2**	**$5.9**
Total for Arizona	**$3,055.7**	**$4,252.0**	**36,951**	**$1,088.0**	**$187.0**



SOURCE: Arizona Game and Fish Department and Arizona State Parks 2003

3.5.1.3.3 Special Recreation Permit Program

The Special Recreation Permit program issues permits for commercial uses and services, organized group activities, competitive uses, and special individual uses where a decision is made to establish a special area permit system. Currently, commercial activities in the IFNM are not substantial. The IFNM supports two existing temporary use Special Recreation Permits for commercial recreational use or group activities; more information is provided on the specifics of these businesses in Section 3.2.3.

3.5.1.4 Lands and Realty

Within the IFNM, there are various authorized realty actions for leases, permits and rights-of-way, and one 20-year R&PP Act lease for a soaring club that was approved in 1993.

3.5.1.4.1 Rights-of-Way

Fees received by BLM for rights-of-way include fees for processing the application and monitoring compliance with the terms and conditions of the right-of-way grant and the annual rental, which is based on fair market rental value. Rental rates are based on land values in the area and are adjusted annually in accordance with an economic index.

3.5.1.4.2 Permits, Leases, and Easements

Minimum impact permits authorized under 43 CFR 2920.2-2 (2920 permits) provide for the issuance of permits without publication of notice of a realty action, when it is determined that the proposed use is in conformance with applicable BLM plans, policies, local zoning, and other requirements and will not cause appreciable damage or disturbance to public land or its resources or improvements. The current management guidance indicates that all new applications or those for renewal of Section 2920 permits will be reviewed on an individual basis. Film permits will be authorized when conducive for the values of the IFNM (USDI, BLM 2001a).

3.5.1.4.3 Potential Economic Impact of Large-Scale Open Space

Part of the economic value resulting from the presence and protection of a large open-space/recreation/natural area amenity such as the IFNM correlates to localized gains in property values and support of some resource-based industries such as ranching and tourism. Although these impacts are difficult to quantify, numerous studies have documented that open space can trigger local property value increases and other tangible economic benefits (Muro 2002). The open landscape, scenic vistas, and recreational opportunities represented by the IFNM may spur amenity benefits that boost economic development and quality of life gains for local communities.

3.5.1.5 Employment, Income, and Subsistence

This section characterizes each of the BLM programs in terms of direct and indirect employment and income. Some discussion of the diversity and stability of local economies is included where relevant to changes to BLM programs that might occur within the scope of this plan since these factors are tied to a community's capacity to respond to change. Measures of diversity and stability may include the diversity of and dependency of economic sectors, and the ability to respond to change (population density, local amenities, transferability of labor skills). Statistics are provided for the municipalities of Eloy (in Pinal County) and Marana (in Pima County); these are the closest incorporated communities to the IFNM. Figures also are provided for Pinal and Pima Counties, the Tohono O'odham Nation (as available), and the State of Arizona to allow comparison to larger regions.

The current economic base in Pima County includes the aerospace, optics, and other high-tech manufacturing industries, State and Federal Government, and the tourism and retirement industries. In

Pinal County, agriculture, government, tourism, and retirement are considered the current economic base (ADOC 2003). General trends statewide and in Pinal and Pima Counties suggest an economic shift from resource extraction (e.g., mining, agriculture) toward the services and professional and the government sectors. In both counties, new job growth between 1970 and 1999 was dominated by jobs in the services and professional and the government sectors. In 1999, these two sectors accounted for approximately 77 percent of total employment in Pinal County, and 83 percent of total employment in Pima County. Between 1970 and 2000, job growth in both counties was slower than the State but faster than the Nation (Bureau of Economic Analysis 2000).

Employment by industry for counties and the State is provided in Table 3-25 and for Eloy and Marana in Table 3-26. A greater percentage of employment in Pinal County is in the farm and agricultural services sector and the mining sector, as compared with employment in Pima County or the State. The Town of Marana has a comparable ratio of employment in services and resource-extraction related industries to the State and Pima County figures. Important services employers in Marana include retail trade, educational services, and health care and social services. The City of Eloy is more dependent on farm and agricultural employment, and less reliant on services and professional sector employment. Within the services and professional sector, the largest employers in Eloy are retail, educational services, health care and social services, and accommodation and food services.

Table 3-27 provides information on per capita and median household income, unemployment, and poverty. Whereas per capita income is calculated by dividing aggregate income by the total number of individuals in each geographic area, the median household income identifies the income level of the household in the middle of the income distribution for each area. Unemployment in Pinal County has been consistently higher than the State level between 1970 and 2000. The poverty rate and unemployment are higher in Pinal County than in Pima County and the State as a whole. The Town of Marana has a significantly higher household income than the other areas, and a lower poverty rate. Eloy is associated with a much higher poverty rate—about double the Pinal County and State rates—and relatively lower income.

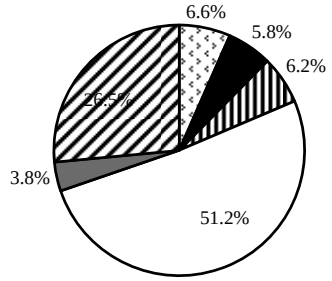
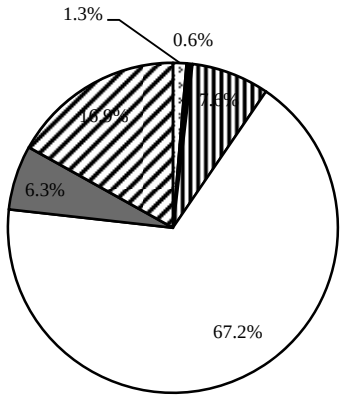
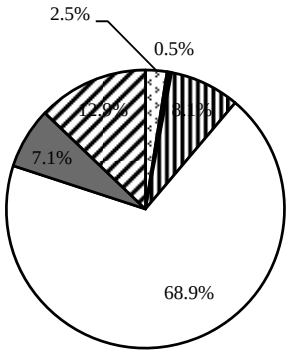
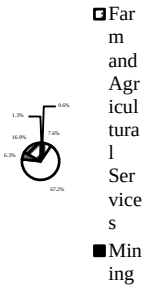
Per capita personal income in Pima County has been stable throughout the 1990s. In Pinal County, the per capita personal income averaged 79 percent of the rural U.S. per capita income and has been declining since 1993. The Statewide Economic Study concluded that possible reasons for this decline may include the larger than average proportion of retired residents and the shift of employment from higher-wage mining jobs to lower-paying jobs in services, trade, and government (ADOC 2003).

The median household income is more than twice the per capita personal income in Eloy, Marana, Pinal County, and the Tohono O'odham Nation. This is due to a number of factors including household size and sources of income. Average household size is notably larger in Eloy (3.6 persons) and the Tohono O'odham Nation (3.7 persons) as compared to the other geographic areas (2.5 persons in Pima County and 2.7 persons in Pinal County and Marana). The share of income from wages and salaries in Eloy (82 percent), Marana (78 percent), and the Tohono O'odham Nation (73 percent) is higher than Pima County (68 percent) and Pinal County (62 percent). Whereas 20 percent of Arizonan's personal income is from retirement, social security, or investments; these sources of income account for a lower portion of income in Marana (17 percent), the Tohono O'odham Nation (15 percent) and Eloy (10 percent) and a higher portion of income in Pinal County (29 percent) and Pima County (24 percent). In Eloy, 81 percent of individuals and 54 percent of households earned less than $30,000 in 1999. In Marana, 53 percent of individuals and 22 percent of households earned less than $30,000 the same year (U.S. Census Bureau 2000a).

Table 3-25: Employment By Industry (1999), County and State Level

Industry	Pinal County		Pima County		Arizona	
	No. of Jobs	Percent of Total	No. of Jobs	Percent of Total	No. of Jobs	Percent of Total
Farm and Agricultural Services	**3,482**	**6.6**	**5,699**	**1.3**	**68,266**	**2.5**
Farm	2,461	4.7	940	0.2	20,104	0.7
Agricultural services	1,021	1.9	4,759	1.1	48,122	1.8
Mining	**3,040**	**5.8**	**2,423**	**0.6**	**14,314**	**0.5**
Manufacturing	**3,266**	**6.2**	**32,832**	**7.6**	**222,473**	**8.1**
Services and Professional	**26,965**	**51.2**	**288,689**	**67.2**	**1,882,405**	**68.9**
Transportation and public utilities	1,236	2.3	14,427	3.4	119,674	4.4
Wholesale trade	1,383	2.6	12,225	2.8	120,510	4.4
Retail trade	8,340	15.8	71,612	16.7	471,176	17.2
Finance, insurance, real estate	2,409	4.6	35,627	8.3	273,404	10.0
Services (health, legal, business, etc.)	13,597	25.8	154,798	36.1	897,641	32.8
Construction	**1,977**	**3.8**	**27,188**	**6.3**	**194,244**	**7.1**
Government	**13,955**	**26.5**	**72,501**	**16.9**	**351,426**	**12.6**
Total Employment	**52,685**	**100**	**429,332**	**100**	**2,733,088**	**100**

Graphical Representation

Pinal County	Pima County	Arizona	Legend
			

SOURCE: Bureau of Economic Analysis 2000
NOTE: Numbers may not add up due to rounding.

The figures available for the Tohono O'odham Indian Reservation indicate a relatively low median household income, high unemployment, and high poverty rate (see Table 3-27). The largest employment sector on the Tohono O'odham Indian Reservation is government, while cattle-raising and related activities is second. Agriculture, retail-tourism, and utilities sectors are expected to grow as the tribe implements development plans (ADOC 2003).

Table 3-26: Employment By Industry (1999), Municipality Level

Industry	City of Eloy Pinal County		Town of Marana Pima County	
	No. of Jobs	Percent of Total	No. of Jobs	Percent of Total
Agriculture, Forestry, Fishing and Hunting	**289**	**9.7**	**81**	**1.3**
Mining	**27**	**0.9**	**79**	**1.3**
Manufacturing	**483**	**16.2**	**870**	**14.4**
Services and Professional	**1,493**	**50.2**	**4,064**	**67.3**
Transportation and utilities	56	1.8	351	5.8
Wholesale trade	74	2.5	182	3.0
Retail trade	306	10.3	684	11.3
Finance and insurance	32	1.1	248	4.1
Real estate and rental leasing	28	0.9	78	1.3
Professional, scientific, and technical	15	0.5	290	4.8
Information	35	1.2	133	2.2
Management of companies and enterprises	0	0	8	0.1
Administrative, support, and waste services	48	1.6	183	3.0
Educational services	256	8.5	546	9.0
Health care and social services	253	8.5	656	10.8
Arts, entertainment, recreation	51	1.7	105	1.7
Accommodation and food services	263	8.8	366	6.1
Other Services	**176**	**5.9**	**234**	**3.9**
Construction	**266**	**8.9**	**283**	**4.7**
Public Administration [Government]	**315**	**10.6**	**658**	**10.9**
Total Employment	**2,973**	**100**	**6,035**	**100**

SOURCE: U.S. Census Bureau 2000a
NOTE: Numbers may not add up due to rounding.

Table 3-27: General Income, Unemployment, and Poverty Characteristics

	City of Eloy	Town of Marana	Pinal County	Pima County	Tohono O'odham Indian Reservation	Arizona
Income						
Per capita personal income						
1999	$9,194	$22,408	$14,977	$23,911	6,998	$24,553
1989	$5,836[1]	$8,940	$9,228	$13,177	-	$13,461
1979	-	$4,777	$5,313	$7,147	-	$7,041
Median household income (1999)	$26,518	$52,870	$35,856	$36,758	$19,970	$40,558
Unemployment Rate						
2000	-	4.6%	8.1%	5.3%	24.0%	5.6%
1990	-	5.6%	9.2%	7.6%	22.5%	7.2%
1980	-	6.6%	7.7%	6.5%	-	6.2%
1970	-	-	5.0%	4.0%	-	4.2%
Poverty Rate						
Number of persons below poverty level						
1999	2,796	810	20,816	120,778	4,929	698,669
1989	2,631	388	26,152	111,880	-	564,362
1979	-	270	16,000	67,739	-	351,365
Poverty rate among individuals (%)						
1999	31.9%	6.2%	16.9%	14.7%	46.4%	13.9%
1989	36.7%	17.8%	23.6%	17.2%	65.0%	15.7%
1979	-	16.1%	18.2%	13.0%	-	13.2%

SOURCES: Arizona Department of Commerce 2003; U.S. Census Bureau 2000a, 1999, 1990
NOTES: [1] Income statistic not adjusted for inflation.

In 2005, the copper industry employed 6,900 in Arizona (Niemuth 2007a). The Silver Bell Mine, located outside but immediately adjacent to the planning area boundary, is currently operating. In the second quarter of 2007, Silver Bell Mining LLC employed 153 persons, which is the peak employment on record for this mine (Mine Safety and Health Administration 2007). Based on the last decennial census, mining provided approximately 106 jobs locally (i.e., in the City of Eloy and Town of Marana), or about one percent of employment in those municipalities. This is generally consistent with the State percentage of total employment in mining. Secondary effects of mining employment occur in proportion to the size of the labor force as incomes filter through the local economy. The presence of mining operations in the area also may result in indirect benefits due to dollars spent locally on businesses providing services to the sector, and tax payments to local governments.

Farm and agricultural services account for approximately 370 jobs locally, or about 10 percent of Eloy employment and 1 percent of Marana employment. Table 3-25 and Table 3-26 indicate that agricultural occupations provide a larger proportion of employment in Eloy and Pinal County than any other political jurisdiction. Personal income associated with agriculture in Pinal County in 1999 was $161.9 million, down 74.4 percent from 1991. Personal income in the agricultural sector in Pima County totaled $98.2 million in 1999, up 10 percent from 1990. For comparison, earnings in agriculture for the State of Arizona in 1999 totaled $1.5 billion (Bureau of Economic Analysis 1999). Although farming and agricultural services produce more jobs for the two counties, they generate less revenue than mining. This may be at least partly due to the occurrence of seasonal employment in the agricultural sector. As with all economic sectors, indirect and secondary economic growth occurs as a result of agricultural employment. With regard to agriculture, these secondary impacts may be present within the figures for retail and other categories.

Pollack (2002) estimated that the economic impact of domestic, international, and day-trip travelers to Arizona in 2000 supported more than 451,600 jobs, including direct, indirect, and secondary jobs associated with tourism. These jobs equate to 20 percent of total employment in the State. However, there are few jobs and wages directly supported by recreation in the IFNM. BLM's recreation program employs recreational planners, law enforcement personnel, park rangers, maintenance workers, and support personnel for recreation management in the decision area. Active commercial operations with BLM-issued special recreation use permits include cattle drives, horseback riding, and associated transportation to Cocoraque Ranch (two related permits). An orienteering club has another permit. One of the commercial operations is based on adjacent private property within IFNM (cattle drives and horseback riding to Cocoraque Ranch). The orienteering club is based in downtown Tucson. A four-wheel-drive sightseeing tour operation also was permitted in the area, but closed business due to depressed economic conditions prevailing in the area in 2001 through 2003.

3.5.1.6 Public Finance and Government Services

3.5.1.6.1 Regional Public Finance

Pima County's annual revenues total about $835 million, and Pinal County's total about $169.5 million. In both counties, the largest sources of revenue are charges for services and property taxes. The greatest expenditures are for general government, public safety, and health care (Pima County 2002; Pinal County 2003).

3.5.1.6.2 Payment in Lieu of Taxes Payments

One source of government revenues is Payment in Lieu of Taxes (PILT), which are Federal payments to local governments that help offset losses in property taxes due to nontaxable Federal lands within their boundaries. The Payment in Lieu of Taxes Act of 1976, as amended (31 U.S.C. 6901-6907), defines lands that are eligible for PILT including lands administered by BLM, and Federal lands in the national forest and national park systems. PILT payments are determined on a formula basis, with the number of Federal

acres constituting the principal determining variable. The logic behind PILT is that Federal lands within county boundaries are excluded from a county's tax base, and the county should therefore be compensated for lost revenue opportunities. PILT payments are computed based on the number of acres of Federal entitlement land, as defined in 31 U.S.C. 6902, within each county. The number of qualified acres is multiplied by a dollar amount per acre set by law. Payments are subject to limitations based on population. Congress sets annual PILT program funding limitations that also may affect the amount of the payments under the program. Examples of how PILT payments have been used include the improvement of local school, water, and road systems. Payment eligibility is reserved for local governments that provide services such as those related to public safety, environment, housing, social services, and transportation, and that contain nontaxable Federal lands (USDI, BLM 2002c). The 2003 entitlement acreage by agency is shown for Pinal and Pima Counties and the State in Table 3-28.

Table 3-28: BLM Portion of PILT by Share of Entitlement Acreage, 2003

Area	BLM	Forest Service	Bureau of Reclamation	National Park Service	Army Corps of Engineers	USFWS	Total	BLM (as percentage of total)
By Share of Entitlement Acreage								
Pinal County	273,373	223,155	21,312	473	0	0	518,313	52.7
Pima County	308,268	389,871	5,845	410,778	0	416,210	1,530,972	20.1
Arizona	**12,017,556**	**11,253,268**	**198,373**	**2,650,649**	**6,833**	**1,541,774**	**27,668,453**	**43.4**

SOURCE: U.S. Department of the Interior, Bureau of Land Management 2003e

In 2003, the total PILT payment in Arizona was $18,045,248 of which the BLM portion based on entitlement acreage was $7,831,638. The BLM portion of the total PILT payment for Pima County ($1,841,427) based on entitlement acreage was $370,127 and the BLM portion of the total PILT payment for Pinal County ($673,398) was $355,092. PILT payments in Pinal and Pima Counties increased steadily between 1999 and 2003. Over this time period, total PILT payments for all agencies in Pima County increased by $843,249, or approximately 84.5 percent. Total PILT payments for all agencies in Pinal County increased by $296,233, or approximately 78.5 percent. This compares with a statewide increase of $7.77 million, or approximately 75.6 percent.

In 2003, BLM-managed land accounted for 20.1 percent of all entitlement acreage in Pima County and 52.7 percent in Pinal County, as compared to the 43.4 percent of the BLM share statewide. BLM is the greater source of PILT payments in Pinal County, but the Forest Service, National Park Service, and the USFWS are a greater source of PILT payments in Pima County than BLM. These entitlement acreages have varied slightly over recent years, but the relative share of agency PILT payments has remained fairly constant.

Total county government revenue corresponding to the 2003 PILT payment data was $169.5 million for Pinal County and $835 million for Pima County (Pinal County 2003 and Pima County 2002). Therefore, the BLM portion of PILT payments in Pinal County, at $0.36 million, comprise -.21 percent of the total county revenues. Current PILT payments of $0.37 million in Pima County are about 0.04 percent of the total revenues for Pima County. Nationwide, BLM's PILT payments totaled $220 billion in 2003 (USDI, BLM 2003c, 2004d).

3.5.1.6.3 BLM Budget

Nationwide, actual treasury receipts generated by BLM in FY 2003 (excluding mining claim and helium collections) totaled $2.4 billion. These BLM-generated receipts are derived from activities and other revenue sources on public land, including mineral leasing, grazing, recreation, and rights-of-way across public lands. Treasury receipts exclude offsetting collections such as mining claim maintenance fees and

collections from the sale of helium (USDI, BLM 2004d). Nationwide, BLM has a workforce of some 10,000 full-time, permanent employees for the administration of 261 million surface acres and 700 million acres of subsurface mineral estate throughout the Nation (USDI, BLM 2004b). Budget for management of the IFNM is integrated with that of the BLM Tucson Field Office budget, which is a function of the overall USDI, legislative, and executive funding priorities.

3.5.2 Social and Demographic Conditions

3.5.2.1 Selected Demographic Information – Current Conditions

Understanding basic population trends is fundamental to community planning. To demonstrate the characteristics for the study area population, selected demographic data from the U.S. Census 2000 have been compiled and the results are presented in Table 3-29. The data presented include information about population, gender, age, and race and ethnicity.

The 2000 Census population densities in the two counties vary significantly, from 92 persons per square mile in Pima County to 33.5 in Pinal County. Pima County's population density of 92 persons per square mile is twice the statewide average of 45 persons. The population density of the Tohono O'odham Nation (2 persons per square mile), Marana (187 persons per square mile), and Eloy (145 persons per square mile) are notably lower than the 2,500-person per square mile density of the City of Tucson (U.S. Census Bureau 2000a, 2000b). These numbers are indicative of the urbanization in the Tucson metropolitan area as compared to Pinal County's more rural environment.

Gender distribution in the counties is similar: all areas have a relatively equal gender distribution of roughly half male and half female. The median age in both counties is slightly higher than the State median, and Eloy is noticeably younger than all other jurisdictions. The median age among the Tohono O'odham is 26.2, with 41.1 percent of the population under 20 years of age (ADOC 2003).

The city of Eloy also is distinguishable in terms of racial characteristics; the city population has fewer Whites (52.7 percent versus 70.4 percent in Pinal County and 75.5 percent statewide) and more Blacks (5.3 percent versus 2.8 percent in the county and 3.1 percent statewide). In Pinal County, the percentages of Whites (70.4 percent), Blacks (2.8 percent), and Asians (0.6 percent) are lower than those occurring in Pima County. The percentage of American Indian/Alaska Natives in Pinal County, at 7.8 percent, is significantly higher than in other jurisdictions in the study area.

Hispanic or Latino origin statistics represent ethnicity (not race) and include all persons who identify themselves as of Hispanic or Latino origin or descent. Pima and Pinal Counties have approximately the same percentage of persons of Hispanic or Latino origin at 29.3 percent and 29.9 percent, respectively. These percentages are somewhat higher than those found across the State (25.3 percent). The City of Eloy has a higher proportion of Hispanic residents (74.4 percent versus 29.9 percent in the county and 25.3 percent statewide) than the county or the State.

Table 3-29: Selected 2000 Census Demographic Information

	City of Eloy		Town of Marana		Tohono O'odham Nation		Pinal County		Pima County		Arizona	
Total Population	10,375		13,556		10,787		179,727		843,746		5,130,632	
Persons per Square Mile (excluding water)	145		187		2		2		91.8		45.2	
Gender	**Number**	**Percent**	**Number**	**Percent**	**Number**	**Percent**	**Number**	**Percent**	**Number**	**Percent**	**Number**	**Percent**
Male	5,999	57.8	6,791	50.1	5,190	48.1	95,830	53.3	412,562	48.9	2,561,057	49.9
Female	4,376	42.2	6,765	49.9	5,597	51.9	83,897	46.7	431,184	51.1	2,569,575	50.1
Age												
Under 20 years	3,845	37.1	3,895	28.7	4,433	41.1	49,742	27.6	235,880	28.0	1,518,188	29.7
20 to 64 years	5,869	56.6	8,367	61.7	5,593	51.8	100,814	56.1	488,379	57.9	2,944,605	57.5
Age 65 and older	661	6.4	1,294	9.5	761	7.1	29,171	16.2	119,487	14.2	667,839	13.0
Median age	27.5	N/A	34.5	N/A	26.2	N/A	37.1	N/A	35.7	N/A	34.2	N/A
Race and Ethnicity												
White	5,468	52.7	11,094	81.8	873	8.1	126,559	70.4	633,387	75.1	3,873,611	75.5
Black or African American	552	5.3	392	2.9	11	0.1	4,958	2.8	25,594	3.0	158,873	3.1
American Indian/ Alaska Native	465	4.5	286	2.1	9,718	90.1	14,034	7.8	27,178	3.2	255,879	5.0
Asian	124	1.2	334	2.5	17	0.2	1,086	0.6	17,213	2.0	92,236	1.8
Native Hawaiian/ Other Pacific Islander		0.1	20	0.1	10	0.1	146	0.1	1,088	0.1	6,733	0.1
Some other race	3,266	31.5	1,014	7.5	54	0.5	28,149	15.7			596,774	11.6
Two or more races	489	4.7	416	3.1	104	1.0	4,795	2.7			146,526	2.9
Hispanic or Latino (any Race)	7,717	74.4	2,663	19.6	760	7.1	53,671	29.9	247,578	29.3	1,295,617	25.3

SOURCES: U.S. Census Bureau 2000a, 2000b
NOTES: N/A = Not applicable.
Numbers may not add due to rounding.

3.5.2.1.1 Environmental Justice

The identification of minority and low-income populations is relevant for this study because Executive Order 12898, Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations, requires that Federal agencies make achieving environmental justice part of its mission by identifying and addressing, as appropriate, disproportionately high and adverse human health or environmental effects of its programs, policies, and activities on minority and low-income populations.

Minority and low-income persons are defined as follows:

- Minorities are persons of Hispanic or Latino origin of any race, Blacks, American Indian/Alaska Natives, and Asians or Pacific Islanders (without double-counting persons of Hispanic/Latino origin who also are contained in the racial groups).
- Low-income persons are those that live below the poverty level. The U.S. Census Bureau uses a set of income thresholds that vary by family size and composition to determine who is poor. Based on this, the poverty level for a family of four in 2002, having two children under the age of 18, was $18,244 (U.S. Census Bureau 2003b). The 2000 census data, however, are based on 1999 data where the poverty level for the same family was $16,895 (U.S. Census Bureau 2002). This is the standard that was used in the following analysis.

The presence of environmental justice populations has been evaluated for the communities closest to the IFNM that are most likely to be affected by management decisions made regarding these lands. Data for the county and State levels provide comparison populations to determine whether minority and/or low-income populations occur disproportionately within the overall population. Census Tract 44.09, Block Group 2, represents the Avra Valley area. Table 3-30 summarizes the minority and low-income groups identified in this analysis.

Table 3-30: Minority and Low-Income Populations (1999)

Arizona (Comparison Population)	Minority Population = 36.2%			Low-income Population =13.9%		
		Minority Population			Low-income Population	
Geographic Area	Total Minority[1]	>50%	>36.2%	Poverty Rate[2]	Poverty Rate >50 %	Poverty Rate >13.9%
City of Eloy	84	Yes	Yes	32	No	Yes
Town of Marana	28	No	No	6	No	No
Pima County	38.5	No	Yes	14.7	No	Yes
Pinal County	41.2	No	Yes	16.9	No	Yes
Tohono O'odham Indian Reservation	95.6	Yes	Yes	46.4	No	Yes
Census Tract 44.09, Block Group 2	21.1	No	No	19.3	No	Yes

SOURCES: U.S. Census Bureau 2000a, b

NOTES: [1] The total minority population includes individuals of Hispanic/Latino origin, but those that are also Black/African Americans, American Indian/Alaska Natives, Asians, and Native Hawaiian/Other Pacific Islanders are not included in the total in order to avoid double counting.

[2] Poverty rate among individuals, based on poverty status in 1999.

3.5.2.1.2 Housing

Table 3-31 shows the housing characteristics in the State of Arizona, the two counties, and Eloy and Marana. Although Pinal County has experienced notable growth in housing units since 1990, the growth in Marana has been exponential. Pinal County contains a relatively high percentage of housing units used for recreational, seasonal, or occasional use, and both Pinal County and the Town of Marana have high rental vacancy rates (U.S. Census Bureau 2000a).

Table 3-31: Housing Characteristics

Housing Characteristics	City of Eloy	Town of Marana	Pinal County	Pima County	Arizona
Total housing units 1990	N/A	850	52,732	298,207	1,659,430
Total housing units 2000	2,734	5,702	81,154	366,737	2,189,189
Percent change 1990 to 2000	N/A	570.8%	53.9%	23.0%	31.9%
Average household size of owner-occupied units	3.6	2.7	2.63	2.62	2.71
Average household size of renter-occupied units	3.5	2.5	2.86	2.21	2.48
Percent of housing units used for seasonal, recreational, or occasional use (2000)	N/A	3.9%	14.5%	2.9%	6.5%
Homeowner vacancy rate	2.5%	3.6%	4.0%	1.8%	2.1%
Rental vacancy rate	9.2%	21.7%	16.8%	9.2%	9.2%

SOURCE: U.S. Census Bureau 2000a
NOTE: N/A= not available.

Rental affordability may be measured by median gross percent of household income; this percent totaled 27 percent in Eloy and 25 percent in Marana. The affordability of owner-occupied housing may be measured through a housing affordability index. In both Eloy and Marana, this index suggests that the median family can afford the median house. Overall, housing in the area around the IFNM generally is affordable for the population (U.S. Census Bureau 2000a).

3.5.2.1.3 Migration and Residential Stability

The foreign-born population represented 13 percent of the total population in Arizona in 2000. From 1995 to 2000, Arizona (at 74.3 percent) had the second highest rate of net domestic immigration, and nearly one-third of this immigration was from California (U.S. Census Bureau 2003c). In addition, the U.S. Immigration and Naturalization Service estimates that 283,000 residents, or 5.5 percent of Arizona's 2000 population, were unauthorized immigrants. By comparison, the estimated 7 million unauthorized immigrants living in the United States in 2000 constituted 2.5 percent of the total U.S. population of just over 281 million (U.S. Immigration and Naturalization Service 2003).

Generally, the longer people have lived in a community, the greater is their connection to community and social groups as well as the land (Harp et al. 2001). In 2000, 77.3 percent of the residents in Pima County lived in the same house or same county as they did 5 years prior, compared to 66.5 percent in Pinal County. The rate for Arizona (at 74.9 percent) was lower than Pima County, but higher than Pinal County. The rate of residents of Marana who in 2000 lived in the same house as they did five years prior is 24 percent; 33 percent lived in a different state in 1995. For Eloy, 44 percent were in the same house in 2000 as they were in 1995, and 14 percent lived in a different state (U.S. Census Bureau 2000a). The more dramatic figures for the municipalities probably reflect the growth of initially small communities.

3.5.2.1.4 Educational Attainment

Educational attainment levels in a community may affect per capita income and other economic indicators. Rates of attainment of a high school education or above in 2000 were higher in Pima County (83.4 percent) than in Pinal County (72.7 percent). In comparison, the statewide average was 81.0 percent. The percentages of the population with a high school degree in Marana and Eloy are 22 percent and 24 percent, respectively. Similarly, but more dramatically, in 2000 Pima County had the highest percentage of the population with 4 years of college or a bachelor's degree or above (at 26.7 percent). The average in Pinal County was far below (at 11.9 percent), and the statewide average was 23.5 percent. In Marana and Eloy, 29 percent and 4 percent, respectively, held a bachelor's degree (U.S. Census Bureau 2000a). [Note: educational attainment figures are a percentage taken from individuals older than 25 years of age.]

3.5.2.2 Social Baseline and Sense of Place

The key social and cultural issues, interested parties, and potentially affected stakeholders related to this RMP/EIS are identified based on the scoping report (USDI, BLM 2004e) and continuing public and agency comment for this RMP/EIS effort. Others have been identified through the review and analysis of the proposed action and alternatives and social effects of land management decisions similar in scope.

With other land management issues throughout the U.S., the BLM has found that evaluation of sense of place issues provides a useful baseline for the social environment. Galliano and Loeffler (1999) define sense of place as a "link between social experiences and geographic areas." Understanding sense of place issues 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 individual people may develop a sense of place based on perceptions about amenities (such as recreational opportunities), historic or symbolic activities and places, or landscapes and scenic vistas.

The social baseline is summarized in the discussion that follows according to the following issue categories: (1) landscape/scenic/aesthetic issues, (2) activities/resource and land use issues, and (3) cultural/symbolic issues.

3.5.2.2.1 Landscape/Scenic/Aesthetic Issues

Protection of the ecological landscape (e.g., wildlife and habitat) was identified as a priority by many individuals throughout scoping. Urban sprawl, visitor facilities, and OHV use were identified as threats to the scenic values of the IFNM. The potential for conflict with livestock grazing and recreational activities such as motorized vehicle use and recreational shooting, among other concerns, is raised when wildlife and habitat protection are perceived as a top priority for public lands. Ranching activities also are supported in the area as a means to preserve open space and the area's western heritage, and to promote stewardship. This opinion was noted in the scoping report and is also prominently considered in the Sonoran Desert Conservation Plan for Pima County. Ragged Top is noted as a specific place of value in scoping comments due to its visual impact and habitat, particularly for bighorn sheep and desert tortoise.

3.5.2.2.2 Activities/Resource and Land Use Issues

There is some commonality amongst those stakeholders that directly use the IFNM for mining and ranching activities, those that live in the residential areas within and near the IFNM boundaries, and those that recreate on IFNM lands. These issues include strong people-place connections tied to where they live, work, and recreate; concerns about safety related to recreational shooting; and "backyard access" to IFNM lands. Among ranchers, there is often strong sense of place associated with long-standing

operations that are integrated into the social structure and the connection to the land associated with the livestock operations.

The social baseline for general public access for multi-purpose uses is mixed: there are those that value the protection of public access/use opportunities and continued opportunity for people-place connections and those that favor protection of resources over public access/use opportunities. Stakeholders range from those that live and work within or near the IFNM, those that visit and recreate at the IFNM often, to those that have never visited or recreated at the IFNM but value its existence and protection for future generations. These concerns are expressed in the particulars with regard to travel management and motorized access opportunities. A coalition of citizen groups submitted a proposal regarding which routes should be designated as open for public use and access.

A variety of recreation uses currently occur in the IFNM, sometimes resulting in conflict. Scoping comments highlighted potential compatibility issues between camping, recreational shooting, OHV use, mining (in and near the IFNM), and passive recreation such as hiking and wildlife viewing. The magnitude of sense of place issues with regard to changes in recreation access would be expected to correlate to areas that receive the highest visitor use in the IFNM, notably Ragged Top and the Waterman Mountains (Gimblett 2004).

With regard to use of IFNM lands for development of mineral and energy resources, there are those concerned about potential impacts to natural resources and those that support access and opportunities for mineral resource development within the IFNM and/or the surrounding area (e.g., Asarco Silver Bell Mine). No mining currently occurs within the IFNM, and long-term (30-year trends from 1970 to 2000) indicate that mining jobs are decreasing relative to other local employment. However, links to the current and former participation of mining in local communities still exist and have increased in recent years as the market value for copper has increased.

With regard to lands and realty, there are those that value the pursuit of acquisition of State Trust land and/or private lands within the IFNM boundaries. With regard to utilities and communication facilities, energy generating and transmission industries contingencies value access to the IFNM creates for energy distribution in southern Arizona. Others value limiting utility corridors to remote areas of the IFNM.

With regard to use of IFNM lands for grazing, there are stakeholders concerned about the impacts of grazing to the natural environment and there are stakeholders that use the land for active livestock grazing operations and value this continued use and associated people-place connections.

3.5.2.2.3 Cultural/Symbolic Issues

Various stakeholders hold social value for cultural resources within the IFNM and are concerned with the adequate protection of these resources. Tribes have a unique stakeholder status and social value for some of these resources, particularly the archaeological resources. Some stakeholder concerns regarding cultural resources are heightened with respect to cultural resources listed on the National Register. Within the IFNM, the Los Robles Archeological District and the Cocoraque Butte Archaeological District are listed on the National Register. The planning area also contains the remnants of the Mission Santa Ana de Cuiquiburitac site, which also has been listed on the National Register. Historical mining camps, ranch facilities, and other cultural resources that are eligible for listing on the National Register are present at the IFNM. As previously discussed, both ranching and mining are perceived by some scoping participants as an important part of the area's heritage and lifestyle.

Protection of ACECs, natural/cultural area allocations, and management of areas to protect wilderness characteristics are issues that have both local and regional/natural interest among various individual stakeholder and stakeholder groups. In that regard, the Waterman Mountains ACEC designation and areas

identified for management to protect wilderness characteristics may have some social value symbolic importance in addition to the resource value protection associated with these designations. To a lesser extent, there may be some who value the existing allocations at the monument, particularly the Silver Bell Desert Bighorn Sheep Management Area and Avra Valley Cultural Resource Management Area for protection of the resources for which they were designated. The Silver Bell RCA, Sawtooth Mountains CRMA, and Cocoraque Butte-Waterman Mountains Multiple Resource Management Area designations are more administrative-based than resource-protection-based and the public has not expressed particular interest in the protection of these designations.

3.6 PUBLIC SAFETY

3.6.1 Active and Abandoned Mines and Prospects

Currently available data show 33 mine sites and 225 existing mining claims in the IFNM (USDI, BLM 2004b). Some visitors find abandoned mines and prospects attractive to explore and may be exposed to, and unaware of, the following hazards at these sites:

- 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
- Hazardous or toxic materials

There are no data indicating the extent to which exploration of shafts, adits, drifts, tailings piles, or other excavations takes place within the IFNM. Reports of party sites next to deep shafts raise concern about safety issues. A 20-foot-deep, wide-mouthed shaft at the corner of the El Paso pipeline and Sasco Road (on State Trust land) is the site of numerous reported events. The Sheriff's Department is responsible for enforcement measures with respect to these unauthorized activities (Adler 2004).

Potential hazards from dumping of hazardous material in old mine shafts also exist; however, no official incidents have been recorded by BLM to date (Auby 2004). Mine tailings located at closed mine sites are potentially hazardous because chemicals in the tailing piles can potentially leach into soils and/or groundwater or become airborne hazardous wastes.

3.6.2 Unexploded Ordnance

The presence of known and potential unexploded ordnance (UXO) contamination exists in areas nearby the IFNM. In addition to being an explosive safety hazard, UXO is also a potential chemical hazard. Expended UXO, including both live and inert rounds, may contain chemical constituents with explosive, pyrotechnic, propellant, and incendiary components. In addition to the dangers of UXO, ordnance that detonated upon delivery may contain unburned residues of these chemical constituents and may have produced combustible by-products (U.S. Army Corps of Engineers 1995).

One such area where UXO exists is at the former Williams Field Bomb Target Range #13 located approximately 25 miles south of Casa Grande. The 638.2-acre site was established as a practice bombing range in support of Williams Field in Higley, Arizona in the early 1940s. Historical documents and evidence on the site indicate that M38A2 practice bombs were used during training. The M38A2 practice bomb consisted of a 100-pound, sand-filled bomb that contained a small amount of black powder known as a spotting charge. Generally, the black powder consists of approximately 74 percent potassium nitrate, 11 percent sulfur, and 15 percent charcoal. It is undetermined to what extent chemical by-products

produced by the firing and/or detonation of munitions is present. A number of previous investigations have been conducted on the BMGR, and these studies suggest that, while possible, contamination from these by-products is unlikely (U.S. Air Force 1997, 1996; U.S. Army Corps of Engineers 1998).

In addition to the above documented site, the remote potential exists for munitions to be lost from aircraft flying over the IFNM en route to the Barry M. Goldwater Range to the west or the Western Army Air National Guard Aviation Training Site to the northeast. In those cases, however, loss of munitions would be documented and investigated, and recovery would be accomplished by the responsible military entity.

3.6.3 Wildcat Dumping and Litter

Wildcat dumping of hazardous and non-hazardous waste on public lands ranges in severity from episodes of dumping household trash and appliances, to the discarding of personal items by UDIs traveling through the area. Some recreational shooters exacerbate the situation as they bring targets into the monument and then fail to clean up targets and shell casings afterwards. In addition, recreational shooters often use discarded objects found within the monument as targets. The shards of glass and fragments of metal make cleanup even more difficult. BLM rangers frequently patrol the lands and identify areas where dumping has occurred. In many cases, the rangers or volunteers remove the debris.

Typical examples of wildcat dumping can be seen along Pump Station Road near the Silver Bell Mountains and in the area along El Tiro Road in the northeastern portion of the IFNM. There is illegal dumping within the IFNM from this area despite the fact that the Tangerine Municipal Solid Waste Landfill is located only a short distance away. Most dumping occurs close to roadways and includes household items and sometimes petroleum waste. Cleanup of petroleum and hazardous waste spills receives priority over cleanup of solid waste sites. Evidence identifying the perpetrators is rarely found (Auby 2004).

3.6.4 Target Shooting

Target shooting activities occurring at dispersed sites established by use over time throughout the IFNM present safety concerns related to property, livestock and other persons in the area. In addition, target shooting has been documented as a cause of damage to monument objects, including saguaros and ironwoods. Repeated shooting activity occurs at numerous sites, some of which lack adequate target-shooting backstops. Roads with travelers, trails, residences, livestock watering facilities, and fragile resources are in the line of fire behind the targets at many sites. The debris left behind includes hazards related to jagged metal, broken glass, spent bullets, unspent or misfired cartridges/shotgun shells, which contribute to solid waste and create public health and safety concerns. The litter can attract wildlife that may carry disease and create a public health nuisance. In addition, items containing hazardous materials are often used as targets on the IFNM, as well as items whose remnants pose a risk to wildlife. Since 2001, more than 30,000 pounds of garbage have been removed from shooting areas during 15 trash cleanup events hosted by BLM. In addition, range improvement sites (livestock water tanks, troughs, corrals) are being damaged by shooters who are using them as targets or placing targets in front of them. Additional information related to target shooting in the IFNM is found in the Recreational Shooting Analysis in Appendix I, which was conducted during preparation of this RMP.

3.6.5 Illegal Immigration

Illegal immigration is prevalent throughout the Arizona-Mexico border region, including south of and through IFNM. BLM and U.S. Border Patrol personnel work together to minimize the impacts on IFMN resources by UDIs crossing into the United States. Years of illegal immigrant traffic has resulted in miles of foot trails running south to north. Vehicular traffic by smugglers transporting UDIs has left many more

miles of unauthorized two-track roads across the IFNM, resulting in significant ground disturbance, vegetative damage, and harm to cultural resources. BLM has rehabilitated more the 10 miles of roads that are believed to have been created by UDI and drug smuggler traffic; based on observed evidence of vehicle intrusions into washes and other areas that have not been quantified, the 10 miles of rehabilitated roads are just a fraction of the number of roads created within IFNM by this type of activity. In addition, BLM has documented the creation of more than 35 miles of foot trails that are attributed to UDI and drug smuggler traffic. The UDIs leave tons of litter, including clothing, food and water containers, and human waste within IFNM every year, with more than 71 tons of trash collected over 2.5 years during community cleanup projects. Additionally, many members of the public visiting IFNM are concerned about inadvertent encounters with armed and dangerous human smugglers (coyotes) transporting UDIs through the monument, as well as persons smuggling contraband. Cross-border traffic in Arizona reached a peak in Federal Fiscal Year 2005, but the number of apprehensions made in Fiscal Year 2007 has dropped to about one-third of the peak. The decline is expected to continue, and cross-border traffic is expected to remain at much-reduced levels for at least the near future as the result of (1) construction of barriers to pedestrian and/or vehicular traffic along the U.S.-Mexico border, which is nearing completion in Arizona; (2) intensified surveillance and security patrols by the U.S. Border Patrol; (3) a new Arizona law that sanctions employers that hire UDIs; and (4) the sharp economic decline in the United States, which has reduced job opportunities for UDIs.

CHAPTER 4.0 ENVIRONMENTAL CONSEQUENCES

4.1 INTRODUCTION

This chapter evaluates potential environmental impacts that could occur from implementing each of the resource management plan (RMP) alternatives described in Chapter 2 for the Ironwood Forest National Monument (IFNM or monument). An impact is defined as a modification of the existing environment that is brought about by an outside action. Potential impacts considered in this chapter include ecological (such as the effects on natural resources and on the components, structures, and functioning of affected ecosystems) aesthetic, historical, cultural, economic, social, and health (40 Code of Federal Regulations §1508.8 [40 CFR §1508.8]) impacts.

This chapter is organized by resource topic and contains potential impacts that could or would result from allocations, allowable uses, and management actions under Alternatives A, B, C, and D. Topics are presented in the same order as in Chapter 3. Discussions of cumulative impacts, irreversible and irretrievable commitment of resources, unavoidable adverse impacts, and the relationship between local short-term and long-term uses conclude the chapter. The baseline data used for determining the potential impacts are the current resource conditions described in Chapter 3.

4.2 APPROACH TO THE ANALYSIS

This impact analysis identifies effects that enhance and improve a given resource from a management action and those that have the potential to deteriorate a resource. The evaluations highlight the actions that have direct, immediate, and more prominent effects. Impacts that result in indirect effects are described but may receive less attention in this analysis. If an activity or action is not addressed in a given section, no impacts are expected or the impact is expected to be negligible, based on existing knowledge.

The detailed impact analyses and conclusions are based on the Bureau of Land Management's (BLM's) knowledge of resources and the project area, reviews of existing literature, and information provided by experts in the BLM, other agencies, interest groups, and concerned citizens. Impacts on resources and resource uses are analyzed and discussed in detail commensurate with resources issues and concerns identified throughout the process. Geographic information system (GIS) analyses and data from field investigations were used to quantify effects where possible. However, in the absence of quantitative data, qualitative information and best professional judgment was used. Acreage calculations and other numbers used in this analysis are approximate and provided for comparison and analytic purposes; they do not reflect exact measures of on-the-ground situations. At times, impacts are described using ranges of potential impacts or in qualitative terms.

Many management actions presented in Chapter 2 would not result in direct, on-the-ground changes. However, the analysis considers impacts that could eventually result in on-the ground changes by planning for uses on BLM-administered surface estate and Federal mineral estate during the life of the plan. Impacts could occur from management of both BLM-managed surface estate and Federal mineral estate. BLM-administered Federal minerals occur beneath surface estate managed by BLM as well as beneath surface estate within State or private jurisdiction (known as split-estate lands). Some BLM management actions may affect only certain resources and alternatives.

Indian trust assets are lands, natural resources, money, or other tangible assets held by the Federal Government in trust or restricted against alienation for Indian tribes and individual Indians. The BLM has determined that the actions described in this land use plan will not affect Indian trust assets.

4.2.1 Impact Analysis Terminology

The following impact analysis identifies types of impacts—direct, indirect, and cumulative—as defined in Table 4-1, and uses the terms "increase" and "decrease" for comparison purposes. Direct and indirect impacts are discussed in Sections 4.3, 4.4, 4.5, and 4.6. Cumulative impacts and methodology used in the cumulative analysis are discussed in Section 4.7.

Table 4-1: Types of Impacts

Type	Description
Direct Impacts	These are effects that are caused by the action and occur at the same time and place. Examples include elimination of original land use through erection of a structure. Direct impacts may cause indirect impacts, such as ground disturbance resulting in particulate matter emissions (dust).
Indirect Impacts	These are effects that are caused by the action but occur later in time or are farther removed in distance but are still reasonably foreseeable and related to the action by a chain of cause-and-effect. Indirect impacts may reach beyond the natural and physical environment (e.g., environmental impact) to include growth -inducing effects and other effects related to induced changes in the pattern of land use, population density or growth rate, and related effects on air and water and other natural systems, including ecosystems (BLM NEPA Handbook H-1790-1).
Cumulative Impacts	These are effects that result from the incremental impact of the action when it is 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 that take place over time.

For the purposes of the analysis, surface-disturbing actions are those activities that could or would result in human- or livestock-caused movement of soils or the removal of vegetation. Natural processes of wind and water erosion are not considered surface-disturbing, but erosion caused by motor-vehicle travel, as an example, would be considered surface disturbing.

The analysis considers the context, intensity, and duration of an impact. Context relates to environmental circumstances at the location of the impact and in the immediate vicinity, affected interests, and the locality. Intensity refers to the severity or extent of the impact or magnitude of change from existing conditions. Duration refers to the permanence or longevity of the impacts, which is depicted as short term or long term. Short term is defined as anticipated to begin and end within the first 5 years after the action is implemented. Long term is defined as lasting beyond 5 years.

For ease of reading, impacts presented are direct, broad (occurring within the planning area), and long term, unless otherwise noted as indirect, localized, or short-term/temporary. As impacts may be perceived as beneficial (positive) or adverse (negative) by different readers, these descriptors were not used in defining impacts.

4.2.2 Assumptions

Assumptions are made in the analysis regarding level of land use activity, resource condition, and resource response. Potential impacts and their significance are determined based on these assumptions. The following assumptions were used in the analysis; additional assumptions are presented under each resource or use topic.

- Management actions proposed in the alternatives apply to public lands only. However, cumulative impacts analyses consider potential actions by individuals or entities other than BLM.

- The alternatives would be implemented in accordance with laws, regulations, and standard operating procedures and existing rights.
- BLM policies, including Standards of Rangeland Health and Guidelines for Livestock Grazing Management, would be applied as appropriate across all alternatives. Standards would provide the basis for assessing rangeland health and Guidelines provide strategies to achieve desired resource conditions and management objectives.
- Funding would be available to implement the alternatives, as described in Chapter 2.
- Restrictions or prohibitions on activities in specific areas would protect sensitive resources.
- Mitigation requirements would prevent or limit direct impacts associated with land use activities, or would result in reclamation of the land after the activity has been completed.
- The level of activity on BLM-administered land is expected to increase, based on historical trends, existing land use agreements such as leases or permits, and statements of interest in land use by individuals and industry organizations.

4.2.3 Availability of Data and Incomplete Information

Council on Environmental Quality (CEQ) regulations implementing National Environmental Policy Act (NEPA) require that agencies evaluating reasonably foreseeable significant adverse effects on the human environment in an environmental impact statement (EIS) identify incomplete or unavailable information, if that information is essential to a reasoned choice among alternatives (43 CFR 1502.22). As is typical in programmatic planning efforts, site-specific data are used to the extent possible but may not be entirely available. The best available information that is pertinent to management actions was used in developing this plan. Considerable effort has been taken to acquire and convert resource data into digital format for use in this plan—data were acquired from both BLM and from outside sources, such as the Arizona Game and Fish Department (AGFD). However, certain information was unavailable for use in developing this plan, usually because inventories have not been conducted or are incomplete. The following types of data are unavailable for the entire planning area:

- Field inventory of soils and water conditions
- Field inventory of wildlife and special status species occurrence and condition
- Comprehensive inventory of traditional cultural properties
- Surveys for cultural or paleontological resources
- Specific hazards associated with former and existing mines

For these resources, estimates were made regarding the number, type, and significance based on previous surveys and existing knowledge. Additionally, some impacts cannot be quantified given the proposed management actions. Where this gap occurs, impacts are projected in qualitative terms. In many situations, subsequent project-level analysis will provide the opportunity to collect and examine site-specific inventory data required to determine appropriate application of RMP-level guidance. In addition, ongoing inventory efforts by BLM and other agencies within the planning area continue to update and refine information that will be used to implement this plan.

4.3 RESOURCES

4.3.1 Impacts on Air Quality

The analysis of impacts on air quality included a qualitative comparison of the proposed management decisions based on air quality conditions as discussed in Chapter 3 and a quantitative analysis for PM_{10} emissions associated with estimated motorized travel on open motorized routes. The PM_{10} analysis was calculated using vehicle traffic counts, soil types, soil moisture, and estimated vehicle speeds. However, in most cases, impacts are primarily described using qualitative terms because most data regarding typical land usage for various activities occurring within the IFNM are not available. Without detailed information on emission sources it is not possible to quantitatively assess changes in air quality using dispersion models or similar tools. The only assumption used in the air quality impact analysis is that population growth would continue, and that subsequent increased demand for uses would occur, as demonstrated by the trends for the State of Arizona over the past 10 years.

The method used in this air quality analysis identifies the pollutants associated with a planning decision, describes the relative magnitude of emissions changes, and indicates the extent of potential impacts. These impacts are assessed for the different alternatives to ensure compliance with Federal air quality standards. It is important to note that all alternatives recognize that BLM must continue to comply with applicable State and Federal air quality control regulations, as well as the identified air quality administrative actions.

The assessment of climate changing pollutant emissions and climate change is in its formative phase; therefore, it is not yet possible to know with confidence the net impact to climate. However, the Intergovernmental Panel on Climate Change (IPCC 2007) recently concluded that "warming of the climate system is unequivocal" and "most of the observed increase in globally average temperatures since the mid-20th century is very likely due to the observed increase in anthropogenic [man-made] greenhouse gas concentrations."

The lack of scientific tools designed to predict climate change on regional or local scales limits the ability to quantify potential future impacts. Currently BLM does not have an established mechanism to accurately predict the effect of resource management-level decisions from this planning effort on global climate change. However, potential impacts to air quality due to climate change are likely to be varied. For example, if global climate change results in a warmer and drier climate, increased particulate matter impacts could occur due to increased wind blown dust from drier and less stable soils. Cool season plant species' spatial ranges are predicted to move north and to higher elevations, and extinction of endemic threatened or endangered plants may be accelerated. Due to loss of habitat, or due to competition from other species whose ranges may shift northward, the population of some animal species may be reduced. In the future, as tools for predicting climate changes in a management area improve and/or changes in climate affect resources and necessitate changes in how resources are managed, BLM may be able to re-evaluate decisions made as part of this planning process and adjust management accordingly.

4.3.1.1 Impacts Common to All Alternatives

Management of fire ecology and energy and minerals could impact air quality. Carbon monoxide, volatile organic compounds, particulate matter, and nitrogen oxides could be released into the air from the smoke associated with wildfires. Depending on the size of the fire and meteorological conditions, emissions could reach far outside the burn area potentially impairing visibility in nearby Class I air quality areas. Maintaining full suppression in all areas, implementing programs to reduce ignitions, emphasizing prevention and detection, and using rapid suppression response techniques would minimize air pollutant emissions from fires; however, surface disturbance from suppression activities and fuels treatments could result in the release of particulate matter (dust).

Energy and mineral activities could degrade air quality in localized areas due to dust and engine emissions. Less than half of the current mining activities within the IFNM boundary (including non-Federal land) occur within the nonattainment area for PM_{10} (particulate matter less than 10 microns [0.000393 inch] in diameter, which is a regulated pollutant when airborne), where mining activities would be more tightly regulated. Permits could be required for any future mining activity, depending on the area affected and the type of equipment required. A permit would specify mitigation measures included in individual right-of-way grants for fugitive dust emissions.

Under all alternatives, impacts on air quality would not be anticipated as a result of management decisions for geology and caves, special status species, paleontological resources, scenic and visual resources, special designations, and lands managed to protect wilderness characteristics. Certain management decisions for other resources (for example, recreational shooting) would not be expected to affect air quality, so only those decisions with a potential effect are discussed in the alternatives that follow.

4.3.1.2 Alternative A (No Action)

Under Alternative A, management of travel, recreation, lands and realty, and vegetation could affect air quality. To a lesser extent, impacts also could occur from management of soil and water resources, wildlife and wildlife habitat, cultural resources, and livestock grazing. No impacts on air quality would be anticipated under Alternative A from decisions for air quality (as no management decisions exist).

Approximately 820 acres of the BLM surface lands would be closed to vehicular traffic under this alternative; motor vehicle use would be allowed on existing routes on the remaining 127,580 acres. Emissions of particulate matter, carbon monoxide, nitrogen dioxide, volatile organic compounds, and sulfur dioxide from the combustion of fuel would therefore occur throughout most of the IFNM. About 29,930 acres of the area where motorized vehicle use is allowed, but limited to existing routes, is within a PM_{10} nonattainment area. Emission levels would vary by area according to traffic volume.

The amount of PM_{10} dust expected to be produced by passage of motor vehicles varies depending on the number of miles of roads designated for motorized use under each alternative. Under Alternative A, PM_{10} dust emissions from passage of motor vehicles are estimated at 114 to 147 tons per year, based on vehicle speeds varying from 15 to 25 miles per hour. The method of analysis is based on EPA guidance (EPA 1995, undated 2006). Site-specific factors considered in this analysis are vehicle miles driven, vehicle speed, soil type, and soil moisture.

Continued custodial management of recreation would allow for dispersed uses throughout the IFNM, including vehicle-based camping (near existing routes) and dispersed camping, along with wood campfires, which would result in emissions of pollutants in localized areas.

Surface-disturbing activities related to management of lands and realty and vegetation have potential to impact air quality, depending on the magnitude of disturbance and type of activity. Under this alternative, there would, in general, be no restrictions on rights-of-way (i.e., no right-of-way exclusion or avoidance areas would be designated within the IFNM, and the major utility corridors would be maintained) except within the Waterman Mountains Area of Critical Environmental Concern (ACEC). Surface disturbance associated with right-of-way authorizations could result in increased emissions of particulate matter (dust), worsening air quality in localized areas. Mitigation measures included in individual right-of-way grants would minimize dust resulting from displaced soil. Management of vegetation according to the activity plan for the Cocoraque Butte–Waterman Mountains Multiple Resource Management Area would focus on increasing soil cover and reducing sediment yield, therefore reducing the potential for windblown dust.

Management to improve soil cover and productivity would result in an overall reduction in erosion, including erosion by wind, which contributes to the release of particulate matter into the air.

Management of wildlife, wildlife habitat, and cultural resources would regulate the use of motorized vehicles in localized areas, resulting in potential decreases in vehicle emissions. In the Silver Bell Desert Bighorn Sheep Management Area, vehicles would be restricted to existing roads (see Map 2-19); this could discourage proliferation of traffic and emissions in that area and perhaps in the IFNM as a whole (though traffic could shift to other areas). Closure of the 800-acre Ragged Top area and 20 acres within a Special Management Area (for cultural resources) also would have the potential to discourage proliferation of traffic and emissions.

Under Alternative A, livestock grazing would continue on all 11 grazing allotments (128,400 acres of public land). This could limit revegetation in areas that are disturbed, sparsely vegetated, or vulnerable to wind erosion, which could increase particulate matter emission in very localized areas.

Implementation-level decisions concerning livestock grazing and transportation could affect air quality. The provision of additional or modification of existing livestock water sources would disturb soil and vegetation in the immediate vicinity of the water development; the exposure of fine sediment and loss of vegetation around the livestock waters could create the conditions for wind-driven dust and degrade air quality in localized areas. Vehicle traffic would be allowed on approximately 346 miles of routes on public land throughout the monument (outside the 820 acres closed to vehicular traffic), which could result in the release of traffic-related emissions throughout the monument.

4.3.1.3 Alternative B

Under Alternative B, management of travel, air quality, and recreation could affect air quality. To a lesser extent, impacts also could occur from management of soil and water resources, vegetation, wildlife and wildlife habitat, cultural resources, livestock grazing, and lands and realty.

Approximately 38,040 acres of the BLM surface lands would be closed to vehicular traffic: motor vehicle use would be allowed on designated routes (paved and unpaved) on the remaining 90,360 acres (see Map 2-20). With greater area closed to motor vehicle use, as compared with Alternative A, overall emissions within the IFNM likely would be reduced. (As with Alternative A, emission levels would vary by area according to traffic volume.) The PM_{10} nonattainment area overlaps 23,650 acres where motorized vehicle use would be allowed on designated routes. Management of air quality to control emissions, such as applying gravel, would reduce dust in localized areas.

The amount of PM_{10} dust expected to be produced by passage of motor vehicles varies depending on the number of miles of roads designated for motorized use under each alternative. Under Alternative B, PM_{10} dust emissions from passage of motor vehicles are estimated at 26 to 33 tons per year, based on vehicle speeds varying from 15 to 25 miles per hour. The method of analysis is based on EPA guidance (EPA 1995, undated 2006). Site-specific factors considered in this analysis are vehicle miles driven, vehicle speed, soil type, and soil moisture.

Management of recreation could affect air quality in the Roaded Natural and Semi-Primitive Motorized recreation management zones (RMZs) (17,610 and 14,540 acres, respectively), as motorized recreational uses would be concentrated in those areas. Motor vehicle emissions would increase in these areas, with potential effect on the PM_{10} nonattainment area (which overlaps 10,630 acres of these RMZs). However, with fewer miles of routes open to motorized vehicles within the monument as a whole, overall emissions from such use would likely decrease, as compared with Alternative A. No wood campfires would be allowed, though use of camp stoves or charcoal fires would be permitted, which would result in emissions of pollutants in localized areas.

Management of soil and water resources, vegetation, wildlife and wildlife habitat, lands and realty, and livestock grazing would potentially reduce emissions through greater restrictions on activities, as compared with Alternative A. Surface-disturbing activities would be prohibited on 11,340 acres of sensitive and fragile soils within the PM_{10} nonattainment area, with coincidental protection of air quality in that area. Management to improve soil cover and productivity would reduce erosion (including erosion by wind), reducing release of dust into the air. Restricting surface disturbance to prevent loss of vegetation in localized areas would provide coincidental protection of air quality in those areas, and development of a restoration plan for the IFNM would reduce the potential for windblown dust throughout the monument, given the strategies to identify and restore disturbed areas. Similarly, implementation of measures to reduce fugitive dust to protect scenic resources would protect air quality. The retirement of grazing leases, and subsequently making allotments unavailable to grazing, would allow revegetation of small, highly localized areas presently vulnerable to wind erosion; the recovered grasses would help prevent erosion and windblown dust in those areas. Without designated utility corridors, and the designation of the IFNM as a right-of-way exclusion area, construction-related fugitive dust emissions within the IFNM would decrease compared to Alternative A. However, utilities could be routed around the IFNM, resulting in an increase in fugitive dust emissions in localized areas outside the IFNM.

Desert bighorn sheep lambing areas would be closed to human entry for four months (from January 1 through April 30), reducing emissions from motorized vehicles in those areas during that time.

Implementation of erosion control measures would reduce exposure of fine sediment and loss of vegetation, reducing the potential for emissions of dust. Restrictions attached to land use authorizations that would minimize surface disturbance also would minimize the potential for dust emissions. Emissions from motor vehicles also would be reduced: only 63 miles of routes would be available for motorized vehicle travel, as compared with the 346 miles that would remain available under Alternative A.

4.3.1.4 Alternative C

Under Alternative C, management of travel, air quality, and recreation could affect air quality. To a lesser extent, management of soil and water resources, vegetation, wildlife and wildlife habitat, cultural resources, livestock grazing, and lands and realty would potentially impact air quality.

Approximately 10,880 acres of the BLM surface lands would be closed to vehicular traffic; motor vehicle use would be allowed on routes designated for motorized use on the remaining 117,520 acres (see Map 2-21). Emissions from motorized vehicle use on paved and unpaved routes would be similar to those under Alternatives A and B, but would be confined to fewer acres, compared with Alternative A, and could occur on more acres, compared with Alternative B (relative to the greater area and lesser area open to restricted vehicle use, respectively). About 29,930 acres where motorized vehicle use would be allowed on designated routes would overlap the PM_{10} nonattainment area. Implementing management actions under the air quality program to control emissions would result in impacts similar to those under Alternative B.

The amount of PM_{10} dust expected to be produced by passage of motor vehicles varies depending on the number of miles of roads designated for motorized use under each alternative. Under Alternative C, PM_{10} dust emissions from passage of motor vehicles are estimated at 47 to 61 tons per year, based on vehicle speeds varying from 15 to 25 miles per hour. The method of analysis is based on EPA guidance (EPA 1995, updated 2006). Site-specific factors considered in this analysis are vehicle miles driven, vehicle speed, soil type, and soil moisture.

Under this alternative, the Roaded Natural and Semi-Primitive Motorized RMZs (18,380 and 36,230 acres, respectively) would total approximately 54,610 acres. Motor vehicle emissions could

increase within these areas, with potential effects on the PM_{10} nonattainment area, as 17,750 acres (59 percent), of the nonattainment area in the IFNM occurs in these RMZs. Compared with Alternative A, overall emissions from motorized vehicle use on paved and unpaved routes would likely decrease; compared with Alternative B, overall emissions likely would increase (resulting primarily from the differing miles of routes open for motorized vehicle uses). Wood campfires would be allowed, which would result in emissions of pollutants in localized areas.

Surface-disturbing activities could impact air quality depending on the magnitude of disturbance and type of activity. Management of soil and water resources, vegetation, wildlife and wildlife habitat, cultural resources, lands and realty, and livestock grazing under Alternative C would restrict or allow surface-disturbing activities. Management of soil and water resources would have the same types of impacts as those under Alternative B, but surface disturbance would be allowed in areas of sensitive or fragile soils, resulting in the potential for some disturbance in those areas and consequent increases in emissions of particulates (dust) compared to Alternative B. Management of vegetation and wildlife and wildlife habitat would have the same types of impacts and potential for impacts as those that would occur under Alternative B.

Management of livestock grazing under this alternative would have the same effect on air quality as management under Alternative A.

Under this alternative, the IFNM would be allocated as a right-of-way avoidance area, and two utility corridors for major utilities would be established. This would restrict the potential for development outside the corridors, reducing the potential for construction-related fugitive dust emissions within the IFNM compared to Alternative A, but increased from Alternative B. However, utilities could be routed around the IFNM, resulting in an increase in fugitive dust emissions in localized areas outside the IFNM. Decisions for and lands and realty related to the land use authorization process and acquisitions would have the same effects on air quality as those under Alternative B, except acquired lands would become avoidance areas rather than exclusion areas for future rights-of-way, which would provide more potential for ground-disturbing activities and subsequent localized degradation of air quality.

Provision of additional stock waters for livestock would have the same impacts as those under Alternative A; it could increase dust in small, highly localized areas because stock-watering areas generally are sparsely vegetated, creating conditions for the generation of wind-driven dust. Motor-vehicle emissions associated with the use of existing roads along fence lines could increase in localized areas, depending on traffic volumes.

Implementation decisions regarding soil and water are the same as those under Alternative B, and would have the same resulting impacts as described previously. Designating 124 miles of route for motorized vehicle travel versus the 346 miles that would remain open under Alternative A would reduce emissions from vehicle travel. However, compared with 63 miles under Alternative B, there would be nearly twice as many miles open for motorized vehicle travel, resulting in increased emissions from vehicle travel.

4.3.1.5 Alternative D

Under Alternative D, management of travel, air quality, and recreation could affect air quality. To a lesser extent, management of soil and water resources, vegetation, wildlife and wildlife habitat, cultural resources, livestock grazing, and lands and realty would potentially impact air quality.

No BLM surface lands would be closed to vehicular traffic, and motor vehicle use would be limited to designated roads on 128,400 acres (see Map 2-22). The use of motorized vehicles on paved and unpaved roads would result in emissions similar to those that would occur under Alternative A. Implementing

management actions under air quality to control emissions would result in impacts similar to those that would occur under Alternative B.

The amount of PM_{10} dust expected to be produced by passage of motor vehicles varies depending on the number of miles of roads designated for motorized use under each alternative. Under Alternative D, PM_{10} dust emissions from passage of motor vehicles are estimated at 80 to 104 tons per year, based on vehicle speeds varying from 15 to 25 miles per hour. The method of analysis is based on EPA guidance (EPA 1995, updated 2006). Site-specific factors considered in this analysis are vehicle miles driven, vehicle speed, soil type, and soil moisture.

Under this alternative, the Roaded Natural and Semi-Primitive Motorized RMZs (19,060 and 59,020 acres, respectively) would total approximately 78,080 acres. Motor vehicle emissions could increase within these areas, with localized impacts on air quality and potential effects on the PM_{10} nonattainment area (which would overlap 21,560 acres of these RMZs). Compared with Alternative A, overall emissions from motorized vehicle use on paved and unpaved routes would likely decrease; compared to Alternatives B and C, overall emissions likely would be more (resulting primarily from the differing miles of routes open for motorized vehicle uses). Wood campfires would be allowed, which would result in emissions of pollutants in localized areas.

Management of soil and water resources, vegetation, wildlife and wildlife habitat, cultural resources, lands and realty, and livestock grazing, could affect air quality. Surface-disturbing activities could impact air quality depending on the magnitude and type of activities that occur. Management of soil and water resources would have the same effects on air quality as management under Alternative C. Management decisions regarding vegetation that would affect air quality would be similar to those under Alternative B, and would have the same impacts. The main difference would be that areas would be restored on a case-by-case basis, rather than from guidance developed in a restoration plan, which could result in reduced potential for windblown dust throughout the IFNM. Management of wildlife and wildlife habitat would have the same impact on air quality as management under Alternative B. Management of livestock grazing would have the same impacts on air quality as management under Alternative A. Management of cultural resources would have the same impacts on air quality as management under Alternative C.

Under this alternative, the IFNM would be designated as a right-of-way avoidance area, and three utility corridors would be established for future major utilities. This could reduce ground disturbance and dust generation from construction in rights-of-way compared to Alternative A given the reduced area of corridors. However, fugitive dust emissions could increase emissions in localized areas, such as the Sawtooth Mountains, where a new corridor would be designated. Decisions for and lands and realty related to the land use authorization process and acquisitions would have the same effects on air quality as those under Alternative C.

Under this alternative, 226 miles of route would be designated for motorized vehicle travel versus the 346 miles that would remain open under Alternative A; this would reduce emissions from vehicle travel relative to Alternative A. However, compared with Alternatives B and C, there would be an increase of 162 miles and 100 miles, respectively, open for motorized vehicle travel, resulting in increased emissions from vehicle travel.

4.3.2 Impacts on Geological and Cave Resources

The analysis of potential effects on geological resources, including caves, from the decisions proposed under the alternatives focuses on those decisions that would maintain the integrity of geological resources–generally, these decisions would be established to protect other resources, such as scenic and visual resources, vegetation, or cultural resources.

The following assumptions were used when assessing the impacts on geological resources.

- During site-specific planning and authorization processes, the BLM would evaluate all proposed actions for site-specific effects on natural resources, including geological resources.
- No known caves are located on public lands within the IFNM. If and when such cave resources are discovered, the BLM will develop specific objectives and management actions for those resources.

The impact analyses and conclusions are based on the potential for ground-disturbing actions to occur in areas where geological resources have unique or unusual features of scenic value or interest, or that may display geologic characteristics of scientific or educational significance. The extent of ground-disturbing actions would vary for each alternative and depend on the acreage excluded from ground disturbance to protect or preserve other resources.

4.3.2.1 Impacts Common to All Alternatives

Maintaining and improving soil cover and productivity through erosion preventative measures and land treatments would indirectly help retain and protect existing geological resources.

As all Federal lands are appropriated and withdrawn from mineral sale or leasing, geological resources would be protected because leasing, permitting or sale of public lands or minerals within the boundaries of the IFNM for exploration and development of mineral and energy resources is prohibited. Mineral resources potentially could be developed on grandfathered mining claims that have established valid existing rights, resulting in localized degradation of geological resources. Surface use restrictions could reduce the area of mineral development on mining claims on a case-by-case basis.

Collection of paleontological resources on a limited basis could generate very localized disturbance to geological resources, potentially diminishing their values in those areas.

Authorizing land use permits and easements on a case-by-case basis could result in surface disturbance in or near areas of unique or sensitive geological resources. Acquisition of non-Federal lands would result in the protection of geological resources in those areas.

No impacts would be anticipated from management decisions for air quality, wildlife and wildlife habitat, special status species, fire ecology and management, special designations, or livestock grazing.

4.3.2.2 Alternative A (No Action)

Management decisions that potentially could affect geological resources include travel management, scenic and visual resources, areas managed to protect wilderness characteristics, recreation, vegetation, and lands and realty. No impacts would be anticipated from management of geology and caves, cultural resources, or special designations.

Closing 820 acres to motorized vehicles and limiting motorized vehicle travel to existing routes throughout the IFNM would prevent surface disturbance from vehicle travel at Ragged Top (800 acres) and 20 acres managed as a Special Management Area, resulting in the protection of geological resources, including geological objects of the monument (rugged mountains including Ragged Top). Management of all public land in the IFNM as Visual Resource Management (VRM) Class III would allow for surface-disturbing activities in many areas of the monument, which could cause localized erosion and potentially diminish values of geological resources in those areas.

Allowing recreational shooting outside of developed areas in accordance with Federal regulations could result in localized disturbance of geological resources, potentially diminishing their values, particularly in areas where recreational shooting occurs against hillsides or mountains, as these features provide a natural backstop for safety. Dispersed recreational shooting could contribute to localized damage to geological objects of the monument, particularly if features in rugged mountains are damaged or shooting debris is left behind. Developing an activity plan for the Cocoraque Butte-Waterman Mountains Multiple Resource Management Area could protect geological resources in this area if surface-disturbing activities were restricted in this area.

Establishing 8,240 acres as utility corridors and the Pan Quemado communication site, could result in the degradation of geological resources in localized areas due to ground-disturbing activities.

The implementation decision providing for 346 miles of existing roads for motorized travel would provide access to various areas, where erosion from such motorized access could increase as recreation use increases. This could potentially diminish geological resource values in localized areas.

Based on the impacts described above for Alternative A, the disturbance to geological objects of the monument (rugged mountains, including Ragged Top and the Silver Bell Mountains) resulting from management actions would be undetectable or measurable only in localized areas and would not reduce the availability of those resources for their contribution to the natural characteristics, processes, and scenic and wildlife values of the monument. The localized nature of impacts on geological objects of the monument would be consistent with "protection of the monument objects" as defined in Section 1.3.1.

4.3.2.3 Alternative B

Management decisions that potentially could affect geological resources include geology and caves, soil and water resources, vegetation, cultural resources, travel management, scenic and visual resources, lands managed to protect wilderness characteristics, recreation, and lands and realty.

Identifying appropriate management actions, allowable uses, and allocations for discovered geological resources could increase protection and preservation of geological resources and prohibiting the collection of geologic resources would retain existing geological resources for their contribution to the natural characteristics, processes, and scenic and wildlife values of the monument. Allowing collection and removal of geologic resources when officially authorized by permit for legitimate scientific research or educational uses could cause minimal surface disturbance to geological resources. Authorized collection would be limited, controlled, and contribute to the scientific knowledge of the resources.

Minimizing surface disturbance and adopting mitigation plans that minimize erosion would help retain existing geological resources. Prohibiting new surface disturbance and mitigating existing surface disturbance in areas with sensitive or fragile soils also would reduce erosion and help retain geologic resources. Minimizing surface disturbance that results in a loss of existing vegetation cover also could protect geological resources. However, the mechanical treatment of noxious weeds and invasive species could cause very localized disturbance to geological resources. Prohibiting surface disturbance for cultural resource studies would protect geological resource from degradation.

Managing all public lands consistent with the visual resource inventory classes could restrict surface disturbance in 125,110 acres (97 percent of public lands in the IFNM) managed as VRM Class I and II areas. Under Alternative B, managing areas to meet VRM Classes I and II objectives, would help preserve landscapes with unique geological resources, including those considered objects of the monument. In addition, rehabilitating existing disturbed areas for preservation of visual resources could assist in maintaining geological resources if rehabilitation efforts occur in areas of unique geology.

Geological resource disturbance from recreational shooting within the IFNM would be reduced compared to Alternative A; shooting would only be allowed for permitted hunting activities.

Allocating the IFNM as a right-of-way exclusion area would result in less surface disturbance than under Alternative A, resulting in less potential for degradation of geological resources. The decision requiring construction and maintenance activities to include protective measures to minimize soil erosion could indirectly protect geologic resources that are located in those areas.

Closing 38,040 acres to motorized vehicles and limiting motorized vehicle travel to designated routes on 90,360 acres would prevent surface disturbance from vehicle travel, resulting in the protection of geological resources. However, limited erosion could occur in areas where motorized uses would be allowed, resulting in localized degradation of geological resources, though these impacts would be negligible. Development of new routes as needed to provide legal public access to non-Federal inholdings, or if needed for administrative access to IFNM lands could result in the degradation of geological resources in localized areas.

Management of 36,990 acres to protect wilderness characteristics would preserve the existing character of the landscape in those areas, thus preserving geological resources and the geological objects of the monument within those areas.

Providing new access to geologic sites could cause minimal surface disturbance, which could affect geological resources. However, the action could be mitigated if restricted to peripheral areas.

The implementation-level decision designating 63 miles of existing roads for motorized travel within the IFNM could reduce access compared with 346 miles under Alternative A. This could decrease the amount of erosion from motorized access and would decrease potential degradation on geological values compared with Alternative A.

Based on the impacts described above for Alternative B, the disturbance to geological objects of the monument (rugged mountains, including Ragged Top and the Silver Bell Mountains) resulting from management actions would be undetectable or measurable only in localized areas and would not reduce the availability of those resources for their contribution to the natural characteristics, processes, and scenic and wildlife values of the monument. The localized nature of impacts on geological objects of the monument would be consistent with “protection of the monument objects” as defined in Section 1.3.1.

4.3.2.4 Alternative C

Management decisions that potentially could affect geological resources include geology and caves, soil and water resources, vegetation, cultural resources, travel management, scenic and visual resources, lands managed to protect wilderness characteristics, recreation, and lands and realty. Impacts from vegetation management actions would be the same as Alternative B.

The collection and removal of geological resources for scientific research would be allowed, which could cause minimal surface disturbance to geological resources. Surface disturbance would be allocated (and not prohibited) from areas of sensitive or fragile soils, which could cause disturbance to geological resources in localized areas.

Scientific studies for cultural resources, including excavation if needed in those studies, would be allowed, which could cause minimal surface disturbance resulting in the potential degradation of geological resources in localized areas.

Managing 124,900 acres (97 percent of public lands in the IFNM) to meet VRM Class II objectives would protect geological resources from disturbance, similar to Alternative B. However, designated

utility corridors would be VRM Classes III and IV, allowing for greater disturbance of geological resources within those corridors. Similar to Alternative B, rehabilitating existing disturbed areas for preservation of visual resources could assist in maintaining geological resources if rehabilitation efforts occur in areas of unique geology.

Geological resource disturbance from recreational shooting within the IFNM would be reduced compared to Alternative A; shooting would only be allowed for permitted hunting activities.

The IFNM would be designated a right-of-way avoidance area which would allow ground-disturbing activities that could result in the degradation of geological resources in localized areas, but to a lesser extent than under Alternative A, and a greater extent than Alternative B. The decision requiring construction and maintenance activities to include protective measures to minimize soil erosion could indirectly protect geologic resources that are located in those areas.

Closing 10,880 acres to motorized vehicle use, compared to 38,040 acres under Alternative B, would result in greater surface disturbance to geological resources from vehicle travel. Impacts from development of new routes would be similar to Alternative B.

Managing 9,510 acres to protect wilderness characteristics would preserve the existing character of the landscape, thus preserving geological resources, to a greater extent than Alternative A, but to a lesser extent than Alternative B.

Providing new access to geologic sites would result in the same impacts as those described under Alternative B.

The implementation-level decision designating 124 miles of existing roads for motorized travel would provide 61 more miles of existing roads for access than provided under Alternative B. Therefore, Alternative C would increase the amount of erosion from motorized access and could increase the disturbance of geological values compared to Alternative B, but that would be less than the 346 miles of existing road access provided under Alternative A.

Based on the impacts described above for Alternative C, the disturbance to geological objects of the monument (rugged mountains, including Ragged Top and the Silver Bell Mountains) resulting from management actions would be undetectable or measurable only in localized areas and would not reduce the availability of those resources for their contribution to the natural characteristics, processes, and scenic and wildlife values of the monument. The localized nature of impacts on geological objects of the monument would be greater than those described under Alternative B, but consistent with “protection of the monument objects” as defined in Section 1.3.1.

4.3.2.5 Alternative D

Management decisions that potentially could affect geological resources include geology and caves, soil and water resources, vegetation, cultural resources, travel management, scenic and visual resources, recreation, and lands and realty. Impacts from vegetation management actions would be the same as Alternative B.

Minimal disturbance of geological resources would be allowed during the collection and removal of geological resources for scientific or educational uses. Maintaining and improving soil cover and productivity by preventing erosion would indirectly help to retain existing geological resources, similar to Alternative A. Allowing ground-disturbing activities could result in disturbance to geological resources, similar to Alternative C.

Managing 122,580 acres (95 percent of public lands in the IFNM) to meet VRM Class II objectives would protect geological resources from disturbance, similar to Alternative C, though with slightly more potential for disturbance of geological resources as a result of slightly greater area designated to VRM Classes III and IV as a result of wider corridors for rights-of-way.

Recreational shooting would be limited to two designated areas known as Avra Hill and Cerrito Reproso. These areas would experience localized disturbance of geological resources, particularly to the geologic features on the hillsides that would serve as natural backstops for safety.

Limiting motorized vehicle use to designated routes on 128,400 acres could cause greater surface disturbance from vehicle travel resulting in more disturbances to geological resources compared to Alternatives B and C. Development of new routes would result in the same impacts as those described under Alternative B. To the extent that vehicular routes scar rugged mountains, including Ragged Top and Silver Bell Mountain, there could be some degradation of the geological objects of the monument.

The implementation-level decision designating 226 miles of existing roads for motorized travel would provide more access than Alternatives B and C, but to a lesser extent than 346 miles under Alternative A. Motorized use would cause erosion, which could increase the disturbance of geological values from 63 miles under Alternative B and 124 miles under Alternative C, but would be less than Alternative A.

Decisions for geologic resources and lands and realty would result in the same impacts as those described under Alternative C.

Based on the impacts described above for Alternative D, the disturbance to geological objects of the monument (rugged mountains, including Ragged Top and the Silver Bell Mountains) resulting from management actions would be undetectable or measurable only in localized areas and would not reduce the availability of those resources for their contribution to the natural characteristics, processes, and scenic and wildlife values of the monument. The localized nature of impacts on geological objects of the monument would be greater than those described under Alternative C, but consistent with "protection of the monument objects" as defined in Section 1.3.1.

4.3.3 Impacts on Soil and Water Resources

This section discusses potential impacts on soils from the proposed management decisions of other resources and resource uses. Soils, especially in fragile soil areas, are susceptible to impacts from compaction and surface disturbance, which can lead to accelerated erosion, soil loss, and reduced productivity. Management actions that involve ground-disturbing activities, reduction of vegetation cover, trampling, and use of vehicles and heavy machinery could result in soil compaction or surface disturbance. The discussion of impacts on water resources is limited to the effects of surface-disturbing activities on water quality and watershed health. Activities that disturb the land surface, decrease vegetation cover, increase erosion, or otherwise alter land surface cover potentially would affect water quality and watershed health.

The analysis was based on the following assumptions:

- Soil resources would be managed to meet Standard 1 of the Arizona Standards for Rangeland Health and Guidelines for Grazing Administration.
- Fragile soils would be managed to minimize erosion and maintain soil productivity.
- Substantial surface disturbance to soil, including compaction of soil or loss of vegetative cover, could 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 location within the watershed, time and degree of disturbance, existing vegetation, and precipitation.
- An increase of pollutants in surface waters would affect other beneficial uses (e.g., stock-watering, irrigation, wildlife, and/or drinking water supplies).
- Access roads would be properly designed.
- Surface disturbances would be restored or mitigated.

Impact analyses and conclusions are based on interdisciplinary team knowledge of resources in the IFNM, review of existing literature, and information provided by other agencies. Effects are quantified where possible. Spatial analyses were conducted using GIS data and analyses. Impacts are described using ranges of potential impacts or in qualitative terms, if appropriate.

4.3.3.1 Impacts Common to All Alternatives

Management of soils, cultural resources, geology, fish and wildlife, special status species habitat, and special designations includes management decisions that restrict surface disturbance or protect other resources. Restricting surface disturbance helps retain existing soil and water resource conditions throughout the IFNM. Analyses of impacts on soil and water resources are based on achieving the resource objectives of managing surface land use and groundwater resources and maintenance of xeroriparian areas.

Management activities that disturb land surfaces, decrease vegetation cover, or otherwise alter land surface cover would potentially affect soil and water resources by altering erosion rates or water yield (quantity and timing). Increased erosion, compaction, displacement, and rutting of soils can affect soil productivity. Erosion affects soil productivity by carrying away soil particles and those nutrients normally tied to the soil, such as phosphorous. The ability of soil to recover productivity is affected by the removal of topsoil, since this layer has the most capacity to store nutrients readily available to nourish plants. In areas currently eroding, soil productivity would gradually increase when erosion is controlled. Erosion from disturbed sites could potentially reach streams with sediment affecting aquatic systems and water quality. The risk of water quality impacts decreases as the distance between a ground-disturbing activity and a stream or other water body increases.

Surface-disturbing activities would remove vegetative cover or physical and biological soil crusts, resulting in bare soil, potential compaction, mixing of soil horizons, increased susceptibility to water and wind erosion, loss of topsoil, decreased soil productivity, and site production. These impacts could increase the potential for accelerated erosion, runoff and off-site sedimentation, and a subsequent increase in the loss of soil resources and decrease in water quality. Accelerated soil erosion occurs when soil particles are detached and removed. Water erosion could occur during high intensity rainfall or runoff events. Soils are most susceptible to wind erosion when soil aggregates are broken up, dry conditions exist, and soils are bare.

Soil compaction occurs when soil particles are pressed together, which limits pore space for air and water, alters soil structure, and reduces infiltration/permeability rates and soil strength. Severity depends on soil type, soil moisture, vegetative cover, and the frequency and weight (lbs./sq. inch) of equipment passing over the soils. Soils are the most susceptible to compaction during moist conditions. Severe compaction inhibits natural revegetation by reducing root penetration, restricting water and air movement, severely limiting the rate of water infiltration/permeability, increasing surface runoff, and slowing seed emergence.

Implementing mitigation measures on a project-specific basis to protect vegetation would reduce erosion, helping maintain soil and watershed conditions. Erosion preventative measures, land treatments, and incorporation of salinity control measures into erosion prevention strategies along with rehabilitation treatments would help maintain or improve soil and watershed conditions by reducing salinity and sedimentation. Managing upland and xeroriparian areas to meet Standard 1 of the Arizona Standards for Rangeland Health and Guidelines for Grazing Administration could increase the percentage of the cover of desired vegetation species, maintain or improve vegetation diversity and structure, and maintain or improve soil and watershed conditions by reducing erosion and sediment loads.

The presence and use of roads and trails could cause erosion from road surfaces and ditches, concentrate flows into channels, and transport and deliver sediment into stream channels. This could reduce soil stability and degrade overall watershed conditions. Actual erosion and sedimentation amounts would depend on road construction standards, frequency of maintenance, and the amount of use.

Areas where public recreation use would be concentrated, such as campgrounds, trails, and trailheads, would cause localized effects. In addition, areas where livestock or wildlife concentrate such as near water sources, would also compact soils in localized areas. These areas would experience the most soil compaction and loss or reduction of vegetation cover, as well as destruction of biological crusts and increased wind erosion.

Retaining all public lands and acquiring other lands could improve BLM's ability to manage soil and water resources. This could help maintain or improve soil and watershed conditions by reducing erosion and sediment loads.

Managing the IFNM for full fire suppression and implementing programs to reduce ignitions, could improve the ecological health of vegetative communities. This would help maintain or improve soil and watershed conditions by reducing the potential for erosion and increased sediment loads. However, ground equipment associated with suppression of wildfires, such as equipment used to create fire lines, could disturb and compact soils in localized areas. Fuel treatments to maintain non-hazardous fuel levels using manual, biological, mechanical, or chemical treatments would result in the short-term loss of vegetation depending on the treatment applied. The loss of vegetation could result in an increase in erosion and sediment load in very localized areas.

The withdrawal of the IFNM from all forms of mineral entry (per the Proclamation) could reduce effects to soil and water resources from mineral exploration and development. However, mining-related activities at claims on 4,590 acres (about 4 percent) of public lands in the IFNM) could increase effects in localized areas.

Under all alternatives, impacts on soil and water resources are not anticipated from management of air quality and paleontological resources. Under all alternatives, there would be no impacts on soil and water resources from implementation-level decisions concerning management of air quality, geology, cultural, paleontological resources, and recreation.

4.3.3.2 Alternative A (No Action)

Under Alternative A, the following management actions would protect soil and water resources in the IFNM by restricting surface disturbance: managing 41,470 acres (32 percent of public lands in the IFNM) as a Silver Bell Desert Bighorn Sheep Management Area (including prohibition of surface occupancy on 800 acres), limiting motorized vehicles to existing roads and trails, and closing 820 acres to motorized vehicles. In addition, managing 2,240 acres (or 2 percent of public lands in the IFNM) as the Waterman Mountains ACEC to protect Nichol Turk's head cactus habitat also would reduce surface disturbance from human uses. Acquisition, through exchanges of non-Federal mineral estate underlying Federal

surface holdings in the Silver Bell Resource Conservation Area (RCA) would further reduce potential effects from mining activities as this area would then be withdrawn from mineral entry.

Managing 820 acres (1 percent of public lands in the IFNM) as closed to off-highway vehicle (OHV) use and 127,580 acres (99 percent of public lands in the IFNM) as limited to existing routes and closing the Special Management Area (20 acres) to motorized vehicles could reduce surface disturbance. In addition, prohibiting land use authorizations except along designated routes within the Waterman Mountains ACEC could reduce surface disturbance and retain existing vegetation resources in localized areas.

Managing 128,400 acres to meet VRM Class III objectives, including 8,240 acres (6 percent of public lands in the IFNM) for utility corridors could result in surface disturbance from human uses and removal of existing vegetation resources. Issuing rights-of-way to maximize use of existing routes could reduce the potential for surface disturbance in other areas of the IFNM. Managing 160 acres as the Pan Quemado communication site could result in surface disturbance and removal of vegetation resources as the communication site is developed. This could increase erosion and sediment loads in localized areas of watersheds.

Limiting motorized vehicle use to 346 miles of existing roads and trails could help retain existing vegetation cover and reduce surface disturbance; this could help maintain or improve soil and watershed conditions in the IFNM by reducing erosion and sediment loads. Management of livestock grazing to protect desert tortoise habitat also would provide incidental protection of soil and water resources by allowing only new range improvements that would not conflict with tortoise populations. Allowing dispersed, vehicle-based camping could result in localized impacts from vehicle parking and maneuvering and from persons engaging in ancillary activities. Not restricting camping to designated locations could lead to increased soil disturbance and result in soil erosion and increased sedimentation of surface waters following storms.

Continuing opportunities for recreational shooting would contribute to ongoing exposure to lead in the environment. Lead shot could leach into the soil and groundwater, although concentrations would be expected to be negligible unless areas are repeatedly used.

Establishing or modifying wildlife waters and relocating livestock water sources could result in localized disturbance to soils and could result in increased potential for a short-term localized increase in erosion. Range improvements that improve or do not conflict with desert tortoise populations could increase vegetation diversity and vigor. However, provision of additional water sources and rangeland improvements could increase vegetation diversity and structure in localized areas. This could help maintain or improve soil and watershed conditions by reducing erosion and sediment loads.

Management actions to establish or modify existing fences that would implement livestock grazing decisions or improve wildlife habitat could result in short-term localized surface disturbance. However, these actions would improve soil and watershed conditions in localized areas by reducing erosion and sedimentation.

An activity plan for the Cocoraque Butte–Waterman Mountains Multiple Resource Management Area could improve soil and watershed conditions by reducing erosion and sediment load as a result of outlining specific measures and a timeline for implementation. This could help maintain or improve soil and watershed conditions by reducing erosion and sediment loads. Implementing management actions for soil and water resources, special status species, livestock grazing, and travel management could decrease erosion by restricting surface disturbance to existing disturbed areas and improving vegetation resource conditions.

The implementation decision providing for 346 miles of existing roads for motorized travel would provide access to various areas, where erosion from such motorized access could increase as recreation use increases. This could potentially degrade soil and water resources in localized areas.

4.3.3.3 Alternative B

Minimizing surface disturbance that results in the loss of vegetation cover, minimizing surface disturbance during the construction of facilities, and managing 63,180 acres (49 percent of the public lands in the IFNM) that contain sensitive or fragile soils as prohibited from ground-disturbing activities would preserve the soil and watershed conditions by reducing erosion and sediment load. Managing 125,110 acres (97 percent of public lands in the IFNM) as VRM Class I and VRM Class II could maintain existing vegetation diversity and structure by reducing effects from human uses. Managing 38,040 acres (30 percent of public lands in the IFNM) as closed to OHV use, managing 90,360 acres (70 percent of public lands in the IFNM) as limited to designated routes, and managing areas as priority wildlife habitats would help retain existing vegetation resources by reducing surface disturbance. Compared with Alternative A, increasing the areas where these restrictions to surface-disturbing activities apply would provide greater protection to soil and water resources.

Managing 60,000 acres (47 percent of public land in the IFNM) as Semi-Primitive Non-Motorized, managing 36,990 acres (29 percent of public land in the IFNM) as a Primitive RMZ, including lands managed to protect wilderness characteristics, and prohibiting the removal of living or dead native plant material could maintain existing vegetation diversity and structure by emphasizing natural landscapes. However, this could restrict the type or extent of restoration projects. This could help maintain or improve soil and watershed conditions by reducing erosion and sediment loads to a greater extent than Alternative A. Once grazing leases expire, making the IFNM unavailable to grazing could also improve soil and watershed conditions in very localized areas.

Prohibiting land use authorizations within 2,240 acres of the Nichol Turk's head cactus Vegetation Habitat Management Area (VHA) and 6,780 acres of the Ragged Top VHA except along designated routes could reduce the area where surface disturbance could occur and help retain existing vegetation. This could help maintain or improve soil and watershed conditions by reducing erosion and sediment loads. This would reduce surface disturbance on 5,680 additional acres compared to Alternative A.

Developing a land restoration plan and using active restoration would maintain or improve soil and watershed conditions by reducing erosion and sediment load. Using native plants for all restoration projects and a variety of reclamation methods that emphasize passive restoration to improve hydrologic function also would improve overall soil and watershed conditions. This would help maintain or improve soil and watershed conditions by reducing erosion and sediment loads to a greater extent than Alternative A.

The elimination of livestock grazing from BLM-administered land as existing leases expire would eliminate a potential source for fecal contamination of surface water, and would eliminate the need for stock waters. Areas along cow paths and near stock waters may revegetate and provide ground cover with better soil stability.

Closing desert bighorn sheep lambing areas to human entry during a portion of the spring vegetative growing season could reduce surface disturbance in localized areas. In addition, special management, management decisions geologic resources also could reduce potential impacts on vegetation communities by restricting ground-disturbing or surface-disturbing activities. This could help maintain or improve soil and watershed conditions by reducing erosion and sediment loads to a greater extent than Alternative A.

Acquisition of lands to improve access for administrative purposes or where development/disturbance is foreseeable could improve BLM's ability to manage soil and water resources. This could help maintain or improve soil and watershed conditions by improving vegetation diversity and soil structure soil as compared with Alternative A. However, in areas where native plant species growth is slow, this could increase erosion and affect soil and watershed conditions.

The maintenance and protection of priority and special status species habitats and maintenance of existing surface water and groundwater resources would indirectly move vegetation communities toward desired conditions. This could improve soil and watershed conditions by reducing erosion and sediment loads. Allocating 29,820 acres as Desert Bighorn Sheep Wildlife Habitat Management Area (WHA) to protect habitat would reduce the potential for surface disturbance and help retain existing vegetation resources. This could help maintain or improve soil and watershed conditions by reducing erosion and sediment loads to a greater extent than Alternative A.

Managing 3,290 acres (3 percent of public lands in the IFNM) to meet VRM Class III objectives could result in fewer restrictions on activities that lead to surface disturbance and removal of existing vegetation. This alternative decreases the areas where surface-disturbing activities from human uses would be likely to occur, as compared to Alternative A.

Managing 17,610 acres (14 percent of public lands in the IFNM) as Roaded Natural and 14,540 acres (11 percent of public lands in the IFNM) as Semi-Primitive Motorized could cause localized surface disturbance and remove vegetation resources from recreation use and access roads. Restricting vehicle-based overnight camping to areas identified as open and allowing large-group camping at two designated sites would cause surface disturbance in localized areas from vehicle parking and maneuvering and from persons engaging in ancillary activities. This could result in a minor to negligible amount of soil compaction, soil erosion, and the potential for increased sediment runoff following storms. However, there would be less surface disturbance from camping and its associated effects compared to Alternative A.

Restricting public and equestrian access to public or community sites that will be designated through the travel management planning process would help to retain existing vegetation resources by reducing surface disturbance in other areas. However, the identified sites would be subject to more intense use, resulting in increased localized compaction and/or erosion at those sites. In addition, managing 2 acres as the Pan Quemado communication site and 3 acres of the Confidence Peak site could restrict surface disturbance compared with Alternative A. This could decrease erosion and sediment loads in localized areas by reducing surface disturbance compared to Alternative A.

Developing new routes for public travel management when necessary would disturb surfaces in localized areas and could result in erosion and increased sediment loads. In addition, authorizing rights-of-way to provide legal public access to IFNM lands or to provide access to non-Federal land inholdings would be considered on a case-by-case basis. These authorized rights-of-ways could increase erosion and sediment loads in localized areas.

Prohibiting recreational shooting would reduce the amount of lead shot within the monument compared to Alternative A, as well as the localized potential for the lead to leach into soil.

Decisions for soil and water resources, vegetation, wildlife and wildlife habitat, special status species, and lands and realty could maintain or improve vegetation resource conditions by reducing erosion and sedimentation. Constructing or implementing specific erosion control measures could improve soil and watershed conditions by reducing erosion in the planning area. Maintenance or removal of existing non-functioning flood- and erosion-control structures could cause short-term erosion from surface disturbance.

Long-term, this could improve soil and watershed conditions in localized areas. Implementation of protective measures in authorized rights-of-way would reduce vegetation removal and subsequent erosion. This could help maintain or improve soil and watershed conditions by reducing erosion and sediment loads to a greater extent than Alternative A.

Establishment or modification of wildlife waters and fences could result in localized disturbance to soils. In addition, removing fences, roads, facilities, and utility lines and fencing along designated routes to prevent damage to sensitive and unique vegetation would remove vegetation in the short-term. However, long-term, this action could help retain existing vegetation in localized areas. Rehabilitation of disturbed areas would help improve soil and watershed conditions by reducing the potential for erosion and sediment load. This could help maintain or improve soil and watershed conditions by reducing erosion and sediment loads to a greater extent than Alternative A.

Not developing an activity-level plan for the Cocoraque Butte–Waterman Mountain Mountains Multiple Resource Management Area could result in slower improvements to soil and watershed conditions. Not relocating water sources away from rare plant populations could reduce surface disturbance in localized areas and would retain existing vegetation resources.

Improving ecological site conditions could reduce surface disturbance to soil and water resources. This could reduce erosion in the IFNM. In addition, reclaiming abandoned mines could increase cover of desired vegetation, which could improve soil and watershed conditions by reducing erosion and sediment loads. Soil and watershed conditions could improve compared to Alternative A by reducing surface disturbance, erosion, and improving ecological site conditions.

Impacts from route designation would be similar to Alternative A, except managing 266 miles of routes for non-motorized use could help maintain or improve soil and watershed conditions by reducing erosion and sediment loads. Developing a transportation and travel plan could help retain existing vegetation resources by reducing surface disturbance through regulation of access points and routes.

4.3.3.4 Alternative C

Impacts on soil and water resources from livestock grazing would be the same as those that would occur under Alternative A, except locating range improvements to minimize additional disturbance would help retain a greater amount of existing vegetation. In addition, managing 241 acres for utility corridors and establishing the IFNM as an avoidance area could further reduce effects of surface disturbance. Impacts from management of scenic and visual resources and vegetation would be the same as Alternative B, except managing 124,900 acres as VRM Class II and 6,780 acres as a VHA also could reduce surface disturbance. This could help maintain or improve soil and watershed conditions by reducing erosion and sediment loads, as compared with Alternative A.

Localized surface disturbance from collecting geological resources and excavation of cultural resources as authorized by a permit could degrade soil and water conditions if increased erosion and sedimentation occurs. Increasing the area managed as Semi-Primitive Motorized to 36,230 acres could increase surface disturbance in localized areas. Impacts from large-group campsites would be the same as those that would occur under Alternative B, except increasing the number of campsites to three would increase localized surface disturbance. However, Alternative C would allow equestrian in all areas of the IFNM, which could result in the proliferation of trails, compact soils and increase erosion in localized areas. This could increase surface disturbance as compared with Alternative B, and reduce impacts as compared with Alternative A.

Impacts from management of scenic and visual resources would be the same as those that would occur under Alternative B, except increasing the total area managed as VRM Class III and IV by 210 acres could increase surface disturbance from human uses. This would decrease the area where surface disturbance from human uses could occur, as compared with Alternative A.

Impacts from OHV use would be similar to those that would occur under Alternative A. However, managing 10,880 acres as closed to OHV use and 117,520 acres as limited to designated routes would decrease surface disturbance compared to Alternative A. Compared to Alternative B, there would be 27,170 fewer acres of BLM-administered lands closed to OHV use, and 27,170 more acres in the area managed as limited to designated routes. In addition, the development of additional new routes would be the same as Alternative B.

Prohibiting recreational shooting would reduce the amount of lead shot within the monument compared to Alternative A, as well as the potential for the lead to leach into soil or water.

Impacts from managing lands to protect wilderness characteristics would be the same as Alternative B, except over less area. Managing 9,510 acres to protect wilderness characteristics would restrict where ground and surface-disturbing activities could occur in an effort to maintain naturalness. However, compared to Alternative A, this increases the area where restrictions would be applied to restoration projects.

Providing additional livestock water sources could increase vegetation diversity and structure in localized areas; this could help or improve soil and watershed conditions by reducing erosion and sediment loads. However, modifying current livestock waters would disturb surfaces and remove vegetation in localized areas. Livestock watering areas could become areas of concentration for livestock, increasing localized surface disturbance, soil compaction and the removal of vegetation compared with Alternative B, where additional livestock waters would not be authorized. An increase in the number and variety of wildlife and livestock enclosures would minimize livestock impacts on priority plant species and habitats, which could increase vegetation diversity and structure in localized areas. However, wildlife and livestock waters in the enclosures also would become areas of concentration, resulting in increased localized soil compaction and erosion. Localized erosion of soils could occur from vehicle travel along existing fence line roads.

Management actions to establish or modify existing fences that would implement livestock grazing decisions or improve wildlife habitat could result in short-term localized surface disturbance. However, these actions would improve soil and watershed conditions in localized areas by reducing erosion and sedimentation.

Designating acquired lands as right-of-way avoidance areas, unless within a designated corridor, would result in impacts similar to Alternative B; however, this could increase short-term, localized surface disturbance.

Impacts from motorized and non-motorized use route designations would be the same as those under Alternative B, except managing 205 miles of routes as non-motorized could decrease impacts on soil and water resources, as compared with 346 miles under Alternative A.

4.3.3.5 Alternative D

Management of wildlife and wildlife habitat would have the same impacts as those that would occur under Alternative B, while impacts from livestock grazing would have the same impacts as those under Alternative C. Restoring areas on a case-by-case basis would improve soil and watershed conditions by

reducing erosion and sediment load; however, this could reduce the areas restored, as compared with Alternatives A, B, and C.

Management of visual resources, recreation, and travel management would have impacts similar to those that would occur under Alternative C, except the area managed as VRM Class II would be decreased to 122,580 acres, areas managed as Roaded Natural would increase to 19,060 acres, and areas managed as Semi-Primitive Motorized would increase to 59,020 acres. In addition, managing 4,220 acres as VRM Class III and 1,600 acres as VRM Class IV would increase the area where effects from human uses would occur, as compared with 3,290 acres as Class III under Alternative B and 3,500 acres as Classes III and IV under Alternative C. This would decrease the area, as compared with 128,400 acres managed as Class III under Alternative A.

Impacts from vegetation and lands and realty management actions would be the same as those under Alternatives B and C, except using both native plants and non-native plants to prevent degradation of resources and acquiring inholdings could improve vegetation diversity and structure. This could improve soil and watershed conditions by reducing erosion and sediment load to a greater extent than under Alternative A, B, or C.

Impacts from recreational shooting would concentrate the direct effects on soil and waters within the vicinity of the two designed shooting areas in the monument. The hillsides within these areas, which would provide the natural backstops required for safety, would be exposed to high concentrations of lead shot. Physical abrasion from bullets going through soil and natural weathering processes can cause lead to leach into the soil and groundwater over time (Hardison et al. 2004). Transport of lead into groundwater in influenced by soil types, the amount of precipitation, topography of the firing range (stormwater runoff is greater in hilly terrain, thus slowing transport), and depth to groundwater (as greater distances will dilute the lead or it may not reach the groundwater) (Scott 2001). Lead contamination in IFNM is expected to be slow because of low normal precipitation (averaging less than 13 inches), hillside backdrops are expected to have highest concentrations of spent bullets, depth to groundwater in this region is generally greater than 200 feet, and there is a high evaporation rate.

Impacts from large-group camping sites would be similar to those that would occur under Alternative B, but allowing four designated sites would increase surface disturbance in localized areas, as compared with two large group sites under Alternative B and three large group sites under Alternative C.

Implementing management actions under Alternative D would have the same impacts as those that would occur under Alternative C. In addition, impacts from motorized and non-motorized use route designations would be the same as those under Alternative B, except managing 116 miles of routes as non-motorized could decrease impacts on soil and water resources, as compared with 0 miles under Alternative A (where 346 miles of motorized routes would occur).

4.3.4 Impacts on Vegetation

This analysis addresses potential impacts on vegetation, including xeroriparian and riparian areas. This analysis will focus on those management decisions that have the potential to cause physical disturbance of vegetation, and the loss or disturbance of vegetation, including xeroriparian areas on public lands within the IFNM. Particular focus was placed on vegetation communities with the greatest potential for changes in structure and species composition, and most at risk from severe mortality events from drought, insects, and disease.

The effects of management actions on vegetation, particularly in xeroriparian areas could vary widely, depending on a variety of factors such as the type of soils, soil moisture, topography, and plant

reproductive characteristics. Impacts on vegetation resources would vary depending on the structure and composition of the vegetation communities, which are described in Chapter 3. The composition of a plant community changes over time due to the interactions of many factors, such as climate, resource uses, and disturbance. In many cases, the potential composition of an area differs from the existing composition due to the area's disturbance history. Actions that cause surface disturbance remove existing vegetation and could increase the potential for establishment of noxious weeds and invasive species, which would reduce overall vegetation diversity, desirable plant cover and the ecological health of vegetation. Increasing surface disturbance also could increase erosion rates.

The following assumptions were used in the analysis of impacts on vegetation, including xeroriparian:

- Following surface disturbance, adequate vegetative ground cover and species composition for site stabilization would typically occur within 5 years in vegetative communities.
- Adequate forage would be available for wildlife population objectives.
- All plant communities would be managed toward achieving an appropriate mix of species composition, cover, and age classes.
- The degree of impact attributed to any one disturbance or series of disturbances would be influenced by several factors, including location within the watershed, the type, time and degree of disturbance, existing vegetation, and precipitation.
- Incidental noxious and invasive weeds would continue to be introduced and spread as a result of ongoing vehicle traffic in and out of the IFNM, recreational activities, wildlife and livestock grazing and movements, and surface-disturbing activities.
- Weed and pest control would be carried out in coordination with the appropriate county weed and pest control district and owners of adjacent property.
- Climatic fluctuation would continue to influence the health and productivity of plant communities.

Impacts on vegetation communities and priority vegetation habitats include direct and indirect impacts on species composition and structure. Consequences to vegetation density and composition were based on likely changes relative to desired conditions. Particular focus was placed on vegetation with the greatest potential for changes in density and composition, and at most risk from severe mortality events from drought, or insects and disease. In the absence of quantitative data, best professional judgment was used, and impacts are described using ranges of potential impacts or in qualitative terms if appropriate.

4.3.4.1 Impacts Common to All Alternatives

The diversity of species within plant communities, the relative distribution of plant communities, and the relative occurrence of structural stages of those communities would be affected under all alternatives. However, implementation of any alternative would not result in the complete elimination of a plant species, plant community, or structural stage. Impacts resulting from management actions that are common to all the alternatives include surface disturbance from fire suppression, recreation use, and minerals management. These activities would result in the removal of existing vegetation and the conversion of areas to an earlier structural stage and could change vegetation community succession. Converting areas to an earlier structural stage could increase the primary productivity of the vegetation community and could reduce the diversity of scrubland and desert grassland vegetation and the overall ecological health of vegetation communities in those areas. In general, vegetation communities naturally recover from surface disturbance and gradually return to a composition and structure that existed prior to disturbance. Surface-disturbing activities could increase the potential for establishment of noxious weeds

and invasive species. While disturbance does not always lead to plant invasion, it could provide a temporary location for invasive species to establish. Reclamation of disturbed areas reduces the effects of surface disturbance on vegetation communities and opportunities for establishment of noxious weeds and invasive species.

Reduction in vegetation structural diversity and ground cover often leads to increased soil erosion. Soil erosion rates on desert scrub and grassland communities are highly dependent on the proportion of soil surface protected by vegetation from raindrop impacts. Erosion rates increase exponentially as plant cover decreases (Meeuwig 1970).

Impacts from management actions common to all alternatives that restrict surface-disturbing activities or improve soil resources from soil and water, vegetation, wildlife and wildlife habitat, special status species, scenic and visual resources, energy and minerals, and recreation management actions would help retain existing vegetation diversity, species composition, and successional states and patterns. Withdrawal of the monument from all forms of mineral entry and closing or limiting areas where motorized vehicles would be allowed could reduce erosion rates by retaining existing vegetation resources. This would decrease the potential for establishment of noxious weeds and invasive species by reducing surface disturbance. However, mining activities at valid existing claims (approximately 4,590 acres) could cause localized surface disturbance and remove existing vegetation resources. This could locally increase opportunities for establishment of noxious weeds and invasive species.

Construction of facilities, water developments (such as wildlife waters), fences, roads, campsites, and interpretive sites would involve crushing and uprooting vegetation in the immediate vicinity and along vehicle access routes. Most impacts from construction would be direct, short term, and limited to the immediate project area. In the long term, facility development could have indirect impacts as a result of greater use by or for livestock, recreation, and administration at the site and along roads and fences. Increased use could compact soils, reduce vegetation cover in localized areas, cause plant mortality or reduction in vigor, and produce conditions favorable to the establishment and spread of noxious weeds and invasive species.

OHV and recreation use could remove vegetation and cause erosion. Concentrated OHV and recreation activities could remove native plants, increasing erosion and off-site sedimentation, and could introduce and spread noxious weeds or invasive species.

Depending on location and density, livestock and wildlife grazing could affect the density and composition of vegetation communities. If foraging activities were concentrated in small areas or along fence lines, soil disturbance and vegetation removal from trampling and grazing would be greater in those areas, increasing the potential for establishment of noxious weeds and invasive species. Concentrations of foraging activities in xeroriparian areas, where alternate water supplies are not available, could lead to destruction of stream and wash banks, removal of vegetation through trampling and grazing, and a long-term change in the vegetation community structure.

Eliminating or controlling the establishment and spread of noxious weeds would improve or maintain natural vegetation composition and structure by decreasing invasive and noxious weed reproduction and competition for limited resources. In the long term this could increase the percent cover of desirable plant species in and adjacent to treated areas. Controlling the establishment and spread of noxious weeds would improve the overall ecological health of vegetation communities through increases in habitat productivity, species diversity, and disease/pest resistance in treated areas.

Managing fire and fuels for full fire suppression and implementing programs to reduce ignitions would improve the ecological health of vegetation communities by decreasing impacts on native vegetation

diversity. Maintaining and increasing native vegetation diversity could indirectly increase resistance to disease and insect pest infestations. Long term this could reduce opportunities for establishment of noxious weeds and invasive plant species. Fuel treatments to maintain non-hazardous fuel levels using manual, biological, mechanical, or chemical treatments would result in the short-term loss of vegetation depending on the treatment applied. Some losses of vegetation would be of undesirable plant species including exotic and invasive species, which are treated to reintroduce or promote desirable plant species. This would improve species diversity in treated areas.

Managing the uplands and xeroriparian areas to meet desired resource conditions and Arizona Standards for Rangeland Health and Guidelines for Grazing Administration would increase the percent cover of desired vegetation species, and improve vegetation diversity and structure. Improving areas of allotments that are not meeting rangeland health standards would improve vegetation diversity, riparian functioning condition, and the ecological health of vegetation communities. Improving vegetation health could reduce the potential for establishment of noxious weeds and invasive species, also improving the ecological health of desert grasslands and scrublands in areas not meeting rangeland health standards.

Land acquisitions that result in large contiguous blocks of public land could improve BLM's ability to manage vegetation and other resources. This could improve vegetation diversity and the ecological health of vegetation communities and increase riparian functioning conditions by improving management of areas to limit activities that could affect vegetation structure, density and species composition in these areas. This could help maintain or improve special status species habitat and could increase the protection of Nichol Turk's head cactus habitat.

Under all alternatives, impacts on vegetation and xeroriparian/riparian resources are not anticipated as a result of implementing management actions for air quality and paleontological resources. Under all alternatives, there would be no impacts on vegetation resources from implementation-level decisions for geology.

4.3.4.2 Alternative A (No Action)

Developing an activity plan for the Cocoraque Butte–Waterman Mountains Multiple Resource Management Area, designating approximately 2,720 acres as the Avra Valley Cultural Resource Management Area (CRMA), and promoting the maximum utilization of existing right-of-way routes, including joint use whenever possible, could restrict surface-disturbing activities. Managing approximately 41,470 acres (32 percent of public lands in the IFNM) as the Desert Bighorn Sheep Management Area, which closes 800 acres to motorized vehicles, and managing 2,240 acres of public land to protect Nichol Turk's head cactus habitat, also could reduce surface disturbance.

Custodial management of recreation use, allowing camping except within ¼ mile of a natural water hole containing water, or a man-made watering facility containing water (which could both restrict access to water sources by livestock and wildlife), and allowing cross-county equestrian use would result in localized surface disturbance. This could increase opportunities for establishment of noxious weeds and invasive species in these areas. The surface disturbance also could potentially contribute to disturbance to vegetative objects of the monument (including drought-adapted vegetation and ironwood trees) on a very small and localized scale.

Continuing to allow recreational shooting within the IFNM may result in vegetation being damaged by bullets that miss the target, by targets propped against vegetation, or by persons who use vegetation as a target even though shooting natural objects and vegetation is a violation of 43 CFR 8365.1-5(a) (1) and (2). To the extent that bullets strike saguaro, ironwood, palo verde, or vegetation associated with ancient legume forests and ironwood-bursage habitat, there could be minor and localized disturbances to vegetative objects of the monument.

Limiting OHV use to existing routes on 127,580 acres (99 percent) of public lands in the IFNM, and closing 820 acres (less than 1 percent) of public lands in the IFNM to motorized vehicles use could help retain existing vegetation conditions and reduce the potential for establishment of noxious weeds and invasive species. Closing the Special Management Area (20 acres) to motorized vehicles and issuing rights-of-way to maximize use of existing routes could reduce the potential for establishment of noxious weeds and invasive species.

Managing 128,400 acres to meet VRM Class III objectives (Table 4-2) and 8,240 acres (6 percent of the public lands in the IFNM) for utility and right-of-way corridors including 2,480 acres of priority vegetation communities could result in surface disturbance. In addition, managing 160 acres as the Pan Quemado communication site also would result in localized surface disturbance, and also could increase the potential for the establishment of noxious weeds and invasive species. This localized disturbance could result in some disturbance of vegetative objects of the monument.

Table 4-2: Alternative A–Vegetative Communities Within VRM Class III

	VRM Class III	
Vegetative Community	**Acres**	**% of Public Lands in the IFNM**
Arizona Upland Sonoran Desertscrub	87,550	68
Lower Colorado River Sonoran Desertscrub	29,590	23
Xeroriparian	10,960	9

Managing rangeland improvements to not allow activities that conflict with desert tortoise populations and acquiring lands could improve vegetation resources by decreasing the potential for activities that would decrease vegetation diversity and structure. In addition, developing and implementing an activity plan for Cocoraque Butte–Waterman Mountains Multiple Resource Management Area could improve vegetation diversity and structure in that area by limiting actions that could increase the potential for establishment of noxious weeds and invasive species.

Implementation-level management actions would limit surface disturbance to existing disturbed areas and improve the ecological health of vegetative communities. Limiting motorized vehicle use to 346 miles of existing routes (Table 4-3: and Map 2-17) would help maintain existing vegetation diversity and structure by reducing surface disturbance and the potential for establishment of noxious weeds and invasive species.

Table 4-3: Alternative A–Miles of Routes Within Each Vegetative Community

Vegetative Community	Miles
Arizona Upland Sonoran Desertscrub	255
Lower Colorado River Sonoran Desertscrub	66
Xeroriparian	25
Total	346

Providing water sources away from rare plant populations could indirectly improve vegetation diversity by improving livestock or wildlife distribution and forage utilization. Relocating water sources would cause localized surface disturbance and remove vegetation resources; however, it would allow for reclamation of the former sites. In addition, providing additional livestock water sources in the Twin Tanks and Cocoraque Pastures could increase vegetation diversity and structure in localized areas by improving forage utilization and distribution.

Implementing an activity plan for the Agua Blanca Ranch Multiple Resource Management Area and the Nichol Turk's head cactus recovery plan, and improving ecological site conditions to a "good" status could reduce surface disturbance, increase the percent cover of desirable vegetation species, and increase vegetation species diversity. In addition, requiring the implementation of mitigation measures for maintenance of established rights-of-way could reduce the effects of surface-disturbing activities. Reducing the effects of surface-disturbing activities could help retain existing vegetation resources and reduce the potential for noxious weed and invasive species establishment.

Developing communication facilities at designated sites would remove vegetation in localized areas and could increase the potential for establishment of noxious weeds and invasive species. Designating 346 miles of routes as motorized could result in localized surface disturbance from route proliferation.

Based on the impacts described above for Alternative A, the disturbance to objects of the monument (including drought-adapted vegetation and ironwood trees) resulting from management actions would range from undetectable to measurable at a broad scale (i.e., 2,480 acres of priority vegetation type within utility corridors would be subject to potential disturbance and recreational opportunities could result in some vegetative disturbance). In contrast, management actions that reduce surface disturbance (such as designating approximately 2,720 acres as the Avra Valley CRMA and promoting the maximum utilization of existing right-of-way routes) would help to protect these objects of the monument. Overall, the anticipated impacts would not reduce the viability or result in the loss of a population of these species or the natural range of variation in vegetative communities. However, the extent and dispersed nature of impacts on vegetative objects of the monument would require the implementation of mitigation measures for BLM's management of the IFNM to comply with the Proclamation. The implementation of mitigation measures, including avoidance of specific vegetative resources (e.g., saguaros, ironwood, palo verde and other drought-adapted vegetation) and revegetation of disturbed areas, would reduce impacts on those objects to the extent that they would be measurable only in small localized areas, and vegetative communities would be conserved for future generations. BLM's implementation of mitigation measures would provide for "protection of the monument objects" as defined in Section 1.3.1.

4.3.4.3 Alternative B

Impacts from management actions that restrict surface disturbance would be similar to those under Alternative A, except additional restrictions would apply. Managing 60,000 acres as Semi-Primitive Non-Motorized and managing 29,420 acres as Primitive (Table 4-4), and prohibiting ground-disturbing activities on 63,180 acres (49 percent of public lands in the IFNM) with sensitive or fragile soils could reduce surface disturbance, compared with Alternative A. In addition, prohibiting surface disturbance on the 14,340 acres of priority vegetation communities with sensitive or fragile soils would help retain existing conditions, compared with Alternative A. Increasing the motorized vehicle closure areas to 38,040 acres would further increase restrictions on surface-disturbing activities, compared with Alternative A. Each of these actions that minimize ground disturbance would better protect the vegetative objects of the monument compared with Alternative A.

Table 4-4: Alternative B–Vegetative Communities Within Each Recreation Management Zone

Vegetative Community	Roaded[1]		Semi-Primitive Motorized		Semi-Primitive Non-Motorized[2]		Primitive	
	Acres	% of Public Lands in the IFNM	Acres	% of Public Lands in the IFNM	Acres	% of Public Lands in the IFNM	Acres	% of Public Lands in the IFNM
Arizona Upland Sonoran Desertscrub	11,950	9	11,170	9	32,640	25	25,490	20
Lower Colorado River Sonoran Desertscrub	3,950	3	2,080	1	20,780	17	2,780	2
Xeroriparian	1,320	1	1,290	1	6,570	5	1,140	1

NOTES: [1] Roaded includes categories Roaded Natural, Rural Industrial, Rural Residential, and Rural Agricultural.
[2] Semi-Primitive Non-Motorized includes Ragged Top.

Managing 36,990 acres to protect wilderness characteristics and 125,110 acres as VRM Class I and II (Table 4-5), could reduce the effects to vegetation by emphasizing natural landscapes compared, with Alternative A (where 128,400 acres would be VRM Class III). However, this also could restrict the type or extent of restoration projects in these areas, compared with Alternative A.

Managing 3,290 acres to meet VRM Class III objectives decreases surface disturbance compared to Alternative A. This could decrease opportunities for noxious weeds and invasive species establishment. Managing 17,610 acres as Roaded Natural and 14,540 acres as Semi-Primitive Motorized would emphasize public recreation use. This use could cause localized surface disturbance in and near recreation use areas and access roads, removing vegetation resources and increasing the potential in these areas for noxious weeds and invasive species establishment.

Table 4-5: Alternative B–Vegetative Communities Within Each VRM Class

Vegetative Community	VRM Class					
	I		II		III	
	Acres	% of Public Lands in the IFNM	Acres	% of Public Lands in the IFNM	Acres	% of Public Lands in the IFNM
Arizona Upland Sonoran Desertscrub	32,820	26	53,290	41	1,730	1
Lower Colorado River Sonoran Desertscrub	2,790	2	25,560	20	1,250	1
Xeroriparian	1,380	1	9,270	7	310	<1

Managing 38,040 acres (Map 2-18) as closed to OHV use and limiting use on 90,360 acres to designated routes would help retain designated vegetation diversity and structure , and would promote protection of the vegetative objects of the monument. Closing areas and limiting use to existing routes could reduce the spread of noxious weeds and invasive species in areas adjacent to routes.

Restricting camping to designated areas could result in localized surface disturbance, but could reduce surface disturbance overall. Localized surface disturbance would occur as a result of allowing large-group camping at two designated sites, public and equestrian access (see Map 2-18), and managing 2 acres as the Pan Quemado communication site and 3 acres as the Confidence Peak site. However, compared to Alternative A, localized surface disturbance and associated damage to vegetation would be reduced.

Prohibiting recreational shooting within the monument would reduce the risk of bullet strike damage to vegetation and could reduce trampling of vegetation in localized areas. This could help retain a greater amount of existing vegetation condition compared to Alternative A and as a result better protect the vegetative objects of the monument compared to Alternative A.

Management actions for soil and water, vegetation, livestock grazing, and lands and realty could retain a greater amount of vegetation than Alternative A by minimizing surface disturbance and maintaining existing surface water and groundwater resources. In addition, prohibiting the removal of living or dead native plant material would help retain existing vegetation and seed sources. Removing livestock grazing as leases expire could move vegetation communities toward desired conditions. Managing the entire IFNM as a right-of-way exclusion area and not establishing utility corridors would also reduce surface disturbance and help maintain existing vegetation diversity, structure, and health of the vegetative objects of the monument.

Management actions for wildlife, vegetation, and lands and realty could improve the ecological health of vegetative communities, compared with Alternative A. Managing priority wildlife and special status species and their habitats, including 29,820 acres as the Desert Bighorn Sheep WHA and 2,240 acres for Nichol Turk's head cactus, could indirectly move vegetation communities toward desired conditions by improving the ecological health of vegetative communities. Closing desert bighorn lambing areas to human entry could reduce surface disturbance during a portion of the vegetative growing season. In addition, pursuing an integrated weed management approach and priority control of noxious weeds and invasive species would improve vegetation diversity and structure by removing competition for limited resources. Acquiring lands that improve access for administrative purposes or where development and/or disturbance is foreseeable and inholdings within VHAs could improve BLM's ability to manage vegetation resources. This could improve vegetation diversity and structure and reduce opportunities for establishment of noxious weeds and invasive species, compared with Alternative A.

Using native plants in active restoration and utilizing a variety of reclamation methods would improve vegetation diversity, structure, and composition over the long term. However, in areas where native plant species growth is slow, passive restoration could require a greater period of time to achieve restoration goals, which could increase the potential for establishment of noxious weeds and invasive species. Developing a land restoration plan would facilitate restoring disturbed areas within IFNM, improve vegetation diversity and structure, and reduce opportunities for establishment of noxious weeds and invasive species over a larger area than under Alternative A.

Implementation management actions for soil resources would be the same as those under Alternative A, except implementing specific erosion control measures could increase vegetation cover over a greater area. Impacts from route designations would be similar to those under Alternative A, except Alternative B would designate 63 miles of existing travel routes for motorized access/use. In addition, identifying 266 miles for non-motorized use and identifying 17 miles of existing routes for reclamation could decrease surface disturbance to vegetation, compared with Alternative A (Table 4-6), and thus better protect the vegetative objects of the monument compared with Alternative A. In addition, developing a transportation and travel plan also could help retain existing vegetation resources by reducing the amount of surface disturbance and the potential for establishment of noxious weeds and invasive species, compared with Alternative A.

Table 4-6: Alternative B–Miles of Routes Within Vegetative Communities

Vegetative Community	Miles of Routes		
	Motorized	Non-Motorized	Reclamation
Arizona Upland Sonoran Desertscrub	46	202	8
Lower Colorado River Sonoran Desertscrub	11	47	9
Xeroriparian	6	17	1
Total	63	266	17

Not developing an activity level plan for the Cocoraque Butte–Waterman Mountains Multiple Resource Management Area could result in longer time periods for realized improvements to vegetation diversity and structure in a local area. In the short term, this could increase opportunities for establishment of noxious weeds and invasive species, compared with Alternative A.

Based on the impacts described above for Alternative B, the disturbance to objects of the monument (including drought-adapted vegetation and ironwood trees) resulting from management actions would be undetectable or measurable only in localized areas and would not reduce the viability or result in the loss of a population of object indicators, a vegetative community, or the natural range of variation in vegetation communities. Many of the management actions would reduce surface disturbance compared to existing conditions and consequently further protect the vegetative objects of the monument. The localized nature of impacts on vegetative objects of the monument would be consistent with "protection of the monument objects" as defined in Section 1.3.1.

4.3.4.4 Alternative C

Impacts from management actions that restrict surface disturbance and minimize damage to vegetation would be the same as those under Alternative B. Decreasing the area managed as Semi-Primitive Non-Motorized to 57,450 acres (49 percent of public lands in the IFNM) (see Table 4-7), and managing 3,420 acres as VRM Class III and 80 acres as VRM Class IV (Table 4-8) would decrease surface-disturbance restrictions, compared with Alternative A, and reduce restrictions, compared with Alternative B. These adjustments in the amount of surface disturbance would result in similar adjustments to the potential to affect the vegetative objects of the monument.

Table 4-7: Alternative C–Vegetative Communities Within Each Recreation Management Zone

Vegetative Community	Roaded[1]		Semi Primitive Motorized		Semi Primitive Non-Motorized[2]		Primitive	
	Acres	% of Public Lands in the IFNM	Acres	% of Public Lands in the IFNM	Acres	% of Public Lands in the IFNM	Acres	% of Public Lands in the IFNM
Arizona Upland Sonoran Desertscrub	12,700	10	23,290	17	37,010	29	14,860	12
Lower Colorado River Sonoran Desertscrub	4,360	3	9,320	6	15,890	12	0	0
Xeroriparian	1,890	1	3,580	3	4,550	4	920	1

NOTES: [1] Roaded includes categories Roaded Natural, Rural Industrial, Rural Residential and Rural Agricultural.
[2] Semi-Primitive Non-Motorized includes Ragged Top.

Managing 9,510 acres as Primitive (7 percent of public land in the IFNM) including lands managed to protect wilderness characteristics, would decrease the amount of surface disturbance compared with Alternative A (Table 4-8). However, this would increase the area where surface disturbance could occur,

by 27,480 acres, compared with Alternative B. This could restrict the type or extent of restoration projects, compared with Alternative A and reduces restrictions, compared with Alternative B.

Table 4-8: Alternative C–Vegetative Communities Within Each VRM Class

	VRM Class							
	I		II		III		IV	
Vegetative Community	Acres	% of Public Lands in the IFNM	Acres	% of Public Lands in the IFNM	Acres	% of Public Lands in the IFNM	Acres	% of Public Lands in the IFNM
Arizona Upland Sonoran Desertscrub	8,752	7	77,220	60	1,860	1	20	<1
Lower Colorado River Sonoran Desertscrub	0	0	28,300	22	1,250	1	30	<1
Xeroriparian	790	1	9,840	8	310	0	20	<1

Impacts from RMZs would be the same as those under Alternative B, except that 18,380 acres (14 percent of public lands in the IFNM) would be managed as Roaded Natural, 36,230 acres (28 percent of public lands in the IFNM) as Semi-Primitive Motorized, and 57,450 acres (45 percent) as Semi-Primitive Non-Motorized (see Table 4-7). In addition, impacts from OHV management would be the same as Alternative B, except 10,880 acres (8 percent of the public lands in the IFNM) would be closed to OHV travel and travel would be limited to designated routes on 117,520 acres (91 percent of public lands in the IFNM). This could reduce the amount of surface disturbance, compared with Alternative A and increase surface disturbance, compared with Alternative B.

Impacts from managing priority wildlife, special status species habitat, and public access (see Map 2-19) would be the same as those under Alternative B, except allowing camping in VHAs could increase localized surface disturbance. In addition, increasing the number of large-group camping sites to three and allowing the collection of geologic resources as authorized by a permit would increase surface disturbance in localized areas. Alternative C would allow equestrian use in all areas of the IFNM. With repeated use in an area this could result in the proliferation of trails and the degradation of special status species habitat. This would increase localized effects, compared with Alternative B, but decrease effects, compared with Alternative A.

Impacts from surface disturbance associated with utility corridors and rights-of-way would be similar to Alternative A, except reducing the area managed as utility corridors to 241 acres (including 87 acres of priority vegetation habitats), and considering rights-of-way on a case-by-case basis could reduce surface disturbance (Map 2-17). In addition, managing public lands in the IFNM as an avoidance area except for designated corridors could reduce surface disturbance in areas outside designated corridors. This could decrease surface disturbance, compared with Alternative A, and increase effects, compared with Alternative B.

Impacts from management activities to reduce erosion or restore areas would be similar to those under Alternative B. Over the long term, vegetation diversity and structure would improve due to restoration efforts, compared with Alternative A and would be similar to Alternative B. In addition, restricting or requiring mitigation for ground-disturbing activities in areas with sensitive or fragile soils (63,180 acres) would have the same impacts as Alternative B.

Impacts from management actions for vegetation and livestock grazing would be the same as those under Alternative A, except locating range improvements to minimize disturbance, and minimizing livestock

impacts on priority plant species and habitats would retain a greater amount of existing vegetation than Alternative A. In addition, retaining livestock grazing on 11 allotments (approximately 128,400 acres) would have the same impact as Alternative A; however, vegetative communities could attain desired conditions more slowly than under Alternative B since BLM-administered lands would be unavailable for livestock grazing as leases expire.

Managing acquired lands as right-of-way avoidance areas, unless in a designated corridor, could reduce the amount of surface disturbance in other areas of the IFNM, compared with Alternative A. Providing additional wildlife and livestock water sources could improve vegetation diversity and structure in localized areas, compared with Alternatives A and B. However, modifying current livestock waters would result in short-term localized areas of surface disturbance.

Implementing management actions to designate routes would have the same impacts as Alternative B, except designating 124 miles as motorized (including 37 miles in priority vegetation habitats) could decrease surface disturbance (Table 4-9). Designating 205 miles of routes as non-motorized and reclamation on 17 miles also could reduce opportunities for establishment of noxious weeds and invasive species, compared with 346 miles under Alternative A.

Table 4-9: Alternative C–Miles of Routes Within Vegetative Communities

Vegetative Community	Miles of Routes		
	Motorized	Non-Motorized	Reclamation
Arizona Upland Sonoran Desertscrub	91	159	8
Lower Colorado River Sonoran Desertscrub	25	32	8
Xeroriparian	9	14	1
Total	125	205	17

Based on the impacts described above for Alternative C, the disturbance to objects of the monument (including drought-adapted vegetation and ironwood trees) resulting from management actions would be undetectable or measurable only in localized areas and would not reduce the viability or result in the loss of a population of object indicators, a vegetative community, or the natural range of variation in vegetation communities. The localized nature of impacts on vegetative objects of the monument would be greater than those described under Alternative B, less than those described under Alternative A, and consistent with "protection of the monument objects" as defined in Section 1.3.1.

4.3.4.5 Alternative D

Impacts from management actions that restrict surface disturbance would be the same as those under Alternative C, except using non-native plants in areas to protect resources could reduce vegetation diversity in the short term, compared with Alternatives B and C. However, over the long term, vegetation diversity and structure would improve due to restoration efforts, compared with Alternative A, and would be similar to Alternatives B and C. Decreasing the area managed as Semi-Primitive Non-Motorized to 43,770 acres (34 percent of public lands in the IFNM) the increasing the area managed as Semi-Primitive Motorized to 59,020 (46 percent of public lands in the IFNM) would decrease surface disturbance restrictions, compared with Alternative C (Table 4-10). Managing 122,580 acres (95 percent of public lands in the IFNM) to meet VRM Class II objectives (Table 4-11) reduces the areas where surface disturbance restrictions apply, compared with Alternatives B and C, and increases surface disturbance restrictions, compared with Alternative A. In addition, this could restrict the location or extent of restoration projects in these areas, compared with Alternative A, and would reduce restrictions compared with Alternative B or C. As noted in the discussions of Alternatives A, B, and C, increases in surface

disturbance increase the potential for disturbance to the vegetative objects of the monument and actions that help to minimize surface disturbance help to protect the vegetative objects of the monument.

Table 4-10: Alternative D–Vegetative Communities Within Each Recreation Management Zone

	Roaded[1]		Semi-Primitive Motorized		Semi-Primitive Non-Motorized[2]		Primitive	
Vegetative Community	Acres	% of Public Lands in the IFNM	Acres	% of Public Lands in the IFNM	Acres	% of Public Lands in the IFNM	Acres	% of Public Lands in the IFNM
Arizona Upland Sonoran Desertscrub	12,840	10	40,350	31	34,670	27	0	0
Lower Colorado River Sonoran Desertscrub	4,370	3	12,760	10	12,450	10	0	0
Xeroriparian	1,900	1	5,900	5	3,150	3	0	0

NOTES: [1] Roaded includes categories Roaded Natural, Rural Industrial, Rural Residential, and Rural Agricultural.
[2] Semi-Primitive Non-Motorized includes Ragged Top.

Table 4-11: Alternative D–Vegetative Communities Within Each VRM Class

	VRM Class					
	II		III		IV	
Vegetative Community	Acres	% of Public Lands in the IFNM	Acres	% of Public Lands in the IFNM	Acres	% of Public Lands in the IFNM
Arizona Upland Sonoran Desertscrub	84,310	66	2,740	2	800	<1
Lower Colorado River Sonoran Desertscrub	27,800	22	1,160	1	640	<1
Xeroriparian	10,470	8	320	0	160	<1

Impacts from OHV management actions would be the same as those Alternative A, except managing 128,400 acres as limited to designated routes for OHV use could reduce the amount of surface disturbance, compared with Alternative A, and would increase the areas where effects would occur, compared with Alternatives B and C.

Impacts from management actions that cause surface disturbance would be the same as those under Alternative B, except managing 4,220 acres as VRM Class III, and 1,600 acres as VRM Class IV, and 43,770 acres (34 percent) as Semi-Primitive Non-Motorized would decrease the areas with restrictions, compared with Alternative A, and increases the area where surface disturbance could occur, compared with Alternatives B and C.

Managing 2,660 acres as designated for utility corridors could result in the disturbance or removal of vegetation, which could increase the potential for establishment of noxious weeds and invasive species by disturbing surfaces and the potential for damage to the vegetative objects of the monument as compared to Alternative C. Managing Corridors 1 and 3 to allow for additional above ground major rights-of way also could increase surface disturbance (see Map 2-18) compared to Alternatives B and C. However, this could retain a greater amount of existing vegetation, compared with Alternative A.

Impacts from management of recreation and public access would generally be the same as those under Alternative B, although Alternative D would allow large-group camping at four designated sites (versus two under Alternative B and three under Alternative C). The provision of large campsites would have a direct effect of increasing, localized surface disturbance in those areas, but in a larger context it may have an indirect effect in reducing the amount of surface disturbance that would otherwise be caused by large groups using backcountry resources for camping. This would have the added beneficial effect of reducing the potential of establishing noxious weeds and invasive species that would or could be spread into backcountry areas by the larger groups as well as the potential for disturbance to the vegetative objects of the monument from recreational activities.

In addition to the difference in the number of designated camp sites, Alternative D would allow the collection of dead and downed wood by persons camping within IFNM; this use could affect the replenishment of soil nutrients for new plant growth and reduce the availability of dead wood that may be used as habitat for various species of wildlife.

Alternative D also differs from Alternative B in that recreational shooting on public lands would be allowed in designated shooting areas located at Avra Hill and Cerrito Represo. While prohibiting dispersed recreational shooting would minimize the potential for vegetation damage throughout much of IFNM, long-term, significant vegetation damage in the two designated shooting areas would be expected from the concentrated shooting activity. As documented in the photographs included in Appendix I, historical recreational shooting in these area has already resulted in vegetative damage associated with bullets that miss the target, targets propped against vegetation, and vegetation being used as a target despite the fact that shooting at natural objects and vegetation is a violation of the rules of conduct on public land codified in 43 CFR 8365.1-5(a) (1) and (2). While the designated shooting areas would be limited to approximately 629 acres, damage from errant bullets hitting vegetation beyond the shooting area boundaries would be likely. This would increase disturbance to vegetation resources compared to Alternatives B and C. However, this could increase the localized loss of vegetation resources compared to Alternative A. Similarly, to the extent that saguaro, ironwood, palo verde, or vegetation associated with ancient legume forests and ironwood-bursage habitat occur within or near the designate shooting areas, there would be potential for localized damage to these vegetative objects of the monument.

Increasing the number by allowing up to two additional facilities at the Pan Quemado and Confidence Peak communication sites could increase the amount of surface disturbance, compared with Alternative B and C. This would decrease the amount of surface disturbance compared with Alternative A.

Impacts from implementation management actions would be similar to Alternative C, except that 226 miles of routes would be managed as motorized (Table 4-12), including 55 miles in sensitive vegetation habitats. This would decrease the amount of surface disturbance from routes compared to 346 miles under Alternative A, and increase surface disturbance, compared with 63 miles under Alternative B and 124 miles under Alternative C. In addition, reclamation of 4 miles of routes would be greater than Alternative A, and less than of the 17 miles under Alternatives B and C.

Table 4-12: Alternative D–Miles of Routes Within Vegetative Communities

Vegetative Community	Miles of Routes		
	Motorized	Non-Motorized	Reclamation
Arizona Upland Sonoran Desertscrub	174	80	3
Lower Colorado River Sonoran Desertscrub	35	29	<1
Xeroriparian	17	7	<1
Total	226	116	4

Based on the impacts described above for Alternative D, the disturbance to objects of the monument (including drought-adapted vegetation and ironwood trees) resulting from management actions would range from undetectable to measurable at a localized scale (including almost 630 acres where recreational target shooting would be allowed) and would not reduce the viability or result in the loss of a population of object indicators, a vegetative community, or the natural range of variation in vegetation communities. The localized nature of impacts on vegetative objects of the monument would be greater than those described under Alternatives B or C, but consistent with "protection of the monument objects" as defined in Section 1.3.1.

4.3.5 Impacts on Wildlife and Wildlife Habitat

This section presents potential impacts on wildlife and wildlife habitat from management actions. Impacts on wildlife and wildlife habitat would occur from the following: (1) disturbance and/or loss of plant communities, food supplies, cover, breeding sites, and other habitat components necessary for population maintenance used by any species to a degree considered vital to the population, and (2) interference with a species movement patterns that decreases a species' ability to breed successfully, to a degree considered vital to the population.

Surface disturbance and disruptive activities cause habitat fragmentation or loss and wildlife displacement depending on the type, amount, and location of activity. Surface disturbance can alter vegetative composition and cover resulting in habitat fragmentation and changes to the type and quality of wildlife habitat. Habitat fragmentation can reduce usable ranges; disrupt movements between crucial habitats (e.g., crucial breeding ranges), transitional areas, and breeding areas; and isolate populations and species, which lead to decreased genetic diversity and increased potential for extirpation of localized populations or even extinction. Further, habitat fragmentation changes microclimates by altering temperature and moisture regimes, changes nutrient and energy flows, and increases opportunities for predation and exploitation by humans. Disturbed areas could change wildlife species composition, favoring generalist native species and some exotic and naturalized exotic wildlife species.

Displacement from surface disturbance or disruptive activities moves animals into less desirable habitat and could increase competition for available resources with other species and uses. Surface disturbance could result in mortality to individuals of a species from collision with construction equipment and entombment in underground burrows. Noise disturbance during surface disturbance activities could temporarily cause wildlife to avoid the area during importance life-history cycles, such as breeding. Indirect impacts on wildlife occur from displacement and physiological stress with human presence and activity during sensitive life stages. Disturbance of wildlife incurs a physiological cost either through excitement (preparation for exertion) or locomotion. A fleeing or displaced animal incurs additional costs through loss of food intake and potential displacement to poorer (lower) quality habitat. Chronic or continuous disturbance can result in reduced animal fitness and reproductive potential.

Invasive species also have the ability to displace native plant and animal species, disrupt nutrient and fire cycles, and alter the character of the community by enhancing additional invasions. The integrity of wildlife populations and habitats is affected by invasion through resource competition, predation, hybridization, habitat alteration, and through the introduction of diseases and toxins.

Direct impacts on wildlife and wildlife habitat from fire or fire management activities typically result from mortality or displacement of individuals, disturbance from reduced air or water quality from smoke and ash, and alteration of immediate post-fire or post-treatment environments through loss of or changes to key habitat components. These direct impacts may affect wildlife populations or habitats for several years after a fire or a vegetation treatment activity, depending on the ability of wildlife species to recolonize burned or altered habitats. Indirect impacts on fish and wildlife resources from fire or fire

management activities typically result from influences of post-fire succession, recovery, or rehabilitation of the habitat. These impacts tend to be long term, depending on the severity of the habitat alteration, and can change species assemblages (relative abundances or species composition), species behaviors, or overall population trends, benefiting some species and adversely affecting others.

Fuel wood collection can reduce the abundance of large-diameter snags and dead-and-down logs. Large-diameter snags function as important nesting structures for cavity-nesting birds and as roost sites for bat species. Dead-and-down logs provide important wildlife habitat and ecosystem functions. Roads created for access to fuel wood can further fragment woodlands and adversely affect important habitats, such as xeroriparian and riparian habitat, by transporting non-native organisms and altering wildlife habitat structure.

It is difficult to separate individual causal factors that influence habitats or wildlife species. Multiple factors are closely linked in cause-and-effect relationships across spatial and temporal scales. Adverse effects from multiple ecosystem stressors can have cumulative effects that are much more significant than the additive effects alone, with one or more stressors predisposing wildlife and habitats to additional stressors.

The abundance of individuals within a wildlife population, the distribution of wildlife species within a community, and the ecological condition of wildlife habitats would be affected under all alternatives. However, implementation of any alternative would not result in the complete elimination of a wildlife species, wildlife community, or wildlife habitat from IFNM. Impacts at a local scale would generally be greater than those for the entire IFNM.

Assumptions for analysis include:

- The loss of any wildlife habitat would cause a reduction in wildlife populations.
- If monitoring reveals unsuccessful mitigation, immediate measures to prevent further impacts would be implemented as appropriate to the species affected.
- Disturbance of any component of a species habitat could be detrimental in the short term, with the degree of detriment dependent on the importance of the habitat component to the maintenance of the population.
- Impacts to non-native wildlife species are not considered unless they provide an important component for native species that would otherwise not be adequately available.
- Sufficient habitat exists to maintain current AGFD objectives.
- Disruptive activities would displace wildlife; but some wildlife adaptation would occur.

Impact analyses and conclusions are based on interdisciplinary team knowledge of resources and the project area, review of existing literature, and information provided by other agencies. Effects are quantified where possible. Spatial analyses were conducted using GIS data and analyses. In the absence of quantitative data, best professional judgment was used. Impacts are described using ranges of potential impacts or in qualitative terms, if appropriate. Analyses of impacts on wildlife and wildlife habitat would be based on achieving the wildlife and wildlife habitat objectives of managing resources to maintain or improve habitat quality and long-term viability of wildlife populations.

4.3.5.1 Impacts Common to All Alternatives

Because the IFNM is withdrawn from all forms of mineral entry and only valid mining claims existing at the time of the Proclamation and continuously maintained since that time may be developed, surface disturbance would be substantially reduced which would help maintain wildlife habitat conditions by retaining existing vegetation, and could reduce erosion rates. Restricting surface disturbance would also reduce opportunities for establishment of noxious weeds and invasive species.

As of 2004, 4,590 acres in the IFNM were encumbered by mining claims. A majority of these claims buffer the Silver Bell Mine complex (found to the north, northeast and east of the mine situated in T12S R8E). Before the claims located in the IFNM can be developed they must undergo a determination to establish claim validity. While it is unlikely that the entire 4,590 acres would be disturbed, surface disturbance from mining activities in areas encumbered by mining claims could result in habitat fragmentation and loss through associated land clearing, road building, and disturbance from traffic, hauling, and maintenance activities, if valid. This could reduce the quality of wildlife habitat and wildlife populations. Mitigation would reduce the loss of wildlife habitat and individuals.

Soil and water resource alternatives that maintain and improve soil cover and productivity would maintain and improve wildlife habitat by maintaining existing vegetation structure and composition, or improving establishment or reestablishment of vegetative resources utilized by wildlife for food supplies, cover, breeding sites, and other habitat components necessary for population maintenance.

Fence lines retained or added to limit livestock grazing areas or to manage recreational use patterns could affect individual wildlife species that could become entangled in the fences. Fences also fragment wildlife habitat and may interfere with wildlife movement corridors.

Managing fire and fuels for full fire suppression and implementing programs to reduce ignitions, would improve the ecological health of wildlife habitats by maintaining native vegetation diversity, and would protect wildlife habitats from wildfires that alter native vegetation communities. Fuel treatments to maintain non-hazardous fuel levels using manual, biological, mechanical, or chemical treatments would result in the short-term loss of vegetation depending on the treatment applied. Some losses of vegetation would be of undesirable plant species including exotic and invasive species, which are treated to reintroduce or promote desirable plant species. This would improve wildlife habitat in treated areas.

OHV travel and recreation activities can alter characteristics of soil, vegetation, and xeroriparian or riparian systems. By directly altering these components of wildlife habitat from surface disturbance or disruption, recreation and OHV recreation use can reduce wildlife habitat quality. The significance and magnitude of recreation and OHV recreation use are related to the extensiveness, intensity, and timing of the activity.

During the evaluation of existing routes to assess whether they should be retained or closed, wildlife habitat was considered under several route evaluation criteria (see criteria listed in Appendix G under "Route Evaluation Criteria"). Because little information exists on the specific effects of roads on wildlife and wildlife habitat in the Sonoran Desert, the BLM Tucson Field Office has partnered with AGFD to conduct a study to determine the effects of road density and intensity of road traffic on Sonoran Desert wildlife in various ecological settings. Field study sites will be located in the IFNM and the White Canyon Resource Conservation Area. The information from this study will be used by BLM to enhance management of the Sonoran Desert through better travel management planning, rangeland health evaluations, wildlife habitat management plans, and other relevant planning efforts.

4.3.5.2 Alternative A (No Action)

Managing public lands within the IFNM to meet VRM Class III objectives could result in soil erosion and reduced vegetation cover (Map 2-6) from surface disturbance. In addition, 1-mile-wide utility corridors within the Silver Bell RCA (Map 2-13), promotion of maximum utilization of existing right-of-way routes, and designation of the 160 acre Pan Quemado communication site within the Silver Bell RCA would all contribute to increased surface disturbance. Short-term construction activities in utility corridors impact wildlife and wildlife habitat from surface disturbance, and disruption to and the potential mortality of wildlife individuals. Long-term impacts to wildlife and wildlife habitat could include increased edge effect, reduced habitat connectivity, and disruption of wildlife movement corridors.

Custodial management of recreation and allowing recreational shooting within the IFNM outside developed areas would also increase surface disturbance and disruptive impacts on wildlife, including objects of the monument such as habitat for threatened, endangered, and rare wildlife species. Displacement from surface disturbance or disruptive recreational activities would move wildlife into less desirable habitat and increase competition for available resources with other species and uses. Allowing dispersed camping throughout the entire IFNM also could increase surface disturbance and disruptive impacts to wildlife in localized areas. The removal and/or use of living or dead and downed native plant material could reduce food supplies, cover, breeding sites, cavity holes, and other habitat components necessary for population maintenance in localized areas.

The impact of livestock grazing on wildlife is largely dependent on the grazing management practices used. Grazing management variables that affect wildlife habitat include stocking rates, stocking density, the age and physiological condition of cattle, grazing season, forage selection, and cattle distribution. In addition, factors such as range condition, soil type, temperature, and precipitation also greatly influence the relationships between grazing and habitat quality for rangeland wildlife. Managing livestock grazing allotments to meet the Standards for Rangeland Health (BLM 1997) would enhance wildlife habitat by increasing the amount of desirable vegetation cover, structure, and wildlife species diversity.

Managing 41,470 acres (38 percent of public lands in the IFNM) as the Desert Bighorn Sheep WHA would prohibit surface occupancy for oil/gas on 800 acres and close 800 acres to motorized vehicles on Ragged Top (Map 2-1), which would help to protect desert bighorn sheep. Approximately 3,340 acres managed as the Waterman ACEC (including 2,240 acres of public land) to protect Nichol Turk's head cactus habitat (an object of the monument) would result in prohibition of land use authorizations, except along existing roads, acquisition of 1,140 acres of non-Federal land, and implement the 1986 Habitat Management Plan (HMP) (Map 2-3). Together, these actions would limit or prohibit surface disturbance, maintain or improve wildlife habitat conditions, and contribute to protection of the objects of the monument.

Retention of public lands, acquisition of approximately 40,110 acres of State and private land, and acquisition of non-Federal mineral estates in the Silver Bell RCA would reduce surface disturbance, bring additional acres under BLM management, and reduce impacts to wildlife and wildlife habitat from mining activities. Furthermore, limiting vehicular travel on public land to existing roads and trails would reduce impacts on wildlife and wildlife habitat by reducing surface disturbance and disruption to areas adjacent to routes.

Allowing only those new range improvements for livestock in desert tortoise Category I and II habitat areas (approximately 45,420 acres) that would not create conflicts with tortoise populations would help retain existing habitat conditions and could reduce changes in the ecological condition of tortoise habitat.

Implementing activity plans for the Agua Blanca Ranch Multiple Resource Management Area and the Cocoraque Butte-Waterman Mountain Management Area improve watershed condition, increase soil cover, and reduce sediment which would improve wildlife habitat by improving vegetation diversity, density, and structural complexity; improving water quantity and quality; improving food supplies, cover, and breeding sites; and enhancing the function of movement corridors and habitat connectivity. These factors would contribute to maintaining or improving high biodiversity, which is an object of the monument.

Restriction of surface disturbance would occur by implementing (1) the Nichol Turk's head cactus recovery plan to improve ecological site condition to good, (2) conservation measures that reduce the effects of fire management actions on threatened and endangered species, (3) mitigation measures to ensure that maintenance of established rights-of-way does not conflict with the natural resource goals, and (4) issuing land use authorizations (permits, leases, easements, and rights-of-way) only when compatible with the natural and cultural resource goals for the monument. Implementing these actions could help maintain or improve wildlife habitat throughout the IFNM and contribute to the health of biological objects of the monument (including habitat for threatened, endangered, and rare wildlife and vegetative species).

Management actions for livestock grazing would provide additional water sources in the Twin Tanks and Cocoraque Pastures. All additional waters would be constructed to accommodate deer, javelina, and quail. Greater availability of water for wildlife populations could improve habitat conditions and wildlife population health. Improved safety of new waters could reduce mortality of wildlife populations from drowning and improve survivorship of wildlife populations. Modification of fences could improve movement of wildlife species including priority species by eliminating barriers to wildlife movement.

Designating 346 miles of routes for motorized use could disturb surfaces and disrupt wildlife in localized areas. Route proliferation could result in the localized degradation of wildlife habitat, including some habitat for cactus ferruginous pygmy owl, desert bighorn sheep, lesser long-nosed bat, and Sonoran desert tortoise.

Based on the impacts described above for Alternative A, the disturbance to wildlife habitat (including habitat for threatened, endangered, and rare wildlife species) resulting from management actions would be undetectable to measurable at a broad scale (i.e., mile-wide utility corridors). The anticipated impacts would not change the types, nor relative distributions, of wildlife habitats present within the monument. However, the extent of potential impacts on wildlife habitat would require the implementation of mitigation measures for BLM's management of the IFNM to comply with the Proclamation. The implementation of mitigation measures, including avoidance of specific habitats (for threatened, endangered, and rare wildlife species) and restoration or reclamation actions in disturbed areas (e.g., revegetation, if appropriate) would reduce impacts on wildlife habitat to the extent that they would be measurable only in small localized areas and the natural variation in wildlife habitats present within the IFNM would continue to exist. BLM's implemnentation of mitigation measures would provide for "protection of the monument objects" as defined in Section 1.3.1.

4.3.5.3 Alternative B

Minimizing surface disturbance during construction, reconstruction, or maintenance of facilities, and developing mitigation plans to restore and stabilize soils in disturbed areas would reduce surface disturbance and disruption. This could reduce mortality of individuals. The Pan Quemado communications site could cause surface disturbance to 2 acres of the Desert Bighorn Sheep WHA, while the Confidence Peak communications site could cause surface disturbance to 3 acres of desert bighorn sheep habitat, thereby having minor and localized effects on an object of the monument. The Pan Quemado and Confidence Peak communications sites would disturb 155 fewer acres under Alternative B.

Not developing an activity-level plan for the Cocoraque Butte–Waterman Mountains Multiple Resource Management Area could result in fewer improvements to watershed conditions and soil cover and sediment reductions, compared with Alternative A. This could result in slower improvements to wildlife habitat, including the habitat for threatened, endangered, and rare wildlife species, which is considered to be an object of the monument.

Prohibiting surface water diversions and groundwater pumping that removes water from the monument would maintain wildlife habitat by allowing available surface and groundwater to support existing vegetation structure and composition. In addition, minimizing or restricting disturbance to vegetation and prohibiting the removal of live, dead, or downed native plant material would reduce impacts to wildlife and wildlife habitat, and reduce disturbance to wildlife from surface-disturbing activities. An integrated weed management approach would reduce spread of invasive weeds and help maintain the existing vegetation composition and structure, fire regime, and other habitat components necessary for wildlife population maintenance. Implementation of land restoration strategies could improve wildlife habitat by increasing food supplies; improving cover vegetation; improving vegetation condition in movement corridors; reducing habitat fragmentation and edge effect; and improving habitat connectivity. This would contribute to the maintenance or improvement of the monument's high biodiversity. Use of native plants for all restoration projects would improve wildlife habitat by using wildlife species that are evolutionarily adapted for most advantageous utilization. However, native plants tend to have lower germination rates, decreasing the amount of revegetation occurring. This could result in an increase in erosion and may reduce habitat quality until restoration goals are met. Alternative B for vegetation resources would result in greater improvements to wildlife habitat, compared with Alternative A.

Managing 29,820 acres as the Desert Bighorn Sheep WHA would have the same types of impacts as management of the Silver Bell Desert Bighorn Sheep Management Area would (refer to Map 2-2) except Alternative B is 11,650 fewer acres than Alternative A. This could decrease wildlife habitat quality and desert bighorn sheep populations, compared with Alternative A. However, closing lambing areas within the BLM-administered portions of the WHA to human entry from January 1 through April 30 would reduce human disturbance during lambing season and potentially improve breeding success. In addition, closing the WHA to sheep and goats would reduce the risk of disease transmission from sheep and goats to desert bighorn sheep, and could improve the survivorship of desert bighorn sheep populations. Reintroductions, transplants, and supplement stockings could improve the survivorship of wildlife populations, improve the breeding success of wildlife populations, promote genetic interchange between wildlife populations, and improve genetic diversity within wildlife populations. However, reintroductions, transplants, and supplemental stockings could disrupt natural systems and increase exposure and transmission of wildlife diseases. Prohibiting dogs on public land within the monument would eliminate disturbance from dogs (not including feral dogs) on wildlife. This could improve wildlife habitat and reduce disruptive activities, compared with Alternative A.

Prohibiting land use authorizations except along designated routes, and prohibiting camping on 2,240 acres managed as a VHA for Nichol Turk's head cactus could reduce surface disturbance effects on habitat and minimize the potential for human disturbance of wildlife within the VHA and contribute to protection of the biological objects of the monument. Management actions for Nichol Turk's head cactus could improve habitat quality for wildlife species that share the same ecological range as Nichol Turk's head cactus. Prohibition of land use authorizations except along existing roads could reduce or eliminate impacts such as soil compaction, soil erosion, surface disturbance, and physical damage to Nichol Turk's head cactus. This could increase protection of Nichol Turk's head cactus populations, compared with Alternative A.

Prohibiting land use authorizations except along designated routes, prohibiting camping on BLM-administered lands managed as the Ragged Top Mountain VHA (6,780 acres, see Map 2-4), and prohibiting recreational shooting could improve wildlife habitat by reducing surface disturbance and disruptions that could cause wildlife to move into less desirable habitat. Increasing the area managed as a VHA could increase protection of wildlife habitat and populations, compared with Alternative A.

In addition, managing 125,110 acres as VRM Class I and II could reduce surface disturbance and maintain wildlife habitat by emphasizing natural landscapes, compared to no VRM Class I or Class II designations under Alternative A.

Making all allotments within IFNM unavailable for grazing as leases expire could eliminate livestock grazing on public land within IFNM. However, this could result in additional fencing of the Federal lands within the IFNM as this alternative would not affect grazing leases on State Trust land or grazing on private land; fences could reduce movement of large wildlife species such as bighorn sheep and mule deer, compared with Alternative A. As existing leases expire and are made unavailable to grazing, existing livestock waters would cease to be maintained. Loss of livestock waters would reduce the availability of water for wildlife and could result in degradation of wildlife habitat, altered wildlife movement patterns, increased utilization of remaining wildlife waters, and reduction in wildlife populations; this could result in some degradation of the biological objects of the monument.

Designation of RMZs (Map 2-10) could reduce surface disturbance and impacts on wildlife and wildlife habitat compared to custodial management actions in Alternative A. Managing 60,000 acres as Semi-Primitive Non-Motorized and 14,540 acres as Semi-Primitive Motorized could decrease disruption to wildlife and wildlife habitat, compared with Alternative A, and have fewer effects on the biological objects of the monument. Managing 13,320 acres of bighorn sheep habitat and 26,130 acres of desert tortoise habitat as Primitive RMZ also could decrease surface disturbance and disruption compared with Alternative A (Table 4-13).

Table 4-13: Alternative B–Desert Tortoise and Desert Bighorn Sheep Habitat Within Each Recreation Management Zone

Recreation Management Zones	Tortoise Habitat 1	Tortoise Habitat 2	Tortoise Habitat 3	Tortoise Totals	Desert Bighorn Sheep
Primitive (P)	8,700	13,890	3,540	**26,130**	13,320
Roaded Natural	650	2,580	8,390	**11,620**	2,990
Semi-Primitive Non-Motorized	690	8,780	16,610	**26,080**	4,810
Semi-Primitive Motorized	760	5,070	4,100	**9,940**	3,020

Prohibiting wood campfires within the IFNM could reduce wildfire ignitions. Furthermore, limiting overnight camping to open areas would reduce localized surface disturbance and disruption of wildlife habitat and populations. This could improve wildlife habitat, compared with Alternative A. Limiting areas of camping and group size would reduce impacts on wildlife and wildlife habitat, compared with Alternative A.

Alternative B would allow access into the IFNM from areas of urban interface only via public or community access points to be designated through the travel management planning process. Impacts on wildlife and wildlife habitat from access into the IFNM would depend on the location of access points and the level of recreational activity at an access point. Access points tend to concentrate recreation activity and could result in localized impacts on soils and vegetation, which could reduce available food supply and shelter for wildlife. Equestrian access/staging locations within the WHA could cause local deterioration of wildlife habitat, disturb bighorn sheep and other wildlife, and disturb lambing ranges for

desert bighorn sheep and breeding habitat for other wildlife species. In addition, allowing equestrian uses on routes designated as open or closed to motorized vehicles could promote the spread of invasive plant species that could reduce quality of wildlife habitat and change fire regimes. Limiting access to designated areas would reduce impacts on wildlife and wildlife habitat, compared with Alternative A, by reducing surface disturbance and disruption to localized areas.

The entire monument would be designated as an exclusion area for rights-of-way. Furthermore, no utility corridors would occur in the monument, reducing impacts on wildlife and wildlife habitat from surface disturbance and disruption (Map 2-14).

Livestock grazing would be eliminated as leases expire, and livestock waters would cease to be maintained, which would eventually eliminate the potential for livestock to impact special status plant species or to disrupt desert tortoise burrows. However, if stock waters become non-functional, these would eliminate a water source that could be used by special status wildlife species. Both results could have minor effects on the biological objects of the monument.

Impacts from OHV recreation use would be the same as those under Alternative A; however managing 90,360 acres (Map 2-18) as limited to designated routes and 38,040 acres as closed to OHV recreation use could reduce surface disturbance and disruption compared with Alternative A. Alternative B would result in the least impacts to wildlife and wildlife habitat by closing the largest areas of all alternatives to OHV use. Closing 19,730 acres of bighorn sheep habitat and 34,120 acres (Table 4-14) of desert tortoise habitat to OHV use would reduce surface disturbance and disruption, compared with Alternative A, and thus better protect the habitat for threatened, endangered, and rare wildlife species, which is an object of the monument.

Table 4-14: Alternative B–Desert Tortoise and Desert Bighorn Sheep Habitat Within Each OHV Designation

OHV Designation	Tortoise Habitat 1	Tortoise Habitat 2	Tortoise Habitat 3	Tortoise Totals	Desert Bighorn Sheep
Closed (to all motor vehicle use year round)	12,720	15,330	6,070	**34,120**	19,730
Limited (to designated routes)	1,820	15,560	29,280	**46,650**	10,090
Miles of Routes (that would be designated for motorized use)	8	14	26	**48**	16

Management of 36,990 acres of the IFNM to protect wilderness characteristics would minimize changes to landscapes and vegetation resources from human uses. This could decrease surface disturbance and help retain existing wildlife habitat quality, compared with Alternative A.

Not developing an activity-level plan for the Cocoraque Butte–Waterman Mountains and the Agua Blanca Multiple Resource Management Areas could result in fewer improvements to watershed conditions, soil cover, and sediment reductions. This could result in slower improvements to wildlife habitat, compared with Alternative A.

Impacts from route designations would be similar to those under Alternative A except, Alternative B would designate 63 miles of existing travel route for motorized access/use, designate 266 miles for non-motorized use, and identify 17 miles of existing routes for reclamation. These actions could decrease the effects to wildlife habitat and objects of the monument, as compared with Alternative A, by reducing long-term surface disturbance and disruption along routes.

Improved safety of wildlife waters would reduce mortality of wildlife populations and improve survivorship of wildlife populations. In addition, construction of new wildlife waters would improve access to water sources for wildlife populations where natural sources of water no longer exist, or where access to natural sources is impaired. However, new wildlife waters could expose wildlife populations to greater rates of predation than exists without the wildlife waters. Construction, modification, or removal of fences could improve movement of wildlife species including priority species by eliminating barriers to wildlife movement. Survey of abandoned mines could provide greater understanding of existing bat populations and could improve adaptive management for wildlife and wildlife habitat. This could improve wildlife habitat, compared with Alternative A, by decreasing hazards for wildlife populations and individuals.

Monitoring and mitigation programs for invasive species, special status species, and visual resources would avoid and minimize impacts on wildlife, wildlife habitat, and the associated objects of the monument. Likewise, avoidance of projects or activities that disturb species and habitat would eliminate impacts on wildlife and wildlife habitat resources. Designation of acquired land as exclusion areas for rights-of-way would eliminate surface disturbance and disruption to wildlife from utility construction and other allowable rights-of-way.

Based on the impacts described above for Alternative B, the disturbance to wildlife habitat (including habitat for threatened, endangered, and rare wildlife species) resulting from management actions would be undetectable to measurable at a local scale and would not change the types, nor relative distributions, of wildlife habitats present within the monument. The localized nature of impacts on wildlife habitat (for threatened, endangered, and rare wildlife species) would be consistent with "protection of the monument objects" as defined in Section 1.3.1.

4.3.5.4 Alternative C

Impacts on wildlife and wildlife habitat would be the same as those under Alternative B, except designating utility corridors (Map 2-15), allowing new rights-of-way, and exercise of existing rights-of-way would be allowed for access and utilities. This could increase surface disturbance and disruption and direct mortality to wildlife individuals. In addition, the construction of new trail connections and new equestrian trails could increase habitat fragmentation, and increase disruption of wildlife compared to Alternative B in localized areas. Compared with Alternative A, these management actions would reduce surface disturbance and disruption of wildlife, wildlife habitat, and the associated objects of the monument.

Impacts from VRM would be the same as those under Alternative B, except the area managed as VRM Class II would increase to 124,900 acres, while the area managed as VRM Class III would increase to 3,420 acres. Managing 80 acres to meet VRM Class IV objectives could increase surface disturbance. This could improve wildlife habitat, compared with Alternative A, but increase surface disturbance, compared with Alternative B.

Increasing the area managed as Semi-Primitive Motorized to 36,230 acres and decreasing the area managed as Semi-Primitive Non-Motorized to 57,450 acres would be less restrictive than Alternative B and could increase disruption of wildlife and degradation of wildlife habitat. Decreasing the amount of tortoise habitat and bighorn sheep habitat managed as Primitive to 8,990 acres and 6,760 acres, respectively (Table 4-15), could allow an increase in surface-disturbing activities compared with Alternative B.

Table 4-15: Alternative C–Desert Tortoise and Desert Bighorn Sheep Habitat Within Each Recreation Management Zone

Recreation Management Zone	Tortoise Habitat 1	Tortoise Habitat 2	Tortoise Habitat 3	Tortoise Totals	Desert Bighorn Sheep
Primitive	6,230	1,130	1,630	**8,990**	6,760
Roaded Nature	650	2,900	8,970	**12,520**	2,880
Semi-Primitive Non-Motorized	2,210	17,850	12,400	**32,460**	7,970
Semi-Primitive Motorized	1,700	8,480	9,830	**20,010**	6,440

Compared to Alternative B, allowing overnight camping within the Nichol Turk's head cactus VHA and Ragged Top VHA, and increasing the number of large-group sites to three could increase surface disturbance and disruption to wildlife and objects of the monument (including habitat for threatened, endangered, and rare wildlife species) in localized areas. In addition, allowing campfires would increase the potential for wildfire, which could increase surface disturbance in localized areas. Camping within the VHA could degrade wildlife habitat, disturb bighorn sheep and other wildlife, and disturb lambing ranges for desert bighorn sheep, and breeding habitat for other wildlife species. In addition, Alternative C would allow equestrian use in all areas of the IFNM. With repeated use in an area this could result in the proliferation of trails and the degradation of objects of the monument (special status species habitat) in localized areas. These management actions would increase impacts on wildlife (particularly desert bighorn sheep) compared with Alternative B and reduce impacts, compared with Alternative A.

Alternative C would close 10,880 acres to OHV use, which is less than the 38,040 acres closed under Alternative B, which could increase surface disturbance and impacts on wildlife and wildlife habitat. However, this could decrease impacts on wildlife and wildlife habitat, compared with Alternative A, by reducing surface disturbance. The acres of tortoise habitat and desert bighorn sheep habitat within each OHV designation are shown in Table 4-16.

Table 4-16: Alternative C–Desert Tortoise and Desert Bighorn Sheep Habitat Within Each OHV Designation

OHV Designation	Tortoise Habitat 1	Tortoise Habitat 2	Tortoise Habitat 3	Tortoise Totals	Desert Bighorn Sheep
Closed (to all motor vehicle use year round)	6,880	1,600	1,750	**10,230**	7,650
Limited (to designated routes)	7,660	29,280	33,600	**70,540**	22,170
Miles of Routes (that would be designated for motorized use)	13	23	50	**86**	31

Impacts from managing 124,900 acres as VRM Class II and lands managed to protect wilderness characteristics would be the same as those under Alternative B. However, decreasing the area managed to protect wilderness characteristics to 9,510 acres and not managing areas as VRM Class I could increase surface-disturbing activities. This could decrease surface disturbance from human uses, compared with Alternative A.

Implementing vegetation resource decisions would result in impacts similar to those under Alternative B, except that allowing for the consumption of live, dead, or downed plants by livestock would further degrade the resources, and could result in the establishment of unintended species. This could decrease wildlife habitat quality, compared with Alternative B.

Impacts from management of livestock grazing would be the same as those under Alternative A, except locating range improvements to minimize disturbance to wildlife and minimizing livestock impacts on priority plant species and habitats would retain a greater amount of existing vegetation relative to Alternative A. In addition, retaining livestock grazing on 11 allotments would have the same impacts as those under Alternative A; however, vegetative communities could attain desired conditions slower than under Alternative B.

Impacts from implementation-level decisions would be the same as those under Alternative B, except designating 124 miles as routes for motorized vehicle use could increase the scope of effects. Designating 205 miles of routes as non-motorized and identifying 17 miles for reclamation could reduce disruption to wildlife, wildlife habitat, and the associated objects of the monument compared with Alternative A.

Based on the impacts described above for Alternative C, the disturbance to wildlife habitat (including habitat for threatened, endangered, and rare wildlife species) resulting from management actions would be undetectable to measurable at a local scale and would not change the types, nor relative distributions, of wildlife habitats or biodiversity present within the monument. The localized nature of impacts on wildlife habitat (for threatened, endangered, and rare wildlife species) would be consistent with "protection of the monument objects" as defined in Section 1.3.1.

4.3.5.5 Alternative D

Impacts would be similar to those under Alternative C, with a few exceptions. Using non-intrusive, non-native plants in limited emergency situations where they may be necessary to protect the resources and increasing the area managed as utility corridors to 2,660 acres could increase surface disturbance, compared with Alternatives B and C. This would decrease surface disturbance relative to the 8,240 acres of utility corridors under Alternative A.

Decreasing the area managed as the Ragged Top VHA to approximately 6,500 acres (Map 2-5) and managing 122,580 acres (95 percent of public lands in the IFNM) to meet VRM Class II objectives and 1,600 acres as VRM Class IV (a 1,520-acre increase from Alternative C) would reduce the areas where surface disturbance restrictions apply, compared with Alternative B and C. This would increase surface disturbance restrictions, compared with Alternative A.

Alternative D would established designated recreational shooting areas at Avra Hill and Cerrito Represo, but would prohibit dispersed recreational shooting within IFNM other than permitted or authorized hunting conducted in accordance with AGFD hunting regulations. Prohibiting dispersed recreational target shooting would minimize potential disruptive impacts on wildlife that could cause wildlife to move into less desirable habitat. However, because the localized concentration of shooting activity and human use, wildlife could be displaced from these areas when actively used by shooters or even permanently as a result of the repeated disruptions and potential loss of vegetation or other habitat features such as nests and burrows. Impacts to wildlife could occur in areas beyond the approximately 629 acres of designated shooting sites if there is a loss of vegetation or increased disruption to wildlife.

Impacts from managing areas for RMZs would be the same as those under Alternative B, except increasing areas managed as Roaded Natural could increase the potential for disruption of wildlife and degradation of wildlife habitat, compared with Alternative B and C. Table 4-17 shows tortoise and desert bighorn sheep habitat within each RMZ.

Table 4-17: Alternative D–Desert Tortoise and Desert Bighorn Sheep Habitat Within Each Recreation Management Zone

Recreation Management Zone	Tortoise Habitat 1	Tortoise Habitat 2	Tortoise Habitat 3	Tortoise Totals	Desert Bighorn Sheep
Primitive	0	0	0	**0**	0
Roaded Nature	700	2,760	9,180	**12,640**	2,950
Semi-Primitive Non-Motorized	5,320	14,390	5,640	**25,350**	10,670
Semi-Primitive Primitive Motorized	4,830	13,180	18,220	**36,230**	10,530

In addition, increasing the number of large group campsites to four would increase localized surface disturbance, compared with three under Alternative C. This could increase impacts to wildlife, particularly bighorn sheep (an object of the monument), compared with Alternatives B and C, but would reduce impacts, compared with Alternative A.

Alternative D would not close any areas to OHV use. This would result in somewhat greater potential for surface disturbance compared to the current conditions represented by Alternative A, which restricts OHV within the 20-acre Santa Ana de Cuiquiburitac Special Management Area and 800 acres surrounding Ragged Top. Alternative D could increase surface disturbance of and impacts on wildlife, wildlife habitat, and the associated biological objects of the monument (including habitat for threatened, endangered, and rare wildlife species). The acres of tortoise habitat and desert bighorn sheep habitat within each OHV designation are listed in Table 4-18.

Table 4-18: Alternative D–Desert Tortoise and Desert Bighorn Sheep Habitat Within Each OHV Designation

OHV Designation	Tortoise Habitat 1	Tortoise Habitat 2	Tortoise Habitat 3	Tortoise Totals	Desert Bighorn Sheep
Closed (to all motor vehicle use year round)	0	0	0	**0**	0
Limited (to designated routes)	13,426	29,685	35,918	**79,029**	30,116
Miles of Routes (that would be designated for motorized use)	23	54	80	**157**	53

Impacts from implementation actions under Alternative D would be similar to those under Alternative C, except 226 miles of routes would be managed as motorized. This would decrease the effects from routes, as compared with Alternative A, and increase the effects, as compared with Alternatives B and C. In addition, the reclamation of 4 miles of routes would be greater than Alternative A, but less than the 17 miles that would be reclaimed under Alternatives B and C.

Based on the impacts described above for Alternative D, the disturbance to wildlife habitat (including habitat for threatened, endangered, and rare wildlife species) resulting from management actions would be undetectable to measurable at a broad scale (i.e., along utility corridors and in the designated recreational shooting area). The anticipated impacts would not change the types, nor relative distributions, of wildlife habitats present within the monument. However, the extent of potential impacts on wildlife habitat would require the implementation of mitigation measures for BLM's management of the IFNM to comply with the Proclamation. The implementation of mitigation measures, including avoidance of specific habitats and restoration or reclamation actions in disturbed areas (e.g., revegetation, if

appropriate) would reduce impacts on wildlife habitat (for threatened, endangered, and rare wildlife species) to the extent that they would be measurable only in small localized areas and the natural variation in wildlife habitats present within the IFNM would continue to exist. BLM's implementation of mitigation measures would provide for "protection of the monument objects" as defined in Section 1.3.1.

4.3.6 Impacts on Special Status Species

This section presents potential impacts on special status species including federally listed species as well as BLM sensitive and State listed species, as a result of disturbances from management actions and resulting effects to species or their populations and changes to the condition of their habitats. Federal protections and BLM policy protecting threatened, endangered, and sensitive species were considered as an outlet to reduce the potential for impacts from permitted activities. While data are available on known locations and habitats within the IFNM, the data are neither complete nor comprehensive of all special status species known to occur or potential habitat that may exist. Known and potential special status species and habitat locations were considered in the analysis. However, the potential for species to occur outside these areas was also considered and, as a result, some impacts are discussed in more general terms.

Management actions that would cause or reduce surface disturbance would tend to have the greatest impacts on special status species. Management of energy and minerals, lands and realty, and recreation could result in surface disturbance and disruptive activities. Management of special status species, wildlife habitat management areas, vegetation habitat management areas and vegetation would have potential to enhance conditions for special status species. Where possible in the plan, impacts on the Nichol Turk's head cactus, lesser long-nosed bat, and Sonoran desert tortoise are specifically noted because these three species have been identified by BLM under all action alternatives for management as priority species.

The analysis is based on the following assumptions:

- Compliance with Section 7 of the Endangered Species Act of 1973 (ESA) would be completed before implementing specific projects resulting from RMP decisions.
- Ground-disturbing activities could lead to modification (positive or negative) of habitat and/or loss or gain of individuals, depending on the amount of area disturbed, the species affected, and the location of the disturbance.
- Changes in air, water, and habitat quality could lead to direct impacts, and could have cumulative impacts on species survival.
- Sufficient habitat exists to maintain current U.S. Fish and Wildlife Service and Arizona Game and Fish Department objectives.

Since special status species have specific habitat requirements, disturbance to the species or their habitat could result in population declines, which could affect survivability of local populations. Specific habitat requirements, population trends in the IFNM, and factors affecting population trends in the IFNM are detailed in Chapter 3 (Section 3.1.6), relevant recovery plans or conservation strategies, and the biological assessment prepared for this RMP under ESA Section 7 requirements. The abundance of individuals within a special status species population, the distribution of special status species within a community, and the ecological condition of special status species habitats could be affected under all alternatives. However, no special status species or habitat would be completely eliminated from the IFNM under any of the alternatives. Impacts at a local scale would generally be greater than those for the entire IFNM.

Impact analyses and conclusions are based on interdisciplinary team knowledge of resources and the project area, review of existing literature, and information provided by other agencies. Effects are quantified where possible. Spatial analyses were conducted using GIS data and analyses. In the absence of quantitative data, best professional judgment was used. Impacts are described using ranges of potential impacts or in qualitative terms, if appropriate. Analyses of impacts on special status species are based on achieving the special status species objectives of managing resources to maintain or improve habitat quality and long-term viability of special status species populations.

4.3.6.1 Impacts Common to All Alternatives

Displacement due to surface disturbance or disruptive activities moves animals into less desirable habitat and increases competition for available resources with other species and uses. Surface disturbance could result in mortality to individuals of a species from collision with construction equipment and entombment in underground burrows. Noise disturbance during surface-disturbing activities could temporarily cause wildlife to avoid the area during importance life-history cycles, such as breeding. Indirect impacts on wildlife occur from displacement and physiological stress, with human presence. A fleeing or displaced animal incurs additional costs through loss of food intake and potential displacement to poorer (lower) quality habitat. Chronic or continuous disturbance can result in reduced fitness and reproductive potential, thereby contributing to minor degradation of objects of the monument (including special status species and their habitats).

Surface disturbance and disruptive activities cause habitat fragmentation or loss and wildlife displacement, depending on the type, amount, and location of activity. Habitat fragmentation occurs when a contiguous habitat is divided by surface-disturbing activities, causing a reduction in usable ranges; disruption of movements between crucial habitats; and the isolation of populations and species, which leads to decreased genetic diversity and increased potential for extirpation of localized populations or even extinction. Habitat fragmentation alters vegetative composition and cover and the type and quality of the food base. Further, habitat fragmentation changes microclimates by altering temperature and moisture regimes, changes nutrient and energy flows, and increases opportunities for predation and exploitation by humans. In contrast, management to maintain or improve soil cover and to restrict authorization of land uses to area along roads would help maintain special status species habitat conditions.

Extractive resource uses such as mining development can influence ecosystem function, resilience, and sustainability. Extractive resource uses may result in habitat fragmentation and loss through associated land clearing, road building, and disturbance from traffic, hauling, and maintenance activities. Associated point-source pollution may over time cause heavy-metal and highly acidic water pollution, air pollution, noise, and habitat conversion. Any of these activities and their adverse outcomes may ultimately lead to the reduction of special status species populations or habitat. Mitigation to minimize the loss of habitat could be implemented; however mining could result in the long-term loss of suitable habitat for special status species. Continuation of mining activity on valid mining claims could influence ecosystem function, resilience, and sustainability. Existing mining could lead to habitat destruction and fragmentation, habitat degradation through associated point-source pollution, and reduced population. There are no existing mining claims within the Waterman Mountains ACEC, therefore, mining activities would not impact the Nichol Turk's head cactus in that area.

The impact of livestock grazing on rangeland and terrestrial special status species is largely dependent on the grazing management practices used. Broad generalizations regarding the impact of livestock grazing on special status species are typically incorrect because different grazing practices are unique, and special status species have different habitat requirements. Grazing management variables that affect special status species habitat include stocking rates, stocking density, the age and physiological condition of livestock, grazing season, forage selection, and livestock distribution. In addition, factors such as range condition,

soil type, temperature, and precipitation also greatly influence the relationships between grazing and habitat quality for terrestrial special status species. Grazing plans, therefore, need to be site-specific and based on the habitat needs of the wildlife species of interest. Impacts of grazing practices on special status species include increased competition for limited water, forage, and space, alteration of vegetation composition and structure, impacts on stream hydrology and water quality, and reduced soil permeability and potential to support plants due to soil compaction.

Fuel wood collection can reduce the abundance of snags and dead-and-down logs. Snags function as important nesting structures for cavity-nesting birds. Dead-and-down logs provide important special status species habitat and ecosystem functions. Routes created for access to fuel wood can further fragment and adversely affect important habitats. Fuel wood collection may also introduce disturbances from noise, OHV use, or accidental fire ignition.

OHV travel can cause damage to soils and vegetation and impact wildlife by destroying and fragmenting habitat, causing direct mortality of wildlife or plants, or alter behavior and reproduction through stress and disturbance. OHV travel can imperil local populations of desert tortoises from collisions and cause loss or damage to habitat.

Recreation activities can alter some characteristics of soil, vegetation, or drainage systems. By directly impacting these components, recreation affects an animal's food supply and availability as well as shelter, or living space. In turn, impacts on food and living space influence behavior, survival, reproduction, and distribution. The significance and magnitude of any effect are related to the extent, intensity, and timing of the activity. The vulnerability and rarity of the habitat, and its importance to wildlife, should also be considered. Recreation management alternatives that reduce the size, duration, and timing, and that prohibit recreational activities in sensitive habitats would tend to reduce impacts on special status species.

Invasive species have the ability to displace native plant and animal species, disrupt nutrient and fire cycles, and alter the character of the community by enhancing additional invasions. The integrity of native fauna populations is adversely affected by non-native species through resource competition, predation, hybridization, habitat alteration, and through the introduction of diseases. The increase in groundcover caused by invasive species may, in some cases, provide the dried vegetative fuel to carry wildfire into habitats that normally would not burn because the ground would be bare between shrubs or succulents in these habitats when in a native-state. Invasive plant species usually are unpalatable to the desert tortoise and can out-compete native plants that are necessary dietary components.

Direct impacts on special status species from fire or fire management activities typically result from mortality or displacement of individuals, disturbance from reduced air or water quality from smoke and ash, and alteration of immediate post-fire or post-treatment environments through loss of or changes to key habitat components. These direct impacts may affect wildlife and plant populations including Nichol Turk's head cactus or habitats for several years after a fire or a vegetation treatment activity, depending on the ability of wildlife species to recolonize burned or altered habitats. According to the Biological Opinion on the BLM Arizona Statewide Land Use Plan Amendment for Fire, Fuels, and Air Quality Management (USDI, USFWS 2004), the likelihood of wildfire occurring within habitat for Nichol Turk's head cactus is infinitely small (with a return interval of 112 years). However, invasive species such as buffelgrass have encroached upon Nichol Turk's head cactus habitat in the IFNM and currently pose a threat to the cactus through increased likelihood of fire. If efforts to eradicate buffelgrass within Nichol Turks' head cactus habitat are successful, the fire risk would diminish. Indirect impacts on wildlife and vegetation resources from fire or fire management activities typically result from influences of post-fire succession, recovery, or rehabilitation of the habitat. These impacts could be long term, depending on the severity of the habitat alteration, and can change species assemblages (relative abundances or species composition), species behaviors, or overall population trends, benefiting some species and adversely

affecting others. Fuel treatments to maintain non-hazardous fuel levels using manual, biological, mechanical, or chemical treatments would result in the short-term loss of vegetation depending on the treatment applied. Some losses of vegetation would be of undesirable plant species including exotic and invasive species, which are treated to reintroduce or promote desirable plant species. This would improve special status species habitat in treated areas. Mitigation for fire management activities would be implemented under the Arizona Statewide Land Use Plan Amendment for Fire, Fuels and Air Quality Management (2004) (refer also to Appendix E, Conservation Measures).

Roads and utility corridors and the use of routes have the potential to be detrimental to special status species, including those that are considered objects of the monument. These fragment habitats and landscapes, dividing large landscapes into smaller patches and converting interior habitat into edge habitat. In addition, collisions with vehicles can constitute a major source of wildlife and plant mortality. Roads and utility corridors can serve as a means of dispersal for many non-native and invasive plant species. Ground disturbance associated with the construction and maintenance of these facilities provides additional opportunities for establishment of non-native species. The establishment of non-native species can reduce the quality of habitat for special status wildlife and plant species. Areas with many access roads and surface disturbances could disrupt migration corridors that link crucial habitats. Migration routes could be altered or eliminated, changing some traditional wildlife use patterns on a regional level. Utility corridors through desert tortoise habitat can degrade and fragment feeding and denning areas or block migration corridors that connect mountainous, highland areas.

It is difficult to separate individual causal factors that influence habitats or species. Multiple factors are closely linked in cause and effect relationships across spatial and temporal scales. Adverse effects from multiple ecosystem stressors can have cumulative effects that are much more significant than the additive effects alone, with one or more stressors predisposing wildlife, plant species and habitats to additional stressors.

4.3.6.2 Alternative A (No Action)

Managing all public land, including the Waterman Mountain ACEC, as a VRM Class III area would increase surface disturbance, which could result in increased soil erosion and reduced vegetation cover (Map 2-6). Altered vegetative composition and cover could increase habitat fragmentation and change the type and quality of the food base for special status species or could alter habitat and reduce reproduction of plant species, including those considered to be objects of the monument (like the endangered Nichol Turk's head cactus). Changes to the vegetation community could reduce the forage plants available to lesser long-nosed bat and desert tortoise. Soil erosion could degrade the habitat quality of Nichol Turk's head cactus. In addition, 1-mile-wide utility corridors within the Silver Bell RCA (Map 2-13), promotion of maximum utilization of existing right-of-way routes, and designation of the 160-acre Pan Quemado communication site within the Silver Bell RCA would all contribute to increased surface disturbance. Construction activities in utility corridors could have short-term impacts on wildlife such as disturbance and direct mortality to individuals. Less mobile species, such as the desert tortoise, or non-mobile species, such as plants, could be injured or destroyed by construction equipment or buried in underground burrows. Long-term impacts on special status species could include an increased edge effect, reduced habitat connectivity, and disruption of wildlife movement corridors. Permanent localized changes to the habitat could lead to displacement of desert tortoise. All impacts would be localized and would not lead to a deleterious reduction in population size or available habitat for special status species.

Custodial management of recreation resources also could increase surface disturbance and disruptive impacts on special status species and their habitat. Displacement from surface disturbance or disruptive recreational activities moves animals into less desirable habitat and increases competition for available resources with other species and uses. Furthermore, dispersed vehicle-based and non-motorized camping

allowed throughout BLM-administered lands in the IFNM would also increase localized surface disturbance impacts from vehicle parking and maneuvering and from persons engaging in ancillary activities and result in disruptive impacts to wildlife, particularly the desert tortoise, and plants.

Surface disturbance would be restricted by soil and water resource actions that maintain and improve soil cover and productivity. Improved soil condition would enhance wildlife habitat by maintaining existing vegetation structure and composition, or improving establishment or reestablishment of plant resources utilized by wildlife for food supplies, cover, breeding sites, and other habitat components necessary for population maintenance. These activities would improve habitat conditions for threatened, endangered and rare wildlife and vegetative species, habitat which is considered to be an object of the monument.

Implementing activity plans for the Agua Blanca Ranch Multiple Resource Management Area and the Cocoraque Butte–Waterman Mountain Multiple Resource Management Area would improve watershed condition, increase soil cover, and reduce sediment, which would improve special status species habitat by improving vegetation diversity, density, and structural complexity; improve water quantity and quality; improve food supplies, cover, and breeding sites; and enhance the function of movement corridors and habitat connectivity. This would support high biodiversity.

Managing 41,470 acres of public land (38 percent of public lands in the IFNM) as the Desert Bighorn Sheep Management Area would prohibit surface occupancy for oil/gas on 800 acres, close 800 acres to motorized vehicles on Ragged Top (Map 2-1), and restrict surface disturbance. Managing approximately 2,240 acres of public land as the Waterman Mountains ACEC to protect Nichol Turk's head cactus habitat would result in prohibiting land use authorizations except along existing roads, acquiring 1,140 acres of non-Federal land, and implementing the 1986 HMP (Map 2-3). Together, these actions would limit or prohibit surface disturbance, maintain or improve special status species habitat conditions, and contribute to protections of the objects of the monument.

Retention of public lands, acquisition of lands in the Waterman Mountains, acquisition of approximately 40,110 acres of State and private land, and acquisition of non-Federal mineral estate in the Silver Bell RCA could reduce surface disturbance and may help protect Nichol Turk's head cactus, the desert tortoise, and other special status species habitat. These management actions could bring additional acres under BLM management, and reduce impacts on special status species from mining activities. Furthermore, limiting vehicular travel on public land to existing roads and trails would reduce impacts on special status species, particularly slow-moving animals like the desert tortoise. Transportation management actions to limit OHV use in sensitive areas would reduce impacts on special status species.

Managing fire and fuels for full fire suppression and implementing programs to reduce ignitions would protect special status species habitat from wildfires that alter native vegetation communities. In addition, allowing only those new range improvements for livestock in desert tortoise Category I and II habitat areas (approximately 45,420 acres) that would not be in conflict with tortoise populations would eliminate impacts and changes to the ecological condition of tortoise habitat. Furthermore, removal or use of living, dead and downed native plant material could reduce food supplies, cover, breeding sites, cavity holes, and other habitat components necessary for special status species in localized areas. Finally, this alternative would allow recreational shooting within the monument outside developed areas, which could disturb wildlife including the accidental shooting of desert tortoises.

Restriction of surface disturbance would occur by implementing (1) the Nichol Turk's head cactus recovery plan, (2) conservation measures that reduce the effects of fire management actions on threatened and endangered species, (3) mitigation measures to ensure that maintenance of established rights-of-way does not conflict with the natural resource goals, and (4) issuing land use authorizations (permits, leases, easements, and rights-of-way) only when compatible with the natural and cultural resource goals for the

monument. Reduction of surface disturbance would enhance protection of the objects of the monument and indirectly improve habitat conditions for other special status species like the desert tortoise.

Management actions for livestock grazing would provide additional water sources in the Twin Tanks and Cocoraque Pastures. All additional waters would be constructed to accommodate deer, javelina, and quail. Greater availability of water for wildlife populations could improve habitat conditions and special status species population health. Improved safety of new waters would reduce mortality of special status species populations from drowning and improve survivorship of wildlife populations. Modification of fences could improve movement of special status species by eliminating barriers to wildlife movement. Providing for the continuation of livestock grazing within the 11 existing allotments (approximately 128,400 acres) would continue the potential for some degradation of habitat that may be suitable to special status species, although such effects would be expected to minor and not affect the viability of any special status species. If evaluations of grazing allotments identify unacceptable degradation of habitat, adaptive management policies would allow for mitigation measures, such as fencing or changes in the number of animal units allowed, to protect the special status species.

Designating 346 miles of routes for motorized use could disturb surfaces in localized areas. Route proliferation could result in the localized degradation of special status species habitat and may result in the mortality of special status plant species and slow-moving animals like the desert tortoise. Managing the Waterman Mountain ACEC with 10 miles of routes open to motorized use could disturb areas adjacent to roads and subsequently degrade Nichol Turk's head cactus habitat and habitat for the desert tortoise. Recreation use in areas away from routes could cause increased disruption of objects of the monument (including habitat for threatened, endangered, and rare wildlife and vegetative species).

Based on the impacts described above for Alternative A, the disturbance to objects of the monument (including special status species and their habitats) resulting from management actions would range from undetectable to measurable at a broad scale (i.e., disturbance in mile-wide utility corridors). The anticipated impacts would not result in the loss of a population of the special status species. However, BLM's implementation of management actions for vegetation, including control of invasive species, would mitigate the potential for broad-scale impacts on special status species. In addition, mitigation measures would be implemented, including avoidance of or temporary flagging or fencing for specific vegetative resources (e.g., Nichol Turk's head cactus or habitat for lesser long-nosed bat or cactus ferruginous pygmy owl) to reduce impacts on special status species and limit impacts to small and localized areas. BLM's management actions under this plan, together with implementation of mitigation measures, would provide for "protection of the monument objects" for special status species as defined in Section 1.3.1.

4.3.6.3 Alternative B

Alternative B has fewer actions that would contribute to surface disturbance, compared with Alternative A. The Pan Quemado communications site could cause surface disturbance to 2 acres of Desert Bighorn Sheep Wildlife Habitat Management Area (WHA), while the Confidence Peak communications site could cause surface disturbance to 3 acres of desert bighorn sheep habitat. The Pan Quemado and Confidence Peak communications sites would disturb 155 fewer acres than under Alternative A. Not developing an activity level plan for the Cocoraque Butte–Waterman Mountains Multiple Resource Management Area could result in fewer improvements to watershed conditions, soil cover, and sediment reductions than Alternative A. This could result in slower improvements to special status species habitat.

Compared with Alternative A, management actions to limit surface-disturbing activities would be more restrictive, which would provide the most protection to special status species and their habitats. Impacts

from management actions that restrict surface disturbance would be the same as those under Alternative A, except management actions would increase the area where restrictions apply.

Although 11,650 fewer acres than Alternative A, allocation of 29,820 acres for the Desert Bighorn Sheep WHA (Map 2-2) would protect habitat, lambing areas, and movement corridors, thereby contributing to the projection of an object of the monument (desert bighorn sheep). Closure of the WHA to sheep and goats would reduce the risk of disease transmission from sheep and goats to desert bighorn sheep, and could improve the survivorship of desert bighorn sheep populations. Closure of lambing sites within the WHA to human entry from January 1 through April 30 would reduce human disturbance during lambing cycles and could potentially improve breeding success. Prohibiting dogs on public land within the monument would eliminate disturbance from dogs (not including feral dogs) on wildlife, which would decrease dog attacks on desert tortoise. Reintroductions, transplants, and supplement stockings could improve the survivorship of wildlife populations, improve the breeding success of wildlife populations, promote genetic interchange between wildlife populations, and improve genetic diversity within wildlife populations. However, reintroductions, transplants, and supplement stockings could disrupt natural systems and increase exposure and transmission of wildlife diseases.

Alternative B would manage approximately 2,240 acres of Nichol Turk's head cactus habitat as a VHA in the Waterman Mountains (Map 2-4). Management actions within the VHA would (1) prohibit land use authorizations except along designated open routes, (2) acquire non-Federal land, which upon acquisition would be managed as part of the VHA, (3) revise and implement the 1986 HMP, and (4) prohibit camping (on BLM-administered land) in the VHA. Management of Nichol Turk's head cactus habitat as a VHA could reduce or eliminate impacts such as soil erosion on Nichol Turk's head cactus habitat by limiting or prohibiting activities, such as recreational use, and contribute to the long-term health of Nichol Turk's head cactus, an object of the monument. Management actions for Nichol Turk's head cactus also could improve habitat quality for special status species that have a similar ecological range as the cactus, like the desert tortoise or Arizona chuckwalla. Prohibition of land use authorizations except along existing roads could reduce or eliminate impacts such as soil compaction, soil erosion, surface disturbance, and physical damage to the cactus. Adding lands to the VHA could protect populations of Nichol Turk's head cactus not currently within the boundary of the VHA. Prohibition of camping in the VHA could reduce soil erosion and compaction, and eliminate physical damage to Nichol Turk's head cactus from campers. These management actions could maintain or improve Nichol Turk's head cactus habitat compared with Alternative A.

Designation of 6,780 acres as a VHA at Ragged Top Mountain (see Map 2-4) could improve special status species habitat by improving cover vegetation; improving vegetation condition in movement corridors; reducing habitat fragmentation and edge effect; and improving habitat connectivity for many special status species. Management actions would (1) acquire non-Federal land, which upon acquisition would be managed as part of the VHA and (2) prohibit camping (on BLM-administered land) in the VHA. Adding lands to the VHA could protect populations of special status species not currently within the boundary of the VHA. Prohibition of camping in the VHA could reduce soil erosion and compaction, and eliminate physical damage to special status species habitat, including desert tortoises, from campers.

Management of soil and water resources under Alternative B would minimize surface disturbance during construction, reconstruction, or maintenance of facilities, and develop mitigation plans to restore and stabilize soils in disturbed areas, which would minimize and mitigate habitat fragmentation and loss, displacement of special status species, and mortality to individuals. Likewise, actions that prohibit surface water diversions and groundwater pumping that removes water from the IFNM would maintain special status species habitat by maintaining sufficient available surface and groundwater to support existing vegetation structure and composition. These reductions in surface disturbance would improve habitat

conditions for threatened, endangered and rare wildlife and vegetative species, habitat which is considered to be an object of the monument, as compared to Alternative A.

Management of vegetation resources would (1) minimize or restrict disturbance to vegetation resources under this alternative, (2) prohibit removal of live, dead, or downed native plant material (except where specifically authorized), (3) pursue an integrated weed management approach, (4) develop a land restoration plan, and (5) require the use of native plants for restoration projects. Minimizing or restricting disturbance to vegetation would reduce impacts on special status plant species and reduce disturbance to special status wildlife from surface-disturbing activities, thereby contributing to the protection of objects of the monument. Prohibiting removal of live, dead, or downed native plant material would reduce impacts on food supplies, cover, breeding sites, cavity holes, and other habitat components. An integrated weed management approach would reduce spread of invasive weeds and help maintain the existing vegetation composition and structure, fire regime, and other habitat components necessary for wildlife population maintenance. Implementation of land restoration strategies could improve special status wildlife habitat by increasing food supplies, improving cover vegetation, improving vegetation condition in movement corridors, reducing habitat fragmentation and edge effect, and improving habitat connectivity. Use of native plants for all restoration projects would improve and optimize wildlife habitat restoration by using native plants for which native wildlife species are evolutionarily adapted for most advantageous utilization. However, native plants tend to have lower germination rates slowing the rate of revegetation. This could result in an increase in soils loss and degrade special status species habitat in localized areas. Management of vegetation resources under Alternative B would result in greater improvements to wildlife habitat, as compared with Alternative A, which would improve all special status wildlife habitat, including that of the desert tortoise and lesser long-nosed bat.

Impact from managing 3,290 acres as VRM Class III could allow surface disturbance similar to Alternative A, but to a much lesser extent. Managing 125,110 acres as VRM Class I and II could reduce surface disturbance and maintain wildlife habitat by emphasizing natural landscapes as compared with Alternative A (which has no VRM Class I or Class II designations), which would help to maintain or improve habitat for special status plants and animals like the desert tortoise, lesser long-nosed bat, and Nichol Turk's head cactus.

Allocation of RMZs would reduce surface disturbance and impacts on special status species compared with custodial management actions in Alternative A. Managing 32,150 acres as Roaded Natural and Semi-Primitive Motorized including 1,820 acres of the VHA, could cause more disruption to special status species if these areas were used more often. Managing 60,000 acres as Semi-Primitive Non-Motorized including 390 acres within the VHA, could reduce surface disturbance and disruption (Map 2-10), particularly from motorized uses. This could reduce surface disturbance to special status species habitats and better support the viability of objects of the monument compared with Alternative A.

Prohibiting wood campfires would eliminate localized impacts on special status species from wood collection (such as removal of vegetation, food supplies, destruction of habitat, and disruption of ecosystem cycles), reducing impacts on special status species, relative to Alternative A. Furthermore, prohibiting camping on 2,240 acres of public land in the IFNM could limit impacts on special status species and their habitat compared with Alternative A.

Management under Alternative B would prohibit the use of firearms within the IFNM, except for permitted or authorized hunting. Prohibition of recreational shooting would reduce impacts on special status species relative to Alternative A, which also would eliminate accidental shooting of desert tortoises.

The phasing out of livestock grazing as existing leases expire associated with Alternative B may contribute to the natural rehabilitation of habitat suitable for special status species.

Alternative B would allow access into the IFNM from areas of urban interface only via public or community access points that would be determined through the travel management planning process. Impacts on special status species from access into the IFNM would depend on the location of access points and the level of recreational activity at an access point. Access points tend to concentrate recreation activity and could result in localized impacts on soils and vegetation which could reduce available food supply and shelter for wildlife. Limiting public or community access points would reduce impacts on special status species, compared with Alternative A.

Alternative B identifies six areas within Semi-Primitive Motorized and Roaded Natural RMZs for access/staging locations for equestrian uses. These are located at Manville Road, Avra Valley Road, Reservation Road, Silverbell Road, near the West Silver Bell Mountains, and Aries Drive to the power line. In addition, Alternative B would allow equestrian uses on routes open or closed to motorized vehicles; however, no new trails would be constructed. Equestrian access/staging locations at West Silver Bell Mountains would be located within the Desert Bighorn Sheep WHA. Equestrian access/staging locations within the WHA could cause local deterioration of objects of the monument as a result of deterioration of special status species wildlife habitat, disturbance of bighorn sheep and other special status wildlife, and disturbance of lambing ranges for desert bighorn sheep and breeding habitat for other special status wildlife species. Equestrian use could promote the spread of invasive plant species that could reduce quality of special status species habitats and change fire regimes. Alternative B could restrict equestrian access and use to designated routes; Alternative A has no decisions for equestrian use, which could result in greater impacts on special status species, relative to Alternative B.

Non-motorized and mechanized recreation could alter some characteristics of soil, vegetation, or aquatic systems. Recreation could affect an animal's food supply and availability of living space. In turn, impacts on food and living space influence behavior, survival, reproduction, and/or distribution. The significance and magnitude of any effect are related to the extensiveness, intensity, and timing of the activity. The vulnerability and rarity of the habitat and its importance to special status species should also be considered. Alternative B would impose the greatest restriction on non-motorized and mechanized recreation uses; therefore, Alternative B would have the least impact on special status species, including the desert tortoise, from altered habitats and collisions with mechanized vehicles.

The entire monument would be designated as a right-of-way exclusion area; however, existing rights-of-way would be recognized. As a result, impacts resulting from lands and realty decisions would be limited to areas with existing rights-of-way. In addition, no decisions exist for specific acquisition of parcels; however, acquisition of non-Federal land would be based on special status species concerns including ecologically important areas and habitat corridors. Furthermore, no utility corridors would be designated and rights-of-way would occur only where required by law; therefore, few impacts on special status species would take place as a result of utility construction and maintenance (Map 2-14).

Alternative B would limit OHV use to designated routes on 90,360 acres and close 38,040 acres to OHV use (Map 2-18), which would protect special status species, particularly in closed areas.

Management of 36,990 acres to protect wilderness characteristics would minimize changes to landscapes and vegetation resources. In addition, managing areas as a Primitive RMZ could minimize impacts on special status species from recreation.

Allowing surface disturbance for scientific and historical research related to cultural resource management could degrade special status species habitat (an object of the monument), including areas suitable for Nichol Turk's head cactus and the desert tortoise.

Not developing and implementing an activity-level plan for the Cocoraque Butte–Waterman Mountains Multiple Resource Management Area could result in fewer improvements to watershed conditions, soil cover, and sediment reductions as compared with Alternative A, and therefore could result in slower improvements to special status species habitats.

Decisions to improve the safety of wildlife waters would reduce mortality and improve survivorship of some special status wildlife populations. In addition, construction of new wildlife waters would improve access to water sources for those same special status wildlife populations where natural sources of water no longer exist, or where access to natural sources is impaired. However, new wildlife waters could expose these special status wildlife populations to greater rates of predation.

Construction, modification, or removal of fences could improve movement of wildlife species including priority species by reducing barriers to wildlife movement. Implementing the removal of roads or facilities that are no longer necessary could reduce disturbance to special status species. Short-term, the removal of structures would disturb surfaces in localized areas and could temporarily degrade habitat conditions.

Implementation of monitoring and mitigation programs for special status species and visual resources and to control invasive species would avoid and minimize impacts on special status species. Likewise, avoidance of projects or activities that disturb species and habitat would reduce impacts on special status species resources. Furthermore, designation of acquired land as right-of-way exclusion areas would eliminate surface disturbance and disruption to wildlife from utility construction and other allowable uses of rights-of-way.

Mineral resource actions would include reclaiming abandoned mines posing the greatest and immediate risk to human health, or convert mines to another use protective of other resources. Mines could provide roosting habitat for bats, including the lesser long-nosed bat. Survey of abandoned mines could provide greater understanding of existing bat populations and could improve adaptive management for special status species. If the entrances of abandoned mines were to be seal during reclamation, then this could reduce or eliminate access to roost sites for bats that occupy those mines.

Implementation-level decisions designating 63 miles of existing travel routes for motorized access/use, 266 miles for non-motorized use, and identifying 17 miles of existing routes for reclamation could decrease the effects to special status species habitat, as compared with 346 miles under Alternative A. In addition, restricting motor vehicle use to 3 miles the VHAs could reduce surface disturbance in these areas. These decisions would also decrease the potential for vehicle collisions with special status wildlife, especially the slow-moving desert tortoise.

Based on the impacts described above for Alternative B, the disturbance to objects of the monument (including special status species and their habitats) resulting from management actions would range from undetectable to measurable at a local scale and would not cause the loss of special status species from the monument. Despite the localized nature of anticipated impacts, BLM may implement mitigation measures, including avoidance of or temporary flagging or fencing for specific vegetative resources (e.g., Nichol Turk's head cactus or habitat for lesser long-nosed bat or cactus ferruginous pygmy owl) to further reduce impacts on special status species to provide for "protection of the monument objects" as defined in Section 1.3.1.

4.3.6.4 Alternative C

Impacts from management of soil and water resources, and special status species would be similar to those under Alternative B. Management actions that contribute to surface disturbance would be similar to actions under Alternative B, with a few exceptions. Alternative C would designate approximately

241 acres as utility corridors as shown on Map 2-15. Two utility corridors would be designated: Corridor 1 (200 feet wide) and Corridor 2 (300 feet wide). Development and use of utility corridors and rights-of-way could have short-term impacts on special status wildlife such as disturbance and direct mortality to individuals. Long-term impacts on special status species could include increased edge effect, reduced habitat connectivity, and disruption of wildlife movement corridors. Disturbed areas in the utility corridor could change wildlife species composition, favoring generalist native species, and some exotic and naturalized exotic wildlife species. Furthermore, new rights-of-way and exercise of existing rights-of-way would be allowed for access and utilities.

Managing the area as an avoidance area for rights-of-way including the VHA could increase surface disturbance. However, within the VHA rights-of-way and land use authorizations would be restricted to areas along routes. Travel-management actions would allow for the construction of new routes. Construction of new routes could increase habitat fragmentation, degrade existing habitat, and amplify disruptive impacts on wildlife. Movement corridors for the desert tortoise could be restricted while the potential for more vehicle collisions with desert tortoises and other wildlife could increase with new routes.

Under Alternative C, no public lands within the IFNM would be designated as VRM Class I area (versus 36,990 acres of Class I under Alternative B). VRM Class II area would increase to 124,900 acres, while VRM Class III would increase to 3,420 acres. Alternative C also would classify 80 acres as VRM Class IV. Together, these VRM designations would be less restrictive than those under Alternative B, which could increase surface disturbance and impacts on special status species and their habitat.

Increasing the area managed as motorized to 54,610 acres including 1,280 acres of the VHA and decreasing the area managed as non-motorized to 73,740 acres, including 80 fewer acres within the VHA could increase the potential for disruption of special status species and habitat degradation (including species and habitat considered objects of the monument) compared with Alternative B.

Compared with Alternative B, management under Alternative C would allow (1) campfires when firewood is from non-monument sources, (2) overnight non-vehicle-based camping within Semi-Primitive Motorized RMZs, (3) large-group camping near the West Silver Bell Mountains, and (4) camping within the Nichol Turk's head cactus VHA and Ragged Top VHA. Allowing campfires would increase the potential for wildfire. A large group campsite at West Silver Bell Mountains would be located within the Desert Bighorn Sheep WHA. Camping within the VHA could deteriorate wildlife habitat and disturb bighorn sheep and other wildlife. However, this large group campsite would be closed during bighorn lambing season. This would reduce disruption to special status species during a portion of the year. In addition, Alternative C would allow equestrian use in all areas of the IFNM. With repeated use in an area this could result in the proliferation of trails and localized degradation of special status species habitat. This alternative would allow greater impacts on wildlife, particularly bighorn sheep, relative to Alternative B.

Alternative C would close 10,880 acres to OHV use (Map 2-19). Compared with Alternative B, reducing the area closed to OHV by 27,160 acres could result in increased surface disturbance and impacts on special status species and their habitats, which would increase the potential of collisions with the slow-moving desert tortoise.

Under Alternative C, 9,510 acres of IFNM would be managed to protect wilderness characteristics—27,480 acres fewer than Alternative B. Furthermore, managing these areas as VRM Class II, versus as VRM Class I under Alternative B, special status species habitat in these areas would allow for less restrictive uses and greater potential for disturbance to habitat compared with Alternative B.

Management of vegetation resources under Alternative C would result in impacts similar to those under Alternative B, with the exception of the consumption of live, dead, or downed plants by livestock. Impacts from management of livestock grazing would be the same as those under Alternative A, except locating range improvements to minimize disturbance, minimizing livestock impacts on priority plant species and habitats would retain a greater amount of existing vegetation relative to Alternative A. In addition, retaining livestock grazing on 11 allotments would have the same impact relative to Alternative A; however, vegetative communities could attain desired conditions slower than under Alternative B, which has public lands within the IFNM unavailable for livestock grazing after existing leases expire. Also, the potential of livestock to crush desert tortoises is the same as for Alternative A, an impact that was eliminated in Alternative B.

Implementing measures to improve the safety of wildlife waters would reduce mortality and improve survivorship of some special status wildlife populations. In addition, construction of new wildlife waters would improve access to water sources for some special status wildlife species where natural sources of water no longer exist or where access to natural sources is impaired. However, new wildlife waters could expose these same special status species wildlife to greater rates of predation.

Implementation-level decisions designating 124 miles as motorized, including 10 miles in the VHAs, would have the same type of impacts but could increase the extent of effects, compared with 63 miles under Alternative B. Designating 205 miles of routes as non-motorized, including 12 miles in the VHAs, and reclaiming 17 miles could reduce disruption to special status species relative to Alternative A.

Based on the impacts described above for Alternative C, the disturbance to objects of the monument (including special status species and their habitats) resulting from management actions would range from undetectable to measurable at a local scale and would not cause the loss of special status species from the monument. Despite the localized nature of anticipated impacts, BLM may implement mitigation measures, including avoidance of or temporary flagging or fencing for specific vegetative resources (e.g., Nichol Turk's head cactus or habitat for lesser long-nosed bat or cactus ferruginous pygmy owl) to further reduce impacts on special status species to provide for "protection of the monument objects" as defined in Section 1.3.1.

4.3.6.5 Alternative D

Impacts from decisions for soil and water resources, special status species and livestock grazing would be similar to Alternative C, except for the use of non-intrusive, non-native plants in limited emergency situations where they may be necessary to protect resources or when taking no action would further degrade the resources. Non-intrusive non-native plants could provide habitat for wildlife in emergency situations where no action would result in greater impacts on special status species. Use of non-intrusive non-native plants in emergency situations, such as use for soil stabilization following wildfire, could result in the establishment of noxious weed species. Once established, some exotic species have the ability to displace or replace native plant species, disrupt nutrient and fire cycles, and cause changes in the pattern of plant succession resulting in disturbance and/or loss of plant communities, food supplies, cover, breeding sites, and other habitat components necessary to maintain the special status species population. For example, intentionally introduced non-native plants could reduce the available food resources for the desert tortoise in treated areas.

Management actions that contribute to surface disturbance would be similar to actions under Alternative C, with a few exceptions. Management of lands and realty under Alternative D would designate 2,660 acres in three 0.25-mile-wide utility corridors (as shown on Map 2-16) located in the Sawtooth Mountains and West Silver Bell Mountains could increase surface disturbance compared to 241 acres under Alternative C. However, this would reduce the area where surface disturbance associated with utility corridors could occur compared with 8,240 acres under Alternative A.

Managing 6,500 acres as the Ragged Top VHA (Map 2-5) would reduce the size of the VHA by 280 acres, relative to Alternatives B and C. Furthermore, managing 122,580 acres (95 percent of public lands in the IFNM) to meet VRM Class II objectives (a 2,320-acre decrease relative to Alternative C) would reduce the area where surface disturbance restrictions apply and would increase surface disturbance restrictions compared with Alternative A, which could potentially degrade habitat for desert tortoises and other special status wildlife species.

Increasing the area managed as Roaded Natural and Semi-Primitive Motorized to 78,080 acres and decreasing the area managed as non-motorized to 50,270 acres could increase the potential for disruption of special status species, increase collisions with special status wildlife like desert tortoise, and escalate degradation of habitat, relative to Alternatives B and C.

Compared with Alternative C, Alternative D would allow (1) campfires using dead, downed, and detached wood, (2) overnight, non-vehicle-based dispersed camping throughout the monument unless camping in an area is specifically prohibited for protection of resource values, (3) large-group camping near the Sawtooth Mountains, and (4) equestrian uses on routes designated as motorized or non-motorized and cross-country equestrian travel in all areas open to public use. Firewood collection could affect an animal's food supply and availability of living space. In turn, impacts on food and living space influence behavior, survival, reproduction, and/or distribution. The significance and magnitude of any effects are related to the extensiveness, intensity, and timing of the activity. Large-group campsites at Sawtooth Mountains would be located within the Desert Bighorn Sheep WHA. Camping within the WHA could degrade wildlife habitat, disturb bighorn sheep and other wildlife, and disturb lambing ranges for desert bighorn sheep and breeding habitat for other wildlife species. However, this large group campsite would be closed during bighorn lambing season. This would reduce disruption to special status species during a portion of the year. This alternative could result in greater impacts on special status species, particularly desert bighorn sheep and desert tortoises, relative to Alternatives B and C, but would reduce impacts relative to Alternative A.

Concentrating recreational shooting to two designated areas would reduce the potential for disturbance to special status species from shooting activities throughout most of the IFNM, but would intensify the potential for disturbance in the Avra Hill and Cerrito Represo area. However, because the potential for special status species were considered in the selection of these sites, disturbance would likely be limited to startling individual animals that may be passing through or near the proposed designated shooting areas.

Implementation-level decisions designating 226 miles of routes as motorized, including 15 miles in the VHAs, would decrease impacts from motorized routes, compared with 346 miles under Alternative A, and increase impacts relative to 63 miles under Alternative B and 124 miles under Alternative C. In addition, designating 116 miles of routes as non-motorized, including 6 miles in the VHAs, and identifying 1 mile of route in the VHAs for reclamation would be greater than that under Alternative A.

Based on the impacts described above for Alternative D, the disturbance to objects of the monument (including special status species and their habitats) resulting from management actions would range from undetectable to measurable at a broad scale (i.e., disturbance in utility corridors). The anticipated impacts would not result in the loss of a population of the special status species. However, BLM's implementation of management actions for vegetation, including control of invasive species, would mitigate the potential for broad-scale impacts on special status species. In addition, mitigation measures would be implemented, including avoidance of or temporary flagging or fencing for specific vegetative resources (e.g., Nichol Turk's head cactus or habitat for lesser long-nosed bat or cactus ferruginous pygmy owl) to reduce impacts on special status species and limit impacts to small and localized areas. BLM's management

actions under this plan, together with implementation of mitigation measures, would provide for "protection of the monument objects" for special status species as defined in Section 1.3.1.

4.3.7 Impacts on Fire Ecology and Management

This section describes potential impacts on fire ecology and management that could occur from the implementation of management actions for other resource programs. Management actions can affect the frequency and intensity of wildland fires, the cost of fire suppression efforts, and the safety of firefighters and the public. Relative impacts are evaluated in terms of fire ignition (fire frequency), spread (fire size), and intensity (amount of heat released).

The following assumptions were used when assessing the impacts on fire ecology and management.

- Fire is an important functional, natural disturbance in many of the ecological systems found in the planning area.
- A direct relationship exists between the density of use of public land within the planning area and the frequency of human-caused fires.
- A direct relationship exists between fuel loading and potential fire size and intensity.
- Livestock and wildlife water developments could be used for fire suppression.
- Restoration projects would be successful over the long term.

Impact analyses and conclusions are based on interdisciplinary team knowledge of resources and the project area, review of existing literature, and information provided by BLM resource specialists. Effects are quantified where possible or are described in qualitative terms in the absence of quantitative data.

4.3.7.1 Impacts Common to All Alternatives

On the IFNM, wildfire would be suppressed in all instances, and the average cost (per acre) of suppressing fire would be the same under all alternatives. Priority suppression areas would be outlined in implementation-level documents (i.e., Fire Management Plan), which would be tiered to a long-term land use plan (RMP). Under all alternatives, implementation of programs that create greater public awareness of fire dangers could prevent ignitions. Programs that emphasize fire detection and techniques for rapid fire suppression could reduce the size of burned areas (wildfires are easier to suppress when caught early).

Continuing management in compliance with the Arizona Standards for Rangeland Health and Guidelines for Grazing Administration would prevent deterioration of plant communities in the IFNM, with potential to alter the fire regime on a landscape level. This would promote retention of the current Fire Regime Condition Class (FRCC) I throughout the IFNM, resulting in a fire-return interval of 35 to 100 years and fires of mixed severity.

Improvement of ecological site conditions in Nichol Turk's head cactus areas could improve the resiliency of plant communities against invasive plants. Improved ecological site conditions could reduce the percentage of invasive grass species cover lending the plant community greater ability to slow the spread of fire.

Fire size could increase in localized areas where invasive plant material accumulates. Using biological mechanical or chemical treatments to maintain non-hazardous levels of fuels would reduce the risk of ignitions.

Designated areas within the IFNM that harbor specific priority resources such as special status species habitat may affect fire size in those areas. For example, minimum impact suppression techniques (MIST) might be necessary during wildfire suppression to protect areas of sensitive natural resources. The intent of MIST is to suppress wildfires, with the least impact to the land. Use of MIST would be at the discretion of a resource advisor who could be deployed along with other fire suppression personnel during fire suppression activities in the IFNM. In some cases, MIST could result in larger fires. For example, MIST could include letting a fire burn to a natural barrier rather than creating a fuel break with heavy equipment.

Acquisitions of land in the IFNM could increase the acres where the BLM would have primary fire suppression responsibilities. Acquisition of additional lands would not likely increase the average cost of wildfire suppression (in dollars per acre), but it would increase the probability that wildfire suppression activities would take place in the IFNM during any given year. Land acquisitions could improve BLM's ability to manage resources to reduce the potential for ignitions by increasing the opportunities for implementing the fuels management/fuel break program over a larger area.

Existing transmission lines and pipelines would continue to present hazards to firefighters during suppression operations in site-specific areas. Suspended transmission lines pose an overhead hazard to hand crews, engine crews, and aviation crews. Aviation crews would be unaffected by underground pipelines, but heavy equipment may be inappropriate in the vicinity of pipelines. Firefighter-safety concerns associated with transmission lines and pipelines could alter fire-suppression tactics from direct, to indirect. The use of indirect suppression tactics could result in larger fires where utility corridors exist. The use of indirect suppression tactics because of safety concerns could lead to larger fires in site-specific areas. For example, firefighters might let fires burn in the vicinity of safety hazards until the fire spreads outside the hazard's area of influence, where direct suppression is possible without the threat of safety hazards. These transmission lines and pipelines could provide linear fuel breaks to the extent that they require removal of vegetative cover.

Under all alternatives, impacts on wildfire and fuels management are not anticipated as a result of implementing management actions for the following resource programs: air quality, geological resources, energy and minerals, and scenic and visual resources.

4.3.7.2 Alternative A (No Action)

Controlling erosion in site-specific areas would reduce opportunities for invasive grasses and weeds (e.g., buffelgrass and red brome) that can carry wildfire beyond its historic range of variation. Improvement of ecological site conditions in the Cocoraque Butte–Waterman Mountains Multiple Resource Management Area would improve the resiliency of existing plant communities against the establishment of invasive plants. As a result, plant communities in the Cocoraque Butte–Waterman Mountains Multiple Resource Management Area would possess a greater ability to slow the spread of fire. Managing 41,470 acres (32 percent of public lands in the IFNM) as the Silver Bell Desert Bighorn Sheep Management Area could minimize surface disturbance and reduce opportunities for the establishment of noxious weeds and invasive species. These areas would be less prone to the types of invasive plants that tend to carry fires beyond their natural range of variation. These decisions would indirectly help retain FRCC I and maintain the current fire regime.

Livestock grazing in the IFNM would reduce fine fuels indirectly reducing the potential for wildfire to spread (fire size) in site-specific areas where invasive annual grasses would otherwise accumulate. Furthermore, it could reduce the potential for ignition (fire frequency) if invasive annual grasses become established landscape-wide in the future, rather than just in site-specific areas, as they are now. Meanwhile, the selection of herbaceous species by livestock could, over time, result in an indirect increase in the amount of heat released during fires (heat intensity) if the amount of woody vegetation

increased. Managing two allotments as ephemeral could reduce the amount of fine fuels in years when production was sufficient. This could reduce the severity and frequency of wildfire on 28,020 acres (22 percent of public lands in the IFNM) during years of high vegetation productivity. The provision of additional livestock water sources in the Twin Tanks and Cocoraque Pastures would provide additional waters for wildfire suppression in site-specific locations.

The closure of 820 acres (<1 percent of public lands in the IFNM) to motorized vehicle use would continue to reduce potential for ignition on those acres. Campfires would continue to be potential sources of ignitions throughout the IFNM. Fire frequency could increase if campfires escape into surrounding vegetation.

One-mile-wide right-of-way corridors could act as fuel breaks if vegetation is cleared in those areas, and could help prevent the spread of wildland fires in site-specific areas. If new transmission lines and pipelines were constructed in those corridors, safety hazards to firefighters could increase on 8,240 acres (6 percent of public lands in the IFNM).

Implementation-level decision travel management also has potential to affect fire and fuels management. Designating 346 miles of routes for motorized use could increase the risk of ignition along routes from vehicles.

4.3.7.3 Alternative B

Minimizing surface disturbance, along with an integrated noxious weed management approach throughout the IFNM, would reduce opportunities for the establishment of noxious weeds and invasive species. These decisions would indirectly help maintain current FRCC I ratings in site-specific areas, which would help to promote establishment of diverse vegetation communities that are more capable of stopping or slowing the spread of fire than communities with active populations of noxious weeds and other invasive plants. Prohibiting the removal of living and dead native plant material would help maintain the existing surface fuel conditions by maintaining FRCC I conditions in the IFNM. Restoration of disturbed areas in the IFNM would reduce fuels by replacing non-native invasive species with native vegetation. Fire frequency could be reduced in restoration areas where projects succeed in keeping invasive grasses out and maintaining the current FRCC. Short-term restrictions on surface disturbance that preclude certain types of fire suppression and fuels treatment activities could indirectly increase the overall size of wildfires throughout the IFNM.

Prohibiting the removal of plant material except when fuel loading is high could allow the buildup of living and dead invasive herbs in localized areas in the IFNM. WUI areas would be particularly sensitive. Invasive herbs are fine fuels that may carry a fire but would not increase the intensity of a fire. Therefore, while the majority of the IFNM would continue to display the historic fire regime, there could be isolated areas—generally where invasive species establish—where the historic fire regime would move outside the historic range of variability.

Management of the Desert Bighorn Sheep WHA would have similar impacts to those described for the Silver Bell Desert Bighorn Sheep Management Area under Alternative A, where surface disturbance and the potential for the spread of invasive species would be reduced. However, these effects would occur over a smaller area under this alternative: the WHA would be approximately 29,820 acres (23 percent of public lands in the IFNM), a decrease of approximately 11,650 acres as compared with Alternative A. Human entry into this area would be restricted from January 1 to April 30, which would reduce the potential for human-caused ignitions in the WHA during this period. Implementing measures to conserve desert tortoise habitat also could reduce surface disturbance and opportunities for establishment of noxious weeds and invasive species in the IFNM. This could indirectly promote retention of the current FRCC I by maintaining plant community resiliency against colonization from invasive plant species, over

the short term. Maintaining annual grasses in tortoise habitat areas could increase fine fuels in localized areas where invasive grasses are present, resulting in a higher potential for wildfire ignition and spread, if annual grasses were not utilized as forage.

Suppression methods may be altered on 36,990 acres (29 percent of IFNM) managed to protect wilderness characteristics. For example, certain types of heavy equipment used for suppression efforts may be inappropriate. This could increase response time and result in larger fires on these acres. In other areas outside those managed to protect wilderness characteristics, installation of new wildlife waters could enhance fires suppression efforts by increasing the availability of water for wildfire suppression in site-specific areas.

New right-of-way development would not occur under this alternative unless mandated by law; only existing right-of-way would be recognized and no utility corridors would be designated. This would decrease potential for development of rights-of-way that would act as fuel breaks, as compared with Alternative A. However, reduced potential for construction of new utility lines relative to Alternative A would reduce the potential for introduction of new safety hazards to firefighters. Existing transmission lines would continue to compromise firefighter safety.

Making 11 allotments unavailable for livestock grazing after existing grazing leases expire could increase the amount of fine fuels available for ignition compared to Alternative A. Fire could spread in localized areas if the unused forage were not consumed by wildlife. The potential for increased ignitions and larger fires could increase in localized areas, as compared with Alternative A, because the entire monument would be unavailable for livestock grazing after existing leases expire under that alternative. In addition, livestock waters would no longer be needed once the leases expire and would not be maintained, thus potentially eliminating possible water sources for wildfire suppression.

Recreation management decisions regarding campfires and OHV designations would reduce the likelihood of ignitions in the IFNM, relative to Alternative A. The potential for ignitions from campfires would be reduced because only camp stoves and charcoal fires–which tend to produce fewer firebrands and are easier to control than traditional wood campfires–would be allowed. Fire frequency would be reduced to the extent that escaped campfires are reduced in the IFNM. Prohibiting the use of firearms within the IFNM–an activity that could cause an accidental ignition–also would reduce the potential for human-caused ignitions. Discharge of firearms for permitted hunting would continue to be a potential source of ignitions in localized areas of the IFNM.

Impacts on management of fire and fuels from closure of areas to vehicle use would be the same as Alternative A, except vehicles would cease to be a source of human-caused ignitions over a much larger portion of the IFNM. Under this alternative, the potential for ignitions that originate from motorized vehicles would be reduced on approximately 38,040 (30 percent of public lands in the IFNM) of the IFNM—this potential would be reduced on 37,220 more acres, as compared with Alternative A. Most of the vehicle closure areas coincide with areas managed to protect wilderness characteristics under this alternative. The potential for human-caused ignitions would be reduced on 36,990 acres (29 percent of public lands in the IFNM) of lands managed to protect wilderness characteristics due to the absence of motorized equipment and authorized land uses in those areas.

Removal of any utility lines would remove potential overhead safety hazards for firefighters in site-specific areas. However, removal of roads no longer needed for access could increase the size of fires in site-specific areas because the roads would be reclaimed with vegetation and would not provide effective fuel breaks.

Designating only 63 miles of road for motorized travel could result in the reduced risk of ignitions from motorized vehicles, as compared with 346 miles under Alternative A.

4.3.7.4 Alternative C

Minimizing surface disturbance throughout the IFNM, along with an integrated noxious weed management approach, would have the same impacts on the current FRCC, fire suppression efforts, and hazardous fuels treatments as those that would occur under Alternative B. Management decisions would include the following: maintain and improve soil cover and productivity through erosion preventative measures and land treatments, restore disturbed areas to the natural range of native plant associations, and select appropriate plants for restoration.

Management of wildlife habitat would have the same impacts to current FRCC and potential sources of wildfire ignition as those that would occur under Alternative B. Management decisions would include the following: establish the Desert Bighorn Sheep WHA, install additional wildlife waters, and implement measures to conserve desert tortoise habitat.

Prohibiting the removal of living and dead plant material would have similar impacts on the current fire regime condition class ratings and fuels as those that would occur under Alternative B. However, more fine vegetative material would be removed from plant communities under this alternative due to livestock grazing operations. Prohibitions on the removal of plant material under this alternative would result in a reduction of fine surface fuels (herbaceous), as compared with Alternative B and an increase in woody surface fuels as compared with Alternative A. Current FRCC ratings would be unchanged, across all alternatives.

Under Alternative C, the risk of ignition from campfires would remain the same as that under Alternative A, but would be limited to localized areas. This would increase risk compared with Alternative B because natural wood campfires would be allowed, and these types of campfires have a higher potential for escape due to firebrands than the types of fires that would be permitted under Alternative B.

Livestock grazing would have the same impacts on fine fuels, fire ignition potential, and fire size as those under Alternative A. However, fine fuels would decrease slightly in grazed areas where livestock favor herbaceous vegetation. This would reduce fuel loading in localized, site-specific areas and could reduce fire frequency in livestock grazing allotments relative to Alternative B because the entire monument would be unavailable for livestock grazing under that alternative. Managing livestock to allow adequate and suitable native forage would have the same impacts on fire frequency, intensity, and severity as those that would occur under Alternative A. Provision of additional livestock watering areas would have the same impacts on wildfire suppression efforts as those that would occur under Alternative A.

Existing rights-of-way would have similar but less widespread impacts as those that would occur under Alternative A. Corridors under this alternative would be 200 to 300 feet wide, compared with one-mile wide under Alternative A. As a result, there would be less potential for the rights-of-way to act as fuel breaks under this alternative. Any additional rights-of-way granted by the BLM where additional transmission lines or pipelines are constructed could increase the number of safety hazards to firefighters in site-specific areas.

Closing 10,880 acres (8 percent of public lands in the IFNM) to motorized vehicle use would reduce the area where vehicle-related ignition could occur, relative to 820 acres closed under Alternative A and increase the area where it could occur, relative to Alternative B (where 38,040 acres would be closed).

Management of lands to protect wilderness characteristics under this alternative would have the same potential to increase fire size as management under Alternative B if fire suppression methods were restricted in these areas; however 9,510 acres (13 percent of public lands in the IFNM) would be managed to protect wilderness characteristics, which is less than Alternative B.

Implementation-level decisions for travel management would have similar impacts on those described under Alternative B, except motorized travel would be allowed on 124 miles of road; the risk for ignitions from motorized vehicles in the IFNM would be much reduced compared with 346 miles under Alternative A and increased compared with 63 miles under Alternative B.

4.3.7.5 Alternative D

Minimizing surface disturbance throughout the IFNM, along with an integrated noxious weed management approach, would have the same impacts on current FRCC, fire suppression efforts, and hazardous fuels treatments as those that would occur under Alternative B. These decisions would include: maintain and improve soil cover and productivity through erosion preventative measures and land treatments, restore disturbed areas to the natural range of native plant associations, and select suitable plants for restoration activities.

Establishing the Desert Bighorn Sheep WHA, installing additional wildlife waters, and implementing measures to conserve desert tortoise habitat would have the same impacts on current FRCC and potential sources of wildfire ignition as those that would occur under Alternative B.

Prohibiting the removal of living, dead, and downed native plant material would have similar impacts on those that would occur under Alternative B. However, allowing the removal of vegetation for consumption by livestock and the collection of dead and downed wood for firewood use in the IFNM reduces restrictions compared with Alternatives B and C. There would be less accumulation of surface fuels under this alternative compared with Alternatives B and C since collection of firewood would be permitted in addition to livestock grazing.

Maintaining livestock grazing would have the same impacts regarding ignition potential, fire size, and fire intensity as those that would occur under Alternative A. Any provision of new livestock water sources would have the same impacts on fire suppression efforts as those that would occur under Alternative A.

Campfires would pose the same potential for ignitions as that under Alternative C. The restrictions on the use of firearms for recreational target shooting would minimize the potential for ignitions in most areas of IFNM, but firearm-related ignition could occur within the two designated shooting areas.

Utility corridors and rights-of-way would be ¼ mile wide under this alternative—wider than those under Alternative B, but narrower than those under Alternative A. This could increase fire size, relative to Alternative A, because narrower corridors would not be as effective as fuel breaks under this alternative. Corridors would occupy approximately 2,660 acres (about 2 percent of public lands in the IFNM).

No acres would be closed to motorized vehicle use under this alternative, but travel would be limited to designated roads and trails. The 820 acres closed to vehicle use under Alternative A would be effectively closed under this alternative also, as none of the existing roads and trails in that area would be designated for motorized vehicle use.

An implementation-level decision would designate 226 miles of routes (versus 346 miles under Alternative A) for motor-vehicle travel. This would reduce the risk of vehicle related ignition compared with Alternative A and increase risk compared with 63 miles under Alternative B or 124 miles under Alternative C.

4.3.8 Impacts on Cultural Resources

This section discusses impacts on cultural resources from the proposed management decisions for other resources and resource uses. Impacts on cultural resources from most management decisions are difficult to quantify because the locations of most cultural resource sites in the IFNM are not known and the alternatives do not identify specific areas for ground-disturbing activities. The extent of impacts on cultural resources among the alternatives varies in regard to two primary factors: (1) the potential adverse effects of different types and intensities of authorized uses of public land, especially the extent of ground-disturbing activities, and (2) the potential effects due to targeted management of cultural resources in specific areas.

The following assumptions were used when assessing the impacts on cultural resources.

- The cultural resource program would continue to be implemented in accordance with BLM policies, which implement numerous Federal laws and regulations. The four major elements of the cultural program include (1) inventory and evaluation, (2) protection and preservation, (3) resource use in accordance with resource allocations, and (4) planning. BLM reviews activities and other authorized uses of the public lands pursuant to Section 106 of the National Historic Preservation Act (NHPA), NEPA, and the American Indian Religious Freedom Act. As funding becomes available, BLM will prepare a cultural resource management plan to implement this program for the IFNM.
- Any actions proposed on public land administered by BLM land would include an evaluation of (1) the potential for the presence of important cultural resources, (2) potential impacts on resources due to the type of project action that may allow for surface disturbance or easier access to the resource, and (3) appropriate mitigating actions to protect those cultural resources, including project avoidance, redesign, and if necessary, data recovery.
- Access or surface disturbance associated with a specific future action could result in damage or loss of the resource; however, important resources also may be discovered and would need to be properly evaluated and curated.
- The number of sites that could be impacted by various actions would be directly correlated with the degree, nature, and quantity of surface-disturbing activities within the IFNM and the cultural sensitivity of the area. Planned surface-disturbing activities can be mitigated through an inventory process, which may involve modeling, and provide data that could contribute to a management plan specifically written for cultural resources.
- Scientific excavation of identified sites could occur (if not restricted by the RMP).
- As each alternative would comply with Federal laws and agency guidelines governing the identification, evaluation, and protection of cultural resources and Native American sacred/traditional sites, cultural resources would continue to be considered, identified, and evaluated in association with all Federal Undertakings (see Glossary). The cultural resources data acquired through these inventories and evaluations would increase knowledge of cultural resources in the region.

All Federal agencies are required to comply with Section 106 of the NHPA. Section 106 requires Federal agencies to take into account the effects of their undertakings on properties eligible for or included in the National Register of Historic Places (NRHP). Compliance with Section 106 also requires the appropriate levels of consultation and interaction with Native American tribes and the public to assure that the concerns of indigenous peoples are addressed. Compliance with Section 106 and other laws and policies ensures that the effects on cultural resources of all federal undertakings within the IFNM would be taken

into account during planning and implementation, wherein BLM could ensure that there would be no significant impacts to cultural resources.

4.3.8.1 Impacts Common to All Alternatives

Under all alternatives, cultural resources would continue to be affected by natural weathering and erosion processes, and some resources, including objects of the monument with cultural value (such as rock art, archaeological sites, and prehistoric Hohokam sites), may be degraded by uses of the IFNM or vandalism if no protective or preventative action is taken. More cultural resources will be found on public land administered by the BLM within the IFNM, but quantity and quality of uninventoried resources are not known until they are discovered and properly evaluated. The cultural resources that have been inventoried provide a basis for modeling the types and distribution of unrecorded archaeological and historical resources within the IFNM.

Without sufficient law enforcement associated with recreational activities, actions such as off-road travel, inadvertent damage, vandalism, and pot hunting would result in a loss of cultural resource information. As most recreation activities are dispersed in nature and do not require permitting, these impacts would be mitigated on a case-by-case basis as they are discovered. Areas that are not designated for public use serve to protect cultural sites from intentional and inadvertent damage from human activities.

The emergency nature of wildfire can lessen management ability and priority to conserve cultural resources. Surface-disturbing impacts on cultural resources from wildfires are largely associated with fire suppression activities. Wildfire suppression activities have a considerable potential to damage prehistoric and historic sites (including those considered to be objects of the monument) through fire line construction (hand line and bulldozer line), establishment of helicopter bases, fire camps, and related activities. Fire camps and staging areas in or near known or unidentified prehistoric or historic sites may subject the associated surface artifacts to removal or displacement.

The dispersed nature of livestock grazing creates difficulties in applying Section 106 to all areas of potential disturbance due to livestock. Areas where livestock congregate and livestock trailing occurs at or crosses cultural resource sites could impact cultural resources by altering their context. Cattle congregating and rubbing could damage standing structures and abrade rock art panels. Trampling at water sources and along stream banks, as well as trailing, could remove protective vegetation cover and increase compaction, creating indirect impacts on cultural resources by accelerating natural erosion and exposing artifacts to illegal surface collection and vandalism. These types of impacts would be localized to individual sites. Impacts on specific areas would be identified and mitigated through the leasing process on a case-by-case basis.

Activities and projects associated with the management of natural resources include air quality improvements, range improvements, erosion control structures, habitat improvement projects, and vegetation treatments, which may include herbicide applications or mechanical removal. When the proposed projects have the potential to affect cultural resources, they are evaluated on a case-by-case basis so that effects on cultural resources can be avoided, reduced, or mitigated. Some resource management projects can help protect cultural resources by reducing erosion, reducing heavy fuel loads, or improving livestock distribution. Effects from these land management activities would be similar across all alternatives.

Retention of Federal land within the IFNM would provide regulatory protection for cultural resources, and acquisition of non-Federal land would provide regulatory protection to cultural resources within those lands, as well as further the protective natural and cultural resource goals of the monument.

Because of review procedures and flexibility of potential action, adverse effects on cultural resources are not anticipated as a result of implementing management actions for the following resources and resource uses: air quality, paleontological resources, special designations, or scenic and visual resources management.

Since there has been no comprehensive inventory of traditional cultural properties within the IFNM, it is not possible to determine what types of future impacts may occur, given the often intangible nature of this type of cultural resource. The presence, type, significance, and possible effects to TCPs will have to be addressed on a case-by-case basis until such time as all concerned tribes have provided TCP inventory information to the BLM. The BLM also recognizes that TCPs may have traditional spiritual and religious importance; consequently many tribes are reluctant to disclose location or attribute information without an imminent threat. This negates the usefulness of many broad-scale, planning stage, inventory efforts.

4.3.8.2 Alternative A (No Action)

Management of cultural resources is usually a non-disturbing activity that involves inventory, site monitoring, and occasionally placement of site protection signs. Some cultural resource management activities, such as installation of protective fencing to exclude livestock, motorized vehicles, or the public; research involving excavation; and development of interpretive projects or facilities, such as signs, kiosks, and public events could affect cultural resources, as well as other resources. Such projects rarely involve disturbance of more than 1 acre in any given year.

Within the IFNM, the Waterman Mountains ACEC is the only special designation, which was primarily established to manage vegetation. Because special designations tend to limit or carefully manage ground-disturbing activities, the Waterman Mountains ACEC also provides some coincidental protection of cultural resources, including cultural objects of the monument, within its approximately 2,240 acres of public land.

The closure of the 20-acre Special Management Area to motorized vehicles would continue under Alternative A. Closures and restrictions of vehicle uses reduce the potential for effects to the integrity of the site, but could cause limitations to opportunities for public interpretation and education. Protection for cultural resources also would be provided through the continued management of the 2,720-acre Avra Valley CRMA.

Management actions for special status species, wildlife and wildlife habitat, vegetation, and soil and water resources could coincidentally protect cultural resources by minimizing impacts from livestock, installing fencing to protect vegetation, and through soil erosion reduction efforts. Decisions associated with natural resources could disturb cultural resources and associated objects of the monument during ground-disturbing activities.

Uses of public lands would include mineral extraction, continued livestock grazing activities, construction within and use of various types of rights-of-way, recreation, and research projects. Ground-disturbing mining or construction activities can disturb cultural resources. Livestock grazing can result in trampling, breakage, and dispersal of artifacts and increased erosion, and damage also can be caused by cattle rubbing or bumping into historical features such as buildings and cairns. Dispersed recreational uses also can result in inadvertent damage and lead to vandalism, which could damage objects of the monument (archaeological objects of scientific interest). When these uses require Federal authorization they would be reviewed to ensure that potential effects on cultural resources are considered. Some uses, including issuance of rights-of-way, livestock facilities, and mineral development, would have secondary effects because they could create new motorized vehicle access, which could lead to inadvertent damage and vandalism of fragile cultural resources. By altering the local environment, these developments also could

degrade the integrity of some types of nearby cultural resources if their settings or sense of feeling are important aspects of their historical values.

Activities that are not subject to the permitting process, such as dispersed recreation, recreational shooting, and OHV use in unrestricted areas, also would have the potential to disturb cultural resources, including objects of the monument with cultural value. Alternative A provides the least protection for cultural resources from these uses because it would impose very few restrictions on recreation management, recreational shooting, and OHV use.

Cultural resources would be protected by implementation of mitigation measures to ensure that maintenance of established rights-of-way do not conflict with the natural and cultural resource goals of IFNM, and by consideration of new land use authorizations on a case-by-case basis specifically to assess compatibility with natural and cultural resource goals. Ongoing management activities, such as installing protective fencing, planting vegetative to control erosion, erecting signs to guide public use, having a law enforcement presence, and conducting data recovery operations contribute to the mitigation measures that protect cultural resources. Implementing conservation measures during fire suppression operations to reduce the effects of fire management actions on threatened and endangered species also could coincidentally protect cultural resources.

Limiting motorized vehicle use to existing routes could protect cultural resources and associated objects of the monument, but continued motorized use of the 346 miles of existing routes could disturb the 112 archaeological and historical sites recorded along the approximately 165 miles of those roadways on public land that have been surveyed for cultural resources, as well as other unrecorded sites along the approximately 181 miles that have not been surveyed for cultural resources.

The disturbance to objects of the monument (including archaeological objects of scientific interest such as rock art, archaeological sites, prehistoric Hohokam sites, archaeological districts, and Mission Santa Ana) resulting from management actions would range from undetectable to measurable at a local scale (for example, potentially in heavily used recreational shooting areas). On a case-by-case basis, BLM would evaluate resources as they are discovered, and implement mitigation measures (such as closing access to sites, establishing barriers that restrict access to sites, recovering data through excavation and documentation of the site) to reduce threats or conflicts from natural- or human-caused deterioration of those resources. Such measures would provide for "protection of the monument objects" for cultural resources as defined in Section 1.3.1.

4.3.8.3 Alternative B

The potential impacts of activities and projects associated with the proposed management decisions for special status species, wildlife and wildlife habitat, vegetation, and soil and water resources under Alternative B would be similar to Alternative A and would have the same impacts as those described under Alternative A.

Cultural resources would be provided some coincidental protection within the Waterman Mountain VHA. In contrast to Alternative A, Alternative B specifically provides for the allocation and reallocation of cultural resources into one of the five use categories according to the BLM Cultural Resource Manual 8100: (1) scientific use, (2) conservation for future use, (3) traditional use, (4) public use, and (5) experimental use. Site allocation and reallocation would protect and promote appropriate uses of cultural resources. Allocation of sites to scientific use and allowing non-ground-disturbing scientific and historical studies of these sites would promote appropriate management of the informational values of theses sites and increase understanding of the cultural history of the region. Under Alterative B, no sites would be allocated to public use, which would protect and preserve cultural resources, but eliminate

opportunities for public interpretation. Allocation of sites to traditional use under Alternative B would promote the preservation of cultural traditions.

Closure of the Santa Ana de Cuiquiburitac area to motorized vehicles would continue under Alternative B, but would be enlarged to encompass 640 acres (620 acres more than under Alternative A), and the historic site would be allocated to conservation for future use. The expansion and allocation would increase the protection of the site and objects of the monument (remnants of the Mission Santa Ana, the last mission constructed in the Pimeria Alta), but allocation to conservation for future use would restrict opportunities for types of research and public interpretation and education. The Avra Valley CRMA would be eliminated under Alternative B, but this action would have no effect on cultural resources because the area is provided the same level of protection through the designation of the monument.

Federal minerals in the IFNM are withdrawn from entry under the mining laws. Acquisition of non-Federal mineral estate underlying Federal surface holdings throughout the IFNM could coincidentally protect cultural resources and associated objects of the monument by eliminating ground-disturbing activities associated with exploitation of minerals.

Managing the IFNM as an exclusion area with no utility corridors identified which limits the potential for new rights-of-way to be authorized, could coincidentally protect cultural resources by reducing surface disturbance. Managing 125,110 acres (about 97 percent of the public lands within the IFNM) as VRM Class I and II and making public lands within the IFNM unavailable for livestock grazing as leases expire would reduce surface disturbance, providing more protection to cultural resources than Alternative A. In addition, the decision to rehabilitate disturbed areas could coincidentally restore or maintain the settings for cultural resources.

Impacts on cultural resources from recreation activities requiring a permit, such as commercial and competitive events, are addressed through NEPA and Section 106 processes. Dispersed recreation does not require a permit and has the greatest potential to affect cultural resources, particularly when it involves the use of OHVs. Recreational use of public lands is increasing greatly due to population growth in metropolitan areas, proliferation of urban interface areas associated with subdivisions, and the increasing popularity of outdoor recreation activities, particularly recreational OHV use and geocaching activity. Alternative B would increase protection of cultural resources and the cultural resource related objects of the monument over Alternative A by closing 38,040 acres to OHV use and limiting OHV use to designated routes in an area of 90,360 acres (compared to 820 acres closed and 127,580 acres limited to designated or existing routes in Alternative A). Motorized use is prohibited year-round within Cocoraque Butte, as well as within a 640-acre area surrounding Santa Ana de Cuiquiburitac, further protecting this object of the monument.

In addition, overnight vehicle-based camping would be limited to 30 identified sites, which would decrease potential disturbance to cultural resources caused by vehicle parking and maneuvering and from persons engaging in ancillary activities. Dispersed non-motorized camping also would be limited to specified camping areas, further minimizing the potential for inadvertent resource damage from campsites. Prohibiting recreational shooting would eliminate a source of potential damage to cultural resources, including objects of the monument (such as rock art, archaeological sites, prehistoric Hohokam sites, and other archaeological objects of scientific interest). Limitation of the development of new routes could help protect cultural resources within IFNM as well.

Decisions for special status species, wildlife and wildlife habitat, vegetation, and soil and water resources could coincidentally protect cultural resources by reducing soil erosion, decreasing public access by removing roads and facilities, and installing fences to protect vegetation. Similarly, decisions associated

with natural resources could disturb cultural resources during associated ground-disturbing activities, and management of some special status species and native vegetation could affect species and vegetation that have traditional cultural significance.

Alternative B would limit motorized vehicle use to 63 miles of routes. The 33 archaeological and historical sites recorded along the 55 miles of those roads that have been surveyed for cultural resources, as well as sites that might be unrecorded along the 8 miles that have not been inventoried, would be managed to avoid adverse impacts or mitigate impacts of continued use and maintenance of those roads. The 79 archaeological and historical sites recorded along the 266 miles designated for non-motorized uses and other unrecorded sites are unlikely to be adversely affected by non-motorized uses of those roads and trails and are provided protection by the closing of those routes to motorized vehicles.

Designation of exclusion areas upon the acquisition of land could coincidentally protect cultural resources and the associated objects of the monument. Providing access for wildlife viewing opportunities under recreation could disturb cultural resources through increased access, but also could provide coincidental opportunities for public interpretation and education. Implementing survey and reclamation of abandoned mines could reveal information about historical mining within the IFNM and lead to the recording of additional cultural resources related to mining, but reclamation also could disturb cultural resources. Providing access to geological sites and/or features could disturb cultural resources, but public viewing and enjoyment of geologic sites could offer opportunities to interpret cultural resources. As a result of these decisions, Alternative B decisions provide for more opportunities to increase understanding of cultural resources within the IFNM than Alternative A.

The disturbance to objects of the monument (including rock art, archaeological sites, prehistoric Hohokam sites, archaeological districts, Mission Santa Ana, and other archaeological objects of scientific interest) resulting from management actions would range from undetectable to some minor disturbance at a local scale. Compared with the other alternatives, the minimization of public access and use together with Alternative B decisions that would minimize the potential for new ground disturbance would offer the greatest protection of the monument objects for cultural resources as defined in Section 1.3.1. As cultural resources are newly discovered, BLM would evaluate the resources on a case-by-case basis and implement mitigation measures (such as closing access to sites, establishing barriers that restrict access to sites, recovering data through excavation and documentation of the site) to reduce threats or conflicts from natural- or human-caused deterioration of those resources. Such measures would further provide for "protection of the monument objects" for cultural resources.

4.3.8.4 Alternative C

The potential impacts of activities and projects associated with the proposed management decisions for special status species, wildlife and wildlife habitat, vegetation, and soil and water resources under Alternative C would be similar to Alternative A and would have the same impacts as those described under Alternative A. Allocating land as the Waterman Mountains VHA would result in the same impacts as those described under Alternative B.

Excavation of sites allocated to scientific use would be allowed, which would promote long-term preservation of the informational values of those sites and increase understanding of the regional cultural history. In contrast to Alternative B, which allocates no cultural resources to public use, Alternative C would allocate segments of the historic Sasco Railroad, historical sites associated with the Silver Bell Mine, historical ranching sites, and certain agricultural use areas within the existing Avra Valley for public use. Other sites may be allocated to public use based on specific criteria. This decision addresses program goals for public interpretation and educational opportunities, but increased visitation without adequate management could degrade the integrity of cultural resources and objects of the monument with

cultural values. The allocation of sites to traditional use would result in the same impacts as those described under Alternative B.

A 640-acre area surrounding Santa Ana de Cuiquiburitac (an object of the monument) would be closed to motorized vehicles as in Alternative B, but instead of allocating the site to future use, the site would be allocated for scientific use. This allocation would allow for further research to enhance documentation and understanding of the site. Eliminating the Avra Valley CRMA would result in the same impacts as those described under Alternative B.

Designation of two utility corridors and construction of utilities within those corridors could disturb cultural resources. Rather than prohibiting authorization of new rights-of-way as in Alternative B, rights-of-way for access and utilities could be considered on a case-by-case basis. Limitation of new rights-of-way could coincidentally protect cultural resources, but issuing new rights-of-way could disturb cultural resources if impacts could not be avoided. All 11 grazing allotments would be available for grazing, which would results in impacts similar to Alternative A and a greater impacts than under Alternative B, which would retire grazing leases. In addition, the protection of the settings of cultural sites could decrease somewhat under Alternative C, with 124,900 acres within the IFNM being managed as VRM Class II, compared to 125,110 acres managed as VRM Classes I and II in Alternative B.

Approximately 10,880 acres would be closed to OHV use and OHV use would be limited to designated routes on 117,520 acres (compared to 820 acres closed and 127,580 acres limited to existing or designated routes in Alternative A). Alternative C does not provide as much protection to cultural resources and associated objects of the monument as Alternative B (38,040 acres closed and 90,360 acres limited to designated routes). Like Alternative B, Alternative C prohibits motorized use year-round within Cocoraque Butte, as well as within a 640-acre area surrounding Santa Ana de Cuiquiburitac.

Overnight vehicle-based camping would be limited to identified sites throughout the IFNM resulting in the same impacts as those described under Alternative B. However, dispersed non-vehicle-based camping would be allowed and could disturb cultural resources. Like Alternative B, recreational shooting would not be allowed so a source of potential damage to cultural resources and associated objects of the monument would be eliminated.

Actions for special status species, wildlife and wildlife habitat, vegetation would result in the same impacts as those described for Alternative B. Alternative C allows for new and continued ground-disturbing activities in areas with sensitive or fragile soils, but impacts would be mitigated.

Alternative C would limit motorized vehicle use to 124 miles of routes. The 69 archaeological and historical sites recorded along the 110 miles of those roads that have been surveyed for cultural resources, as well as sites that might be unrecorded along 15 miles that have not been inventoried, would be managed to avoid adverse impacts or mitigate impacts of continued use and maintenance of those roads. The 43 archaeological and historical sites along 205 miles designated for non-motorized uses and other unrecorded sites are unlikely to be adversely affected by the non-motorized uses of those roads and trails and are provided protection by the closing of those routes to motorized vehicles. This is less protection than Alternative B with 79 sites and 266 miles designated as non-motorized.

The disturbance to objects of the monument (including rock art, archaeological sites, prehistoric Hohokam sites, archaeological districts, Mission Santa Ana, and other archaeological objects of scientific interest) resulting from management actions would range from undetectable to some measurable effects at a local scale. Measurable effects may occur from the public use allocation of selected historical features; scientific use of Santa Ana de Cuiquiburitac; and the ongoing public use associated with travel, dispersed camping, and other allowable activities. Such effects would be fewer than expected with current

management conditions. As cultural resources are newly discovered, BLM would evaluate the resources on a case-by-case basis and implement mitigation measures (such as closing access to sites, establishing barriers that restrict access to sites, recovering data through excavation and documentation of the site) to reduce threats or conflicts from natural- or human-caused deterioration of those resources. Such measures would provide for "protection of the monument objects" for cultural resources as defined in Section 1.3.1.

4.3.8.5 Alternative D

The potential impacts of activities and projects associated with the management actions for special status species, wildlife and wildlife habitat, vegetation, and soil and water resources under Alternative D would be similar to Alternative A and would have the same impacts as those described under Alternative A.

Allocating land as the Waterman Mountains VHA would result in the same impacts as those described under Alternative B. Like Alternative C, Alternative D allows for the excavation of sites allocated to scientific use (including the Santa Ana de Cuiquiburitac site, an object of the monument), which would promote the long-term preservation of the informational values of those sites and increase understanding of the regional cultural history. Alternative D would allocate segments of the historic Sasco Railroad, historical sites associated with the Silver Bell Mine, historical ranching sites, and certain agricultural use areas within the existing Avra Valley for public use. Other sites may be allocated to public use based on specific criteria. This decision addresses program goals for public interpretation and educational opportunities, but increased visitation without adequate management could degrade the integrity of cultural resources. Allocating sites to traditional use would result in the same impacts as described under Alternative B. Closing a 640-acre area surrounding Santa Ana de Cuiquiburitac to motorized vehicle travel would result in the same impacts as those described under Alternative C. Eliminating the Avra Valley CRMA would result in the same impacts as those described under Alternative B.

Alternative D also provides more protection than Alternative A for cultural resources by modified management of the use of other resources on public land, but less protection than Alternatives B and C. With Alternative D, three utility corridors would be identified, and construction activities in those corridors, could disturb cultural resources. No utility corridors would be identified under Alternative B and only two would be identified under Alternative C. Allowing 11 grazing allotments to remain available for grazing would result in the same impacts as those described under Alternative C. Alternative D would manage 122,580 acres as VRM Class II, which is less than Alternative B (VRM Class I and II areas totaling 125,110 acres) and less than Alternative C (VRM Class II areas totaling 124,900). Reducing the area of VRM Class II designation could affect the integrity of the settings of sensitive cultural resources.

Through closure and limitation of OHV use, Alternative D provides similar protection of cultural resources as Alternative A. Under Alternative D, OHV use on 128,400 acres would be limited to designated routes (compared with 820 acres closed and 127,580 acres limited to designated routes Alternative A). Alternative D does not provide as much protection to cultural resources and objects of the monument with cultural values as Alternative B (38,040 acres closed and 90,360 acres limited to designated routes) or Alternative C (10,880 acres closed and 117,520 acres limited to designated routes). However, Cocoraque Butte, as well as a 640-acre area surrounding Santa Ana de Cuiquiburitac (an object of the monument), would remain closed to motorized vehicle use year-round resulting in the same impacts as those described under Alternative B.

Under Alternative D, overnight vehicle-based camping would be limited to identified sites, with the same resulting impacts as those described under Alternative B. Non-vehicle-based camping would result in the same impacts as those described under Alternative C.

Eliminating dispersed recreational shooting would eliminate a potential source of cultural resource damage for most IFNM lands, but the concentration of recreational shooting activities in two designated

areas would intensify the potential for damage to undiscovered cultural resources at Avra Hill and Cerrito Represo. Damage could occur from bullet strikes and ricochet, and vehicle and human trampling. In addition, damage may not be fully limited to the combined 629 acres for the designated sites as errant bullets could hit cultural resources beyond the site boundaries. However, both designed shooting areas have relatively low cultural resource sensitivity as compared to most other areas of the IFNM (see Appendix I for additional details).The implementation of management actions for special status species, wildlife and wildlife habitat, vegetation, and soil and water resources would result in the same impacts as those described for Alternative C. Continued livestock grazing would impact cultural resources the same way as decisions under Alternatives A and C. Designating acquired lands as avoidance rather than exclusion area (except in designated corridors) would result in the same impacts as those described under Alternative C.

Alternative D would limit motorized vehicle use to 226 miles of routes. The 85 archaeological and historical sites recorded along the 142 miles of those roads that have been surveyed for cultural resources, as well as sites that might be unrecorded along 84 miles of those roads that have not been inventoried, would be managed to avoid adverse impacts or mitigate impacts of continued use and maintenance of those roads. The 27 archaeological and historical sites along the 116 miles designated for non-motorized uses and other unrecorded sites are unlikely to be adversely affected by non-motorized uses of those roads and trails and are provided protection by the closing of those routes to motorized vehicles. This is less protection than Alternatives B with 79 sites and 266 miles designated as non-motorized, and Alternative C with 43 sites and 205 miles designated as non-motorized.

The disturbance to objects of the monument (including rock art, archaeological sites, prehistoric Hohokam sites, archaeological districts, Mission Santa Ana, and other archaeological objects of scientific interest) resulting from management actions would range from undetectable to measurable at a local scale. Like Alternative C, some localized disturbance of cultural resources may occur from the public use allocation of selected historical features; scientific use of Santa Ana de Cuiquiburitac; and the ongoing public use activities. Because Alternative D offers greater public accessibility than Alternatives B and C, there could be marginally greater disturbance. Recreational shooting has the potential to damage resources and Alternative D would provide for two designated shooting areas; these areas have low cultural resource sensitivity and scientific documentation of the identified cultural resource sites within these areas would mitigate for use of these areas. Because Alternative D provides for somewhat greater accessibility than Alternatives B and C, there is increased potential for inadvertent disturbance of cultural resources that have not yet been discovered. However, as resources are discovered, BLM would evaluate them on a case-by-case basis and implement mitigation measures (such as closing access to sites, establishing barriers that restrict access to sites, recovering data through excavation and documentation of the site) to reduce threats or conflicts from natural- or human-caused deterioration of those resources. Such measures would provide for “protection of the monument objects” for cultural resources as defined in Section 1.3.1.

4.3.9 Impacts on Paleontological Resources

This section discusses impacts on potential paleontological resources that could occur from management of other resources and resource uses. Although paleontological resources are currently not known within the IFNM, management actions can potentially cause damage to or destroy fossil-bearing geological formations, resulting in the loss of vertebrate fossils or other scientifically significant fossil resources. Apart from natural weathering and erosion, resources can be damaged or lost by excavation and other surface-disturbing activities, theft or vandalism. Management-related activities involving excavation or other surface disturbance can, at the same time, “discover,” as well as damage or destroy paleontological resources. When discovery occurs, resources can be curated for scientific, educational, and/or recreational values. Although damage or destruction could diminish the potential value of paleontological resources,

without removal of some of the rock surrounding fossils, the fossils would remain largely undetected Management actions that result in erosion do not necessarily damage paleontological resources; however, the excessive erosion resulting from other surface disturbance could damage fossils present at the surface.

Increased controlled access to areas could allow for discovery of paleontological resources, which could lead to proper collection and curation for the resource and add to the scientific knowledge of the IFNM area. Conversely, with increased access the fossil resource may be damaged, destroyed, or lost due to vandalism or theft. Restriction of public access could both reduce the potential for discovery and diminish the chance of vandalism or theft. While the location of every significant paleontological locality in the IFNM is not known, the analysis considers the different management actions and their potential to directly or indirectly impact paleontological resources.

This analysis is based on the following assumptions:

- Paleontological resources are subject to an active discovery process.
- Areas containing vertebrate fossils or noteworthy occurrences of invertebrate or plant fossils are expected to occur within three of the four Paleontological Sensitivity Management Classes prepared by BLM's Regional Paleontologist (Classes 4, 3, and 2; ranging from high to moderate sensitivity).
- Inventories prior to surface disturbance in high-probability areas would result in the identification and evaluation of previously undiscovered resources, which BLM would then manage accordingly.
- Unmitigated surface-disturbing activities could dislodge or damage paleontological resources and features that were not visible prior to surface disturbance.

Impact analyses and conclusions are based on an inventory of the paleontological resources in the area and the geologic units that occur at IFNM and on the Paleontological Sensitivity Management Classes prepared by the BLM's Regional Paleontologist.

4.3.9.1 Impacts Common to All Alternatives

Activities that occur during the suppression of wildland fires (e.g., construction of fire lines, bulldozing of access roads, and general movement of heavy equipment) could disturb the surface, creating impacts on mineral soils. This can damage or destroy paleontological resources; however, most of the areas in the IFNM where paleontological resources could be present at the surface lack characteristics that encourage the ignition and spread of wildland fires, and do not support significant vegetation. Developing an activity plan or restoration plan within the IFNM would reduce loss of potentially significant paleontological resources (though none are known to occur in the IFNM) to soil erosion, weathering, and exposure by reducing surface disturbance.

Paleontological resources could be identified (and subsequently documented) as a result of cultural resource inventories, recordation, evaluations, and data recovery excavations, as well as by paleontological assessments that would be required before transferring lands from Federal jurisdiction. Regarding land tenure adjustments, including RP&P leases, documentation and evaluation of resources and implementation of mitigation measures before changes in ownership would ensure that lands with scientifically significant paleontological resources are retained or obtained, providing protection under Federal management policies.

The withdrawal of Federal lands from all forms of sale or leasing would reduce the potential for surface disturbance from development of energy and mineral resources, providing coincidental protection for any

paleontological resources in the IFNM. Prohibiting the collection of paleontological resources and limiting collection to scientific uses would protect resources in the IFNM.

Under all alternatives, impacts on paleontology resources are not anticipated as a result of implementing management actions for the following resources programs: air quality, wildlife and wildlife habitat, special status species, fire ecology, and livestock grazing. Under all alternatives, impacts on paleontology are not anticipated as a result of implementation-level decisions for the following resource programs: vegetation, scenic and visual resources, energy and minerals, recreation, lands and realty, and lands managed to protect wilderness characteristics.

4.3.9.2 Alternative A (No Action)

Under Alternative A, mining activity related to valid existing claims would be allowed on case-by-base basis, which could result in the loss or destruction of paleontological resources from related surface and subsurface disturbance. Mining activities could also expose paleontological resources, and with proper mitigation, this could add to the resource database and scientific knowledge of the area.

Under Alternative A, continuing management of recreation would allow access to areas with sensitive paleontological resources. If resources are discovered as a result, this could increase scientific knowledge of the area if resources are properly curated. However, access and associated recreational activities, such as target shooting, could also cause loss of or damage to paleontological resources.

Development and implementation of an activity plan for the Cocoraque Butte–Waterman Mountains Multiple Resource Management Area could reduce surface disturbance and thereby reduce loss of paleontological resources to soil erosion, weathering, and exposure. Limiting vehicle travel and closing 820-acres to motorized travel would also reduce surface disturbance and could reduce erosion, providing coincidental protection of paleontological resources. Limiting OHV use to existing or designated routes on 127,580 acres (99 percent of public lands in the IFNM) could result in surface widening, route braiding, and route pioneering. OHV use on existing routes could degrade roads and increase erosion. Impacts to paleontological resources from this erosion and surface disturbance could continue in areas where travel would be limited to designated routes.

Issuing rights-of-way for joint use could create access to areas with sensitive paleontological resources. This could increase discovery of such resources, which could increase scientific knowledge of the area if the resources are properly curated; however, greater access to IFNM lands along rights-of-way could also result in loss of resources through damage, vandalism, or theft. Implementing activity plans for the Aqua Blanca Ranch Multiple Resource Management Area could also reduce erosion in those areas, with coincidental protection to paleontological resources.

4.3.9.3 Alternative B

Paleontological resources may be present in geologic resources that warrant special management, providing coincidental protection of those resources in localized areas. Prohibiting the collection of geologic resources also could protect paleontological resources. On the other hand, providing adequate access to geologic sites and/or features could allow the public to gain greater scientific, educational, and recreational value from the resource. Minimizing surface disturbance and stabilizing soils would minimize potential exposures of paleontological resources to loss or damage by weathering and soil erosion. The implementation of specific erosion control measures could further reduce loss of paleontological resources to weathering and exposure, as compared with Alternative A. In addition, managing 125,110 acres as VRM Class I and II, 60,000 acres for Semi-Primitive Non-Motorized recreation and 36,990 acres to protect wilderness characteristics would provide coincidental protection to paleontological resources by restricting surface-disturbing activities in those areas.

Under Alternative B, a monitoring scheme to evaluate the condition of cultural resources and to stop, limit, or repair damage to cultural resources would be developed and implemented. This would provide coincidental protection to recent paleontological resources (if discovered) that are a part of cultural resource sites, except in areas of valid existing rights. Additional discoveries could occur if interest results in additional surveys for paleontological resources. Requiring field surveys for paleontological resources and mitigation according to BLM guidelines prior to any ground disturbing activities on IFNM could increase protection to paleontological resources, as compared with Alternative A.

No new rights-of-way would be authorized under Alternative B (except as required by law), which could both reduce discovery, and protect paleontological resources against surface-disturbing projects. Closing 38,040 acres (areas shown on Map 2-18) to motorized vehicles would have the same impacts as those that would occur under Alternative A, but public access would be decreased. This could decrease discovery of resources by the public, but would increase the area where resources would be protected, as compared with Alternative A.

Designating 266 miles of routes for non-motorized use (as shown on Map 2-18), could limit public access, and therefore reduce the loss of paleontological resources, as compared with 346 miles open for motorized use under Alternative A.

In addition to limiting public access, Alternative B would limit dispersed, non-motorized camping to identified campsites, limit vehicle-based camping to approximately 30 specific sites, limit group camping to two designated sites, and prohibit recreational shooting. The reduction in vehicle maneuvering and human interaction within certain area may help to preserve paleontological resources in areas where such features exist.

4.3.9.4 Alternative C

Impacts to paleontological resources under Alternative C would be the same as those under Alternative B, except allowing the collection of resources for scientific research or educational uses could increase the knowledge of paleontological resources (relative to both Alternatives A and B). In addition, allowing dispersed camping throughout the monument except in areas closed to protect objects of the monument and allowing group camping in three designated sites potentially could result in inadvertent damage to paleontological resources or a greater chance of illegal collection of the resources.

Rights-of-way for access and utilities would be authorized on a case-by-case basis, with the same potential impacts as those that would occur under Alternative A. Impacts from management of visual resource management would be the same types as those that would occur under Alternative B where 125,110 acres are managed as VRM Class I and II, but managing 3,420 acres to meet VRM Class III, and 80 acres to meet VRM Class IV objectives could increase surface disturbance. In addition, impacts from managing 9,510 acres to protect wilderness characteristics (as shown on Map 2-22) would be the same as Alternative B and also could reduce surface disturbance from human uses.

Impacts on paleontological resources from implementation-level decisions under Alternative C would be the same as those that would occur under Alternative B, except designating 205 miles of routes as non-motorized (as shown on Map 2-19), could further limit public access. This could reduce the loss of paleontological resources, relative to Alternatives A and B.

4.3.9.5 Alternative D

Under Alternative D, impacts would be the same as those under Alternative C, with a few exceptions. Managing 1,600 acres as VRM Class IV could increase surface disturbance relative to Alternatives A, B, and C. In addition, increasing the area managed as Roaded Natural to 19,060 acres could increase surface

disturbance, relative to Alternatives B, C, and D. Increasing the number of large group camping sites to four also would increase surface disturbance, relative to Alternatives B and C. Dispersed recreational shooting would be prohibited in most of the monument, but there could be very localized damage from bullet strikes to paleontological resources if these resources occur within the Avra Hill and Cerrito Represo designated shooting areas.

Impacts on paleontological resources from implementation-level decisions under Alternative D would be the same as those that would occur under Alternative C, except designating 116 miles of routes as non-motorized (as shown on Map 2-20), could limit public access. This could reduce the loss of paleontological resources by decreasing public access, relative to Alternatives A, B, and C.

4.3.10 Impacts on Scenic and Visual Resources

This section describes potential impacts on scenic and visual resources from management actions discussed in Chapter 2. Impacts on scenic and visual resources are first identified and then evaluated for consistency with VRM objectives. The Visual Resource Inventory (VRI) values and the VRM class objectives are used to guide the impact analysis. Generally, VRM Class I and Class II areas are more sensitive to changes because of the high resource values attached to those landscapes. This analysis focuses on two potential results of management decisions: (1) the introduction of elements into a natural landscape that would be evident and in contrast—in color, line, form, or texture—with that landscape, and (2) direct or indirect protection of visual resources against introduction of such contrasting elements. Most of the IFNM was inventoried under VRI Class II (74%) due to relatively high scenic quality and visual sensitivity, and viewing distance in the foreground-middleground, with the rest inventoried under VRI Class III (26%).

The alternatives are analyzed according to changes within a landscape that would (or could potentially) occur as a result of a management action, regardless of VRM class. Direct changes are those that would immediately occur as a result of any one action (or combination of actions). Indirect impacts are those that would promote conditions that retain, degrade, or enhance visual resources within a landscape.

The following assumptions were used in the analysis of impacts on visual resources.

- Scenic vistas within the IFNM would increase in value over the next 20 years.
- Access to scenic landscapes would become increasingly important to residents and visitors to the area.
- Management of all resources would be consistent with the VRM objectives for the IFNM, which would vary depending on the alternative; management-related projects or activities would be avoided or mitigated if they would fail to maintain those objectives. Mitigation could include designing projects to have less visual impacts.
- Visual contrast ratings would be conducted for all proposed surface disturbing projects and activities within the IFNM in accordance with BLM Handbook 8431-1. .

4.3.10.1 Impacts Common to All Alternatives

Land treatments and other erosion prevention measures could introduce temporary visual contrasts in the landscape where manmade physical structures (e.g., straw bales, silt fences, etc.) or materials foreign to the Sonoran Desert (e.g., mulch) are used. These eventually would be removed once the site is stabilized. Land treatments to prevent erosion and deposition of soils would help retain the existing visual qualities within the IFNM and could enhance those qualities by reducing contrasts in color and texture where native plant species reestablish in disturbed areas.

Under all alternatives, suppression of wildfire in all areas of the IFNM could limit burned areas that could cause contrasts in color and texture on the landscape. Suppression would continue to protect existing vegetation and prevent conversion of native vegetation to more fire-dependent species, and limit the potential for smoke, and haze that could obscure vistas in the IFNM. However, surface disturbance from fuels treatments could result in contrasts in color, line, and texture in localized areas.

Authorization of mining activity on valid existing mining claims on a case-by-case basis could result in mining activities that change the appearance of landforms, vegetation, and structural landscape features at mining sites. Potential impacts from mining activities could include the appearance of tailings piles, waste-rock piles, heavy equipment, and surface disturbance in localized areas.

Permitting the collection of paleontological resources could result in surface-disturbing activities such as digging and vegetation removal. The small-scale visual contrasts in color and texture that would occur within the landscape as a result of these activities would be very localized and not inconsistent with VRM class objectives.

The Arizona Standards for Rangeland Health and Guidelines for Grazing Administration would apply under all alternatives. The guidelines promote the proper functioning of ecological conditions, and would help preserve or enhance the scenic quality of the natural landscapes within the IFNM.

Existing facilities at the Pan Quemado communication site would continue to be visual intrusions into the landscape (contrasting in line, form, texture, and scale) in and around an isolated area south of Avra Valley Road. The structures are visible from a greater distance south of the site than from the north due to differences in topography and landform. Visual impacts to the north do not extend beyond existing hills and mountains that interrupt the line of sight. Existing facilities and towers at the Confidence Peak communication site would continue to be in contrast with the landscape in and around areas of the Silver Bell Mine. However, the scenic quality of this area has already been disturbed by mining-related alterations to the landscape and the presence of existing overhead transmission lines. Existing overhead transmission lines would continue to create visual contrasts in surrounding areas. Visual contrasts related to the El Tiro Glider Port Recreation and Public Purpose Act (R&PP) lease area (including roads, fields, runways, hangars and support structures, aircraft, and flying activity) would continue for at least the term of the lease and any future lease renewals; no new R&PP leases would be issued.

Measures to conserve habitat for desert tortoise and Nichol Turk's head cactus would provide coincidental protection to existing visual resources by restricting surface-disturbing activities and disturbance to vegetation.

4.3.10.2 Alternative A (No Action)

Under Alternative A, the public lands in the IFNM (128,400 acres) would be managed as VRM 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 both dominate the view of the casual observer. Changes should repeat the basic elements found in the predominant natural features of the characteristic landscape. Projects of all scale and size will be required to meet the VRM Class III objectives, and may be subject to special design requirements. Projects that are found not to meet the objectives will be required to be further mitigated until compliant with objective, not approved, or require an RMP amendment in order to move forward. Allocation of the entire IFNM under VRM Class III would partially retain the existing character of the landscape in the entire area inventoried under VRI Class II, and throughout all of the VRI Class III areas.

Under Alternative A, motorized vehicles and associated activity would continue to be visible on existing routes throughout most of the monument. Equipment associated with vehicle-based camping would

continue to be visible in localized areas, with concentrations in the most scenic and attractive mountainous areas. Minor visual contrast from dispersed camping, including parking turnouts, fire rings, incidental litter, or other localized evidence of use, would continue to be visible along access routes and affects views of the Sonoran Desert (an object of the monument). Continuation of motorized vehicle use in the IFNM could increase surface disturbance, erosion, evidence of use, or accumulation of debris on existing routes (due to a combination of high use and a lack of restrictions), creating small scale visual contrasts in color and texture within the landscape. Visual impact from recreational shooting would continue related to targets, used shells, and trash, soil surface disturbance and damage to vegetation. Maintaining the three existing mile-wide utility corridors would allow for construction of new major utilities, maintenance access roads, and ancillary facilities and structures, and could result in vegetation clearing. These would be consistent with VRM Class III objectives. Overhead transmission lines could be visible for miles, having some effects on the visual objects of the monument (views of the Sonoran Desert). Existing facilities and towers at the Pan Quemado communication site would continue to be in contrast with the landscape (in line, form, texture, and scale) in and around an isolated area south of Avra Valley Road. Additional structures at the 160-acre site would be allowed and would be visible from a greater distance south of the site than from the north due to differences in topography and landform. Visual impacts to the north would not extend beyond existing hills and mountains that interrupt the line of sight. Retaining public land (128,400 acres) and acquiring land could promote retention of the current visual characteristics of those lands because, consistent with VRM objectives, overall landscape characteristics could be retained on up to approximately 26,890 acres of land identified for acquisition, if that land were acquired; however, VRM Class III would allow for some changes in the landscape.

Implementation of an activity plan for the Cocoraque Butte–Waterman Mountains Multiple Resource Management Area that helps restore damaged watershed areas would improve watershed condition to satisfactory, increase soil cover, reduce sediment yield, and improve ecological site condition to good, thereby reducing the potential for visual contrasts that could otherwise occur due to excessive erosion. Management actions that prevent erosion and deposition of soils would promote retention of the existing visual qualities within the IFNM and could enhance those qualities by reducing contrasts in color and texture where native plant species reestablish in disturbed areas.

Managing 11 allotments as available for livestock grazing would continue visual impacts related to the presence of livestock, range improvements, and consumption of vegetation. New rangeland improvements could be developed to manage livestock, particularly fences and water developments, which could introduce noticeable structures that would draw the attention of casual observers in localized areas, but would not be expected to change the overall character of the landscape. Range improvements would be less likely in desert tortoise habitats (Category I and II) because they would be discouraged in those areas and the potential for visual impacts would be reduced.

Prohibiting land use authorizations (except along existing roads) within the Waterman Mountains ACEC would limit the potential for new structures and activities that could introduce contrasting elements into the surrounding landscape on approximately 2,240 acres (2 percent) of the public land within the IFNM. Activities generating visual contrasts along existing roads still could be authorized, subject to Class III visual contrast limits.

Developing an activity plan for the Agua Blanca Ranch Multiple Resource Management Area that would help improve the condition of that watershed, would reduce the potential for visual contrasts from excessive erosion because the plan would improve watershed condition to satisfactory, increase soil cover, and reduce sediment yield. Management actions that prevent erosion and deposition of soils would be designed within Class III objectives, and promote retention of the existing visual qualities within the IFNM and could enhance those qualities by reducing contrasts in color and texture where native plant species reestablish in disturbed areas.

Implementing conservation measures for desert tortoise habitat would result indirect protection of visual resources in areas where surface-disturbing activities are restricted or prohibited.

Installing new fencing would introduce visual contrasts in localized areas, but the visual contrast would be limited and consistent with VRM class III objectives.

Managing livestock to increase forage for desert tortoises would promote retention of the natural character of vegetation in desert tortoise habitat areas and retain visual resource values.

Developing new stock water sources would increase the number of manmade structures, generating a localized but noticeable change in the landscape within the areas of the Twin Tanks and Cocoraque Pastures. This also could lead to indirect, localized impacts on the visual character of natural vegetation water sources because livestock would tend to congregate around water sources, but project design features would be consistent with VRM Class III objectives.

Authorizing specific land use permits, easements, and rights-of-way on a case-by-case basis would ensure that projects and activities meet VRM class III objectives, and that the visual impact of those projects or activities is mitigated.

Limiting communication facilities to designated sites would protect visual resources, as no communication facilities could be established elsewhere in the IFNM.

Based on the impacts described above for Alternative A, the disturbance to objects of the monument (including visual resources and views of the Sonoran Desert) resulting from management actions would range from undetectable to measurable at a broad scale (i.e., continuing management of the IFNM as VRM Class III, which would allow for greater modifications to the landscape). However, on a case-by-case basis, BLM would evaluate specific projects as they are proposed and implement mitigation measures to minimize or reduce human-caused impacts on visual resources (e.g., requiring projects be located in or adjacent to previously disturbed areas, where practical, or revegetating areas of disturbance to minimize new visual contrast in the landscape). Such measures would provide for "protection of the monument objects" for visual resources as defined in Section 1.3.1.

4.3.10.3 Alternative B

This alternative differs from Alternative A primarily due to the various VRM classifications that would establish greater restrictions on activities that could result in visual contrasts within the IFNM. VRM Class I designations would preserve the existing character of the landscape on approximately 36,990 acres (29 percent) of the most scenic, natural appearing, and visually sensitive parts of the public lands in the IFNM, thereby protecting views of the Sonoran Desert, an object of the monument. Only those management activities that would introduce very low visual contrasts into the landscape would be allowed in VRM Class I areas, which would include the Sawtooth Mountains, West Silver Bell Mountains, and the Roskruge Mountains. VRM Class II designations would retain the existing character of the landscape in approximately 88,120 acres (68 percent) of the public lands in the IFNM, including sensitive biological, cultural, and recreation areas. Only those management activities that would introduce low visual contrasts would be allowed in VRM Class II areas (though slightly greater contrasts would be allowed compared to Class I areas). Surface-disturbing activities would be required to blend in with the landscape and not attract the attention of the casual observer, thus protecting views of the Sonoran Desert. VRM Class III designation would partially retain the existing character of the landscape on approximately 3,290 acres (3 percent) of the public lands in the IFNM, including communication sites, utility corridors, and areas with existing landscape modifications. Projects and surface-disturbing activities with moderate visual contrasts that could attract the attention of the casual observer could be allowed in these areas. Overall, the existing visual quality and natural character of the landscape in the IFNM would be

preserved, and some existing visual impacts would be mitigated (e.g., reclamation of routes in closed areas). Visual contrasts from existing and anticipated landscape modifications would be localized and would blend in with the natural landscape and consistent with VRM objectives designed to accommodate existing impacts.

Under Alternative B, VRM Class I allocations would preserve the existing character of the landscape in approximately 34 percent of the area inventoried under VRI Class II, and 12 percent of the area inventoried under VRI Class III. VRM Class II allocations would retain the existing character of the landscape in approximately 65 percent of the area inventoried under VRI Class II, and 77 percent of the area inventoried under VRI Class III. VRM Class III allocations would partially retain the existing character of the landscape in approximately 10 percent of the area inventoried under VRI Class III. Areas with existing landscape modifications would be excepted from the VRM allocations and every attempt would be made to minimize the visual impact of these activities through visual design mitigation techniques and rehabilitation where practicable.

Short-term direct and indirect visual impacts from motorized vehicles and associated activity would be similar to those under Alternative A, but the locations and concentrations of those impacts would be reduced in extent under this alternative. Evidence of motorized vehicle use could become more concentrated in areas with roads remaining open to public use, compared to Alternative A where use would be more dispersed. Visual impacts related to vehicle use and activity would be reduced around the Sawtooth, West Silver Bell, and Roskruge Mountains.

Compared to Alternative A, this alternative would establish RMZs that would provide for different recreational activities and experiences in each RMZ, resulting in different types and locations of visual impacts throughout the IFNM. In general, visual impacts from recreation would be focused in some areas and dispersed in others. Visual impacts from recreational activities would be most noticeable within approximately 17,610 acres (14 percent) in the Roaded Natural RMZ, where visitor services and facilities such as BLM personnel patrols, parking turnouts and/or driveways, kiosks, signs, fences, campsites, overlooks, range improvements, sanitation, and incidental visitor management activities would be found. This could also have some effect on views of the Sonoran Desert, an object of the monument. Visual contrasts created by vehicle-based camping (e.g., campers, wide roads, parking turnouts, recreation or interpretive site improvements) would be site-specific and designed within VRM objectives. For example, visual impacts related to group camping (e.g., large open areas, multiple vehicles, pets, recreation activity) would be noticeable at the two identified large group sites located at Manville and Reservation Roads, respectively. The appearance of vehicles and campfire smoke would be more likely in those group-camping areas. Impacts of recreational use associated with Roaded Natural settings would be reduced in parts of the IFNM designated under other RMZs compared to Alternative A.

Recreation management activities within the Semi-Primitive Motorized RMZ would promote retention of existing visual landscape qualities on 14,540 acres (11 percent) on IFNM lands. Visual impacts in the Semi-Primitive Motorized zone would mainly be caused by the presence of primitive roads, turnouts and/or parking areas, signs, kiosks, fences, and relatively infrequent visitors.

Prohibiting native wood campfires would promote a more natural appearance at recreation sites and activity areas (e.g., in the vicinity of popular campsites) since more dead and downed vegetation would remain as litter, and the amount of standing deadwood would increase relative to Alternative A. There also would be a reduction in the amount of campfire smoke under this alternative relative to Alternative A, since charcoal and camp stoves tend to produce less smoke than wood fires. There would be a reduction in visual impacts related to target shooting from incidental refuse (e.g., targets, spent shells) and resource damage compared to Alternative A because IFNM would be closed to recreational

shooting. Existing visual impacts from vegetation and soil disturbance at dispersed recreational shooting sites would be restored over time through natural processes.

Visual impacts from proliferation of access points, gates, and routes would be prevented along the developing urban interface and around developed private land inholdings. Controlling access could increase the traffic at the access points that are designated through the travel management planning process and on related travel routes, and could require installation of barriers to implement closures, generating localized impacts on visual resources. Providing equestrian staging areas would generate noticeable visual changes at the designated sites (relatively large parking spaces/staging areas, vehicles with trailers, signs, manure, etc.).

Minimizing surface disturbance and loss of existing vegetation during construction activities would limit the amount of visual contrast caused by the alteration of vegetation and soils resulting from management activities in the IFNM. Minimizing these contrasts would promote retention of the existing visual qualities found throughout IFNM, including views of the Sonoran Desert. Further, a rapid revegetation would be promoted in areas where vegetation is removed, which would mitigate for visual contrasts created by surface disturbances that may become necessary. Removal of living or dead vegetation would generally be prohibited under this alternative, with only a few specific exceptions (e.g., trimming vegetation along routes designated for motorized travel). These exceptions would result in localized, small-scale visual contrasts that would not be noticeable by casual observers. Visual contrasts from any authorized activities would be consistent with VRM class objectives. The natural landscape character could be indirectly enhanced in site-specific areas where soils are stabilized and restored. Stabilizing and restoring soils would promote establishment of native plant species, reduce the potential for invasive weed establishment, and reduce soil erosion and/or deposition.

Locating facilities away from and prohibiting ground-disturbing activities within areas of sensitive or fragile soils would prevent visual contrasts in some areas while potentially increasing visual contrasts in others. These actions would promote retention of existing visual characteristics in areas with sensitive or fragile soils because there would be less potential for visual contrasts that are associated with surface-disturbing activities (soil erosion and/or deposition, construction of facilities, range improvements, etc.) compared to Alternative A. Meanwhile, areas without sensitive or fragile soils would have a higher potential for visual contrasts in color and texture resulting from surface-disturbing activities relative to Alternative A. Mitigation efforts in areas without sensitive or fragile soils could alleviate the visual contrasts arising from surface-disturbing activities if disturbed vegetation and soils were restored.

Prohibiting surface-water diversions and groundwater pumping that removes water from the IFNM would prevent visual contrasts from potential water wells and conveyance systems (pipelines, ditches) that could otherwise occur. The decision would promote retention of the existing visual character throughout the IFNM.

Visual contrasts in line, color, and texture would result from the development of new routes or realignments and may be noticeable to the casual observer in localized areas, and could diminish visual objects of the monument (views of the Sonoran Desert). Development of a travel and transportation plan could indirectly reduce impacts to visual resources where monitoring identifies conflicts with VRM class objectives.

Implementing an integrated weed management program that assigns priority control areas would promote retention of existing visual qualities associated with the vegetative communities within the IFNM. While weed control areas likely would include treatments that introduce localized visual contrasts in color over the short term, the action would prevent the spread of weeds that could otherwise threaten the visual qualities associated with the natural vegetation of the landscape, thus improving visual resources over the

long term. Visual contrasts from weed treatments would be consistent with VRM class objectives. Visual contrasts in color from populations of weeds could be eliminated where weed treatments permanently remove weeds from vegetative communities.

The IFNM land restoration plan would reduce visual contrasts created from disturbed vegetative plant communities by identifying disturbed areas and prioritizing them for restoration. Passive restoration would be emphasized under this alternative, which would eventually reduce the visual contrasts created by invasive plants and soil erosion and/or deposition of disturbed areas. Contrasts in color and texture of disturbed areas would remain on the landscape over the short term until passive restoration efforts became effective. Localized areas of contrast could be introduced to the landscape where active restoration methods are used depending on the treatment and project design. Active restoration methods that incorporate mechanical and chemical techniques could create visual contrasts in color, line, and texture with the landscape over the short term relative to the surrounding landscape. Short-term impacts would result where the application of herbicide and mechanical treatments created areas of bare ground, dead plant material, or discoloration. These impacts would be localized and would cease once new vegetation became established. Establishment of a natural range of native plant associations would decrease visual contrasts in color, line, and texture of degraded areas relative to the surrounding landscape over the long term because the restored plant community would likely match the plant community of the surrounding landscape more closely than non-native plant associations.

Priority wildlife habitat areas and special status species habitats likely would experience a reduced potential for surface disturbance, which would promote retention of visual qualities associated with those landscapes. Visual resources would be protected to the extent that surface-disturbing activities are restricted in these areas. Prohibiting land use authorizations generally throughout the IFNM could limit the potential for new projects and activities. Visual impacts of potential land use authorizations would be limited to disturbed areas along travel routes, and would have little additional visual contrasts. The closure of lambing areas within the Desert Bighorn Sheep WHA would reduce the opportunities for wildlife viewing activities on a short-term, seasonal basis. However, wildlife population enhancement proposals could result in an increase in wildlife viewing opportunities in areas throughout the IFNM from the increased abundance and/or diversity of wildlife.

Classification of cultural sites for scientific use and measures taken to protect the integrity of those sites would promote retention of visual qualities associated with those sites in localized areas. There could be temporary, short-term visual contrasts from scientific and historical studies that utilize research equipment and personnel. The impacts would be short-term because surface disturbance would not be permitted under this alternative. The lack of public use designations for cultural sites under this alternative would promote retention of existing visual qualities of those sites since the potential for human disturbances (e.g., surface disturbance, litter) would be reduced. The physical barriers used to exclude motorized vehicles from cultural resource sites would introduce structures that increase visual contrasts in that area depending on the barrier type and design, but the visual impact would be localized and noticeable only in views within the project area. Collection and study of paleontological resources would have the same visual contrasts in localized areas as those described under Alternative A. The field surveys for paleontological resources, which would be required under this alternative prior to any ground-disturbing activities, would identify the presence of paleontological resources, which indirectly could help protect visual resources from degradation in localized areas.

Visual contrasts associated with livestock grazing and range improvements under this alternative could increase in some areas and decrease in other areas, compared with Alternative A. Visual impacts from grazing operations and range improvements would be restored in the long term to visual contrast levels appropriate for the VRM class in respective areas because livestock grazing activities would cease once current leases expire. Vegetation contrasts and surface disturbance associated with watering sites and diet

supplement (e.g., salt licks, protein supplement) areas would be reduced and possibly eliminated. However, increased fencing could be required to keep livestock off public land, which could cause surface disturbance and additional visual contrast in localized areas.

The potential for development of new utility lines would be reduced under this alternative compared to Alternative A because few, if any, new rights-of-way would be granted under this alternative. This would help to preserve views of the Sonoran Desert, an object of the monument. New major transmission lines would be precluded except for an existing right-of-way in the Aguirre Valley area, which has not been developed. Some views and portions of the IFNM could be affected by development of utilities on adjacent lands, but acquisition of non-Federal lands and mineral estate within the IFNM boundaries could help protect visual resources from development. Visual contrasts related to routes through military withdrawals on approximately 300 acres (<1 percent) of the IFNM would be reduced because the routes would likely be reclaimed to natural conditions if and when the land is returned to BLM, and if no alternative public use for the site is found.

The activity plan for the Agua Blanca Ranch Multiple Resource Management Area would not be developed or implemented; however, management actions related to soil resources would occur throughout the IFNM (rather than within one specific area of the IFNM).

Construction of specific erosion control measures on a case-by-case basis could promote retention of visual qualities in localized areas where the potential for visual contrasts in color and texture are reduced from soil erosion and deposition events. Erosion control measures that employ materials not otherwise found in the IFNM could result in short-term visual contrasts in localized areas.

Analysis of flood and erosion control structures for removal would not alter the existing visual landscape of the IFNM, unless actual removal occurred. If maintained, existing dikes and dense vegetation stands in the impoundment area would remain. Visual contrasts associated with existing control structures have become generally naturalized, blending in with the natural landscape. Visual contrasts on views from important viewing and/or observation areas would remain low. If the structures were breached or removed, plant die off could become noticeable in the dense vegetation stands in the impoundment area. Visual contrasts created from such an event might include variations in color and texture in low-lying basins. These impacts would generally not be visible beyond a localized area due to the low-lying nature of existing water basin collection areas. Potential visual contrasts would remain within the VRM class objectives and be limited to localized areas, but over the long term the areas would be expected to return to natural conditions.

New fencing would introduce visual contrasts in very localized areas along certain travel routes. Visual contrasts evident in views from important viewing and/or observation areas would be consistent with VRM class objectives.

Construction of new wildlife waters could introduce visual contrasts in localized, small project areas related to their structural features, possible vegetation clearing, and access points. Visual impact from maintained or modified waters would be reduced if project designs involve removal of rainfall collection structures and protective fences. Removal of unnecessary waters could help restore the visual quality of localized areas. New or maintained waters would be designed and located to be consistent with VRM class objectives. Removal of manmade structures would reduce visual contrasts in the IFNM by reducing the appearance of structures constructed of materials not otherwise found in the IFNM and removing forms that do not naturally occur in the IFNM's landscape, thus contributing to restoration of the views of the Sonoran Desert.

Implementing conservation measures associated with the Lesser Long-nosed Bat Recovery Plan likely would result in restrictions on surface disturbance to bat habitat, indirectly reducing the potential for visual contrast and protection of visual resources. Conservation of desert tortoise habitat would result in the same impacts on visual resources as those described under Alternative A.

Controlling or restricting activities that result in fugitive dust could result in a reduction of fugitive dust in the IFNM and a reduction of visible haze originating from the IFNM, thus increasing visibility and enhancing views of the Sonoran Desert (an object of the monument). Rehabilitation of disturbed areas also would reduce the long-term visual contrasts associated with those areas.

Reclamation activities at previous mining sites and attempts to return those areas to a natural condition would enhance visual resources by reducing contrasts caused by mining materials and surface disturbance (e.g., removal of tailings piles, equipment, revegetation). Reclamation that involves construction of barriers to keep people from entering mines could cause increased contrasts on a very small scale, in site-specific areas.

Although very few rights-of-way would be issued under this alternative, implementing site-specific protective measures in right-of-way areas would promote retention of visual resources through the right-of-way terms and conditions developed on a case-by-case basis. Visual qualities could be restored where facilities or associated disturbances are brought into compliance with stipulations. The granting of land use authorizations and permits on a case-by-case basis would have the same impacts as those described under Alternative A. In contrast to Alternative A, this alternative would further protect acquired lands from visual contrasts that arise from rights-of-way since all acquired lands would be designated as an exclusion area.

Based on the impacts described above for Alternative B, the disturbance to objects of the monument (including views of the Sonoran Desert) resulting from management actions would range from undetectable to measurable at a local scale. Overall, the visual quality of natural landscapes would be maintained, consistent with the VRM categories, which would provide "protection of the monument objects" for visual resources as defined in Section 1.3.1.

4.3.10.4 Alternative C

This alternative is similar to Alternative B because it too establishes VRM class management objectives that would restrict activities that may contrast with the IFNM landscape. However, there are differences between this alternative and Alternative B. VRM class objectives under this alternative would be somewhat less restrictive than those under Alternative B because there would be no lands managed under VRM Class I objectives under this alternative. VRM Class II designation would retain the existing character of the landscape in areas with sensitive biological resources, cultural resources, and recreation sites over a total of 124,900 acres (97 percent) of the public lands within the IFNM. Activities resulting in visual contrasts in VRM Class III designated areas would be similar to those described under Alternative B but would occur on an additional 130 acres. VRM Class III designation would partially retain the existing character of the landscape on approximately 3,420 acres (3 percent) of the public lands within the IFNM. Eighty acres of the IFNM would be managed according to VRM Class IV objectives. Activities that result in a high level of visual contrast could be permitted in that parcel. Mining activities, utility development, or construction are examples of the types of visual contrasts that could occur in VRM Class IV areas. Overall, the existing visual quality and natural character of the landscape would be retained, and some existing visual impacts could be restored.

Under Alternative C, VRM Class II allocations would retain the existing character of the landscape in 100 percent of the area inventoried under VRI Class II, and 90 percent of the area inventoried under VRI Class III. VRM Class III allocations would partially retain the existing character of the landscape in

approximately 10 percent of the area inventoried under VRI Class III. VRM Class IV allocations would provide for management activities which require modifications of the existing character of the landscape on less than 1 percent of the area inventoried under VRI Class II and VRI Class III combined. Visual impacts in areas under this allocation are related to existing landscape modifications, and would be similar to those presently found. Visual impacts would be visible primarily in the vicinity of the existing modifications. A slight increase in the existing disturbance may be allowed for maintenance of existing authorizations, and potential development related to utility corridors.

Short-term direct and indirect visual impacts from motorized vehicles and associated activities would be less in extent from those described under Alternatives A, but somewhat greater than those described under Alternative B. Motorized vehicle activity would be evident along the routes designated for motorized use. Development of a transportation plan would have the same impacts to monitoring and mitigation efforts under this alternative as those described under Alternative B. Efforts made to control fugitive dust emissions under this alternative would reduce the appearance of dust as described under Alternative B. Development of new routes would have the same impacts as described under Alternative B.

The potential for activities resulting in visual contrasts from establishment of RMZs under this alternative would be similar to those described under Alternative B; however, the extent of impacts associated with each zone would be different under this alternative. Visual contrasts associated with the Roaded Natural RMZ would be similar but more extensive than those described under Alternative B because the Roaded Natural zone would include 18,380 acres (14 percent) of the public lands in the IFNM under this alternative. The appearance of camping activities under this alternative would be concentrated in the Roaded Natural RMZ—as described in Alternative B—but there could be greater short-term visual contrasts in that zone under this alternative because campers could burn wood campfires that create smoke. Visual contrasts associated with overnight vehicle-based camping and group camping would be similar to those described under Alternative B, but could occur over a greater extent under this alternative due to the increased availability of vehicle-based campsites. Visual contrasts associated with the Semi-Primitive Motorized RMZ would be similar, but would occur on a greater area relative to Alternative B. Visual impacts associated with Semi-Primitive Motorized RMZ would occur on approximately 36,230 acres (28 percent) of the public lands in the IFNM. Visual impacts associated with Semi-Primitive Non-Motorized zones would be similar to those described under Alternative B, but would occur on approximately 57,450 acres (45 percent) of the IFNM, which is a decrease of about 2,550 acres from Alternative B. Visual impacts related to recreational shooting, equestrian staging areas, and the proliferation of access points, gates, trails and/or routes would be the same as those described under Alternative B.

Efforts to minimize surface disturbance and stabilize soils would have the same impacts on visual resources as those described under Alternative B. The location of facilities and ground-disturbing activities under this alternative would have similar types of impacts on visual resources as those described under Alternative B, but there would be increased potential for visual impacts in areas with sensitive or fragile soils because surface disturbance would be allowed in those areas. Mitigation would be necessary where sensitive or fragile soils were disturbed and could cause short-term contrast with the surrounding natural environment by increasing the amount of manmade structures that appear on the landscape. The prohibition of surface-water diversions and groundwater pumping would have the same impacts on the visual qualities of the IFNM as those described under Alternative B. The possible removal of flood- and erosion-control structures would have the same impacts on visual resources as those described under Alternative B.

An integrated weed management approach that assigns priority weed control areas would have the same impacts on the landscape character of the plant communities of the IFNM as those described under Alternative B. A land restoration plan that emphasizes passive restoration and uses a variety of

reclamation methods would have the same impacts on the character of the landscape as those described under Alternative B. Prohibitions on the removal of living or dead and downed native plant material under this alternative would have similar impacts on those described under Alternative B.

Priority wildlife and plant habitat areas would have the same tendency to protect visual characteristics as those described under Alternative B, with one exception: camping could cause localized impacts in the Waterman Mountains VHA and Ragged Top VHA that could be noticeable in the foreground by casual observers. Closure of portions of the Desert Bighorn Sheep WHA during lambing season would have the same impacts on wildlife viewing opportunities as those described under Alternative B. Construction of new wildlife waters would have the same impacts as those described under Alternative B. Removal of unnecessary manmade structures would have the same impacts on the landscape as those described under Alternative B.

Allocation of cultural sites to scientific use would have similar impacts on visual resources as those described under Alternative B. However, under this alternative there could be greater visual contrasts created at the sites from excavation activities that would not occur under Alternative B. Sites allocated to public use would be managed to specifically accommodate public visitation, and the visual sensitivity would increase at these locations accordingly. The development of interpretive facilities and access routes could introduce visual contrasts at the sites by increasing the number of manmade structures in localized areas. Restrictions on the collection of paleontological resources would result in the same impact on visual resources as those described under Alternative A. The requirement for field surveys prior to ground-disturbing activities in the IFNM would result in the same impacts on visual resources as those described under Alternative B. Mine reclamation activities would have the same impacts on surface disturbance and appearance of structures as those described under Alternative B.

Increased visual contrasts could be created from livestock grazing activities under this alternative over the long term when compared with Alternative B. However, these impacts could cease in localized areas if grazing leases are relinquished or cancelled, though BLM could reallocate these areas for grazing. Livestock grazing would have the same direct and indirect impacts on the appearance of vegetation as those described under Alternative A. Visual impacts on vegetation would continue if AUMs were reallocated. Visual contrasts created by rangeland improvements would be similar to those described under Alternative A.

Retaining Federal lands in the IFNM and acquiring additional lands would result in the same impacts on visual resources as those described under Alternative B. Actions associated with the approximately 300-acre military withdrawal would result in the same impact on visual resources as those described under Alternative B.

Potential development in the utility corridors for underground facilities would result in some visual contrasts in line, texture, and color in right-of-way areas. If developed, the underground trenching and clearing used to bury the utility could be noticeable to the casual observer over the short-term and possibly over the long-term depending on the amount of vegetation removed and area disturbed. Reclamation and restoration of the vegetative community after installation would help reduce long-term visual impacts. Potential development in the aboveground utility corridors would result in visual contrasts mainly in the vegetation, and structural features of line, form, texture, and scale with the surrounding landscape, potentially affecting some views of the Sonoran Desert (an object of the monument).

The decision to provide access for wildlife viewing opportunities would have the same impacts as those described under Alternative B.

Conservation measures associated with the Lesser Long-nosed Bat Recovery Plan would result in the same impacts on visual resources as those discussed under Alternative B. Conservation of desert tortoise habitat would result in the same impacts on visual resources as those described under Alternative A.

Fencing used to prevent damage to vegetation would have the same impacts on visual resources as those described under Alternative B.

Rehabilitation efforts and management of fugitive dust would have the same impacts on existing and potential visual contrasts as those described under Alternative B.

Additional stock water sources in the Twin Tanks and Cocoraque Pastures would increase the number of manmade structures, which would create visual contrasts when seen by the causal observer in localized areas. Wildlife exclosure fencing would increase the appearance and number of manmade structures within the landscape in localized areas. This could increase visual contrast in these areas, but would be consistent with the VRM class objectives. Maintenance of existing access routes would perpetuate linear clearings along fence line, creating or maintaining visual contrasts in the landscape. Visual contrasts from the clearings and the fences would be consistent with the VRM class objectives for those areas.

Based on the impacts described above for Alternative C, the disturbance to objects of the monument (including views of the Sonoran Desert) resulting from management actions would range from undetectable to measurable at a local scale. Overall, the visual quality of natural landscapes would be maintained, consistent with the VRM categories, which would provide "protection of the monument objects" for visual resources as defined in Section 1.3.1.

4.3.10.5 Alternative D

This alternative is similar to Alternative C because nearly all lands in the IFNM would be managed to meet VRM Class II objectives. Approximately 122,580 acres (95 percent) would be managed according to VRM Class II objectives under this alternative, which is 2,320 acres less than Alternative C. Potential visual contrasts associated with VRM Class II areas would be similar to those described under Alternative B but would occur over a lesser extent, since there would be a total of 125,110 acres designated as Class I or II under Alternative B. VRM Class II designation would retain the existing character of the landscape in the IFNM and would include sensitive biological resource, cultural resource, and recreation areas. Approximately 4,220 acres (3 percent) of the IFNM would be managed as VRM Class III. Visual contrasts in VRM Class III areas would be similar to those described in Alternative B. The greatest potential for visual contrasts under this alternative would occur on 2,660 acres of utility corridors. Impacts on visual resources from rights-of-way for underground and overhead lines would occur over an expanded area compared to Alternatives B and C. Under this alternative, the corridors would be wider (1/4-mile wide, compared to no corridors under Alternative B, and 200- to 300-foot-wide corridors under Alternative C) and there would be an additional corridor, compared to Alternative C, allowing overhead facilities in the northwestern portion of the IFNM. This alternative would result in fewer potential visual impacts on the landscape than Alternative A in VRM Class II areas, but there would be a greater potential for visual contrast to occur in the VRM Class IV areas under this alternative (which would not be provided for under Alternative A). There potentially could be some increased visual contrasts within the landscape in site-specific areas compared to Alternative C, mainly as a result of the additional utility corridor. Greater visual contrast could affect the visual objects of the monument (views of the Sonoran Desert). This alternative is similar to Alternatives A and C, in that it would not designate any VRM Class I areas.

Under Alternative D, VRM Class II allocations would retain the existing character of the landscape in approximately 98 percent of the area inventoried under VRI Class II, and 87 percent of the area inventoried under VRI Class III. VRM Class III allocations would partially retain the existing character of

the landscape in approximately 1 percent of the area inventoried under VRI Class II, and 11 percent of the area inventoried under VRI Class III. VRM Class IV allocations would provide for management activities which require modifications of the existing character of the landscape on less than 1 percent of the area inventoried under VRI Class II, and about 2 percent of the area inventoried under VRI Class III. Visual impacts in areas under this allocation are related to existing landscape modifications, and would be similar to those presently found, but would increase if additional development occurs along the utility corridors.

Direct and indirect impacts from motorized vehicle use and associated activity along designated routes would be similar to those described under Alternative A, though slightly reduced in extent, but greater than those under Alternatives B and C.

The designation of RMZs would have similar impacts on visual resources relative to Alternatives B and C, except visual impacts associated with Roaded Natural zone would occur in more of the IFNM than either Alternative B or C. The Roaded Natural zone would occur on 19,060 acres (14 percent) of the IFNM. There could be increased visual contrasts in the Roaded Natural zone under this alternative relative to Alternatives B and C because dead and downed wood, standing deadwood, or dead growth on plants would gradually disappear around campsites and along roadways as it was collected for firewood. This could result in a greater likelihood of tree damage from ripping off branches and visual degradation of vegetation around recreation activity areas relative to Alternatives B and C. Relative to Alternative A, visual impacts from vehicle-based camping would be reduced in areas other than those designated for camping. Camping would result in visual contrasts similar to those discussed under Alternatives B and C, except four group campsites would be identified (two more than under Alternative B, and one more than under Alternative C). There would be a reduction in shooter refuse (e.g., targets, spent shells) throughout most of the monument with the elimination of dispersed recreational shooting. However, the localized visual contrasts at the approximately 629 acres of designated shooting areas would be significant because concentrating recreational shooting activities into a smaller area than Alternative A would increase the amount of target debris and surface disturbance, including damage to vegetation or defacement of soils and rocks. Visual contrasts from recreational access and equestrian staging areas would be the same as those discussed under Alternative B.

Actions that minimize surface disturbance and loss of existing vegetation during construction activities would have the same impact on visual resources as those described under Alternative B, but Alternative D would allow for the potential use of non-native plants for restoration efforts, which may introduce short-term, and localized visual contrasts in existing disturbed areas because the plants may grow in forms that are not otherwise found in the IFNM. Visual contrasts after reclamation would be consistent with VRM class objectives. Maintenance and improvement of soil cover and productivity would have the same impact on visual resources as those described under Alternative A. Allowing ground-disturbing activities in areas of sensitive or fragile soils would have the same impacts on visual resources as those described under Alternative C. Prohibition of surface water diversions and groundwater pumping would have the same impacts on visual resources as those described under Alternative B.

Prohibitions on the removal and/or use of living or dead and downed native plant material would have impacts similar to those described under Alternative C, except there would be greater potential for collection of firewood around routes and campsites. This could result in greater visual contrasts than under either Alternative B or C. Weed management would have the same impacts on visual resources as those described under Alternative B. Restoration and reclamation techniques would result in the same impacts on visual resources as those discussed under Alternative B. The types of vegetation used for restoration would have the same impacts on visual resources as those described under Alternative C.

Scientific investigations at cultural sites would result is the same impacts on visual resources as those described under Alternative C. Allocation of public uses at cultural sites would result in the same impact on visual resources as those described under Alternative C. Restrictions on the collection of paleontological resources and the requirement for field surveys prior to ground-disturbing activities in the IFNM would result in the same impacts on visual resources as those described under Alternative B.

Retaining Federal lands in the IFNM and acquiring additional lands would result in the same impacts on visual resources as those described under Alternative B. Actions associated with the approximately 300-acre military withdrawal would result in the same impact on visual resources as those described under Alternative B. Not acquiring mineral estate with surface estate acquisitions could result in surface disturbance to IFNM land in the future, if valid existing claims to minerals were present in acquired areas at the time of acquisition. This surface disturbance could generate contrasts in color, line, form, and texture in those areas, depending on the activities conducted.

Impacts on visual resources resulting from utility corridors would be similar to Alternative C, but would occur over a greater extent (2,660 acres of public land under Alternative D compared with 241 acres of public land under Alternative C), because Corridor 1 would be wider and could be further disturbed for underground development. Localize views of utilities, particularly for the aboveground utility corridors, would degrade the visual objects of the monument (views of the Sonoran Desert). Corridor 2 also would be wider under this alternative than under Alternative B. Also, there could be greater impacts on visual resources if an overhead transmission line were installed. Construction of an overhead utility in Corridor 3 would impact the casual observer by creating contrast in line, form, texture, scale, and color of the surrounding area. The potential for visual contrasts in utility corridors and rights-of-way would be reduced under this alternative compared to Alternative A because the corridors under this alternative would be ¾ mile narrower under this alternative. Restrictions on new rights-of-way would result in the same impacts on visual contrasts as those discussed under Alternative B. Visual impacts associated with the Pan Quemado communication site would be the same as those described under Alternative B. Visual impacts associated with the Confidence Peak communication site would be similar to those described under Alternative B, but there would be an increase in contrast resulting from the additional facility that would be allowed under this alternative. This visual contrast would occur in the localized area only and would be attenuated by viewing distance and topography and mitigation measures.

Livestock grazing activities in the IFNM would result in the same impacts on visual resources as those described under Alternative C. Establishment of priority wildlife habitats and allocation of the Desert Bighorn Sheep WHA would result in the same impacts on visual resources as those described under Alternative B.

The decision to rehabilitate existing disturbed areas and manage fugitive dust would have the same impacts on visual contrasts as those discussed under Alternative B.

Improvement of wildlife viewing opportunities would have the same impacts as those described under Alternative B.

Removal of existing flood- and erosion-control structures, and unnecessary fences, roads, facilities, and utility lines would have the same impacts as those described under Alternative B.

New fencing would have the same impacts on visual resources as those described under Alternative B.

Construction of new wildlife waters would result in the same impacts on visual resources as those described under Alternative B. Additional water sources for livestock and maintenance of those water sources would result in the same impacts on visual resources as those described under Alternative C.

Conservation measures associated with the Lesser Long-nosed Bat Recovery Plan would result in the same impacts on visual resources as those discussed under Alternative B. Conservation of desert tortoise habitat would result in the same impacts on visual resources as those described under Alternative A.

Increasing the number of wildlife and livestock exclosures would result in the same impacts on visual resources as those described under Alternative C.

Designating routes along fence lines for motorized travel would result in the same impacts on visual resources as those described under Alternative C.

Implementing protective and/or mitigation measures for rights-of-way would result in the same impacts on visual resources as those described under Alternative B.

Based on the impacts described above for Alternative D, the disturbance to objects of the monument (including views of the Sonoran Desert) resulting from management actions would range from undetectable to measurable at a local scale. Overall, the visual quality of natural landscapes would be maintained, consistent with the VRM categories, which would provide "protection of the monument objects" for visual resources as defined in Section 1.3.1.

4.3.11 Impacts on Wilderness Characteristics

This section describes potential impacts on lands managed to protect wilderness characteristics from management of resources and resource uses. The objectives established for lands managed to protect wilderness characteristics are used to guide the impact analysis. Actions that affect naturalness, opportunities for solitude, and opportunities for primitive and unconfined recreation on lands shown to have wilderness characteristics (described in Chapter 3) are considered under this analysis.

The following assumptions were used in the analysis of impacts on lands with wilderness characteristics.

- Lands with wilderness characteristics constitute 36,990 acres of the public land within the IFNM.
- Uses and activities occurring outside these lands could influence the wilderness characteristic values, though such influences would generally be indirect.

The following analysis considers a management action's potential to cause changes to a landscape that could alter naturalness, and reduce or enhance opportunities for solitude and/or opportunities for primitive and unconfined recreation. For example, some actions could help protect wilderness characteristics across a broad landscape area; others could diminish wilderness characteristics by increasing the visibility of structures or routes in an area. The terms "localized," "site-specific," and "landscape level" denote the general extents to which impacts could occur. Site-specific impacts are generally small and described geographically when possible. Landscape-level impacts generally occur on a broad scale and affect large areas, or the entire monument.

4.3.11.1 Impacts Common to All Alternatives

Maintaining and improving soil cover and productivity could promote retention of naturalness by preventing erosion of soils from lands managed to protect wilderness characteristics. Naturalness 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.

Managing the IFNM as a suppression area for fire could result in disturbance of lands managed to protect wilderness characteristics, as necessary, to control wildfires. Surface disturbance, fuels treatments, vehicle

travel in emergency situations, or treatments related to fire suppression could result in diminished naturalness and opportunities for solitude over the short term in localized areas.

Administration of valid existing mining claims on a case-by-case basis would continue to reduce the opportunities for solitude and naturalness in site-specific areas where valid mining claims exist, which could diminish wilderness characteristics in localized areas, particularly within the Silver Bell and West Silver Bell Mountains.

Providing signage for visitor information, regulations, or interpretation could diminish naturalness in localized areas.

Acquiring land to protect wilderness characteristics could increase the potential for protecting naturalness, opportunities for solitude, and opportunities for primitive unconfined recreation in those areas. 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 within or around areas with such values. The Confidence Peak communication site would continue to diminish naturalness and primitive recreational opportunities in that very localized area.

Resource programs that would have no impact on wilderness characteristics in the IFNM include those for paleontology resources and special designations.

4.3.11.2 Alternative A (No Action)

Though no lands would be managed to protect wilderness characteristics, values of naturalness, opportunities for solitude, and/or opportunities for primitive and unconfined recreation would still be present on 36,990 acres; therefore, impacts on those values are assessed based on the management decisions under Alternative A.

Efforts to minimize livestock impacts on rare plant habitats and desert tortoise habitats could result in localized degradation of naturalness to the extent that livestock waters are moved to new areas where no manmade structures exist. Indirect impacts on naturalness also could result where livestock congregate around relocated water sources and damage the plant community. Conversely, naturalness in and around rare plant and desert tortoise habitats could be indirectly enhanced if livestock waters were moved from those areas. The provision of signage for visitor information, regulations, or interpretation could reduce naturalness in localized areas by increasing the appearance of structures in localized areas. 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.

Managing the public lands in the IFNM as a VRM Class III area would provide for limited protection of lands with wilderness characteristics, given that modifications to the landscape can occur in VRM Class III areas. While naturalness would not be reduced as a result of the VRM Class III designation, degradation of wilderness characteristics would not be precluded by VRM Class III objectives. Visitors could expect relatively moderate changes to the landscape that attract attention and diminish naturalness. Closing 800 acres to OHV use and limiting vehicular travel to existing routes in areas with wilderness characteristics would promote retention of naturalness, opportunities for solitude, and opportunities for primitive unconfined recreation in localized areas where routes do not exist.

Allowing dispersed non-motorized camping throughout the IFNM would promote protection of wilderness characteristics by providing opportunities for primitive and unconfined recreation. However, localized impacts from vehicle parking and maneuvering and from persons engaging in camping activities

(such as building fire rings and trampling vegetation within the campsite) may diminish the wilderness characteristics of the localized area for persons visiting the area after a campsite has been used.

The use of firearms throughout the IFNM could diminish naturalness and opportunities for solitude where noise and shooter refuse (e.g., spent shells, targets, trash) or gunfire occurs within the landscape.

Allowing rights-of-way within lands managed to protect wilderness characteristics would diminish naturalness in localized areas, as well as opportunities for solitude during construction and maintenance of the facility.

Decisions that would increase the appearance of fences could result in reduced naturalness where fences were obvious features within the landscape. Efforts to minimize livestock impacts on special status plants by moving or replacing livestock watering sites could result in localized degradation of naturalness in those areas where watering sites appear. However, naturalness could be partially restored from this action where livestock watering sites are removed from an area.

Land use authorizations could diminish naturalness and opportunities for primitive recreation in localized areas. However, mitigation measures implemented in right-of-way areas could minimize degradation of wilderness characteristics associated with structures and routes in localized areas. Generally, lands with wilderness characteristics would be protected from the intrusion of vehicles, people, and noise because motorized vehicle use would be limited to 346 miles of existing routes.

4.3.11.3 Alternative B

This alternative would provide the greatest protection for wilderness characteristics in the IFNM. Naturalness, opportunities for primitive recreation and solitude would be maintained on 36,990 acres of the IFNM due to the protection of wilderness characteristics on that acreage and other decisions in support of that management.

Designating 36,990 acres as VRM Class I (coincident with the lands managed to protect wilderness characteristics) would provide protection of portions of the Silver Bell Mountains, Sawtooth Mountains, Ragged Top, and Roskruge Mountains as a result of the restrictive objectives for management of VRM Class I areas.

Closing 36,990 acres of land managed to protect wilderness characteristics to motorized vehicle travel would promote naturalness and opportunities for primitive recreation to a greater extent than Alternative A.

The establishment of the Primitive and Ragged Top Wildlife Viewing RMZs (totaling approximately 36,200 acres) within a majority of the area managed to protect wilderness characteristics would promote naturalness and opportunities for primitive recreation because uses and structures would be restricted in those areas. Conducting surveys at recreation sites could diminish opportunities for solitude in localized areas; however, it is likely that surveys would be conducted near roads or access points, where the magnitude of such intrusions would be negligible. Limiting overnight, dispersed, non-motorized camping to identified campsites would reduce opportunities for solitude in the IFNM because there would be an increased likelihood that overnight campers would encounter each other at the designated campsites. Further, naturalness at these sites could be reduced if there was a concentration of features associated with overnight camping (e.g., surface disturbance, trails, etc.). Restricting large groups to specific campsites would help maintain naturalness and opportunities for primitive recreation and solitude on lands managed to protect wilderness characteristics. Restricting the discharge of firearms would provide protection of naturalness, opportunities for solitude, and primitive recreation on lands managed to protect wilderness characteristics.

Allocating the IFNM as a right-of-way exclusion would minimize the potential for degradation of naturalness and primitive recreation opportunities that sometimes accompanies new rights-of-way. Very few land use authorizations would be allowed, which would provide protection for naturalness throughout the IFNM.

Surface disturbance during construction and maintenance activities would temporarily reduce naturalness in localized areas. Mitigation and restoration could alleviate the short-term loss of naturalness if there were no new structures associated with the surface disturbance. In areas of sensitive or fragile soils, naturalness would not be affected by surface-disturbing activities. Prohibitions on surface water diversions, groundwater pumping, and surface disturbance for cultural resource investigations in the IFNM would reduce the potential for a loss of naturalness resulting from the mortality of native plants. Native plant communities would tend to maintain their natural resilience to disturbances since water would not be removed from the IFNM. Further, opportunities for primitive recreation would be retained because structures associated with water pumping and diversion would be precluded.

Eliminating recreational target shooting throughout the IFNM could help retain naturalness and opportunities for solitude by minimizing firearm noise and shooter refuse (e.g., spent shells, targets, trash) within the landscape.

Vegetative material could be removed from the IFNM under very specific instances under this alternative, which could temporarily diminish opportunities for primitive recreation and naturalness in localized areas. Weed management and vegetation restoration activities could temporarily diminish naturalness and opportunities for solitude in localized project areas where activities are either observed directly (e.g., work crews, machinery) or indirectly (e.g., areas of bare ground, decadent vegetation). However, weed management activities and restoration projects could indirectly promote retention of wilderness characteristics by precluding the appearance of those weeds that could otherwise diminish natural native plant communities in areas managed to protect wilderness characteristics.

Excluding humans from the Desert Bighorn Sheep WHA could reduce opportunities for solitude and primitive recreation from January 1 through April 30. Efforts to reintroduce native wildlife to the IFNM could enhance naturalness if reintroduction were successful. Prohibition of land use authorizations within the Waterman Mountains VHA and the Ragged Top VHA could indirectly promote retention of naturalness within those areas if native plant communities are maintained. Prohibiting camping within both VHAs would reduce opportunities for solitude and primitive recreation, but would minimize the presence of humans and thereby enhance the sense of wilderness characteristics in these areas.

Prohibiting range improvements would promote protection of existing lands with wilderness characteristics in the IFNM because the potential for additional intrusions on naturalness from structures like livestock waters and cattle guards would be reduced. However, additional fences may be erected to keep livestock grazing on State Trust or private land from entering the Federal land.

Efforts to control fugitive dust emissions could enhance naturalness by precluding a temporary loss of visibility that sometimes occurs with fugitive dust. Opportunities for solitude could be enhanced indirectly where fugitive dust plumes are suppressed because visitors would be less likely to observe dust plumes from a great distance. If dust suppression efforts were effective, visitors seeking wilderness characteristics in the IFNM would be less likely to notice vehicles traveling on unpaved roads in the distance.

Management decisions could result in diminished naturalness in site-specific areas where access to geologic features is improved through the use of roads, signage, or structures. Provisions for access could

indirectly reduce opportunities for solitude in localized areas around distinct geologic features if there is a corresponding increase in visitation.

The appearance of fences would have similar impacts as those described under Alternative A.

Avoidance of projects and activities that disturb priority species habitats would indirectly promote retention of naturalness, and opportunities for solitude and primitive recreation in localized areas by minimizing the appearance of structures and/or surface-disturbing activities in priority species habitats. New wildlife watering areas could diminish naturalness and opportunities for primitive recreation if structures were associated with the action.

Rehabilitation of existing disturbed areas to reduce visual contrasts could result in a temporary, site-specific degradation of naturalness, opportunities for solitude, and primitive recreation due to the appearance of equipment and work crews that implement the rehabilitation. However, opportunities for solitude and primitive recreation would be restored after rehabilitation was implemented, and naturalness could be enhanced if rehabilitation is successful in establishing more contiguous native plant communities.

Mitigation measures taken to protect resources from land use authorizations that involve construction and maintenance activities could result in protection of naturalness in localized areas.

Designating 63 miles of routes for motorized use and 266 miles of routes for non-motorized use, and identifying 17 miles of routes for reclamation would protect wilderness characteristics on the 36,990 acres where those values have been identified because no motorized routes would be designated within those areas.

4.3.11.4 Alternative C

Naturalness, and opportunities for primitive recreation and solitude would be maintained on 9,510 acres of the IFNM due to the management of lands to protect wilderness characteristics on that acreage and other decisions in support of that management, which is less than the 36,990 acres where wilderness characteristics have been identified.

The 36,990 acres of land managed to protect wilderness characteristics would be managed as VRM Class II, which would provide protection of portions of the Silver Bell Mountains, Sawtooth Mountains, Ragged Top, and Roskruge Mountains as a result of the restrictive objectives for management of VRM Class II areas. This would provide less protection from potential intrusions in those areas relative to Alternative B.

Closing portions of the areas identified as possessing wilderness characteristics to motorized vehicle travel and limiting motorized travel to designated routes, would promote naturalness and opportunities for primitive recreation to a greater extent than Alternative A, though to a lesser extent than Alternative B.

The establishment of the Primitive and Ragged Top Wildlife Viewing RMZs on approximately 16,290 acres of the 36,990 acres managed to protect wilderness characteristics would promote naturalness and opportunities for primitive recreation in those areas because uses and structures would be restricted. In addition, a majority of the remaining 20,700 acres would be allocated to the Semi-Primitive Non-Motorized RMZ, which also would afford some protection to wilderness characteristics, as motorized uses would not occur in those areas. A small proportion of the areas managed to protect wilderness characteristics would be located within Roaded Natural or Semi-Primitive Motorized zones, where degradation of naturalness and opportunities for solitude could occur as a result of motorized uses and increased numbers of visitors in those areas. Conducting surveys at recreation sites would have the same

impacts as those described under Alternative B. Allowing overnight, dispersed, non-motorized camping throughout the IFNM would increase opportunities for solitude in areas identified with wilderness characteristics because there would be a decrease in the likelihood that overnight campers would encounter each other. Restricting large groups to specific campsites and prohibiting the discharge of firearms, except for authorized hunting, would have the same impacts as described under Alternative B, except an additional group campsite would be identified in the area managed to protect wilderness characteristics, which could diminish naturalness and opportunities for solitude and primitive unconfined recreation in the localized area near that group campsite.

Allocating the IFNM as a right-of-way avoidance area would help protect wilderness characteristics on 36,990 acres because rights-of-way that could diminish naturalness and opportunities for solitude during construction and maintenance would be restricted in those areas. This would be less restrictive than Alternative B, under which the IFNM would be an exclusion area.

Management actions restricting surface disturbance would be the same as those under Alternative B, resulting in the same impacts, except that surface-disturbing activities would be allowed in areas of sensitive and fragile soils. As these soils occur in a portion of the lands managed to protect wilderness characteristics, there could be some degradation of naturalness and loss of opportunities for solitude if surface disturbance were to occur in those areas. Also, surface disturbance could be authorized for cultural resource investigations, resulting in diminished wilderness characteristics in localized areas over the short term.

Management actions for vegetation would be the same as those under Alternative B.

Excluding humans within the Desert Bighorn Sheep WHA and reintroductions of native wildlife would have the same impacts as those described under Alternative B. Prohibition of land use authorizations within the Waterman Mountains VHA and the Ragged Top VHA could indirectly promote retention of naturalness within those areas if native plant communities are maintained. Allowing camping within both VHAs would increase opportunities for solitude and primitive recreation in areas managed to protect wilderness characteristics.

Efforts to control fugitive dust emissions would have the same impacts as those described under Alternative B.

The decision to provide access to geologic sites would have the same impacts as those described under Alternative B.

New range improvements could diminish naturalness and opportunities for primitive recreation in localized areas, particularly if they are constructed in areas where previously there were no structures visible. The loss of naturalness could be short term or long term depending on the range improvement.

The appearance of fences would have similar impacts as those described under Alternative A. Avoidance of projects and activities that could disrupt priority species habitats would have the same impacts on naturalness and opportunities for primitive recreation as those described under Alternative B. The potential for installation of new wildlife waters would have the same impacts on naturalness as those described under Alternative B. Wildlife and livestock exclosures would result in diminished naturalness and opportunities for primitive recreation where fences are visible to visitors. Monitoring activities within exclosures could result in temporary reductions in opportunities for solitude where exclosures exist due to the presence of work crews at monitoring sites.

Rehabilitation of disturbed areas to achieve contrast levels consistent with VRM class objectives would have the same impacts as those described under Alternative B. Efforts to reduce dust in the IFNM through certain control measures would have the same impact on naturalness as those described under Alternative B.

Mitigation requirements associated with the land use authorization process would have the same localized impacts on naturalness as those described under Alternative B. Impacts on naturalness and opportunities for primitive recreation from land use authorizations would be similar to those described under Alternative A, but fewer areas would be affected due to the avoidance area allocation in contrast to no avoidance or exclusion area establishment under Alternative A.

Designating 124 miles of routes for motorized use and 205 miles of routes for non-motorized use, and identifying 17 miles of routes for reclamation would protect lands with wilderness characteristics on about 9,510 of the 36,990 acres where those values have been identified, because no motorized routes would occur within those areas.

4.3.11.5 Alternative D

Though no lands would be managed to protect wilderness characteristics, values of naturalness, opportunities for solitude, and/or opportunities for primitive and unconfined recreation would still be present on 36,990 acres; therefore, impacts on those values are assessed based on the management decisions under Alternative D.

Limiting motorized travel to designated routes, would promote naturalness and opportunities for primitive recreation to a greater extent than Alternative A, though to a lesser extent than Alternatives B and C, because no areas would be closed to vehicle use (and additional miles of routes would be designated for motorized travel).

The establishment of the Ragged Top Wildlife Viewing RMZ on approximately 6,500 acres of the 36,990 acres managed to protect wilderness characteristics have been identified would promote naturalness and opportunities for primitive recreation in those areas because uses and structures would be restricted. The remaining 30,490 acres would be allocated to several RMZs including Semi-Primitive Non-Motorized, Semi-Primitive Motorized, and Roaded Natural, which would afford some protection to wilderness characteristics in the non-motorized areas. Similarly, designating the areas managed to protect wilderness characteristics as VRM Class II would provide protection for those values. Areas where motorized uses would be allowed could diminish wilderness characteristics as degradation of naturalness and loss of opportunities for solitude could occur as a result of motorized uses and increased numbers of visitors in those areas. Conducting surveys at recreation sites would have the same impacts as those described under Alternative B. Allowing overnight, dispersed, non-motorized camping throughout the IFNM would increase opportunities for solitude in areas manged to protect wilderness characteristics because there would be a decrease in the likelihood that overnight campers would encounter each other, but the associated signs of camping (fire rings, trampled vegetation) may diminish the character of the wilderness setting for others passing through the area. Restricting large groups to specific campsites would have the same impacts as described under Alternative C. Limiting the opportunities for recreational shooting to the Avra Hill and Cerrito Represo designated target shooting areas would minimize shooting noise in the majority of IFNM by eliminating firearm noise other than intermittent noise associated with permitted or authorized hunting.

Allocating the IFNM as a right-of-way avoidance area would have the same impacts as those described under Alternative C.

Management actions restricting surface disturbance would have the same impacts as those described under Alternative C.

Management actions for vegetation would have the same impacts as those described under Alternatives B and C, except non-native plants could be used for restoration, which could result in diminished naturalness in localized areas within areas managed to protect wilderness characteristics.

Management actions for the Desert Bighorn Sheep WHA, Waterman Mountains VHA, and Ragged Top VHA would have the same impacts as described under Alternative C.

Efforts to control fugitive dust emissions would have the same impacts as those described under Alternative B.

The decision to provide access to geologic sites would have the same impacts as those described under Alternative B.

New range improvements would have the same impacts as those described under Alternative C.

The appearance of fences would have similar impacts as those described under Alternative A. Avoidance of projects and activities that could disrupt priority species habitats would have the same impacts on naturalness and opportunities for primitive recreation as those described under Alternative B. The potential for installation of new wildlife waters would have the same impacts on naturalness as those discussed under Alternative B. Wildlife and livestock exclosures would result in diminished naturalness and opportunities for primitive recreation where fences are visible to visitors. Monitoring activities within exclosures could result in temporary reductions in opportunities for solitude where exclosures exist due to the presence of work crews at monitoring sites.

Rehabilitation of disturbed areas to achieve contrast levels consistent with VRM class objectives would have the same impacts as those described under Alternative B. Efforts to reduce dust in the IFNM through certain control measures would have the same impact on naturalness as those described under Alternative B.

Mitigation requirements associated with the land use authorization process would have the same localized impacts on naturalness as those described under Alternative B. Impacts on naturalness and opportunities for primitive recreation from land use authorizations would be similar to those described under Alternative A, but fewer areas would be affected due to the avoidance area allocation under this alternative, which would not occur under Alternative A.

Designating 226 miles of routes for motorized use and 116 miles of routes for non-motorized use, and identifying 4 miles of routes for reclamation would protect lands with wilderness characteristics in localized areas where routes are closed, but potentially diminish wilderness characteristics where motorized uses would occur.

4.4 RESOURCE USES

4.4.1 Impacts on Energy and Minerals

The analysis of potential effects on mineral resources is limited to effects on valid existing mining claims because the Proclamation designating the IFNM withdrew the area from location, entry, and patent under the mining laws, and from disposition under all laws relating to mineral and geothermal leasing, subject to valid existing rights. Impacts on geological resources and features are covered under Section 4.2.2. Impacts on renewable energy resources are covered as land use authorizations under Section 4.4.4.

Withdrawal of the IFNM from all mineral entry or development, subject to valid existing rights, prevents any new exploration for undiscovered mineral deposits or the development of any known deposits. To be valid any existing mining claim must have discovery prior to June 9, 2000. Validity would be determined on a case-by case basis. Any mining claim not having discovery would be null and void. Under all alternatives, mining activity within the IFNM (on Federal mineral estate) would continue to be administered on a case-by-case basis for valid mining claims. Existing mining claims (shown on Map 3-8) grant the locator the exclusive right to explore for and develop the locatable minerals plus the right to use the surface resources to the extent required for mining operations. No impacts on the development of valuable minerals would result from any of the alternatives, as the RMP would not affect valid existing mining claims. As a result of case-by-case administration, activities associated with valid existing mining claims could result in surface disturbance on approximately 4,590 acres, and within additional areas, as necessary, to provide adequate access to the valid existing claim.

4.4.2 Impacts on Livestock Grazing

This section describes potential impacts on livestock grazing resulting from the implementation of management actions for other resource programs.

The analysis is based on the following assumptions:

- All existing leases are subject to Terms and Conditions, as appropriate.
- Construction of range improvements (e.g., fences, pipeline, water wells, troughs, and reservoirs) result in a localized loss of vegetation cover throughout their useful life.
- Range improvements generally lead to better livestock distribution and may increase the forage base.
- Current trends in livestock market conditions will continue. Livestock values would therefore remain the same as at present.
- Assessments of vegetation-related impacts are based on expectations of normal precipitation during the life of the plan.
- Long-term grazing-use levels are based on monitoring information, including utilization studies and actual use data.

Impact analyses and conclusions are based on interdisciplinary team knowledge of resources in the IFNM, review of existing literature, and information provided by BLM resource specialists. Effects are quantified where possible or are described in qualitative terms in the absence of quantitative data. Impacts on livestock grazing activities are generally the result of activities that affect the quality and quantity of available forage levels, the ability to construct range improvements, and human disturbance and/or harassment of livestock within grazing allotments.

4.4.2.1 Impacts Common to All Alternatives

Implementation of livestock grazing management actions could impact livestock grazing by requiring operators to make adjustments to grazing practices to comply with the Arizona Standards for Rangeland Health. Such adjustments could include modified turnout dates, modified grazing periods, growing season rest, modified grazing systems, exclosures, implementation of forage utilization levels, and livestock conversions. Managing the uplands, xeroriparian sites, and resource conditions to meet the Arizona Standards for Rangeland Health could increase the percent cover of desired vegetation species and improve vegetation species diversity and structure. In addition, this would reduce opportunities for establishment of noxious weeds and invasive species. Although these adjustments would help to enhance

rangeland conditions and increase long-term forage production, animal unit month (AUM) use could decrease for some livestock operators. (This would apply under Alternative B only until leases expire.)

Management of soil, water, vegetation, and wildlife resources generally would serve to enhance vegetative community conditions and indirectly affect livestock grazing by improving forage conditions. Improving soil resources would increase the health and productivity of vegetation resources by reducing erosion. Managing soil and water resources to maintain watershed integrity and functioning hydrology would maintain and enhance vegetation and water quality, which could indirectly increase available forage for livestock use. Uneven distribution of big game populations would cause some grazing allotments to receive a disproportionate amount of wildlife grazing; this is especially true for allotments located either entirely or partially within big game management areas. As a result, livestock operators in these areas could be required to implement grazing adjustments to comply with the Standards for Rangeland Health.

Fire suppression and implementation of programs to reduce ignitions would limit the potential for loss of forage due to wildfire events. There could be further indirect benefits to livestock where plant mortality and stress is avoided, resulting in a maintenance of plant resistance to disease and insect pest infestations. This could reduce opportunities for establishment of noxious weeds and invasive plant species, and could maintain the quantity or quality of forage available for livestock grazing. Fuel treatments to maintain non-hazardous fuel levels using manual, biological, mechanical, or chemical treatments would result in the short-term loss of vegetation depending on the treatment applied. Some losses of vegetation would be of undesirable plant species including exotic and invasive species, which are treated to reintroduce or promote desirable plant species. This would improve forage available for livestock grazing in treated areas, however short-term there could be a reduction in the area available for livestock grazing.

Recreation activities would impact livestock grazing through direct human disturbance and localized surface disturbance. Surface disturbance could remove vegetation including livestock forage. These impacts could increase animal displacement, harassment, or injury, mainly from the use of vehicles. Preventing cross-country travel by OHVs would prevent a loss of forage and forage quality in the IFNM by preventing plant mortality. The action also would prevent an indirect reduction in forage quality by protecting plant communities from surface disturbance and the potential for establishment of noxious weeds and invasive species.

Mining activities on the 4,590 acres of existing mining claims and construction activities related to the development of rights-of-way would cause localized surface disturbance and increase the potential for establishment of noxious weeds and invasive species. This could remove livestock forage over the short term and could result in changes in grazing management practices and/or stocking levels of individual allotments. Increased vehicle travel on new roads also would increase the potential for harassment of and injury to livestock. However, an increase in improved roads could facilitate livestock management operations by improving access to remote locations within allotments.

Activities associated with management of cultural resources could remove vegetation resources in localized areas. Fencing cultural sites and excluding grazing from these sites also could result localized loss of forage. Restrictions on surface-disturbing activities near cultural sites could prevent the removal of forage in these areas, but could result in the modification or relocation of rangeland improvement projects.

Retaining all public lands within the IFNM could improve BLM’s ability to manage vegetation resources. This could improve vegetation diversity and structure and increase the amount of forage available for livestock grazing.

Withdrawal of the IFNM from all forms of mineral entry could reduce surface disturbance. This would help to maintain or improve the overall health, vigor, and productivity of desirable perennial vegetation, and maintain rangeland health and watershed function.

Under all alternatives, impacts on livestock grazing are not anticipated as a result of implementing management actions for the following resources and resource uses: air quality, geological resources, paleontological resources, and special designations.

4.4.2.2 Alternative A (No Action)

Managing the IFNM to meet VRM Class III objectives could allow for surface disturbance activities that reduce forage in site-specific areas. In addition, managing 8,240 acres in nine allotments as utility corridors and designating the 160-acre Pan Quemado communication site could result in surface disturbance from construction and development. Support facilities such as utility towers constructed in these areas, would result in the permanent loss of vegetation from localized areas, reducing the amount of forage available for livestock grazing. Restoration of disturbed sites could replace the livestock forage that is lost as a result of facility construction.

Dispersed camping and recreational shooting within the IFNM could impact livestock grazing if surface disturbance results in a loss of vegetation in localized areas. These recreational activities could disrupt livestock grazing and reduce forage utilization in localized areas. Harassment of livestock from OHV recreation potentially could occur along existing routes in the 127,580 acres where OHVs are limited to existing routes.

Construction of rangeland improvements would increase livestock distribution and allow livestock to utilize more of the rangeland, which would consequently enhance rangeland conditions. Specifically, developing off-site water sources and fencing riparian areas could draw livestock away from sensitive areas and result in maintaining or increasing riparian conditions and improving livestock distribution.

Restrictions on surface-disturbing activities in priority wildlife habitat areas could reduce the potential loss of forage available for livestock grazing. However, rangeland improvements could also be limited in this area. Bighorn sheep management areas would occur over 41,470 acres on seven allotments and desert tortoise management areas would occur over 30,880 acres on ten allotments.

Implementing management actions to limit motorized vehicle use to 346 miles of existing routes would help improve the overall health, vigor, and productivity of desirable perennial vegetation, and improve or maintain rangeland health and watershed function by limiting surface disturbance. Activity plans for the Agua Blanca Ranch Multiple Resource Management Area and the Cocoraque Butte–Waterman Mountains Multiple Resource Management Area could improve vegetation diversity and structure by reducing surface disturbance. This could reduce opportunities for establishment of noxious weeds and invasive species, and the quantity and quality of forage available for livestock grazing.

Developing an activity plan for the monument, including plans for the Cocoraque Butte–Waterman Mountains Multiple Resource Management Area and the Silver Bell Desert Bighorn Sheep Management Area, could help to maintain or improve the overall health, vigor, and productivity of desirable vegetation, and maintain rangeland health and watershed function. In addition, acquiring 800 acres of private and State lands could improve BLM's ability to manage vegetation and wildlife resources. This could increase the area and amount of forage available for livestock grazing.

Providing additional water sources could increase vegetation diversity and structure in localized areas by improving livestock distribution. Implementing protective measures during construction to minimize erosion, vegetation loss, disturbance of cultural resources in authorized rights-of-way would help

maintain the overall health, vigor, and productivity of desirable perennial vegetation and maintain rangeland health and watershed function. This would indirectly help maintain the existing quantity and/or quality of forage available for livestock grazing.

4.4.2.3 Alternative B

Making all BLM livestock allotments unavailable for grazing as leases expire could eliminate livestock grazing within the planning area. Investments in support features such as stock waters would be abandoned. The livestock operators would have to find alternative sources of feed or reduce their herds to a size that could be maintained year-round on non-Federal property after the leases expire. Other private land or State Trust pastures would have to be rented, and these might not be available. The livestock operators could be forced to sell some or the entire livestock herd. Land values for State Trust or private land within the monument could be diminished for ranching purposes. Impacts subsequently discussed in this section would affect livestock leases until they expired.

Managing 125,110 acres (97 percent of public lands in the IFNM) as VRM Class I and II could reduce the potential for a loss of forage by restricting surface disturbance while restricting the location, type, or design of proposed range improvements. In addition, managing 36,990 acres (29 percent of public lands in the IFNM) to protect wilderness characteristics and closing bighorn sheep lambing areas to human entry from January 1 through April 30 could limit access for livestock management activities, while reducing the potential for loss of forage from surface-disturbing activities, compared with Alternative A. Impacts related to VRM Class III management would have similar types of impacts on those described under Alternative A, but would occur over 125,110 fewer acres and could reduce surface disturbance. This could help maintain or improve the amount of forage available for livestock.

Impacts from management actions that restrict surface disturbance would have similar impacts as those described under Alternative A, but they would apply over a greater area. Surface-disturbing activities would be restricted on an additional 63,180 acres of livestock allotments containing sensitive or fragile soils (49 percent of public lands in the IFNM). Excluding rights-of-way and minimizing surface disturbance that results in the loss of vegetation during the construction and maintenance of facilities would help maintain existing forage quantity and quality.

Actions that limit the use of motorized vehicles would have the same impacts as those described under Alternative A, but would occur over a greater area. Closing the 38,040 acres to motorized vehicles could reduce the amount of surface disturbance from human uses, compared with Alternative A. Managing 17,610 acres (14 percent of public lands in the IFNM) as Roaded Natural and 14,540 acres (11 percent of public lands in the IFNM) as Semi-Primitive Motorized could focus motorized recreation in those areas, which could lead to conflicts between visitors and livestock, such as harassment. Meanwhile, prohibiting recreational shooting and limiting public and equestrian access (as well as public use, such as camping) to designated sites could reduce conflicts and disturbance to livestock grazing operations throughout the entire IFNM. This could decrease the amount of surface disturbance and reduce costs for livestock operators, compared with Alternative A.

Implementing the applicable conservation measures for special status species could reduce surface disturbance, increase the percent cover of desirable vegetation species, and improve vegetation species diversity. Opportunities for establishment of noxious weeds and invasive species could be reduced while increasing the quantity and quality of forage available for livestock grazing. Conservation measures could limit the location or type of rangeland improvement projects on 11 allotments. Conservation measures could increase the amount of forage available for livestock grazing, compared with Alternative A. However, if monitoring were to identify livestock grazing as a threat to a special status species, this could result in the restriction or exclusion of livestock from areas.

Prohibiting the removal of living or dead native plant material and special management for geological resources would help promote retention of existing forage and seed sources. Maintaining existing surface and groundwater resources to preserve existing vegetation diversity could promote retention of existing forage quality and reduce opportunities for establishment of noxious weeds and invasive species. Acquisition of non-Federal lands would have the same impacts on forage quantity as Alternative A, except use of the forage by livestock until leases expire could be limited because acquired acreage may be placed into conservation easements.

Development of a land restoration plan could help maintain forage quality and quantity by restricting surface-disturbing activities, improving vegetation diversity, and reducing opportunities for establishment of noxious weeds and invasive species over a greater area, compared with Alternative A. This could increase the amount of forage available for livestock grazing until existing leases expire relative to Alternative A. Passive restoration techniques could result in slower restoration rates relative to Alternative A. Implementing fencing along designated routes to prevent damage to sensitive and unique vegetation and minimize the spread of invasive species and noxious weeds could result in the restriction or exclusion of livestock from certain areas, relative to Alternative A. Livestock operation costs in the IFNM could increase if livestock movement between pastures is restricted as a result of fencing along designated routes. However, fencing along designated routes could improve livestock distribution and forage utilization, resulting in indirect improvement of rangeland plant communities.

Protective measures in authorized rights-of-way and managing land acquisitions as exclusion areas could help maintain the overall health, vigor, and productivity of desirable vegetation and maintain rangeland health and watershed function because surface-disturbing activities would be restricted. In addition, reclaiming abandoned mines could increase the amount of land available for livestock grazing and could increase the amount of forage available for livestock grazing (compared with Alternative A) if the plant communities are restored. This would indirectly help maintain or increase the existing quantity and/or quality of forage available for livestock grazing in localized areas, compared with Alternative A.

4.4.2.4 Alternative C

Managing nine allotments as perennial could reduce management costs for livestock operators by increasing the predictability of areas available for livestock grazing in the IFNM compared with Alternative A. There could be a decrease of quality forage if livestock operators did not defer grazing during drought years since grazing disturbance during drought can decrease the availability of palatable species within the IFNM. Maintaining the ephemeral livestock grazing management on two allotments would allow for continued grazing in these areas, similar to Alternative A, following an analysis under Standards for Healthy Rangelands and Guidelines for Livestock Grazing Management before authorizing grazing.

The amount of forage available for livestock grazing could decrease relative to Alternatives A and B by allowing the consumption of living and dead plant material by livestock. Impacts from soil and water resource management would be similar to those described under Alternative B, except range improvements on 10 allotments with sensitive or fragile soils would be allowed under this alternative while prohibited under Alternative B.

Impacts from recreation management actions would be the same as those described under Alternative B, except 18,380 acres (14 percent of public lands in the IFNM) would be managed as Roaded Natural and 36,230 acres (28 percent of public lands in the IFNM) as Semi-Primitive Motorized, which could decrease the amount of surface disturbance relative to Alternative A and increase the amount of surface disturbance compared to Alternative B. Increasing the number of large-group camping sites to three and allowing overnight camping in 9,020 acres of VHAs would increase localized surface disturbance,

compared with Alternative B. Shooting restrictions would have the same impacts as those described under Alternative B.

Impacts on livestock grazing operations from management of visual resources in VRM Classes II and III areas would be similar to those described under Alternative B, but would occur over different extents. Impacts related to VRM Class II areas would occur over 124,900 acres (97 percent of public lands in the IFNM), while impacts associated with VRM Class III areas would occur on 3,420 acres (3 percent of public lands in the IFNM). In contrast to Alternative B, there would be no VRM Class I areas. Considering rights-of-way on a case-by-case basis could reduce the potential for site-specific losses of forage associated with surface-disturbing activities if rights-of-way were denied, and increase the potential for site-specific loss of forage if rights-of-way were granted.

Management actions to restore the ecological health of resources would have impacts similar to those described under Alternative B.

Impacts from OHV area designations and utility corridors and rights-of-way would be similar to those described under Alternative A, but OHV closure areas on 10,880 acres would result in less surface disturbance and potential for livestock harassment than that under Alternative A. OHV closure areas would occur over 27,160 fewer acres relative to Alternative B. Utility corridors would occur on 241 acres, affecting six allotments, which would be less acres than 8,240 acres under Alternative A, but more than Alternative B where utility corridors would not be identified.

Impacts from decisions such as implementing conservation measures, limiting vegetation removal, and developing a restoration plan would be similar to those under Alternative B. Differences in the miles of routes designated for motorized use would not be anticipated to affect current grazing management, as administrative access could be granted.

4.4.2.5 Alternative D

Management of impacts from recreation would be similar to those described under Alternative B, with a few exceptions. Managing 19,060 acres (15 percent of public lands in the IFNM) as Roaded Natural and 59,020 acres (46 percent of public lands in the IFNM) as Semi-Primitive Motorized could increase localized surface disturbance from recreation. In addition, increasing the number of large-group campsites to four also could increase localized surface disturbance, compared with two large group campsites under Alternative B and three large group campsites under Alternative C. Prohibiting dispersed recreational shooting would reduce conflicts and disturbance to livestock grazing operations compared to Alternative A. However, designated shooting areas would be established in areas that are part of the Silver Bell and Agua Blanca grazing allotments and the damage to vegetation coupled with routine firearm noise and human presence could deter livestock from grazing in and near the designated shooting areas. Impacts from management of visual resources would be the same as those described under Alternative B; 122,580 acres (95 percent of public lands in the IFNM) would be managed to meet VRM Class II objectives, and there would be no VRM Class I areas. This would reduce restrictions on rangeland improvement projects, compared with Alternatives B and C. In addition, not managing areas to protect wilderness characteristics could increase surface disturbance from human uses, but could reduce restrictions on rangeland improvement projects compared to Alternatives B and C.

Impacts from utility corridors and rights-of-way would be the same as those described under Alternative A, except the extent of those impacts would be reduced to potentially occur on 2,660 acres on six allotments, where surface disturbance could be increased. This could reduce the loss of vegetation from facilities and surface disturbance compared with 8,240 acres under Alternative A, and increase disturbance relative to 241 acres under Alternative C.

Alternative D would include the restoration of disturbed areas by allowing the use of native and non-native plants in limited emergency situations where they may be necessary to protect the resources or when taking no action would further degrade the resources. Using non-native plants in areas to protect resources could increase vegetation diversity and structure over the long term, and restoration activities could include techniques that would result in a faster rate of recovery relative to Alternatives B and C. This would reduce opportunities for establishment of noxious weeds and invasive species and could increase the quantity and quality of forage available for livestock grazing relative to Alternatives A, B, and C. Restoring areas on a case-by-case basis would improve vegetation diversity and structure and reduce opportunities for establishment of noxious weeds and invasive species. This could increase the quantity or quality of forage available for livestock grazing relative to Alternative A if it increases the acres restored.

Implementing conservation measures, limiting vegetation removal, and developing a restoration plan would have the same impacts as those described under Alternative B.

The main differences in implementation-level decisions, particularly the miles of routes designated for motorized use would not be anticipated to affect current grazing management, as administrative access could be granted.

4.4.3 Impacts on Recreation

This section presents potential impacts on recreation from management actions that would result in changes to the recreational settings, opportunities, and experiences. The analysis notes where a particular management action could improve the recreation setting for some users and degrade the recreation setting for others. For example, prohibiting motorized uses in a particular area could increase opportunities for solitude and primitive recreation, but decrease opportunities for vehicle touring or vehicle-based camping. Management actions that result in surface disturbance could decrease vegetation cover or otherwise alter land surfaces, subsequently affecting the recreation setting and the potential recreation experience. In contrast, management actions that restrict surface disturbance could prevent the establishment of some types of recreational facilities in some areas. This would protect settings, but potentially limit experiences. Management actions to improve resource conditions would tend to preserve the existing recreation setting; however, they could reduce opportunities for some recreation experiences, for example, through access restrictions.

The analysis of impacts on recreation is based on the following assumptions:

- Demand for recreational opportunities available in the IFNM will increase, with a corresponding increase in visitor use.
- Levels of participation in traditional recreational uses within the IFNM will continue to increase or decrease over time depending on social, economic factors, growth in the local area and region, and the popularity of activities changes and new pursuits are attracted to the Monument. Activities likely to see increased participation include: motorized/OHV recreation, wildlife viewing, environmental interpretation, hiking, mountain biking, equestrian, camping, target shooting, geocaching and use of horse-drawn coaches and wagons). Hunting is likely to continue to fluctuate depending on game populations and quality of the hunting experience, and the hunter population. Increasing recreational use will increase the potential for resource damage and conflicts between users.
- Demand for Special Recreation Permits (SRPs) will increase during the life of the plan.

- BLM will continue to issue SRPs for commercial recreational use, organized group activities, and competitive events in accordance with regulations at 43 CFR 2930.
- Management of recreational opportunities will require cooperation and coordination with private landowners or other land-managing agencies, given the land ownership pattern within and around the IFNM.
- Motorized and non-motorized vehicle use will be limited to designated roads and trails.
- Staffing will be available for law enforcement, visitor services, and use supervision required to intensively manage visitor use and resources.

The impact analyses and conclusions are based on interdisciplinary team knowledge of resources and the IFNM, review of existing literature, and information from other agencies. Effects are quantified where possible. In the absence of quantitative data, qualitative descriptions and best professional judgment were used. Analysis of impacts on recreation was conducted by researching the RMP decisions for all actions for any resource or resource use that could cause a change or changes to recreational opportunities, settings, or experiences available in the IFNM.

4.4.3.1 Impacts Common to All Alternatives

Withdrawal of the IFNM from all forms of energy and mineral entry will help preserve the natural character of the landscape, which would maintain existing recreational settings. However, administering portions or all of approximately 4,590 acres of valid existing mining claims on a case-by-case basis could impact the recreational setting by changing the natural character of the landscape as a result of surface disturbance. Mining activities also could alter the recreation experience for non-motorized recreational users if access restrictions were imposed in those localized areas. Site-specific mitigation measures identified during subsequent NEPA analysis could reduce impacts on the natural landscape and maintain recreational settings and opportunities.

Managing the IFNM 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 ignitions and emphasize wildfire prevention. Closures of localized areas during fire suppression activities would limit recreational opportunities in the short term. Fuels treatments also could limit recreational opportunities in the short term in localized areas.

Maintaining or improving soil cover and productivity could maintain existing recreational settings by preserving the soil and vegetation resources and reducing soil erosion. Managing the IFNM to meet rangeland health standards and guidelines in accordance with the Arizona Standards for Rangeland Health and Guidelines for Grazing Administration also would help maintain the recreational settings. If rangeland health standards were not being met, this could result in short-term degradation of recreational settings in localized areas. However, in these situations, recreational opportunities could be limited through access restrictions in order to achieve rangeland health standards.

Prohibiting the collection of objects, including paleontological resources, would limit surface-disturbing activities that could degrade recreational settings. However, eliminating this casual collection activity would reduce recreational opportunities in the IFNM.

Acquiring non-Federal lands could decrease the potential for surface-disturbing activities and increase the area of public land available for recreational opportunities and experiences.

In general, retention of all public land would provide for continued recreational opportunities within the IFNM (though the specific opportunities in localized areas would vary by alternative). Existing recreation

opportunities, settings, and experiences would be preserved and could increase if additional areas not presently available for public recreational use are acquired. The continued presence of two communication sites (regardless of whether additional facilities were allowed at each site) would diminish the recreational settings in localized areas near the communication sites over the long term.

Under all alternatives there would be no impacts on recreation as a result of implementation-level decisions for air quality, geology, and paleontological resources.

4.4.3.2 Alternative A (No Action)

Custodial recreation management could increase the number of vehicle-based campsites in areas near existing routes, providing for opportunities for vehicle-based camping throughout the IFNM. However, this dispersed use could result in increased surface disturbance in localized areas, degrading the natural landscape and diminishing recreational settings over time. Similarly, allowing recreational shooting outside of developed areas would provide for that recreational opportunity, but could increase surface disturbance in localized areas with frequent use, potentially diminishing the recreational settings. As a result of limiting motorized vehicle travel to existing routes, dispersed non-vehicle-based camping opportunities would be preserved in areas that are not near or accessible by existing roads. Allowing recreationists to collect wood for use in campfires including the use of rustic fireplaces and fire rings would provide for the ongoing opportunity, but could diminish the natural landscape in areas of concentrated use, which could degrade the recreational setting. Continuing to allow cross-country equestrian travel would provide for opportunities for those users to experience more remote areas of the IFNM without conflicts with motorized or non-motorized vehicles.

Managing the IFNM (128,400 acres) as VRM Class III and continuing the designation of utility corridors on 8,240 acres would allow surface disturbance throughout a majority of the IFNM, reducing naturalness and degrading recreational settings. If facilities were installed, opportunities for semi-primitive non-motorized recreation could be diminished in localized areas as a result of increased motorized uses within those areas that would be necessary to maintain the facilities. Site-specific mitigation imposed as part of any land use authorization could reduce potential impacts on the natural landscape (and associated recreational settings) and surface disturbance.

Managing 127,580 (99 percent) of the IFNM as limited to designated or existing routes would maintain opportunities for motorized recreation, throughout the monument. As motorized uses would be limited to designated or existing routes, the potential for conflicts between motorized-vehicle users and IFNM users seeking more primitive forms of recreation would be limited.

Closing 820 acres (1 percent) to OHV use, managing 41,470 acres as the Silver Bell Bighorn Sheep Management area and 2,240 acres of public land as the Waterman Mountains ACEC (including prescriptions limiting land use authorizations to areas along existing or designated routes) would restrict surface-disturbing activities in those areas, reducing opportunities for motorized vehicle travel and associated recreational uses, such as vehicle-based camping and vehicle sightseeing. Reducing surface disturbance in these areas would help maintain the existing recreational settings by preserving natural landscapes; this also would increase semi-primitive recreational opportunities.

Acquiring non-Federal mineral estate underlying Federal surface holdings could reduce surface disturbance from potential mining activities, which would help maintain existing recreational opportunities and settings in those localized areas.

The development of an activity plan for the Agua Blanca and Cocoraque Butte-Waterman Mountains Multiple Resource Management Area could restrict recreation uses and activities in localized areas where surface disturbance is restricted. In contrast, reducing surface disturbance would protect the natural

landscape and help maintain the area's recreational settings, which subsequently could increase opportunities for semi-primitive recreation and enhance the recreational experiences.

Decisions to develop and implement activity plans for Aqua Blanca Ranch and Cocoraque Butte-Waterman Mountains Multiple Resource Management Area could result in actions or restrictions that would maintain the natural landscape by improving watershed conditions, reducing erosion, and retaining vegetation – all of which would maintain the recreational settings and associated opportunities for semi-primitive non-motorized recreation. In addition, implementing the Nichol Turk's head cactus recovery plan could reduce surface disturbance resulting in enhanced watershed conditions, which could contribute to continued semi-primitive non-motorized recreational experiences in that area. However, this could restrict some types of recreation opportunities, particularly motorized recreational uses.

Providing additional stock water sources in the Twin Tanks and Cocoraque pastures would cause short-term surface disturbance, degrading the recreation setting in localized areas. Long-term this could support wildlife-based recreation (watching, hunting) activities.

Managing 346 miles of routes as open for motorized use would maintain existing recreation opportunities in those areas. However, as recreational uses in the IFNM increase, the frequency of conflicts between motorized and non-motorized recreational users would be expected to increase – as motorized and non-motorized users would share these routes.

4.4.3.3 Alternative B

Allocating the IFNM as a Special Recreation Management Area (SRMA) would be associated with the development of specific recreation niches, management objectives for recreational activities, production of varied experiences and benefits, and defining the character of the recreational settings associated with the target market(s). Within the SRMA, each RMZ would target different recreation niches, with different targeted recreation experiences (or outcomes) and settings. Most of the defined recreational settings would rely on a relatively natural, undeveloped landscape. Visitor services would support production of varied recreational experiences, with signs of management presence varying depending on the character of the setting (patrols, indirect controls, facilities, signs) associated with each RMZ. Managing the IFNM with RMZs would help maintain the recreational settings by providing five distinct RMZs that each would accommodate various uses, which could reduce conflicts between different recreational users. For example, recreationists seeking solitude could visit the Primitive RMZ, while those who prefer vehicle touring could visit the Roaded Natural or Semi-Primitive Motorized RMZs.

However, the RMZs would reduce opportunities for motorized recreation by managing 96,200 acres (75 percent) of the public lands in the IFNM for Primitive or Semi-Primitive Non-Motorized recreation opportunities and experiences. In addition, managing 38,040 acres (30 percent) as closed to OHV use also could reduce opportunities for motorized recreational experiences relative to Alternative A.

Prohibiting dogs and recreational shooting would represent the loss of certain recreational opportunities compared to Alternative A, but could result in the potential for maintaining naturalness in localized areas where shooting would no longer occur and increase the quality of other recreational experiences (i.e., bird watching, hiking, etc.). Hunters who have used public land within IFNM during the off-season to practice their hunting skills by target shooting or to sight firearms would be affected by the prohibition of recreational target shooting, although sighting of firearms in the IFNM would be permitted when in compliance with the AGFD-established hunting seasons. An indirect effect of prohibiting target shooting within IFNM is that it would shift demand for this recreational opportunity to other public lands and facilities in the region that provide for target shooting. Concentrating the use to fewer locations could result in increased resource damage, noise complaints, but safety concerns would be alleviated by site

selection, and cleanup costs from removal of target debris and other litter and site management might be more efficient due to the fewer locations.

Equestrian uses would be restricted to routes designated for motorized and non-motorized travel, limiting the type and location of recreational experiences for these users compared to Alternative A.

Except in areas where restricted, mechanized uses (such as bicycles) would be allowed on motorized routes and non-motorized primitive roads, but would be not be allowed on non-motorized trails. Because there would be fewer motorized roads with Alternative B than with the no-action alternative and because bicycles would not be allowed on non-motorized trails, bicycle use within IFNM may be more concentrated on the available routes, although some bicyclists may opt to ride in other locations outside of IFNM where there are fewer use restrictions.

Prohibiting ground-disturbing activities in areas of sensitive or fragile soils on 17,820 acres that are within the Roaded Natural and Semi-Primitive Motorized RMZs and managing 36,990 acres to protect wilderness characteristics could restrict the location of recreation facilities and the potential for recreational activities that would cause surface disturbance. In contrast, prohibiting ground-disturbing activities and managing areas to protect wilderness characteristics would help maintain the natural landscape in those areas, consistent with the allocations of the Semi-Primitive Non-Motorized, Ragged Top Watchable Wildlife, and Primitive RMZs. In addition, management and implementation actions designating public access sites, reducing erosion, or protecting vegetation could indirectly increase non-motorized recreational opportunities, by improving the setting for non-motorized activities by protecting the naturalness of the area and reducing the potential for conflicts with motorized uses.

Managing 125,110 acres (97 percent) to meet VRM Class I and II objectives, managing the IFNM as an exclusion area for rights-of-way, and managing 29,820 acres as the Desert Bighorn Sheep WHA also would reduce surface disturbance. In addition, minimizing surface disturbance during the construction, reconstruction, or maintenance of facilities, excluding new rights-of-way (to the extent possible) also could reduce surface disturbance. As a result of reduced surface disturbance, natural landscapes would be maintained, along with the associated recreational settings. Within these areas, non-motorized recreational opportunities, including wildlife watching, hunting, and dispersed non-vehicle-based camping, would be maintained or even enhanced relative to Alternative A. However, these management actions could reduce opportunities for motorized travel and motorized-based recreational uses—restricting the potential experiences to areas along designated motorized routes relative to Alternative A.

Managing 3,420 acres (3 percent) to meet VRM Class III and managing 17,610 acres as the Roaded Natural RMZ could result in surface disturbance and degrade the recreational setting in localized areas. In contrast, opportunities for motorized travel and motorized-based recreational uses would be provided in these areas, similar to the opportunities provided under Alternative A. Allowing overnight camping at identified sites only and group camping at two specific sites and establishing public access points through the travel management planning process would restrict camping and access opportunities to specific locations, but would help maintain the natural landscape and recreational settings throughout the IFNM. Fencing along travel routes would result in short-term surface disturbance in localized areas that could degrade the recreational settings and reduce the quality of semi-primitive recreation experiences in these areas.

Management actions to support control of dust emissions from vehicle travel, prevent vegetation loss, manage noxious weeds, and protection of priority or special status species habitats could restrict recreation activities and reduce recreation opportunities in localized areas. Similarly, allocating cultural sites for scientific use could result in restrictions on recreational access to protect resources causing a localized reduction in recreation opportunities relative to Alternative A.

Developing and implementing a restoration plan for the IFNM could help maintain or enhance recreational settings and, over the long term, increase recreation opportunities and experiences by restoring disturbed areas. However, restoration activities could restrict access resulting in diminished recreational opportunities or experiences in localized areas relative to Alternative A.

The travel management decisions could reduce conflicts between motorized and non-motorized users, enhancing recreation opportunities and experiences for both user groups. Non-motorized transportation by the public would be permitted on approximately 266 miles of routes, providing for more opportunities for non-motorized users, but fewer opportunities for motorized users (on 63 miles of routes), relative to Alternative A.

The removal of fences, roads, facilities, and utility lines no longer necessary for transportation, monument administration, or other purposes in their present locations would restore or enhance the natural landscape and associated recreational setting in those areas. The barriers presented by fences also would be removed, enhancing unconfined recreation activities, such as hunting or dispersed hiking and/or horseback riding. However, non-renewal of existing grazing leases when they expire may require new fences to prevent livestock grazing on adjacent non-Federal lands from wandering into IFNM, although the elimination of the leases could also eliminate potential conflicts between grazing and recreational uses.

Installing new wildlife waters could enhance wildlife-based recreation opportunities, but the water developments would have a short-term, localized impact on recreation setting from surface disturbance.

Providing adequate access to geologic sites and/or features for viewing and enjoyment (where public access would not conflict with other resource goals or uses) could enhance the recreation opportunities in the IFNM.

4.4.3.4 Alternative C

Management of RMZs would reduce opportunities for motorized recreation relative to Alternative A as approximately 73,740 acres (57 percent) of public lands in the IFNM would be allocated for Primitive or Semi-Primitive Non-Motorized recreation opportunities and experiences (including the Ragged Top area); however, this would provide more opportunities for motorized recreation relative to Alternative B. In addition, managing 10,880 acres (8 percent) as closed to OHV use could reduce opportunities for motorized recreational experiences relative to Alternative A. Prohibiting recreational shooting would have the same impacts that occur under Alternative B. Allowing dogs within the IFNM (while leashed, unless being used for hunting or livestock operations) would maintain recreational opportunities associated with those uses, such as hiking and/or hunting; however, this could diminish experiences for visitors who prefer to not encounter dogs. Allowing cross-country equestrian travel would result in the same impacts as described under Alternative A.

Mechanized uses, such as bicycles, would be allowed on approximately 124 miles of routes, which is fewer miles than with Alternative A, but more than with Alternative B. While there would be greater concentration of use areas compared to taking no action, there would continue to be adequate opportunities for dispersed bicycle use within IFNM.

Allowing ground-disturbing activities in areas of sensitive or fragile soils (with mitigation) within the Roaded Natural and Semi-Primitive motorized RMZs (which overlap on 30,720 acres) would result in diminished recreational opportunities or experiences in areas where surface disturbance affects the recreational setting. Managing 9,510 acres to protect wilderness characteristics would result in the same types of impacts as under Alternative B, though over a lesser extent (since Alternative B includes 36,990 acres managed to protect wilderness characteristics). Management and implementation actions

designating public access sites, reducing erosion, or protecting vegetation could indirectly increase non-motorized recreational opportunities and would result in the same impacts as under Alternative B.

Managing 124,900 acres (97 percent) to meet VRM Class II objectives, managing the IFNM as an avoidance area for rights-of-way, and managing 29,820 acres as the Desert Bighorn Sheep WHA would have similar impacts as those under Alternative B. However, there would be a slightly increased potential for surface-disturbing activities to occur from land use authorizations, resulting in diminished recreational settings and potential short-term restrictions on access that could reduce recreational opportunities in localized areas as a result of managing as an avoidance rather than exclusion area (for rights-of-way) and due to the less restrictive VRM class objectives on a limited number of acres.

Managing 3,420 acres (3 percent) to meet VRM Class III and managing 54,610 (43 percent) as the Roaded Natural and Semi-Primitive Motorized RMZs could result in surface disturbance and degrade the recreational setting in localized areas, but also could increase opportunities for motorized recreation experiences compared to Alternative B. Allowing overnight, dispersed, non-motorized-based camping throughout the IFNM except in specified areas for the protection of resource values would provide for opportunities that would not exist under Alternative B. Allowing group camping at three specific sites would result in the same impacts that occur under Alternative B, but at one additional site—providing for slightly increased group camping opportunities. Establishing public access points and fencing along travel routes would result in the same impacts that occur under Alternative B.

Designating utility corridors would allow for surface disturbance in localized areas, reducing naturalness and degrading recreational settings. If facilities were installed, opportunities for semi-primitive non-motorized recreation could be diminished in localized areas as a result of increased motorized uses within those areas that could be necessary to maintain the facilities. Site-specific mitigation imposed as part of any land use authorization could reduce potential impacts on the natural landscape (and associated recreational settings) from surface disturbance, as well as any restrictions that could result on recreational opportunities. These impacts would be similar to those that would occur under Alternative A, but over a lesser extent due to the reduced width of the corridors (200 to 300 feet wide under Alternative C, compared to one mile wide under Alternative A).

Allowing group tours at cultural sites open to public uses would increase recreational opportunities.

Allowing livestock grazing at all eleven allotments and acquiring the mineral rights when acquiring surface estate could help maintain the recreation setting. Short-term areas where livestock congregate could degrade the recreation setting and experience by removing vegetation. By acquiring mineral estate when acquiring surface estate, BLM could limit future surface disturbance in those areas.

Impacts from decisions to remove facilities that are no longer used, installation of wildlife waters, and providing access to geologic resources would have the same impacts as Alternative B.

Non-motorized travel by the public would be permitted on approximately 205 miles of routes and motorized travel on 124 miles of routes, representing increased motorized opportunities relative to Alternative B, but fewer than Alternative A; in contrast more non-motorized recreational opportunities would be provided relative to Alternative A, but fewer than Alternative B.

4.4.3.5 Alternative D

Management of RMZs would reduce opportunities for motorized recreation relative to Alternative A, but increase them relative to Alternatives B and C as approximately 50,270 acres (39 percent) of public lands in the IFNM would be allocated for Semi-Primitive Non-Motorized recreation opportunities and experiences (including the Ragged Top area). Limiting motorized vehicle travel to designated routes

throughout the IFNM would result in similar impacts on opportunities for motorized recreationa as Alternative A (as the 820 acres closed under Alternative A would not include any routes designated for motorized travel under Alternative D). Allowing dogs within the monument would result in the same impacts that occur under Alternative C. Allowing collection of firewood would result in the same impacts that occur under Alternative A. Allowing cross-country equestrian travel would result in the same impacts as described under Alternative A.

Establishing two designated areas consisting of approximately 629 acres for recreational shooting would continue to provide for recreational shooting opportunities, but recreation experiences would differ from that currently experienced as assessed for Alternatives A, B and C. Limiting recreational shooting to two areas would increase opportunities outside of the shooting areas for recreationists to experience solitude or recreational activities requiring quiet (such as bird watching or nature photography) compared to Alternative A and result in a localized loss of these opportunities compared to Alternatives B and C. Alternative D increases opportunities for recreational shooting compared to Alternatives B and C, and reduces these opportunities compared to Alternative A. The recreation experience for recreational shooting also would be altered because limiting recreational shooting to two designated areas could increase the number of participants at a site. This could enhance the experience by providing opportunities to socialize with persons having a common interest and to shoot in an area actively managed for shooting activity. However, sharing an area may diminish the experience for some shooters and encourage the use of other locations in which shooting is allowed outside of IFNM.

The number of miles of mechanized use routes for bicycles would be greater with Alternative D than with Alternative B and C, but fewer than with Alternative A. Continued opportunities for dispersed bicycle use would be available, but there would be use restrictions that may prompt some bicyclists to ride in regional locations outside of IFNM.

Allowing ground-disturbing activities in areas of sensitive or fragile soils within the Roaded Natural and Semi-Primitive Motorized RMZs would result in the same impacts as under Alternative C, though over a greater extent (41,420 acres, compared to 30,720 acres under Alternative C). Management and implementation actions designating public access sites, reducing erosion, or protecting vegetation could indirectly increase non-motorized recreational opportunities and would result in the same impacts as under Alternative B.

Managing 122,580 acres (95 percent) to meet VRM Class II objectives, managing the IFNM as an avoidance area for rights-of-way, and managing 29,820 acres as the Desert Bighorn Sheep WHA would have similar impacts as those under Alternative B. However, there would be a slightly increased potential for surface-disturbing activities to occur from land use authorizations, resulting in impacts to recreational settings and opportunities, including potential short-term restrictions on access.

Managing 4,220 acres (3 percent) to meet VRM Class III objective, managing 1,600 acres (1 percent) to meet VRM Class IV objectives, and managing 78,080 acres (61 percent) as the Roaded Natural and Semi-Primitive Motorized RMZs could result in surface disturbance and degrade the recreational setting in localized areas, but also could increase opportunities for motorized recreation experiences compared to Alternatives B and C. Allowing overnight dispersed non-motorized-based camping throughout the IFNM except in specified areas for the protection of resource values would result in the same impacts that occur under Alternative C. Allowing group camping at four specific sites would result in the same impacts that occur under Alternative B, but at two additional sites—providing for increased group camping opportunities. Establishing public access points and fencing along travel routes would result in the same impacts that occur under Alternative B.

Allowing group tours at cultural sites and allowing livestock grazing at all eleven allotments would have the same impacts that occur under Alternative C.

Designating utility corridors would have the same impacts as Alternative C, though over a greater extent as a result of the addition of one more corridor and the wider corridors that would be established relative to Alternative C (the corridors would be ¼-mile wide under this alternative, compared to 200- to 300-foot wide under Alternative C).

Impacts from decisions to remove facilities that are no longer used, installation of wildlife waters, and providing access to geologic resources would have the same impacts as Alternative B.

Non-motorized travel by the public would be permitted on approximately 116 miles of routes and motorized travel on 226 miles of routes, representing increased motorized opportunities relative to Alternatives B (63 miles) and C (124 miles), but fewer than Alternative A (346 miles); in contrast, more non-motorized recreational opportunities would be provided relative to Alternative A (no routes designated), but fewer than Alternatives B (266 miles) and C (205 miles).

4.4.4 Impacts on Lands and Realty

The analysis of potential effects on lands and realty from the proposed alternatives is limited to effects on land tenure (ownership) and the opportunities for land use authorizations within the IFNM. Generally, areas defined in the RMP as having restrictions for issuing land use authorizations could limit opportunities for facilities such as utilities, including, but not limited to, rights-of-way for electric generating facilities (including renewables), transmission lines, pipelines, and communication towers. In addition, various management prescriptions could alter BLM's ability to authorize land uses. For example, areas closed to OHV travel would potentially limit BLM's ability to authorize a right-of-way through that area.

The following assumptions were used when assessing the impacts on lands and realty:

- BLM would use voluntary approaches to acquire surface (and mineral) estate.
- Site-specific impacts caused by development of facilities in designated corridors or development of communication sites would be assessed in accordance with NEPA using an environmental assessment or EIS process prior to approval by BLM, and mitigation measures could be required.
- The demand for rights-of-way would increase within the life of this plan.
- Right-of-way holders may maintain their use and access at their discretion consistent within the terms of their grant.

Impact analyses and conclusions are based on an understanding of BLM's authority to acquire land within the boundary of the IFNM as well as BLM's responsibilities to authorize various uses of public land through a lands and realty program (e.g., issuing rights-of-way). Spatial analyses were conducted using GIS data and analyses. Impacts are described qualitatively to differentiate among the alternatives; impacts are quantified wherever possible. Analyses of impacts on lands and realty are based on consideration of the goals of the lands and realty program to secure non-Federal land and interests in land, and manage land use authorizations, such as rights-of-way, in a way that minimizes impacts on the natural and cultural resources of the IFNM, and their uses.

4.4.4.1 Impacts Common to All Alternatives

Under all alternatives, BLM could acquire land and incorporate those lands into the IFNM. No lands would be transferred out of Federal ownership, per the Proclamation, unless an exchange would further

the protective purposes of the monument. Under all alternatives acquisitions would be dependent upon having a willing seller. The resulting impact would be that more area within the IFNM's boundaries could be managed by BLM in the future.

BLM's ability to issue land use authorizations in localized areas may be limited by BLM's obligation to respect valid, existing mining claims.

Under all alternatives, impacts on lands and realty are not anticipated as a result of implementing management actions for the following resources and resource uses: air quality, geologic resources, fire ecology, cultural resources, paleontological resources, energy and mineral resources, and livestock grazing.

4.4.4.2 Alternative A (No Action)

Very few management prescriptions would have impact on lands and realty or BLM's ability to authorize land uses within the IFNM. Land tenure adjustments and land use authorizations would be affected primarily as a result of decisions under lands and realty, travel management, and special designations. To a lesser extent, decisions for managing vegetation and scenic and visual resources also would potentially impact lands and realty or BLM's ability to authorize land uses. No impacts on lands and realty would be anticipated under Alternative A from decisions for soil and water resources or recreation.

Land tenure adjustments would focus on acquisition of non-Federal land in the Waterman Mountains, Sawtooth Mountains, Agua Blanca Ranch area, Cocoraque Butte area, Silver Bell Mountains, and three sections of land in the West Silver Bell Mountains. Acquisitions would be driven by opportunities or land availability in these geographic areas. In addition, BLM would pursue acquisition of non-Federal mineral estate underlying Federal surface holdings, which would reduce the need for land use authorizations for surface uses in areas that are not Federal minerals—that is, BLM would have management jurisdiction over both surface and subsurface uses as a result of successful acquisitions. Also under lands and realty decisions, the existing corridors (approximately 8,240 acres of public land) would be maintained for existing and future rights-of-way (Map 2-15). Land use authorizations for major utility rights-of-way, such as high-voltage transmission lines, would be restricted to these corridors. Other rights-of-way, such as distribution lines to inholdings, could be granted in the corridors as well; however, BLM would maintain the ability to authorize uses such as these outside the designated corridors. Communication facilities would be restricted to the two designated sites. Other rights-of-way could be consolidated to the extent practicable.

Closing 820 acres to OHV (or any motorized-vehicle) travel would include about 800 acres around Ragged Top for protection of vegetation and wildlife habitat and about 20 acres for the Special Management Area. These closures could effectively restrict land use authorizations in these areas as a result of access limitations that would be enforced as part of the OHV closure. OHV travel in the remaining areas of the IFNM would be restricted to existing routes, which could limit opportunities for land use authorizations to areas along existing routes if the authorization (e.g., right-of-way) required motorized vehicle access for construction, operation, or maintenance (unless administrative access was granted for such purposes).

Continuing the designation of the Waterman Mountains ACEC (shown on Map 2-3) and its associated management prescriptions for the protection of the Nichol Turk's head cactus would restrict BLM's opportunities to authorize land uses (e.g., rights-of-way) to areas along existing routes on the 2,240 acres of public land within the ACEC. The 60 miles of existing roads within the ACEC would provide numerous opportunities for rights-of-way within the ACEC.

Development and implementation of an activity plan for the Cocoraque Butte–Waterman Mountains Multiple Resource Management Area could result in additional, but very localized restrictions to land use authorizations in that area to meet natural resource objectives. Cocoraque Butte is a special restriction area for vehicle travel (refer to Map 2-19), which is essentially managed as closed to motorized vehicle travel.

Managing public lands within the IFNM as VRM Class III would not preclude land use authorizations, but would allow only moderate changes to the landscape, not "major modification" of the landscape character. As such, land use authorizations requiring major modifications would not be permitted, or proponents of such uses would be required to implement mitigation measures to, at a minimum, partially retain the landscape character.

The implementation-level decisions under Alternative A generally would be analyzed on a site-specific basis for their impacts on lands and realty. However, under travel management, limiting motorized vehicle travel to existing routes (Map 2-19) could effectively limit opportunities for future rights-of-way or other land use authorizations that may require additional access routes (unless administrative access was granted for such purposes).

4.4.4.3 Alternative B

Land use authorizations under this alternative would be restricted primarily as a result of decisions under lands and realty, soil and water resources, wildlife and wildlife management, special status species, scenic and visual resources, recreation, and travel management. To a lesser extent, decisions for managing vegetation also would potentially impact lands and realty or BLM's ability to authorize land uses.

Land tenure adjustments would focus on acquisition of non-Federal land throughout the monument, on an opportunistic basis, rather than within specific areas. This would provide greater flexibility for BLM in prioritizing land for acquisition and would account for ongoing, changing conditions in and around the IFNM. In addition, BLM would pursue acquisition of non-Federal mineral estate underlying Federal surface holdings, which would reduce the need for land use authorizations for surface uses in areas that are not Federal minerals—that is, BLM would have management jurisdiction over both surface and subsurface uses as a result of successful acquisitions. BLM would not acquire surface estate unless subsurface estate (minerals) could be acquired concurrently, in order to ensure that management of the acquired lands would be consistent with the goals of the IFNM. As a result, this could limit acquisition opportunities in some areas. Over time, these decisions would lead to increased land being managed as part of the IFNM under BLM's jurisdiction.

Allocating all of the public lands within the IFNM, approximately 128,400 acres, as an exclusion area (without any designated utility corridors), would result in the consideration of land use authorizations such as rights-of-way (including renewable energy projects) only when required by law. The only exception would be at two designated communication sites, where communication facilities would be authorized on up to a total of approximately 5 acres of public land. These decisions would effectively prohibit new land use authorizations within the IFNM; existing right-of-way authorizations would be allowed to continue and may be renewed in accordance with 43 CFR 2800, which regards rights-of-way under FLPMA. In the event that a land use authorization was required by law, mitigation could be required to ensure protection of monument objects.

Prohibiting ground-disturbing activities in areas of fragile and sensitive soils would severely restrict land use authorizations in those areas. Similarly, prohibiting surface water diversions and groundwater pumping that removes water from the IFNM could limit land use authorizations associated with those types of activities.

Eliminating livestock grazing as existing leases expire would not have a direct effect on lands and realty within IFNM, but could indirectly diminish the value of nearby State Trust or private land for ranching purposes.

Establishing the Desert Bighorn Sheep WHA to protect habitat lambing areas and movement corridors, and limiting public access within localized areas of the WHA during lambing season could result in localized restrictions on land use authorizations; however, the allocation of the IFNM as an exclusion area for rights-of-way would almost entirely eliminate the potential for any land use authorizations to occur within this area at all.

Establishing the Waterman Mountains Vegetation Habitat Management Area (VHA) and its associated management prescriptions would restrict land use authorizations (unless necessary or required by law within the exclusion area) to areas located along routes designated for motorized travel.

Designating 36,990 acres of the IFNM as VRM Class I, 88,120 acres as VRM Class II, and 3,290 acres as VRM Class III (Map 2-7) would result in restrictions on any required land use authorizations to comply with the objectives for the respective management class. Opportunities for land use authorizations in areas managed as VRM Class I would be severely limited, while some, but limited, opportunities for land use authorizations would be available in VRM Class II areas. Areas designated as VRM Class III would provide the greatest opportunities for land use authorizations, particularly those that would be noticeable within the landscape.

The RMZs under Alternative B would result in approximately 96,200 acres of public land being managed for non-motorized recreational opportunities (which includes approximately 29,420 acres of Primitive RMZ, 6,780 acres of Ragged Top Wildlife Viewing RMZ, and 60,000 acres of Semi-Primitive Non-Motorized RMZ) (Map 2-12), consistent with the routes designated as closed to motorized vehicle travel. Land use authorizations, though not specifically restricted in these areas under the recreation decisions, could effectively be limited due to the reduced opportunities for motorized access in these areas (unless administrative access was granted for such purposes). Opportunities for land use authorizations would be greatest within the 17,610-acre Roaded Natural RMZ and the 14,540-acre Semi-Primitive Motorized RMZs.

Closing approximately 38,040 acres to OHV travel would result in further restrictions on land use authorizations in those areas (primarily associated with the Primitive RMZ and areas managed to protect wilderness characteristics) (Map 2-20), beyond the restrictions that already would occur as a result of allocating the IFNM as an exclusion area for land use authorizations. OHV travel in the remaining area of the IFNM would be restricted to designated routes, which would limit opportunities for land use authorizations to areas along those designated routes if the authorization (e.g., right-of-way) required motorized vehicle access for construction, operation, or maintenance (unless administrative access was granted for such purposes).

Minimizing or mitigating for surface-disturbing activities under vegetation could result in localized restrictions to land use authorizations.

The implementation-level decisions under Alternative B generally would be analyzed on a site-specific basis for their impacts on lands and realty. However, under travel management, vehicle travel would be limited to 63 miles of routes designated for motorized vehicle travel (Map 2-20), which could limit opportunities for future rights-of-way or other land use authorizations if additional access and/or routes were required for that specific right-of-way (unless administrative access was granted for such purposes).

4.4.4.4 Alternative C

Under Alternative C, land use authorizations would be restricted primarily as a result of decisions under lands and realty, soil and water resources, wildlife and wildlife management, special status species, scenic and visual resources, recreation, and travel management. To a lesser extent, decisions for managing vegetation also would potentially impact lands and realty or BLM's ability to authorize land uses.

Land tenure adjustments for surface and/or subsurface estate would occur as described under Alternative B, with the same impacts.

All of the public lands within the IFNM except two designated utility corridors (one for underground utilities only, and one for underground or overhead utilities, totaling 241 acres) would be allocated as avoidance area for future rights-of-way (including renewable energy projects). Similar to Alternative A, land use authorizations for major utility rights-of-way would be restricted to the designated corridors, and other rights-of-way could be granted in the corridors. Though BLM would maintain the ability to authorize land uses such as these outside the designated corridors, the allocation of the IFNM as an avoidance area would limit opportunities for rights-of-way. As with Alternative B, communication facilities would be restricted to the two designated sites, totaling approximately 5 acres of public land; this would provide for two localized and very limited opportunities for additional communication facilities within the IFNM. Existing rights-of-way would be allowed to be renewed in accordance with 43 CFR 2800.

Ground-disturbing activities in areas of fragile and sensitive soils would be allowed rather than prohibited compared to Alternative B, which would provide opportunities for land use authorizations in those areas. However, site-specific restrictions and/or mitigation could be required.

Establishing the Desert Bighorn Sheep WHA and Waterman Mountains VHA would have the same impacts as those described under Alternative B.

Designating approximately 122,580 acres to VRM Class II and approximately 4,220 acres to VRM Class III (Map 2-8) would result in restrictions on land use authorizations to comply with the objectives for the respective management class. Opportunities for land use authorizations would be limited, though not completely prohibited, in VRM Class II areas, and some restrictions also would apply in VRM Class III areas. The approximately 80 acres designated as VRM Class IV would not greatly restrict land use authorizations, given the objectives of that VRM class.

The recreation zoning under Alternative C would result in approximately 73,740 acres of public land being managed for non-motorized recreational opportunities (which includes approximately 57,450 acres of public land identified as Semi-Primitive Non-Motorized RMZ, 6,780 acres of public land identified as the Ragged Top Wildlife Viewing RMZ and approximately 9,510 acres of public land identified as a Primitive RMZ) (Map 2-13), consistent with the routes designated as closed to motorized vehicle travel. Though land use authorizations are not specifically restricted in these areas according to the recreation decisions, authorizations would effectively be limited due to the reduced opportunities for motorized access in these areas (unless administrative access was granted for such purposes). Opportunities for land use authorizations would be greatest within the 18,380-acre Roaded Natural RMZ and the 36,230-acre Semi-Primitive Motorized RMZs.

Closing approximately 10,880 acres to OHV travel would result in restrictions on land use authorizations in those areas (Map 2-21), beyond the restrictions that already would occur as a result of allocating the IFNM as an avoidance area for land use authorizations. OHV travel in the remaining area of the IFNM would be restricted to designated routes, which would limit opportunities for land use authorizations to areas along those designated routes if the authorization (e.g., right-of-way) required motorized vehicle

access for construction, operation, or maintenance (unless administrative access was granted for such purposes).

Minimizing or mitigating for surface-disturbing activities would result in similar impacts as those that would occur under Alternative B.

The implementation-level decisions under Alternative C generally would be analyzed on a site-specific basis for their impacts on lands and realty. However, under travel management, motorized vehicle travel would be limited to 124 miles of routes designated for motorized travel (Map 2-21), which would limit opportunities for future rights-of-way or other land use authorizations that may require additional access routes (unless administrative access was granted for such purposes).

4.4.4.5 Alternative D

Land use authorizations would be restricted primarily as a result of decisions under lands and realty, soil and water resources, wildlife and wildlife management, special status species, scenic and visual resources, recreation, and travel management. To a lesser extent, decisions for managing vegetation also would potentially impact lands and realty or BLM's ability to authorize land uses.

Land tenure adjustments for surface and/or subsurface estate would occur as described under Alternative B, with the same resulting impacts, except mineral estate acquisitions would not be required as part of surface estate acquisitions. This could result in an increase in the amount of split estate land within the IFNM, where BLM would not have jurisdiction to manage or prohibit uses of subsurface estate.

All of the public lands within the IFNM except three designated utility corridors (one for underground utilities only, and two for underground or overhead utilities) would be allocated as avoidance area for future rights-of-way (including renewable energy projects). Impacts would be similar to those described under Alternative C, though with a greater area allocated for corridors (2,660 acres) compared to Alternative C (241 acres).

Allowing ground-disturbing activities in areas of fragile and sensitive soils would result in the same impacts as those described under Alternative C.

Establishing the Desert Bighorn Sheep WHA and Waterman Mountains VHA would have the same impacts as those described under Alternative B.

Designating approximately 122,580 acres to VRM Class II and approximately 4,220 acres to VRM Class III (Map 2-9) would result in restrictions on any required land use authorizations to comply with the objectives for the respective management class. Opportunities for land use authorizations would be limited, though not completely prohibited in VRM Class II areas, and some restrictions also would apply in VRM Class III areas. The approximately 1,600 acres designated as VRM Class IV, primarily associated with utility corridors, would not greatly restrict land use authorizations, given the objectives of that VRM class.

The recreation zoning under Alternative D would result in approximately 50,270 acres of public land being managed for non-motorized recreational opportunities (which includes approximately 43,770 acres of public land identified as Semi-Primitive Non-Motorized RMZ and 6,500 acres of public land identified as the Ragged Top Wildlife Viewing RMZ) (Map 2-14), consistent with the routes designated as closed to motorized vehicle travel. Though land use authorizations are not specifically restricted in these areas according to the recreation decisions, authorizations could be limited due to the reduced opportunities for motorized access in these areas (unless administrative access was granted for such purposes).

Opportunities for land use authorizations would be greatest within the 19,060-acre Roaded Natural RMZ and the 59,020-acre Semi-Primitive Motorized RMZs.

No areas would be closed to motorized vehicle travel; OHV travel on public lands would be restricted to designated routes (Map 2-22), which would limit opportunities for land use authorizations to areas along those designated routes if the authorization (e.g., right-of-way) required motorized vehicle access for construction, operation, or maintenance (unless administrative access was granted for such purposes).

Minimizing or mitigating for surface-disturbing activities would result in similar impacts as those that would occur under Alternative B.

The implementation-level decisions under Alternative D generally would be analyzed on a site-specific basis for their impacts on lands and realty. However, under travel management, motorized vehicle travel would be limited to 226 miles of routes designated for motorized travel (Map 2-22), which would limit opportunities for future rights-of-way or other land use authorizations that may require additional access routes (unless administrative access was granted for such purposes).

4.4.5 Impacts on Travel Management

The analysis of effects on travel into and within the IFNM—including access to areas within the monument—from management decisions proposed under the alternatives focuses on the loss or gain of access for motorized and non-motorized surface travel and air transportation. The impacts are determined by whether current access throughout the IFNM would be changed and the degree to which management would meet the goals and objectives for travel management.

Monument ingress and egress would be affected by surface travel route closures, limitations, and other management actions limiting access. Increased access by way of new route designations, route maintenance, and the opening of closed areas would affect surface travel. Changes to access of inholdings also would affect surface travel.

The following assumptions were used when assessing the impacts on travel and access:

- During implementation planning, the BLM will assess all proposed actions for site-specific effects in order to avoid long-term impairment of travel and access to areas within the monument.
- Changes to travel management, as outlined in each alternative, will be consistent with the other management decisions proposed under that particular alternative.
- Regional population growth, as well as national monument status, will result in a general trend of increasing visitation and use of the open roads on the public lands within the IFNM boundaries.

Impact analyses and conclusions are based on study of the project area and existing planning documents. Spatial analyses were conducted using GIS data. Impacts are quantified where possible or described in qualitative terms, if appropriate. Impacts on travel and access would include short- or long-term effects from changes in access for OHV travel, and changes in the routes that are available for motorized and non-motorized surface travel.

4.4.5.1 Impacts Common to All Alternatives

Erosion prevention measures and land treatments to maintain and improve soil cover and productivity would correct drainage and erosion problems on existing travel routes, improving road conditions. Such measures and/or treatments would be applied to routes consistent with OHV use designations and individual route designations.

Under all alternatives, wildfire on the IFNM would be suppressed in all instances. Fire suppression activities could require emergency access that may not be accommodated by the travel route system. As a result, additional routes, though possibly only temporary and administrative, could be required for management of wildfires or to conduct fuels treatments. Overall, this would not increase the routes or areas where motorized uses would be allowed.

Mining activity within the IFNM would continue to be administered on a case-by-case basis. Access needs related to mining claims would be accommodated consistent with OHV areas and route designations under each alternative, to the extent possible. However, valid existing mining claims could require additional access that may not be accommodated by the travel route system. As a result, additional routes could be established for the specific purpose of exercising a valid existing mining claim. Site-specific impacts would be identified and mitigated through subsequent NEPA analysis.

Acquiring lands would protect and potentially expand public travel and access within the IFNM because additional routes and access points could become available for public use. These potential localized changes to travel management would be addressed on a case-by-case basis. In contrast, the acquisition of non-Federal mineral estate would eliminate potential access needs related to the private development of minerals on split estate.

No impacts on travel management would occur as the result of decisions for geological resources, vegetation, special status species, paleontological resources, livestock grazing, or special designations.

4.4.5.2 Alternative A (No Action)

Restrictions on travel within the IFNM would result primarily from the travel management decisions. To a lesser extent, decisions for managing wildlife and wildlife habitat, lands and realty, scenic and visual resources, and recreation also could affect travel management. No impacts on travel management would result from management decisions for air quality, cultural resources, or wilderness characteristics because the management decisions proposed for these resources under Alternative A would not result in restrictions on travel management or increased access within the IFNM. However, while not a management decision, the increased visitation to IFNM associated with recreational demand and regional population growth may result in heavier use of existing travel routes. This could result in increased vehicle emissions within the IFNM boundaries and more human interactions that could affect cultural resources or degrade wilderness characteristics.

Motorized travel within the IFNM would be limited to existing routes in accordance with the Proclamation (a total of 346 miles of roads and trails). Closing 820 acres to OHV travel and limiting motorized vehicle travel to existing (or designated) routes on the remaining approximately 127,580 acres would provide an extensive travel network throughout the IFNM, with very few areas where motorized travel would be prohibited. Approximately 800 acres of the closure would occur around Ragged Top to protect wildlife and wildlife habitat, and the remaining 20 acres would occur in the Special Management Area. Cross-country equestrian uses would be allowed, providing for access into remote areas by equestrian users, but that could result in the establishment of additional trails from continued use.

Maintaining three 1-mile-wide utility corridors within the IFNM and allowing rights-of-way throughout the IFNM would require continued access for construction and maintenance of such facilities (though administrative access could be granted for such purposes).

Designating the IFNM entirely as a VRM Class III area and continuing custodial management for recreation would support the travel-management decision that limits motorized travel to existing routes throughout the IFNM (except within the 820 acres that would be closed); these decisions would not generate any additional direct impacts on travel management. Cross-country horseback riding would

continue, resulting in increased public access into remote areas, but such use could result in the establishment of additional trails.

The implementation-level decision designating approximately 346 miles of routes for motorized vehicle travel (i.e., the existing routes) would provide extensive access throughout the IFNM for both motorized and non-motorized uses.

4.4.5.3 Alternative B

Restrictions on travel within the IFNM would result primarily from the travel-management decisions. To a lesser extent, decisions for managing air quality, soil and water resources, wildlife and wildlife habitat, cultural resources, lands and realty, scenic and visual resources, areas managed to protect wilderness characteristics, and recreation also could affect travel management.

Closing approximately 38,040 acres (almost 30 percent of the public lands within the IFNM) to motor vehicle travel and limiting motorized vehicle travel to designated routes on 90,360 acres would restrict travel and access within the IFNM, compared to Alternative A. Restricting access into the IFNM to locations designated through the travel management planning process would limit access from nearby areas, but also could prevent the proliferation of unauthorized routes from various locations. Travel and access restrictions would be associated with VRM Class I areas, areas managed to protect wilderness characteristics, protection of cultural resources, and the Primitive RMZ.

Controlling fugitive dust emissions, particularly through the use of road-use restrictions that limit or eliminate access, could affect travel management in localized areas.

Prohibiting surface disturbance to protect soil and water resources in areas of sensitive or fragile soils could constrain travel and access in those areas, particularly from future consideration of new route development.

Allocating approximately 29,820 acres for the Desert Bighorn Sheep WHA would reduce public access to that area; lambing areas would be closed year-round to all motorized travel, and to non-motorized travel (and public entry) during the lambing season.

As no cultural resource sites would be allocated to public use under Alternative B, access to such sites could be restricted in localized areas.

Eliminating the utility corridors within the IFNM and allowing rights-of-way only when required by law (i.e., allocating the entire IFNM as a right-of-way exclusion area) would limit the need for additional access for construction and maintenance of such facilities. Access for existing facilities would not be affected.

Designating a majority of the IFNM as VRM Classes I and II areas (36,990 and 88,120 acres, respectively), managing 36,990 acres to protect wilderness characteristics, and designating approximately 96,200 acres as non-motorized RMZs (including the Primitive, Ragged Top Wildlife Viewing, and Semi-Primitive Non-Motorized RMZs) would support the travel-management decisions to close 38,040 acres to motorized uses and limit motorized travel to designated routes on the remaining 90,360 acres. Limiting vehicle-based and dispersed camping to identified sites and limiting large-group camping to two sites would restrict access for camping to specific areas within the IFNM. Cross-country horseback riding would not be allowed, resulting in a lack of access to remote areas by equestrian users, but also preventing the proliferation of unauthorized trails; however, equestrian travel would be allowed on routes designated for motorized and non-motorized travel. In addition, six staging areas would be established for equestrian users of the IFNM, limiting areas where users could access the IFNM.

The implementation-level decision that would designate approximately 63 miles of routes for motorized vehicle travel would provide limited access throughout the monument for both motorized and non-motorized uses, which would be much more restrictive for motorized uses relative to Alternative A. In addition, there would be a provision to provide increased access, as necessary, on a case-by-case basis, which could result in surface disturbance in a localized area. However, other routes could be reclaimed if they are no longer needed for transportation, wildlife management, monument administration, or other purposes.

4.4.5.4 Alternative C

Restrictions on travel within the IFNM would result primarily from the travel management decisions. To a lesser extent, decisions for managing air quality, soil and water resources, wildlife and wildlife habitat, cultural resources, lands and realty, scenic and visual resources, areas managed to protect wilderness characteristics, and recreation also could affect travel management.

Closing approximately 10,880 acres (about 8 percent of the public lands within the IFNM) to motorized travel and limiting it to designated routes for on 117,520 acres would be more restrictive relative to travel and access compared to Alternative A, but less restrictive compared to Alternative B. Restricting access into the IFNM to locations designated through the travel management planning process would result in the same impacts as described under Alternative B. Travel and access restrictions would be associated with management for wildlife habitat, protection of cultural resources, and the Primitive RMZ.

Controlling fugitive dust emissions would have the same impacts as those described under Alternative B.

Travel and access could be constrained (but not eliminated) where protection of soil and water resources (in areas of sensitive or fragile soils) would restrict, but not prohibit, surface disturbance, providing for greater travel and access opportunities relative to Alternative B.

Allocating approximately 29,820 acres for the Desert Bighorn Sheep WHA would result in the same impacts as those described under Alternative B.

Allocating cultural resource sites to public use would provide opportunities for increased access into localized areas, which would be precluded under Alternative B.

Allocating two 200- to 300-foot-wide utility corridors and allocating the IFNM as a right-of-way avoidance area would limit the need for additional access for construction and maintenance of facilities to a greater extent compared to Alternative A (1-mile-wide corridors), and to a lesser extent, relative to Alternative B (no corridors). Access for existing facilities would not be affected.

Designating a majority of the IFNM as VRM Class II (124,900 acres), managing 9,510 acres to protect wilderness characteristics, and designating approximately 73,740 acres to non-motorized RMZs (including the Primitive, Ragged Top Wildlife Viewing, and Semi-Primitive Non-Motorized RMZs) would support the travel-management decisions to close 10,880 acres to motorized uses and limit motorized travel to designated routes on the remaining 117,520 acres. Limiting vehicle-based camping to identified sites and limiting large-group camping to three sites would restrict access for camping (except dispersed non-motorized-based camping) to specific areas within the IFNM. Cross-country horseback riding would be allowed under this alternative, providing similar access for equestrian users that would be available under Alternative A, and increased access compared to Alternative B. Cross-country horseback riding would result in increased public access into remote areas, but such use could result in the establishment of additional trails from continued use. Providing six staging areas for equestrian users would have the same impacts as described under Alternative B.

The implementation-level decision designating approximately 124 miles of routes for motorized vehicle travel would provide limited access throughout the IFNM for both motorized and non-motorized uses, which would be much more restrictive for motorized uses compared to Alternative A, though less restrictive compared to Alternative B. Provisions for increased access and route reclamation would result in the same impacts as those described under Alternative B.

4.4.5.5 Alternative D

Restrictions on travel management within the IFNM would result primarily from the travel-management decisions. To a lesser extent, decisions for managing air quality, soil and water resources, wildlife and wildlife habitat, cultural resources, lands and realty, scenic and visual resources, areas managed to protect wilderness characteristics, and recreation also could affect travel management.

Limiting motorized vehicle use to designated routes on 128,400 acres would be more restrictive of travel and access within the IFNM relative to Alternative A, but less restrictive relative to Alternatives B or C. Restricting access into the IFNM to locations designated through the travel management planning process would result in the same impacts as those described under Alternative B.

Controlling fugitive dust emissions would have the same impacts as those described under Alternative B.

Management to protect soil and water resources (in areas of sensitive or fragile soils would allow greater access to those areas, relative to Alternative B, and the same access, relative to Alternative C (ground disturbance would be restricted rather than prohibited) as described under Alternative C.

Allocating approximately 29,820 acres for the Desert Bighorn Sheep WHA would result in the same impacts as described under Alternative B.

Allocating cultural resources sites to public use would have the same impacts as described for Alternative C.

Allocating three ¼-mile utility corridors and allocating the IFNM as a right-of-way avoidance area (outside those corridors) would limit the need for additional access for construction and maintenance of facilities, to a greater extent than under Alternative A (due to the 1-mile corridor width under Alternative A), but to a lesser extent than Alternatives B (no corridors) or C (two 200 to 300-foot-wide corridors). Access for existing facilities would not be affected.

Designating a majority of the IFNM as a VRM Class II area (122,580 acres) and approximately 50,270 acres to non-motorized RMZs (including the Ragged Top Wildlife Viewing and Semi-Primitive Non-Motorized RMZs) would support the travel-management decision limiting motorized travel to designated routes, which would affectively limit access throughout the IFNM. Limiting vehicle-based camping to identified sites and limiting large-group camping to four sites would result in impacts similar to those described under Alternative C. Cross-country horseback riding would be allowed with the same resulting impacts as described for Alternative C. Providing six staging areas for equestrian uses would have the same impacts as those described under Alternative B.

The implementation-level decision designating approximately 226 miles of routes for motorized vehicle travel would provide limited access throughout the IFNM for both motorized and non-motorized uses, which would be much more restrictive for motorized uses relative to Alternative A (346 miles), though less restrictive relative to Alternatives B (63 miles) or C (124 miles). Provisions for increased access and route reclamation would result in the same impacts as those described for Alternative B.

4.4.6 Impacts on Special Designations

Special designations provide additional protection for areas with unique natural, historic, scenic, or recreational resources. The existing Waterman Mountains ACEC is the only such designation in the IFNM (the same area is identified as the "Waterman Mountains VHA" under all other alternatives). The area was originally designated to protect habitat for the Nichol Turk's head cactus.

The following assumptions were used when assessing the impacts on special designations:

- Only changes as to whether the Waterman Mountains ACEC would be designated would affect ACECs.
- Specific impacts on resources or uses resulting from the continuation or elimination of the Waterman Mountains ACEC are included under resource sections (e.g., vegetation and special status species).

Impacts are described qualitatively to differentiate among the alternatives, and are quantified wherever possible.

4.4.6.1 Impacts Common to All Alternatives

No impacts would be common to all alternatives, as the Waterman Mountains ACEC would only remain designated under Alternative A.

4.4.6.2 Alternative A (No Action)

Under Alternative A, only decisions for special status species and special designations would affect ACECs. The Waterman Mountains ACEC (approximately 2,240 acres of BLM-administered land) would continue to be designated for the protection of the Nichol Turk's head cactus.

4.4.6.3 Alternative B

Under Alternative B, the 2,240-acre Waterman Mountains ACEC designation would not continue because the IFNM designation and management proposed for the IFNM (in this plan) would provide protection of the special status species for which the ACEC was established.

4.4.6.4 Alternative C

Under Alternative C, the 2,240-acre Waterman Mountains ACEC designation would not continue because the IFNM designation and management proposed for the IFNM (in this plan) would provide protection of the special status species for which the ACEC was established.

4.4.6.5 Alternative D

Under Alternative D, the 2,240-acre Waterman Mountains ACEC designation would not continue because the IFNM designation and management proposed for the IFNM (in this plan) would provide protection of the special status species for which the ACEC was established.

4.5 IMPACTS ON SOCIAL AND ECONOMIC RESOURCES

The social and economic conditions are characterized by the needs, demands, and values of the local, regional, and National publics as well as the economic opportunities, benefits, and constraints that are represented by the IFNM. The programs with the strongest correlation between BLM management and social and economic conditions are energy and minerals, grazing, recreation, and lands and realty.

This analysis of the potential social and economic impacts of the alternatives for the IFNM RMP considers the current contribution (i.e., impact) of IFNM to the social and economic environment of the region (i.e., social and economic study area, see Section 3.5). Economic impacts are defined as expected gains or losses from market transactions on local jobs and income and market and non-market value of resources to users. Social impacts are defined as the consequences to human populations that alter the way in which people live, work, recreate, relate to one another, organize to meet their needs, and generally cope as members of society. Social impacts also include cultural impacts involving changes to the norms, values, and beliefs that guide and rationalize their cognition of themselves and their society (Interorganizational Committee on Principles and Guidelines 2003). Social impacts are defined as direct, meaning that they would potentially result from the action taken, or secondary, meaning that they result from the primary or direct impacts and often are separated from the direct impact in terms of both time and geographic distance.

Key economic impact variables that were considered as part of the analysis include employment, income, economic dependency, and market and nonmarket economic value of resources to users within the social and economic study area and at the regional and national levels. Key social impact variables include population change, community and institutional structures, political and social resources, community and family changes, and community resources.

Impact analyses and conclusions are based on interdisciplinary team knowledge of social and economic conditions within the planning and decision areas, which included BLM specialists from the Tucson Field Office and cooperating agencies, as well as a review of existing literature. Effects are quantified where possible using field investigations, demographic data and geographic information systems. In the absence of quantitative data, the magnitude of impacts is described qualitatively.

It is assumed that the current trends for economic and social needs, demands and values will continue for the next 20 years.

4.5.1 Impacts Common to All Alternatives

Regardless of alternative, management of the IFNM would continue to be subject to compliance with the Proclamation, which emphasizes the protection of monument objects. All alternatives would continue to recognize the social value of resource protection and include minor to moderate expenditures and earnings associated with BLM management of the IFNM. The national monument designation is an expression of the broad social value that public land with notable biological, cultural, and geological resources should be conserved. All alternatives for management of IFNM support the objectives of the Proclamation, and consequently contribute to the protection of social values in the IFNM.

In accordance with the Proclamation, the IFNM would continue to be withdrawn from location, entry, and patent under the mining laws, and from disposition under all laws relating to mineral and geothermal leasing. Only those unpatented mining claims within the IFNM that predate the establishment of the IFNM could potentially be developed; and that development would continue to be subject to establishment of valid rights. Since there currently is no activity within the decision area associated with nonmetallic mineral mining, salable minerals, leasing and development for fluid minerals, or permits for energy resources, no existing operations within the IFNM would be affected by BLM management decisions. However, off-stie mineral mining operations could be affected from a slightly increased demand because mineral materials necessary for road maintenance and other activities within the IFNM would be imported from those offsite locations. The withdrawal does preclude the potential economic development of undiscovered mineral resources. Where development on valid existing rights occurs, economic gains would be realized commensurate with the scale of the activity. As the majority of the active mining claims in the IFNM are owned by Asarco Silver Bell Mining, L.L.C. and almost all of the

claims are located around the Silver Bell Mountains, social impacts would be minimal and localized in scale because activities would be clustered in the same previously disturbed area. Two other claimants own the remaining claims. There also would be the social value in the continued access to strategic mineral resources. Regardless of alternative, any proposals to develop valid existing rights would be subject to site-specific, case-by-case review of plans of operation, reclamation plans and other development plans to ensure that objects of the monument are protected prior to authorization.

Land acquisitions could result in the acquisition of mineral rights that would then be withdrawn from future exploration and development by virtue of the Proclamation. This would preclude the potential economic development of these resources. Acquisition of mineral rights supports those values and beliefs that the IFNM should not be disturbed by mining activities and is counter to those values and beliefs that these resources should be accessible and economic opportunities realized.

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.

Fire suppression and associated programs would continue to have minor socioeconomic impacts related to protection of life and property, fire ecology, aesthetics, and the employment and expenditures related to these programs.

Arizona Standards for Rangeland Health and Guidelines for livestock grazing would be implemented, affecting both resource management decisions and livestock grazing. Associated socioeconomic conditions (addressed in Section 3.5) would continue to be affected because this management supports local ranching and promotes sustainable use of public land for grazing. All alternatives would have potential for only minor fiscal impacts, changes in Payment in Lieu of Taxes (PILT) payments, or changes in the BLM budgetary process.

The following socioeconomic impacts would be common to all alternatives. Land use authorizations for permits and easements would continue to be considered on a case-by-case basis, contingent on compatibility with the natural and cultural resource goals of the IFNM. Social and economic impacts related to permits and easements would be driven primarily by the support provided to local livestock grazing, recreation, and mineral and other development. Under all alternatives, the implementation decision to limit vehicle use to designated routes would not preclude access for development of mineral resources where valid existing rights exist.

Under all alternatives, there would be no environmental justice impacts because there would be no disproportionate adverse impacts to minority and/or low income populations as a result of implementation of the proposed management alternatives.

4.5.2 Alternative A (No Action)

Under the No Action Alternative, BLM management of public lands in the IFNM would continue under current management direction. The implications for energy and minerals, livestock grazing, recreation, and lands and realty are detailed below. For other resources, management and implementation decisions would generally recognize the social values for the protection of air quality, geologic resources, soil and water resources, vegetation, wildlife and wildlife habitat, special status species, cultural resources, paleontological resources, special designations, and management of lands with wilderness\s characteristics. Under existing management decisions, some of the issues or concerns expressed during scoping and ongoing public involvement would not be addressed through the RMP process.

Under Alternative A, mineral or energy resources would continue to be subject to review on a case-by-case basis, and mitigation and management requirements would be required in accordance with existing management decisions. The social impact would be mixed: favorable to those that value protection of lands from impacts that would be associated with mineral or energy resource development, but unfavorable to those who value the potential development of mineral and energy resources on public lands.

The continuation of the management decisions for the 41,470-acre Silver Bell Desert Bighorn Sheep Management Area (to acquire land within this area and, thereby, withdraw these lands without valid existing rights from development per the Proclamation) could limit options for the development of mineral and energy resources. There are mining claims in this area, which is part of a copper mineral district. However, the continuation of existing management decisions for the 800-acre portion of the Silver Bell Desert Bighorn Sheep Management Area (to prohibit surface occupancy for oil/gas development and designate the area as closed to OHVs) would have no impact because there are no valid existing rights in this area and, therefore, the affected area is withdrawn for mineral and energy development per the Proclamation.

The continuation of the management decision to acquire through exchange non-Federal mineral estate underlying Federal surface holdings in the Silver Bell RCA would continue to result in the withdrawal of these mineral resources from exploration and development per the terms of the Proclamation. Acquisition of additional lands in the Sawtooth Mountains CRMA could result in the acquisition of mineral rights, with similar potential impacts on economic gains. The Sawtooth Mountains include a manganese mineral district.

Alternative A would allow continued open range ranching at the IFNM, which is considered an important part of regional history and community. Economic gains from livestock operations and the BLM grazing fees would be tied to allowable stocking of cattle on grazing allotments, which would continue to be commensurate with annual rainfall and maintenance of Rangeland Health Standards. Ongoing application of the guidelines for grazing administration from BLM's Arizona Standards for Rangeland Health and Guidelines for Grazing Administration would continue to potentially lead to adjustments in stocking rates or require range improvements that could have economic impacts, including adjustments in livestock operators' income and expenditures and grazing fees paid to BLM.

The continuation of existing recreation management programs would result in relatively minor economic impacts due to visitor expenditures and highly varied social impacts associated with the availability and quality of recreation activities in the IFNM. Many of the issues and concerns raised during public scoping and ongoing public involvement for this plan were centered around potential impacts on resources from recreation uses of the IFNM. Without changes in current management, some of these issues and concerns would not be addressed by the RMP process. Associated social effects, such as conflicts among uses, would continue and possibly escalate.

The continuation of existing management of realty actions would have minor impacts on the potential economic activity associated with development related to lands and realty transactions. Land acquisition strategies would be focused on pre-monument status and existing right-of-way corridors would remain and allow for additional use and new right-of-way development. Development within existing or new rights-of-way would have potential social impacts related to the location the development, and economic impacts on the service population affected by infrastructure improvements. These impacts would be evaluated on a site-specific basis in accordance with NEPA.

Continuing to limit motorized vehicle use to existing routes would potentially result in additional expense for project proponents and localize social impacts to those viable options for siting facilities along existing routes.

Decisions to meet public land health standards or protect desert tortoise habitat could affect stocking rates and range management. Minor expenditures and earnings would be associated with providing additional (stock) water sources in the Twin Tanks and Cocoraque Pastures.

4.5.3 Alternative B

Aggregate socioeconomic impacts that potentially would occur under Alternative B have been grouped into four categories: (1) BLM expenditures and earnings associated with prescribed projects or protective measures requiring additional work or increased expense, (2) restrictions on use that recognize social values for resources but that may deny certain use/access opportunities, (3) indirect economic impacts from potential changes in levels of IFNM visitation (which are closely related to recreation and other public use/access decisions), and (4) changes to special designations or natural/cultural resource allocations. Aggregate social and economic impacts would result from the additive impact of minor expenditures and earnings associated with prescribed projects or protective measures requiring additional work or increased expense. These include:

- air quality projects to control fugitive dust emissions
- soil and water resource management decisions for areas of sensitive or fragile soils; soil resource protection during construction, reconstruction, or maintenance projects; and implementation-level decisions for erosion control and flood protection projects
- vegetation resource management decisions for integrated weed management and invasive species/noxious weed control including land restoration actions, various vegetation reclamation methods; use of native plants in restoration; and implementation decisions for fencing along designated routes and monitoring invasive species and noxious weed treatment areas
- prohibiting the collection of geologic resources, except when authorized by permit for a specific legitimate purpose
- implementation of RMP and implementation-level decisions for wildlife management and special status species, including RMP decisions for the proposed management of the Desert Bighorn Sheep WHA and wildlife population enhancement and implementation decisions for wildlife water projects; removal of fences, roads, facilities, and utilities lines no longer needed; construction and/or modification of fencing for safe travel; and special status species monitoring programs
- resource management decisions for cultural resource studies and implementation decisions for the prescribed monitoring scheme for cultural resources
- resource management decisions for visual resource management
- resource management and implementation decisions for proposed motorized vehicle area and road closures and travel and transportation maintenance plan actions

Each resource-based management decision recognizes the social value attached to that resource (e.g., air quality – social value for clean air, biological resources – belief that special protection should be afforded to special status species, livestock grazing – value for etc.). On overall balance, Alternative B supports the values and beliefs that favor the protection or conservation of monument objects and other natural and cultural resources and allows for the minimum amount of allowable human use within the IFNM, based

on valid existing rights and meeting BLM's multiple use mandate. This is reflected in management actions to close sensitive areas to motorized vehicle use; managing 36,990 acres to protect wilderness characteristics; road restrictions for air quality; restrictions on access use for geologic resources warranting special management protection; prohibiting surface water diversion and groundwater pumping that affects IFNM values; minimizing surface disturbance for vegetation; prohibiting camping on BLM-administered land in the Waterman Mountains VHA and Ragged Top VHA; not allocating cultural resource sites for public use and designating most of the IFNM as VRM Class I or VRM Class II. Management decisions that result in restrictions on public access/use opportunities would strike a balance between social values for unfettered access to public lands, but consistent with the social value of resource protection.

Management actions related to prohibiting dogs and human entry for protection of desert bighorn sheep would have mixed social and potential minor economic effects. The resource management decision to prohibit dogs on public land within the IFNM would provide a protective measure for the desert bighorn sheep, which is socially valued. However, those who visit the IFNM or live within, adjacent to, or nearby the IFNM that attach value to the companionship and experience with their dogs would be precluded from such experiences. Those that live on inholdings within the IFNM would be required to confine their dogs to private or State Trust lands. Additionally, those that use dogs as working dogs in their livestock operations and those that use dogs to augment their hunting success on public lands would be impacted both socially (i.e., changing the way that people work and recreate) and economically (i.e., reduced hunting success, change in range operations). The management action to seasonally close the lambing areas within the Desert Bighorn Sheep WHA to human entry similarly aligns with the social value for protection of the desert bighorn sheep, but is counter to the social value for the protection of access/use of public land and associated people-place connections associated with seasons. A healthy desert bighorn sheep population is intertwined with spending associated with visitation, especially for wildlife viewing opportunities; such expenditures would become more seasonal and may increase (or at least not decrease) as a result of management actions.

The resource management decision to manage 36,990 acres to protect wilderness characteristics recognizes the social value for these areas and would potentially increase the non-market value of these areas. There would be an increased likelihood that proposals for use in these areas (to be considered on a case-by-case basis) would not be permitted. Similarly, collection of geological resources would be prohibited, but collection and removal of geological resources for educational and/or scientific purposes under special use permit would be allowed. This recognizes the social value for educational and/or scientific use of such resources.

Some Alternative B management decisions could potentially translate into indirect economic impacts from changes in IFNM visitation. Potential decreases in visitation may occur for some users as a result of increased restrictions on use and reduced opportunities for public access. These include restrictions on motorized access, camping, recreational target shooting, equestrian use, non-motorized mechanized use, prohibiting dogs on public land within the IFNM, seasonally closing lambing areas to human entry, not allowing group tours of cultural resources, and closing environmentally sensitive areas. The following decisions under recreation are specific examples of such restrictions that also reduce specific recreation opportunities:

- Prohibiting native wood campfires and allowing camp stoves/charcoal only at identified campsites would be protective of resource values, but would deny the continued opportunity for this experience.
- Prohibiting the use and discharge of firearms would reduce economic impacts from damage to personal property and would be consistent with those publics concerned about the resource

impacts of recreational shooting at the IFNM, but counter to those who value the opportunity for recreational shooting at the IFNM.

- Limiting non-motorized and mechanized uses on routes designated as open to motorized use may increase conflicts between users.
- Prohibiting non-motorized mechanized use within areas managed to protect wilderness characteristics could limit certain types of activity-based people-place connections associated with this use in these areas.

Economic activity associated with IFNM visitation (e.g., expenditures at business in local communities) could be shifted to other recreation sites within the general area that are not as restrictive as the IFNM would become under this alternative (e.g., BLM lands outside of the IFNM where recreational target shooting is allowed under certain circumstances or areas where mountain biking trails are separated from motorized use trails). Because the recreational activities would be expected to shift from one location to another, no local or statewide economic effects are expected from expenditures on firearms, ammunition, mountain bicycles, and related purchases. Given the increasing urbanization in the area and the wider attraction because of the monument designation, the overall visitation of the IFNM from local and regional residents would be expected to increase or remain unchanged despite of these management changes. Out of town visitation likely would remain unchanged by these management actions; other factors likely would continue to dominate trends within changes in this type of visitation (national coverage of interest stories for the IFNM, wildflower season, national travel trends, etc.).

The potential countervailing impact is that there may be minor increased visitation due to the proposed protection of resource sites and access to them where people-place connections have been identified as important. These include geologic resource sites, VHAs, WHAs, watchable wildlife areas, and management for species and habitat, including hunted species. Such protection could result in increased publicity for the IFNM and increased public interest and visitation both from local and out of town visitors. In addition, a countervailing impact could result from the purchase of materials such as camp stoves or firewood in the local community for use on the IFNM since native wood campfires would no longer be allowed within the IFNM.

Recreation management under the Alternative B allocates the IFNM as a SRMA with an Undeveloped Recreation-Tourism Market strategy, which will exclude major investments in facilities, but provide for intensive management of the setting and visitor services. The allocation of RMZs would have a combined impact with the management decisions for transportation and public access and management of areas to protect wilderness characteristics under this alternative. The emphasis would be on providing semi-primitive non-motorized opportunities (to include those areas identified to be managed to protect wilderness characteristics), with most intensive use activities occurring within Roaded Natural RMZ. Visitor service presences would correlate with the RMZ environment. Under Alternative B, visitor center facilities would be provided offsite in coordination with the local communities, providing a potential opportunity for a development project in the local communities.

Overnight use would become more restrictive and shifted from vehicle-based camping in dispersed locations (currently available throughout the IFNM) to identified sites only. Not allowing for continued camping within the Ragged Top VHA and closure of localized areas to camping to protect resources, and limiting group camping to large identified campsites (two identified at this time) would eliminate certain opportunities that exist today for camping throughout the IFNM including in areas where people and/or groups may have established sense of place connections. Non vehicle-based camping would be allowed at identified campsites within the IFNM. People-place connection may similarly be limited by the requirement for non-vehicle-based camping to occur at identified sites.

Alternative B would discontinue the designations for the Waterman Mountains ACEC, Silver Bell Desert Bighorn Sheep Management Area, Silver Bell RCA, Sawtooth Mountains CRMA, Cocoraque Butte-Waterman Mountains Multiple Resource Management Area, Agua Blanca Multiple Resource Management Area, and Avra Valley CRMA. Generally, the discontinuation of these designations may be counter to any social value specific to their designation. Such impacts would be minimized by allocation of the Waterman Mountains VHA (for the Waterman Mountains ACEC vicinity) and Desert Bighorn Sheep WHA (for the Silver Bell Desert Bighorn Sheep Management Area), which recognize the social value and provide for the protection of the resource values for which these areas were designated. The discontinuation of the Silver Bell RCA and Cocoraque Butte-Waterman Mountains Multiple Resource Management Area would have no social or economic impact. Unlike ACECs, there are not those who attach value to these specific designations. Additionally, the resources within these areas would be managed under other provisions (e.g., land tenure decisions to retain all Federal land acquire non-Federal land throughout the IFNM). The discontinuation of the Sawtooth Mountains CRMA could be perceived as a loss of recognition of the recreation value and opportunities for cooperative management in this area, but such concerns would be addressed through other management provisions (BLM would seek cooperative management of the IFNM through administrative actions such as those included in Appendix D) negating any socioeconomic impact.

Other notable aggregate effects are as follows:

- The resource management decisions pertaining to the removal and/or use of living dead and downed native plant material aligns with the social impacts of the overall conservative/restrictive nature of this alternative as noted above. In addition, Alternative B incorporates various specific social values for plant material use, but fails to recognize the social and cultural value for the collection of plant materials for other purposes (e.g., collection of firewood, non-Native American use, etc.).
- The prohibition of economic activity related to commercial plant collection within the IFNM (e.g., selling of native seeds, firewood, etc.) would potentially result in the purchasing of firewood and plant material from community vendors rather than removing it from the IFNM.
- Allocation of cultural resource sites for scientific use but not for public use recognizes the social value associated with the protection of cultural resources, but prioritizes those who value cultural resource protection and study over those who also value public access to cultural resources. This alternative would potentially deny access to cultural resource sites, including those where there is a people-place connection. Allocation and management of sites for traditional use recognizes the social value and people-place connections attached to these sites, including for affiliated Indian tribes and ongoing consultation with Native American tribes. Closing an expanded area around Santa Ana de Cuiquiburitac to motorized vehicles would provide for additional protection of socially important cultural resource sites within identified people-place connections.

Under Alternative B, the difference in the socioeconomic impact related to existing valid rights to develop energy and mineral resources centers on the designation of protected resources or areas and restrictions on use for these resources and/or areas as follows:

- The management decision to acquire non-Federal mineral estate underlying Federal surface holdings throughout the IFNM and to not acquire surface estate unless mineral estate can be acquired concurrently (or is already Federally owned), could increase the areas withdrawn from mineral development as compared to Alternative A. This alternative also includes prescriptions for acquisition of non-Federal lands for various resource protection values and within the Waterman Mountains VHA and Ragged Top VHA.

- The ongoing case-by-case review of mineral resource development actions would be subject to the management decisions of Alternative B. Some management decisions under Alternative B could place limitations on mineral or resource development actions or require a minor increase in expense to minimize or mitigate impacts from potential impacts related to a development action. These include management decisions related to the prohibition of additional ground-disturbing activity in areas of sensitive or fragile soils, prohibiting surface water division and groundwater pumping that removes water from the IFNM or adversely affects the monument's values, minimizing surface disturbance that results in loss of existing vegetation cover, use of native plants for all restoration projects, mitigation of site-specific impacts possibly being required where development of valid existing rights could affect priority species and/or habitats, and VRM Class I and II designations.

Alternative B would result in loss of economic activity related to livestock grazing and impacts on social value for ranching at and near the IFNM. The economic impact would be minor in context of the overall community economy, but individual livestock operators could be impacted by no longer operating on the public lands in the IFNM. The social impact would be greatest and somewhat localized to ranchers operating in the affected area, but other impacts likely would occur in the greater ranching community and among those with values or beliefs that oppose livestock grazing within the IFNM.

The major resource management decision that could result in both social and economic impacts related to livestock grazing is the decision to make all 11 allotments (only the portion within the IFNM) unavailable for grazing to maximize preservation of IFNM resources. Allotments would become unavailable for grazing upon expiration of existing leases. As the leases expire there would be a gradual loss in AUMs and fees paid to BLM for livestock grazing. When all leases expire, a total of 7,843 AUMs would be eliminated. At the current (2006) grazing fee rate ($1.56 per AUM), the total annual loss in fees paid to BLM when all grazing leases have expired would be $12,235. (Note that this is a representative loss based on the 2006 grazing fee, the grazing fees changes annually and has a mandated low of $1.35 per AUM and reached as high as $1.79 per AUM in 2004.) Ranch employees hired to manage the land and livestock would no longer be needed for the grazing operations occurring on public land; this could reduce employment by one or two persons per ranch. Depending on how these lands are managed once grazing allotments expire, BLM management responsibilities could increase and potentially result in the need for additional BLM staff.

Two grazing allotments that are located almost entirely within the decision area would become unavailable for grazing. Livestock operations in the remaining nine allotments would be forced to operate only on State Trust lands and private lands, which are interspersed with BLM-administered lands in a checkerboard pattern. The market value of the allotments could be diminished from the reduced size and increase the financial burden when ranch operators obtain credit when using livestock allotments as collateral.

Stock waters within BLM-administered lands would be abandoned and lose their economic value; ranches that continue to use interspersed non-Federal lands may need to establish new stock water on State Trust or private land. Because wildlife may also use stock waters, wildlife movement patterns or populations could be affected if the waters sources stop functioning, which would subsequently affect hunting and its related economic benefits.

Within grazing allotments, existing fences largely do not differentiate between State Trust lands, private lands, and BLM-administered lands. In order for operators to comply with the closure of grazing on the BLM-administered portions of their grazing allotments, their operations would have to be modified in such a manner as to eliminate livestock grazing on BLM-administered lands. For some of the existing small and independent operators, this management burden would likely result in the inability to continue

to graze livestock. Additionally, removal of livestock grazing from BLM-administered lands could diminish the value of State Trust or private land for ranching purposes. Livestock operators with allotments comprised predominantly of State Trust lands and that extend beyond the IFNM (e.g., Old Sasco and King allotments) would have less of an overall management burden than those allotments that are predominantly comprised of BLM-administered land and occur largely within the boundaries of the IFNM (e.g., Claflin, Agua Dulce, Tejon Pass). BLM management responsibilities would shift from an emphasis on lease administration and general range improvement projects to an emphasis on addressing trespass cattle. No range improvements would be permitted under this alternative, though additional fencing would be necessary, resulting in limited associated expenditures and earnings associated with such projects.

The social value associated with ranching on BLM-administered lands in the IFNM would be lost along with the loss of grazing in allotments. Individuals, families, and social groups are connected by the ranching that has historically occurred on the BLM-administered lands and the vicinity. Some operators live on inholdings within the IFNM and have a strong connection to ranching in how they live and work, recreate, relate to one another, organize to meet their needs, and generally cope as members of society. These impacts on values and beliefs would be felt greatest at the localized level, but also would have impacts in the greater western Tucson area livestock operator community. The opposing viewpoint is tied to the belief that ranching is inconsistent with the native ecosystem function in the Sonoran Desert or causes damage to the environment and the value for environmental protection.

The establishment of designated access/staging areas for equestrian uses could eliminate or reduce current "backyard" access to the IFNM, which is valued by some IFNM neighbors. Such impacts would be highly localized and primarily social in nature. Proximity of designated access points, group camping areas, and equine staging areas to businesses, may translate to economic gains to local businesses from visitor expenditures.

Under the lands and realty decisions for Alternative B, all Federal land (surface and subsurface) would be retained except in special instances where land exchanges could be utilized to further natural and cultural resource goals of the IFNM. Any economic activity associated with such an exchange would be expected to be relatively minor. There could be expenditures and earnings associated with exchange, purchase, and/or donation of acquired lands. As mentioned under the discussion of mineral and energy resources, the acquisition of non-Federal mineral estate would preclude mining activity and associated socioeconomic activity throughout the IFNM. The R&PP lease for the Tucson Soaring club could be renewed; therefore, associated social and economic activity may continue.

Decisions to not establish utility corridors or new rights-of way and to designate the IFNM as an exclusion area would be additive to impacts associated with promoting resource conservation through decisions for travel management, VRM, and management of areas to protect wilderness characteristics in terms for protection and enhancement of natural and cultural resources. These decisions would preclude economic opportunity for new utilities and rights-of-way within the IFNM. As a result, new utility service to the potential service population would need to be provided through alternate routings, which could potentially be at more cost to the utility company and ultimately the consumer. Minor socioeconomic impacts associated with the existing communication sites at the IFNM (e.g., site-specific gains for communication companies providing services to their clientele and localized social impacts associated with visual impacts of communication sites) would continue under this alternative.

4.5.4 Alternative C

The overall BLM expenditures and earnings associated with Alternative C would be similar to those for implementation of Alternative B. Allocation of cultural resource sites to public use and scientific study

prescribed in association with the allocation of the Santa Ana de Cuiquiburitac site to scientific use may result in minor expenditures and earnings. Collection and removal of geological resources for educational and/or scientific purposes under special use permit would be allowed under Alternative C, potentially resulting in minor expenditures and earnings associated with such research.

As compared to Alternative A, this alternative would support the values and beliefs for the protection of IFNM resources and objects to a slightly greater extent because management decisions respond to issues and concerns and place more emphasis on resource protection. Alternative C provides a mix of resource protection and human uses supporting multiple sets of values and beliefs. In sensitive resource areas, it proposes a higher level of resource protection and less public use, while opportunities for public use are emphasized in less sensitive resource areas. Social and economic impacts related to motorized use closures would be the same as Alternative B, but to a lesser extent, as OHV closure areas would encompass 10,880 acres under Alternative C rather than 38,040 acres under Alternative B and 124 miles of routes rather than 63 miles of routes would be designated for motorized travel. Similarly, the same social and economic impacts noted for management of areas to protect wilderness characteristics under Alternative B would apply to Alternative C, but reduced in scale, as 9,510 acres (areas of the West Silver Bell Mountains and the Roskruge Mountains) would be managed to protect wilderness characteristics as opposed to 36,990 acres. Unlike Alternative B, camping would be allowed within Ragged Top VHA. Visual resources would allow for more diversity of use than under Alternative B. Under Alternative C, the majority of the IFNM would be VRM Class II, Class I VRM areas would be limited to the West Silver Bell and Roskruge mountains, and there would be slightly more Class III than Alternative B. Similar to Alternative B, collection and removal of geological resources for educational and/or scientific purposes under special use permit would be allowed. This recognizes the social value for educational and/or scientific use of such resources. Alternative C would allow for dogs on public lands within the IFNM as long as they are leashed, but allows for dogs to be used off-leash for hunting or livestock operations.

With regard to special designations or natural or cultural resource allocations (i.e., the discontinuation of the Waterman Mountains ACEC, Silver Bell Desert Bighorn Sheep Management Area, Silver Bell RCA, Sawtooth Mountains CRMA, Cocoraque Butte-Waterman Mountains Multiple Resource Management Area, Agua Blanca Multiple Resource Management Area, and Avra Valley CRMA), the impacts of Alternative C would be the same as Alternative B.

The potential social and economic impacts of Alternative C related to valid existing rights to develop energy and mineral resources are similar to those described for Alternative B. Distinctions are as follows:

- Acquiring the mineral estate as available when acquiring surface estate lands under Alternative C, rather than acquiring surface estate only when mineral estate can be acquired concurrently (or is already Federally owned), could reduce the areas of mineral estate withdrawn from future exploration and development compared to Alternative B.
- Potential limitations on mineral and energy resource development that may require mitigation would potentially be less than those of Alternative B given the management decisions for fragile soils, VRM classes, and management of areas to protect wilderness characteristics associated with Alternative C.

Under Alternative C, the public lands within the IFNM for all 11 allotments would remain available for livestock grazing, with nine allotments reclassified as perennial and two remaining ephemeral. BLM could issue temporary, non-renewable leases on perennial allotments when forage conditions warrant. Expenditures and earnings associated with grazing administration and rangeland improvements would continue under this alternative, although forage conditions would be considered before temporary grazing leases would be issued on perennial allotments or grazing use would be authorized on ephemeral

allotments. If a ranch operation planned to use temporary non-renewable leases as collateral for obtaining credit, the uncertainty of forage conditions could alter cash flow. The change of nine allotments from perennial/ephemeral to perennial and maintaining two allotments as ephemeral would not increase active AUMs; therefore there would not be an obvious change in livestock grazing related socioeconomic activity as a result. The management decision to evaluate whether to reallocate allotments for livestock or wildlife use when a lease is relinquished or cancelled would potentially preclude or delay continued socioeconomic activity associated with livestock grazing. Unlike Alternative B, this alternative recognizes the social value of the continuation of traditional open range ranching at the IFNM.

Other resource management actions could reduce disturbance and increase the quantity and/or quality of forage available for livestock grazing. These include soil erosion control, prohibiting the removal of living or dead native plant material, pursuing an integrated weed management approach, using native plants and non-native plants in restoration, monitoring of invasive species and weed treatments, and establishing priority habitats for wildlife and special status species. Using active reclamation practices to stabilize and reclaim sites could result in short-term reductions in livestock use, restriction or exclusion of livestock, changes in period of use, or other management actions, but would likely increase the quantity or quality of available forage in the long-term. The overall effect of this management would be to ensure sustainable grazing opportunities to support local ranching.

Closing lambing areas to human entry could impose restrictions or exclusions on livestock grazing, changes in stocking levels, seasons of use, and timing and duration of grazing activities (including rangeland improvement projects). The impacts of such changes on the social and economic contributions of associated livestock grazing operations would be minimized in that lambing areas are generally located in upland areas that are not heavily utilized for livestock grazing and that closures would reduce surface disturbance during a portion of the growing season, which could improve forage conditions.

The potential changes in visitation under Alternative C would be the same as Alternative B, with a few notable exceptions. Unlike Alternative B, Alternative C would allow for dogs to continue to accompany visitors to public lands within the monument, although it requires that they must be leashed, except when being used for hunting. This alternative would allow for visitors to continue to have experiences that include their dogs and, therefore, no associated change in visitation would be expected. For dog owners on inholdings, the impacts of keeping dogs leashed (rather than not allowing them) while on public lands within the monument would have reduced social impacts as compared to Alternative B. Hunters and livestock operators would continue to be able to use dogs, resulting in the potential for increased success in hunting and utility in livestock operations and continued associated social and economic effects. Another notable difference between these alternatives is that Alternative C would provide for public access to group tours of cultural resource sites, including those where people-place connections have been established. Minimal to moderate economic gains could occur in association with this level of access. Allocation of the Santa Ana de Cuiquiburitac site to scientific use recognizes the social value of scientific study and would potentially result in expenditures and earnings for studies.

Under recreation, Alternative C as compared to Alternative B would allocate additional areas as Semi-Primitive Motorized and less area as Semi-Primitive Non-Motorized, providing for more of a balance between motorized and primitive recreational uses. Wood fires would be allowed with non-monument wood sources, thereby resulting in continued/potential increase in purchase of wood for campfires from local vendors. As compared to Alternative B, there would be greater options for vehicle-based camping under this alternative and, therefore, fewer impacts on people-place connections. Alternative C allows for overnight non-vehicle-based camping within both Semi-Primitive Non-Motorized and Semi-Primitive Motorized RMZs (rather than just within Semi-Primitive Non-Motorized as with Alternative B). This allows for continued people-place connections associated with non-vehicle-based camping within a larger area than under Alternative B, although such use would also be limited to identified campsites within

these zones. The impacts of restricting group camping to three identified large campsites would be similar to the impacts discussed for Alternative B, but the one additional group camping site (near the West Silver Bell Mountains) would be located more remotely than the other two and businesses near access points to this area may be potentially affected by visitor expenditures. Finally, Alternative C would allow for non-motorized, mechanized use to occur on routes open or closed to public use, thereby allowing for separation of these uses and limiting the access for non-motorized, mechanized uses to a lesser extent than under Alternative B. Social and economic activity associated with non-motorized, mechanized uses would likely be unchanged as a result of this decision, although such use may increase as a result of other trends.

The social and economic impacts of land tenure decisions for Alternative C are essentially the same as those of Alternative B, although under Alternative B surface estate could potentially be acquired without underlying mineral estate. Therefore, lands acquired could potentially be mined for economic gain, but would be subject the BLM approval process for surface access. With regard to corridors and rights-of-way, Alternative C would allow for potential future development of utilities within the designated corridor. The limitation on alignments may increase the costs for right-of-way developments if suboptimal locations are used, or due to the requirement of underground utilities within one corridor.

The decision to close routes would have the same potential impacts as described for Alternative B; however, the scale of the impact would be less under Alternative C, as 205 miles of routes rather than 266 miles of routes would be managed for non-motorized use. Decisions for grazing and range management would result in the same socioeconomic impacts associated with Alternative A. Minor economic impacts associated with expenditures and earnings would potentially result from increasing the number and variety of wildlife and livestock exclosures and maintaining yearlong water sources in all pastures for livestock and water maintenance, movement, or replacement actions. Finally, the decision that existing roads along fences would remain open (administratively at a minimum) and access to corrals, wells, and water infrastructure would be maintained ensures that access for livestock management operations would be provided and maintained, having socioeconomic impacts both for livestock operations and in minor expenditures and earning from access maintenance actions.

The decisions to reclaim abandoned mines and mitigate potential physical and chemical hazards would potentially result in minor expenditures and earnings for BLM staff or supporting contractor personnel.

The travel management implementation decision to close 205 miles of routes to motorized use could limit the development of mineral resources where valid existing rights occur and limit certain recreational opportunities. The impact to social and economic conditions would be as described for other decisions limiting or precluding energy or mineral resource development and changing recreation opportunities.

4.5.5 Alternative D

Overall BLM expenditures and earnings from Alternative D would be similar to Alternative C. A few distinctions are that Alternative D would allow the use of non-intrusive, non-native plants in limited emergency situations for reclamation. Reclamation using such plants may require less expenditure than the use of native plant species only. Alternative D generally supports the values and beliefs for the least restrictive management and places an emphasis on maintaining the existing levels of human uses in the monument. This alternative identifies areas most appropriate for various public uses and emphasizes those uses, particularly with respect to transportation and recreation. No areas within the IFNM would be managed to protect wilderness characteristics. Therefore, the social and potential non-market value associated with management of areas to protect wilderness characteristics would not be recognized and development and/or use options would not be limited via the aggregate impact of management to protect

wilderness characteristics and other management decisions for land use authorizations, transportation and access, etc.

Resource management decisions regarding removal and/or use of plant material would allow for collection of dead and downed wood for firewood use while camping within the IFNM (except where BLM has determined there would be adverse impacts on monument resources). This aligns with the social value for this outdoor recreation experience. Unlike Alternatives B and C, the VRM designations proposed under Alternative D would provide less emphasis on visual resource values and greater emphasis on potential for development and/or use and associated socioeconomic activity.

Socioeconomic impacts of Alternative D related to special designations or natural or cultural resource allocations (i.e., the discontinuation of the Waterman Mountains ACEC, Silver Bell Desert Bighorn Sheep Management Area, Silver Bell RCA, Sawtooth Mountains CRMA, Cocoraque Butte-Waterman Mountains Multiple Resource Management Area, Agua Blanca Multiple Resource Management Area, and Avra Valley CRMA), would be the same as described for Alternative B.

The potential social and economic consequence of Alternative D related to existing valid rights to develop energy and mineral resources would be as described for Alternative B. The lands and realty decision to not consider mineral estate as a factor in surface estate acquisitions could potentially allow for more economic gains for private industry as a result of mineral and energy resource development on non-Federal mineral estate.

Alternative D would have the same impacts on the social and economic aspects of livestock grazing as described for Alternative C.

No substantial changes in visitation would be expected as a result of implementation of Alternative D. Visitation use rates would continue at current levels with fluctuations in visitation primarily influenced by the trends and population growth in the area that would occur under all alternatives. Overall, social and economic impacts would correspond to changes in visitation rates.

Under recreation, the allocation of RMZs under Alternative D would align with the social value for semi-primitive motorized setting, as there would be a greater area allocated to Semi-Primitive Motorized RMZ than Semi-Primitive Non-Motorized RMZ, a greater amount of Roaded Natural RMZ, and a slightly smaller area allocated as the Ragged Top Watchable Wildlife RMZ. Designated shooting areas would be established at Avra Hill and Cerrito Represo, which would provide additional recreational opportunities and could increase visitation to IFNM for these activities compared with Alternatives B and C. Visitation association with recreational shooting could increase sales of ammunition or other sundry items in areas near the monument. Continuing to allow campfires using dead, down, and detached wood while camping at existing campsites (unless it has been identified that there are adverse impacts to the IFNM) aligns with the social value for the continuation of this opportunity on the monument. Similar to Alternative C, allowing for overnight vehicle-based camping throughout the monument (unless specifically prohibited for protection of resource values) would provide greater options for vehicle-based camping as compared to Alternative B, thereby providing a lesser effect on denying people-place connections associated with this activity. There would be fewer impacts to group camping under this alternative than under Alternatives B and C with four identified group campsites. The fourth, to be located in the Sawtooth Mountains, would potentially result in associated expenditures at businesses located near access points to this location. Any changes to visitation use associated with changes in camping policy could result in changes in associated economic activity. A wide range of people-place connections associated with equestrian use and non-motorized, mechanized use and associated economic activity would be allowed to continue under this alternative.

The social and economic impacts of land tenure decisions would be the same as Alternative B. Impacts with regard to corridors and rights-of-way would be the same as Alternative C, except that Alternative C would provide for greater flexibility for potential routings (i.e., more options for placement of facilities or corridor development), thus decreasing potential expenses (limitations may not allow for options that could reduce development costs). Alternative D also allows for additional development at the Confidence Peak communication site, which (if developed) would have moderate socioeconomic impacts for the communications company and provide services to the community.

The implementation decision to designate routes would have the same potential impacts as described for Alternative B; however, the scale of the impact would be less under Alternative D, as more miles of routes would remain designated for motorized use (226 miles of routes would be designated for motorized use under Alternative D as compared to 63 miles designated for motorized use under Alternative B).

4.6 IMPACTS ON PUBLIC SAFETY

This section describes the potential impacts of hazardous materials on public safety resulting from management actions related to other resources and resource uses. It includes a discussion of the risks associated with hazardous wastes and solid wastes potentially found within IFNM, and potential threats to public safety posed by natural as well as manmade hazards.

Risks associated with hazardous materials and wastes, including solid wastes, are directly proportionate to the level and frequency of resource use as well as the type of use within IFNM. Typically, the presence of hazardous materials and wastes is due to vehicular travel through the IFNM, and can 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. Similarly, activities related to recreation can result in releases or spills of hazardous materials or wastes. Trash and other solid waste left in areas where recreational activities occur, and personal items discarded by undocumented immigrants traveling through the IFNM, also can pose hazards. Hazardous materials and chemicals used to suppress fires can create a hazard in the event materials are accidentally spilled during application, and unexploded ordnance and abandoned hazardous wastes from military operations also can pose threats to public safety.

Apart from the potential dangers of hazardous materials, public safety also can be threatened by a wide spectrum of issues, most of which are subject to change and circumstance. As with hazardous materials, impacts on public health and safety occur in proportion to the level and frequency of resource use and the type of activities or uses that occur. Typically, threats to public safety on the IFNM arise from the use of motor vehicles (including ATVs and motorcycles), recreational target shooting, active and abandoned mines and prospects, the proximity of military operations, the presence of unexploded ordnance, activities related to smuggling and undocumented immigrants, wildfires, and natural hazards associated with the desert.

The following assumptions were used when assessing the impacts related to hazardous materials and public safety:

- The IFNM is protected from commercial development of facilities that would be likely to use, generate, store, treat, or dispose of hazardous materials. Facilities on public land within the IFNM that might use some forms of hazardous materials, such as utilities or recreational facilities, would be managed under the specific authorization process for such facilities.
- When the use of hazardous materials becomes necessary, such as for the suppression of wildfires or the elimination of noxious weeds, chemicals would be handled and applied in accordance with the manufacturers' directions. However, spills and/or releases of hazardous materials or

deposition of wastes can occur under other circumstances, such as during transportation of chemicals, from vehicular accidents, or illegal dumping.

- Public safety assessments are evaluations of risk associated with any circumstance. There are no absolute measures of safety.
- Precautions mitigate risk, but accidents and injuries are bound to occur to some extent when human activity takes place.
- In areas where construction or maintenance of motorized routes, fences, campsites, non-motorized trails, and trailheads, or where any other activity is undertaken, or where the use of hazardous chemicals would be required, appropriate protocol would be followed, thereby decreasing the risk of accident or injury.
- The safety of workers, firefighters, or emergency management teams would be the primary consideration at a rescue site.
- Emergency access may occur throughout the IFNM to protect public safety, though such access would be minimal.

Impact analyses with regard to hazards and public safety are based on the distribution of risk sites or areas, the potential consequences of an accident or incident, and the factors mitigating the risk of an accident or incident. Available literature regarding recreational activities and trends has been reviewed, and BLM specialists were consulted. All conclusions are based upon a consideration of available information using best professional judgment.

4.6.1 Impacts Common to All Alternatives

Safety risks and hazards would exist to some degree under all alternatives. No management or implementation-level decision can eliminate risk, though some varying degree of risk can be realized. Emergency and rescue operations would be available on an as-needed basis regardless of the level of risk allowed under any of the alternatives.

The use and transport of hazardous materials and wastes would be handled and disposed of according to State and Federal requirements under all alternatives. Spills or releases of hazardous materials or wastes could occur in various degrees of risk under any of the alternatives. In the event of spills or releases, cleanup activities would be undertaken in accordance with all applicable procedures and reporting requirements. In addition, a framework for BLM's hazardous materials management policies is provided in Manual Section 1703 (MS-1703), and these policies would be applicable across all alternatives. Compliance with these regulations and policies would minimize potential impacts related to hazardous materials.

The IFNM designation withdrew all public lands within the IFNM from mineral entry, eliminating a majority of the risk of accidents associated with mining and mineral entry. However, mining activity within the IFNM would continue to be administered on a case-by-case basis for valid mining claims, with the associated risk of accidents or injury.

BLM would continue to administer programs to reduce ignitions and to maintain full fire suppression in all areas of the IFNM. Maintaining full suppression would reduce the risk of burned area hazards such as falling trees and the possibility of debris flows resulting from erosion reduction. However, the use of hazardous materials, vehicles, or an aircraft to suppress fires could result in an unintended spill or release of hazardous materials.

Continuing the R&PP lease for the glider park could affect public health and safety; hazardous material spills or accidents related to aircraft or glider crashes during operation and gliding activities at or near that site.

Under all alternatives, the management of air quality, geological and cave resources, vegetation, special status species, cultural resources, paleontological resources, scenic and visual resources, and special designations is not expected to have any impact on public safety or contribute to the presence of hazardous materials or waste on public land.

4.6.2 Alternative A (No Action)

Under Alternative A, the current BLM programs and policies for management of hazardous materials and public safety would remain in place. Risk would continue to be a factor in any activities taking place in the IFNM, and the level of risk would change with the level of activity. Risks to public safety and the potential for deposition of hazardous materials would primarily result from management decisions concerning travel and recreation. To a lesser extent, management of lands and realty also would potentially impact risks. Implementation-level decisions concerning soil and water resources, livestock grazing, and wildlife and wildlife habitat would result in minimal impacts. Management impacts on public safety or risks associated with hazardous materials would not be anticipated under Alternative A from decisions for areas managed to protect wilderness characteristics (since none would occur under this alternative).

Under Alternative A, existing access for dispersed vehicle-based and non-motorized camping would continue. The risk of vehicle-related or recreation-related accidents or injuries on approximately 346 miles of roads and primitive roads in generally poor condition would continue. The risk of users becoming stranded by unmaintained, washed out, eroding roadways will continue. Though non-motorized camping holds no potential for vehicular accidents traveling to campsites, accidents and injuries related to camping and recreational activities could still occur. The permissible collection of dead and downed wood for use in campfires on public lands would increase the potential for accidents and injury related to camping, campfires, and other recreational activities.

Dispersed recreational shooting throughout the IFNM would continue to create a public health and safety risk. Over time, lead contamination from the increased presence of spent bullets could contaminate surface water near where recurring shooting areas are located near water. Spent bullets and target debris would contribute to solid waste, and pose hazards from misfired live ammunition cartridges or shells. Some people are more likely to litter in areas that are already littered, which has proven to be true within IFNM where more than 30,000 pounds of garbage have been removed from shooting areas during 15 trash cleanup events that BLM has hosted since 2001. The litter can attract wildlife that may carry disease and create a public health nuisance. In addition, items containing hazardous materials are often used as targets on the IFNM, as well as items whose remnants pose a risk to wildlife. With the occurrence of shooting dispersed throughout the IFNM, cleanup would be difficult.

Through a GIS analysis of the terrain within IFNM, BLM also determined that 47,017 acres of the 128,000 acres of public land within IFNM includes terrain with a steep enough slope to serve as a potential target-shooting backstop. However, slope is not the only criterion, as the backstop surface should be predominantly unconsolidated loose soil to minimize the risk of ricochet, and the dimensions of the backstop should ideally be large enough to accommodate a horizontal shooting fan of more than 45 degrees and a vertical shooting fan of more than 20 degrees. These factors, particularly when combined with BLM's responsibility to protect resources and the objects of the monument, significantly reduce the acreage in which recreational shooting can be safely accommodated within IFNM. Therefore, there are

potential safety risks from stray bullets with allowing the continuation of dispersed recreational shooting throughout the IFNM.

Construction activities within existing utility corridors, communication sites, and as a result of granting rights-of-way throughout the IFNM, could result in injuries or hazardous material spills resulting from construction activities, but risks would be confined to localized areas. Similarly, decisions concerning soil and water resources, livestock grazing, and wildlife and wildlife habitat decisions would increase the potential for accidents or injuries from construction or maintenance of facilities on public lands (e.g., installation of livestock and/or wildlife water sources, fences, or erosion control), in addition to increasing the introduction of hazardous materials or wastes during installation or construction.

Travel management designations allowing public vehicle use on approximately 346 miles of roads and primitive roads would present a risk vehicle related accidents which could cause injury or death from collision, or due to narrow, rough travelway conditions.

4.6.3 Alternative B

Under Alternative B, risks regarding public safety and hazardous materials would primarily result from management of travel and recreation. To a lesser extent, the level of risk also could be affected by management of lands and realty and areas managed to protect wilderness characteristics. Implementation-level decisions regarding soil and water resources, livestock grazing, and wildlife and wildlife habitat decisions would have minimal impacts in this respect.

Approximately 38,040 acres (30 percent) of public lands in the IFNM would be closed to motorized travel, which could decrease the risk of injury from vehicle accidents compared with Alternative A. It also could decrease the potential for exposure to hazardous materials contamination that could occur with a spill or release in the event of an accident compared with Alternative A.

Travel management designations in support of RMZs under this alternative would reduce public motorized travel from 346 miles to approximately 63 miles of road or primitive road, concentrating use and increasing potential encounters among users, also increasing the risk for automobile accidents (which can cause injury or the release of hazardous substances) compared with Alterative A. Fewer routes in remote locations would reduce the risk of visitors becoming stranded in areas less accessible for search and rescue. Road maintenance under this alternative would reduce safety deficiencies on the designated routes, and the risk of accidents.

Allowing charcoal fires and camp stoves would reduce the potential for accident or injury related to wood gathering, and also would likely decrease the ignition of wildland fires. However, the use of charcoal and camp stoves could increase the potential for spills and release of hazardous materials in very localized areas.

Under Alternative B, overnight non-motorized-based camping would be allowed on public land at identified sites only. This would limit the areas use for camping since fewer camping opportunities would be provided on public land compared to Alternative A, and as a result, the risk of injuries or accidents or hazardous material spills would be reduced. Similarly, limiting group camping to the two identified campsites would limit health and safety issues as well as hazardous materials accidents to localized areas.

Prohibiting firearm use, except for authorized hunting, would eliminate or substantially decrease the public health and safety risks compared to those identified for Alternative A, including reduced risk of stray bullets and hazards from less waste generated from recreational shooting. Restricting equestrian uses to routes designated for motorized and non-motorized travel would increase the opportunity for accidents

and injuries involving collisions with automobiles (on motorized routes) that would injure people or result in the spill or release of hazardous materials. It also could increase the potential for a conflict between recreationists.

Continuation of the R&PP lease would have the same impacts as those described under Alternative A. Since no utility corridors would be designated and only very few rights-of way would be allowed on BLM-administered land (as a result of allocating the IFNM as an exclusion area), minimal impacts on public safety would result from construction, though the types of impacts would be similar to those described under Alternative A. Similarly, prohibiting additional facilities at designated communication sites would decrease the risk of injuries or hazardous materials spills resulting from construction activities. However, accidents still could occur during operation and maintenance of the existing facilities.

Approximately 36,990 acres would be managed to protect wilderness characteristics, which would reduce potential for spills of hazardous substances and the risk of injury that could result from automobile accidents, since no motorized vehicles would be allowed within these areas.

Road maintenance under this alternative would reduce safety deficiencies on the designated routes, but not eliminate the risk of vehicle related accidents. Implementation decisions from soil and water resources, livestock grazing, and wildlife and wildlife habitat decisions would result in the same impacts described under Alternative A.

The decision for lands and realty to allocate acquired land within the IFNM as exclusion areas for rights-of-way could reduce the potential for accidents and injuries to occur during construction and maintenance since very few facilities would be constructed.

4.6.4 Alternative C

Under Alternative C, risks to public safety and the potential for presence of hazardous materials would primarily result from management decisions under travel management and recreation. To a lesser extent, decisions for managing lands and realty and areas managed to protect wilderness characteristics also would potentially impact risks. Implementation decisions for soil and water resources, livestock grazing, and wildlife and wildlife habitat decisions would result in minimal impacts.

Approximately 10,880 acres (8 percent) of public lands in the IFNM would be closed to public travel, which would decrease the potential risks of injury from automobile accidents compared to Alternative A, but increase risks compared to Alternative B. Similarly, the closure of this area would decrease the potential for exposure of hazardous materials contamination that could potentially occur as a result of a spill or release in the event of an accident compared to Alternative A, but increase the potential compared to Alternative B.

Travel management designations in support of RMZs under this alternative would reduce public motorized vehicle travel from 346 to approximately 124 miles of road or primitive road, concentrating use and increasing potential encounters among users, and increasing the risk for vehicle accidents that could cause injury or the release of hazardous substances compared to a lesser extent than under Alterative B, More vehicle routes in remote locations would increase the risk of visitors becoming stranded in inaccessible areas compared to Alternative B, but less than under Alternative A.

Allowing for charcoal fires, camp stoves, and wood fires (as long as wood was from a non-monument source) would result in the same impacts as those described for Alternative B, except the likelihood for wildland fires would be increased because of the provisions for wood fires and dispersed non-motorized-based camping throughout the IFNM. In addition, allowing dispersed non-motorized camping would

increase the number of visitors resulting in an increased probability for more accidents on public land, compared to Alternative B. Impacts associated with group camping would be similar to Alternative B, though would occur at three identified sites instead of two. Prohibiting firearm use, except for authorized hunting, would result in the same impacts as those described under Alternative B.

Allowing equestrian uses on routes designated for motorized travel and non-motorized travel, as well as cross-country uses, would reduce potential collisions and/or conflicts with motorized uses compared to Alternative B, as opportunities for equestrian uses would be dispersed throughout the IFNM, rather than concentrated on routes designated for motorized travel (as it would be under Alternative B).

Continuation of the R&PP lease would have the same impacts as those described under Alternative A. The designation of utility corridors and granting of rights-of-way would result in impacts similar to those described under Alterative A, though reduced given the narrower width of the corridors (200-300 feet wide under this alternative, compared to 1-mile wide under Alternative A), and because of the allocation of the IFNM as an avoidance area for future rights-of-way. Management actions with regard to communication sites would have the same impacts as those described under Alternative B.

Approximately 9,510 acres would be managed to protect wilderness characteristics, significantly decreasing the amount of IFNM managed area from the 36,990 acres under Alternative B. Due to the smaller amount of area closed to motorized vehicles under Alternative C, resource destruction (from hazardous substances) and the risk of injury that could result from vehicle accidents would be slightly increased compared to Alternative B.

Road maintenance under this alternative would reduce safety deficiencies on the designated routes, but not eliminate the risk of vehicle related accidents. Implementation decisions from soil and water resources, livestock grazing, and wildlife and wildlife habitat decisions would result in the same impacts described under Alternative A.

The decision for lands and realty to allocate any acquired land within the IFNM as avoidance areas for rights-of-way could reduce the opportunity for accidents and injuries to occur during construction and maintenance in those areas, though risks would be increased compared to Alternative B, which would allocate lands as exclusion area for future rights-of-way.

4.6.5 Alternative D

Under Alternative D, risks to public safety and the potential for presence of hazardous materials would primarily result from management decisions under travel management and recreation. To a lesser extent, decisions for managing lands and realty also would potentially impact risks. Implementation decisions for soil and water resources, livestock grazing, and wildlife and wildlife habitat decisions would result in minimal impacts. No impacts on public safety or risks associated with hazardous materials would be anticipated from decisions for areas managed to protect wilderness characteristics (since more are proposed under this alternative).

Motorized vehicle travel would be limited to routes designated as open for such use on all 128,400 acres of public land within the IFNM, which would result in impacts similar to those described for Alternative A (though route designations under implementation decisions would reduce the potential risks).

Travel management designations in support of RMZs under this alternative would reduce motorized vehicle travel from 346 miles to approximately 226 miles of road or primitive road, concentrating use slightly. The increase in potential encounters among users will increase slightly, and the increased risk of

potential accidents would be negligible. Since a greater amount of vehicle routes would be designated in remote locations, the risk of visitors becoming stranded in relatively inaccessible areas will be greater than under Alternatives B and C, but less than under Alternative A.

Allowing for charcoal fires, camp stoves, and wood fires (including monument sources of dead and downed wood) would result in the same impacts as those described under Alternative C, except that individuals could be injured during wood collection. Allowing dispersed non-motorized camping would result in the same impacts as those described under Alternative C. Impacts associated with group camping would be similar to Alternative B, though would occur at four identified sites instead of two.

Eliminating dispersed recreational shooting and establishing two designated shooting areas would reduce public health and safety concerns (described for Alternative A) throughout most of IFNM. However, the health and safety concern in the designated shooting areas would increase even though. Avra Hill and Cerrito Represo have suitable natural backstops for bullets, If the current volume of recreational shooting within IFNM did not change but was instead concentrated into two areas of approximately 629 acres, there could be a greater risk of crossfire among shooting parties that attempt to spread out within the designated shooting areas because the terrain of the backstops may not reliably stop bullets and/or prevent ricochet; this could particularly be a problem at the Cerrito Represo site because there are roads accessing almost the full radius of the hill's base. An administrative route that accesses two water facilities is located within a half-mile shooting fan of the Cerrito Represo site, and another administrative route accessing a communications site is located within a two-mile shooting fan. At the Avra Hill site, pedestrian/equestrian trails are located within half-mile and mile shooting fans, and administrative routes and public roads are within a two mile shooting fan, which could increase the potential for accidental shootings. As noted in Section 4.3.3.5, there is some risk of soil and groundwater contamination from the lead used in bullets and that risk would tend to be higher in areas of concentrated shooting. The concentration of use in the designated shooting areas would also lead to an accumulation of spent bullets and target debris, although the concentration of waste materials into designated areas would make clean-up operations more efficient and effective than with the dispersed shooting associated with Alternative A. If items containing hazardous materials are used as targets, the designated shooting area may become less safe as the hazardous material accumulate. Establishing designated recreational shooting areas at Avra Hill and Cerrito Represo would, in effect, preclude most other types of land uses and recreational opportunities because of safety concerns for persons not participating in the shooting activities. Other activities could occur, particularly when the areas are not used for shooting activities, but the characteristics of the area would be expected to change with concentrated shooting activity and the resulting bullet damage and target debris. These changes may make these areas less appealing to other types of land use and recreational activities.

Allowing equestrian uses on routes designated for motorized travel and non-motorized travel, as well as cross-country uses, would have the same impacts as those described under Alternative C.

Continuation of the R&PP lease would have the same impacts as those described under Alternative A. The designation of utility corridors and granting of rights-of-way would result in impacts similar to those described under Alterative A, though slightly reduced given the narrower corridor widths (1/4 mile wide under this alternative, compared to 1-mile wide under Alternative A) that would be established, and because of the allocation of the IFNM as an avoidance area for future rights-of-way. Management actions with regard to communication sites would have similar impacts as those described under Alternative B, though with slightly increased risks given the additional facilities that would be allowed under this alternative.

Road maintenance under this alternative would reduce safety deficiencies on the designated routes, but not eliminate the risk of vehicle related accidents. Implementation decisions from soil and water

resources, livestock grazing, and wildlife and wildlife habitat decisions would result in the same impacts described under Alternative A.

The decision for lands and realty to allocate any acquired land within the IFNM as avoidance areas for rights-of-way would result in the same impacts as those described under Alternative C.

4.7 CUMULATIVE IMPACTS

Cumulative impacts are those effects on the environment that result from incremental impacts of management direction contained in this plan 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 of the alternatives for this plan and other actions both within and outside the IFNM. Potential cumulative impacts, projects, and actions in or near the IFNM were determined by examining other plans in the region, discussions with local governments and State and Federal land managers, and from information provided by the BLM. None of the alternatives propose or authorize broad-scale surface disturbance. All alternatives are consistent with the Proclamation designating the IFNM and its intent of protecting objects within the IFNM. Cumulative impacts are addressed based on the incremental effects of BLM management in addition to the other past, present, and reasonably foreseeable actions on the IFNM.

The timeframe for this cumulative impact analysis encompasses past activities in the planning area since as early as 1860, but generally focuses on activities that occurred in the 1900s. It also includes present activities and future activities that may extend 20 years into the future, which is the estimated life of the RMP. Table 4-19 presents the cumulative impact assessment area for the resources, resource uses, and socioeconomic conditions.

Table 4-19: Cumulative Impact Analysis Areas

Resource/Resource Use	Cumulative Impact Boundary
Air	IFNM boundary and areas within 50 miles
Soil and water resources	IFNM boundary and watershed boundaries that intersect the IFNM
Vegetation	IFNM and watershed boundaries that intersect the IFNM
Wildlife and wildlife habitat	IFNM and the home ranges of species (varies by species)
Special status species	IFNM and the home ranges of species (varies by species)
Fire ecology and management	IFNM boundary and areas within 50 miles
Cultural resources	IFNM and neighboring lands with a high potential for connected resources
Paleontological resources	IFNM and neighboring lands with a high potential for connected resources
Scenic and visual resources	IFNM
Wilderness characteristics	IFNM boundary and Wilderness within 50 miles
Livestock grazing	IFNM and allotments that extend into adjacent management areas
Recreation	IFNM boundary and areas within 50 miles
Lands and realty	IFNM and major rights-of-way that extend beyond the IFNM boundary
Travel management	IFNM and State, county, and local access roads
Social and economic conditions	IFNM and Pima and Pinal Counties

4.7.1 Past, Present, and Reasonably Foreseeable Future Actions

Past, present, and potential future actions are considered in the analysis to identify whether the environment has been degraded or enhanced and to what extent, whether ongoing activities are causing impacts, and trends for activities and impacts in the area. Projects and activities are evaluated based on: proximity, connection to the same environmental systems, potential for subsequent impacts or activity, similar impacts, and if the project is reasonably foreseeable. A description of projects and activities are included in Table 4-20. The areas of primary concern for cumulative impacts related to this plan are Pima and Pinal Counties in Arizona, and Table 4-20 contains a description of the cumulative impact boundary for each resource or resource use. Projects outside these areas also were considered if they have the potential to affect resources in the region. Additional information was obtained through discussions with agency officials and review of publicly available materials and websites.

Actions undertaken by private individuals and entities are assumed to be captured in the information made available by the agencies. Effects of past actions and activities are manifested in the current condition of the resources, as described in Chapter 3, Affected Environment.

Reasonably foreseeable future actions are those future actions that have been committed to or that are known proposals that could take place within the 20-year planning period. Reasonably foreseeable future action scenarios are projections made only for the prediction of future impacts; they are not actual planning decisions or resource commitments. Projections, which have been developed for analytical purposes only, are based on current conditions and trends and represent best professional estimates. Unforeseen changes in such factors as economics, demand, and Federal, State, and local laws and policies could result in different outcomes than those projected for this analysis.

Table 4-20 provides a description of the past, present, and potential future actions that are reasonably foreseeable over the life of the RMP.

Table 4-20: Past, Present, and Reasonably Foreseeable Future Actions

Name	Description of Action
Past Actions	
Historical mining	Numerous small mines and mine prospects were located in places throughout the planning area in the 1800s and early 1900s. Mining booms in the area began in the 1860s with the opening of the Silver Bell Copper Mine (1860s-1920s). Records identifying mining claims indicate that mining locatable minerals within the decision area has not been an economically viable industry, copper notwithstanding. Salable minerals such as sand and gravel have been economically viable. Metals recovered at Silver Bell Mine include copper, molybdenum, lead, zinc, and silver, along with small amounts of gold. The abandoned Silver Hill Mine on the south flank of Waterman Peak was a high-grade lead-zinc-copper mine.

Name	Description of Action
Historical ranching activities	Ranching has long been prevalent throughout the planning area. Free grazing on the public domain brought ranchers west, and they built their operations around it. Prior to 1934, no governing regulations per se applied to grazing activities on public land, and much of the land was heavily grazed. Fluctuations in precipitation and temperature affect the growth of natural rangeland vegetation; this combined with heavy grazing caused many areas to become unsuitable for grazing. Additionally, as more and more people moved into the area to settle, the number of cattle increased and disputes over grazing uses grew. A major drought in 1891 to 1893 killed large proportions of the livestock and many areas experienced major topsoil erosion after loss of vegetative cover. Heavy livestock grazing continued after the drought, but animal numbers had peaked in 1891. Wagoner (1952 appendix I) lists numbers of cattle for Pima County, Arizona, as 11,741 in 1880, 121,377 in 1891, and 49,599 in 1893 (Milchunas 2006).
Taylor Grazing Act of 1934	Late in the nineteenth century, the number of livestock on the public lands of the southwest increased dramatically until a combination of drought and harsh winters decimated herds. The effects of this historic grazing use severely degraded millions of acres of marginal, semi-arid lands. Congress enacted the Taylor Grazing Act to regulate the grazing use that was damaging resources and to stabilize the livestock industry. The Act vested the Secretary of the Interior with authority to create grazing districts after public hearings. The Grazing Service was required to issue grazing permits or leases to ranchers and supervise and regulate the grazing authorized. Allotments within the IFNM are leased under Section 15 of the Act, which applies to grazing leases on public lands outside the original grazing district boundaries.
Community settlement and development	Associated with changes in agricultural practices and land use, the Santa Cruz River underwent a period of pronounced arroyo entrenchment during the late 1800s. Human manipulation of the Santa Cruz River channel for irrigation is one of the primary reasons for the extensive erosion that occurred in the Tucson area. This downcutting created a dependence on groundwater for irrigation, domestic, and industrial uses. Subsidence was first detected in Arizona in 1948 near Eloy in the lower Santa Cruz basin (Gelt 1992). The population of Arizona in 1905 was 105,000, and in 1940 the population increased to 489,000. The population of Tucson increased from 22,818 in 1910 to 72,838 in 1940. Associated with these population increases and military installations in 1942 near present day Marana, residential development increased in the area.
Indian Reservations	Between 1859 and 1939, Indian Reservations containing approximately 3.2 million acres were created in southeastern Arizona. Tribes associated with these reservations are from the Piman Indian group of tribes. The largest reservation, the Tohono O'odham Indian Reservation borders the IFNM along its southern and western boundary. The Gila Indian Reservation is located approximately 30 miles north of the IFNM and the Ak Chin Indian Reservation is about 30 miles northwest of the IFNM. Establishment of these reservations and change in access to irrigation water altered land use patterns in the area surrounding the IFNM.
Coronado National Forest	Between 1902 and 1907, 1,780,000 acres were designated as a U. S. Forest Reserve forming the Coronado National Forest in southeastern Arizona and southwestern New Mexico. The Coronado National Forest boundary is approximately 30 miles east of the IFNM.
Present Actions	
Current ranching and agricultural activities	Agricultural and ranching continues to take place within the planning area. Management of the rangeland in the last 50 years also has placed regulations on grazing allotments classified as perennial, perennial/ephemeral, and ephemeral to protect resources. Prices for agricultural products, cattle and changing social and land values have affected the viability of farming and ranching businesses.

Name	Description of Action
City of Tucson Water Department	The City of Tucson Water Department is now operating a pilot Central Avra Valley Water Storage and Recovery Project on City-owned land near Sandario Road and Mile Wide Road. The Central Avra Valley Storage and Recovery Project results from the passage of Proposition 200, the Water Consumer Protection Act, which prevents the delivery of Central Arizona Project (CAP) water directly to customers and requires that overpumping in the Central Wellfield be eliminated to prevent the land in the overpumped area from sinking (known as subsidence).
Western Army National Guard Aviation Training Site (WAATS)	The Western Army National Guard Aviation Training Site (WAATS) is located at the Silver Bell Army Heliport (AHP) in Marana, Arizona, on the northwest side of Pinal Airpark. The heliport is 5 miles east of the IFNM boundary. The WAATS mission is U.S. Army Directed Aviation Training. Training is conducted on the AH64A Apache helicopter, and the WAATS program is the only U.S. Army flight school that trains on this aircraft. There are currently about 500 employees at the WAATS training center and is expected that the student load will double over the next 5 years. Due to encroachment, particularly between the Silver Bell AHP and the Picacho Peak area on the helicopter transition routing area and beyond, training has become more restricted. Most missions near the Silver Bell AHP are conducted 1,000 feet above and 2,000 feet lateral of neighboring communities. “Dusty landings,” conducted to train for landing in dusty environments, are conducted in the Waterman Mountains, Sawtooth Mountains, and near Silver Bell Mine within the planning area.
Wilderness	Wilderness created by acts of Congress within approximately 50 miles of the planning area include South Maricopa Mountains Wilderness (in Sonoran Desert National Monument); Table Top Wilderness (in Sonoran Desert National Monument); Pusch Ridge Wilderness (in Coronado National Forest); West Saguaro Wilderness (in Saguaro National Park); East Saguaro Wilderness (in Saguaro National Park); Rincon Mountain Wilderness (in Coronado National Forest); Coyote Mountain Wilderness (on BLM-administered public land); Baboquivari Peak Wilderness (on BLM-administered public land); Buenos Aires Wilderness (in Buenos Aires National Wildlife Refuge).
Saguaro National Park establishment and General Management Plan	On October 14, 1994, Saguaro National Park was established. A general management plan provides a foundation to help park managers guide programs and set priorities for resource stewardship, visitor understanding and appreciation, partnerships, and facilities and operations for the next 15 to 20 years. The planning process focuses on why the park was established and results in a vision shared by NPS managers and the public about the kinds of resource conditions and visitor experiences that will best fulfill the purpose of the park over time. In prescribing the conditions and experiences to be achieved and maintained in the park, general management planning takes the long view, which may be decades into the future when dealing with the time frames of natural and cultural processes.

Name	Description of Action
Vehicle-based recreation	The growth of outdoor recreation in the area probably began after World War II as Arizona's population grew, disposable income increased, and civilian four-wheel drive vehicles emerged. Historic recreation activities have included hunting, camping, hiking, sight-seeing, four-wheel driving, and general exploring. Public lands in the vicinity of towns such as Tucson probably received some of the earliest attention for outdoor recreation. Development of civilian off-road-capable vehicles in the 1950s allowed the public to take vehicles to areas previously inaccessible by vehicular travel, beginning perhaps in the 1940s, with the Jeep Willys starting the revolution of off-roading that continued to grow as vehicles went from a standard four-wheel drive to highly-modified, more powerful and capable machines. Vehicle-based recreation has become the norm in the decision area for most recreational outings including camping, hunting, and exploring. As vehicle-based recreation grew and modified OHVs adapted to become more capable, the 1980s saw the birth of ATVs. ATVs were smaller and able to reach areas that larger, more cumbersome truck-like vehicles could not access. ATVs transformed OHV use from having multiple persons per vehicle to one person per vehicle, increasing OHV use on public lands dramatically. The trend continues to grow as ATVs become more and more affordable and popular.
AGFD management activities including Arizona's Comprehensive Wildlife Conservation Strategy	The Comprehensive Wildlife Conservation Strategy is designed to address the needs and requirements for managing wildlife in Arizona. It focuses partnership efforts on conservation at the landscape level, to address stressors that constrain wildlife conservation and wildlife-related recreation opportunities. This strategy provides a 10-year vision for achievement, subject to adaptive management and improvement along the way. The strategy covers the entire State, from low desert to alpine tundra.
U.S. Border Patrol activities and illegal undocumented immigrant and drug smuggler entry to the United States	The U.S. Border Patrol monitors and interdicts illegal undocumented immigrant and drug smuggler entries to the United States along the entire Arizona/Mexico border. Unauthorized roads and distinct foot trails in the Tohono O'odham Nation and the IFNM have been and continue to be created by border crossers. U.S. Border Patrol mission also includes search and rescue services for stranded migrants. Impacts from illegal off-road driving and foot traffic, authorized Border Patrol off-road driving for interdictions and search and rescue, abandoned vehicles and personal belongings, trash, use of wildlife waters, and some damage to facilities occur regularly. Interdiction activities and infrastructure are being increased.
State and county parks	There are several State and county parks within 50 miles of the IFNM, including Picacho Peak State Park; Tucson Mountain County Park; Picture Rocks County Park, Tortolita Mountain County Park; and Catalina State Park. These parks also draw recreational users and provide opportunities for recreation.
Arizona State Parks Arizona Trails 2000 and 2005 Plans	These statewide plans provide information and recommendations to agencies for their management of motorized and non-motorized trails. The plan guides the expenditures from the Arizona Off-highway Vehicle Recreation Fund, Arizona Heritage Fund Trails Component, and Federal Recreational Trails Program (1999). The 2005 plan incorporated survey results, focus group workshops, and public comments into the final plan to address the needs and concerns of resources and the public.
Pima County Trails Plan	The purpose of the Pinal County Trails Plan is to facilitate a planning framework to create a countywide system of non-motorized trails and a system of motorized trails. In principle each system will complement and enhance the other and provide a wide range of recreational opportunities for all ability levels. Designated non-motorized trails will be used exclusively for non-motorized recreation. Motorized trails can be used for multiple purposes. Public safety, environmental constraints, and wildlife protection are a few examples of factors that may support special uses on some trails. Pinal County is currently developing a revised Open Space and Trails Master Plan.

Name	Description of Action
Pima County Plans	The Pima County Comprehensive Plan translates community values and goals into a framework for decision-making on growth, land use, the natural environment, traffic circulation, and water resources. It expresses a long-range vision of how a community is to look and function in the future. The goals, objectives and policies section sets forth those values and goals, giving guidance for achieving that vision. One of these ordinances is the Buffer Overlay Zone Ordinance. The purpose of this ordinance is to preserve and protect the open space characteristics of those lands in the vicinity of the public preserves while at the same time permitting the economically reasonable use of lands and to protect and enhance existing public preserves in Pima County as a limited and valuable resource. Additional plans in Pima County include the Conservation Lands System (CLS) Regional Plan Policy and the Sonoran Desert Conservation Plan. These plans were prepared by Pima County land use planning and include the Pima County Multiple Species Conservation Plan.
City of Tucson Habitat Conservation Plan	This Preliminary Draft Habitat Conservation Plan (HCP) has been prepared in support of the City of Tucson's application for an Incidental Take Permit (Permit) in conformance with Section 10 of the Federal Endangered Species Act of 1973 (ESA). Through this HCP, the City is committing to implement certain actions that will minimize and mitigate the impacts of any take of certain specified species that could occur as a result of planned urban development, future Tucson Water Department water supply projects, and associated capital improvement projects. It is anticipated that the permit length will be 50 years. The HCP addresses proposed development activities in three City of Tucson planning sub-areas: Southlands, Avra Valley, and Santa Cruz River.
City of Marana Habitat Conservation Plan	The Town is creating a draft HCP, the purpose of which is to protect threatened and endangered species in areas affected by growth and development.
Sonoran Desert National Monument	Established by Presidential Proclamation on January 17, 2001 the Sonoran Desert National Monument encompasses approximately 496,337 acres of land, approximately 408,646 acres of which are owned by the Federal government and managed by the BLM and approximately 77,957 acres of which are under the joint jurisdiction of the BLM and the Department of Defense. The Sonoran Desert National Monument is approximately 30 miles west of the IFNM boundary.
Utilities	Additional transmission lines are located east of the IFNM along I-10 and associated with Saguaro Power Plant operated by Arizona Public Service. Smaller-scale electrical distribution lines and pipelines are located in and around the IFNM, generally associated with industrial, commercial, and residential development.
Urban development	Although agriculture remains important, the area's economy has long been diversified and includes military bases, multiple industries, recreation, and, most recently, explosive urban development both on the urban fringe of Tucson and rural Pima, and Pinal counties. Agricultural land has rapidly been converted to residential and commercial development purposes as new communities/subdivisions emerged in a matter of years. Growth and development spurred expansion, upgrades, and other changes to the surface transportation system within the planning area. In recent years, arterial roads and local street networks of the Tucson metro-area have expanded into Avra Valley and the vicinities of Oro Valley, Marana, Florence, and Arizona City. While growth has slowed, urban development continues.
Closure of recreational target shooting in NF	Parts of Coronado NF have been closed to recreational target shooting. Currently, there are seven shooting ranges available to the public for a fee, including indoor ranges. Five are located in Tucson, one in Casa Grande, and one in Coolidge.

Name	Description of Action
Groundwater withdrawal	The IFNM is located within parts of two Active Management Areas (AMAs) for groundwater: Pinal AMA and Tucson AMA. The Pinal AMA is managed as an area of "planned groundwater depletion," meaning that use of groundwater in excess of estimated recharge is acceptable under Arizona law. According to studies by Arizona Department of Water Resources, the overdraft within the Pinal AMA could reach over 300,000 acre-feet by 2025, resulting in lowered groundwater levels. Management of the Tucson AMA is expected to maintain existing groundwater levels. Declining groundwater levels could affect groundwater-dependent resources on public land such as vegetation.
Reasonably Foreseeable Future Actions	
CANAMEX Corridor	Interstate 8, Interstate 10, and State Route 85 have been identified as components of the CANAMEX Corridor in Arizona. The CANAMEX Corridor is one of 43 national high priority corridors identified in the Intermodal Surface Transportation Efficiency Act of 1991 (Public Law 102-240), the 1995 National Highway System Designation Act (Public Law 104-59), and the 1998 Transportation Equity Act for the Twenty-First Century (Public Law 105-78). The National Highway System Designation Act provides that the CANAMEX Corridor will extend from Nogales, Arizona, to Las Vegas, Nevada, to Salt Lake City, Utah, to Idaho Falls, Idaho, to Montana, and to the Canadian border. In Arizona, the corridor is described as extending from Nogales to Tucson to Phoenix to Nevada. The Maricopa Association of Governments and ADOT initiated a study in Fiscal Year 2000 to designate the route for the CANAMEX Corridor through the Maricopa Association of Governments region to connect Interstate 10 from Tucson and U.S. Highway 93 northwest of Phoenix to Nevada. If approved, the CANAMEX Corridor may result in the widening of I-10.
Future highways/roads	Arizona Department of Transportation is undertaking an Access Management Study to assess existing and future access points and potential widening and other improvements to I-10. Other freeway/highway developments are also currently being proposed. The Regional Transportation Authority (RTA) has established a plan that is a working document showing a 20-year, multi-modal transportation blueprint for the Pima County region. The 20-year RTA plan addresses cross-town mobility, reduced travel congestion, improved safety and security, improved travel modes and improved bicycle and pedestrian options, for which funding of $2.1 billion was approved on May 16, 2006, along with a separate request for a 1/2-cent excise tax to fund the plan.
Renewable energy	There is potential for renewable energy resources such as solar to occur in the decision area, and BLM has received an application for a solar energy generation station on 1,600 acres of land located about 3 miles north of the monument. There is some small-scale commercial solar energy testing activity on private land in Arizona. A renewable energy production plant has been proposed for construction in west Pinal County.
Utilities	Southwest Transmission Cooperative has constructed the Sandario Substation and will be rebuilding (upgrading) an associated transmission line between the Sandario Substation and Avra Valley. Transmission upgrades in this area are expected to be completed in late 2011 through mid-2012. In addition, Tucson Electric Power maintains a right-of-way in the IFNM which could be developed in the future. The UDSI BLM together with the U.S. Departments of Energy, Agriculture, and Defense completed a Final Programmatic EIS in November 2008 that designated more than 6,000 miles of energy transport corridors on Federal lands in 11 western states; those corridors are collectively called the West-wide Energy Corridor. Though under litigation, a settlement is pending as of August 2011.

Name	Description of Action
Regional population changes	New municipalities have been developed around the Tucson area as the demand for land available for housing continues to grow. While growth has slowed since the 2007 recession, Arizona has experienced unprecedented rates of population growth and development affecting increasingly widespread areas; many of which were, until recently, remote from existing urban areas. The number of the retired populations increasing, including those who are part-time residents of southeastern Arizona. With more time and disposable income to actively pursue leisure activities, increases in use of public lands by the retired population can be expected. Development has been converting both agricultural and open desert areas to residential and other urban purposes with the consequences of lost habitat, disrupted or severed habitat connectivity, disrupted/rerouted surface water hydrology; increased demand for water, roads and utilities, landfills, sewage disposal, sand and gravel, landscaping rock and outdoor recreation; loss of open space; and increased fugitive dust among other effects.
Borderlands rescue beacons	The U.S. Border Patrol has recommended placement of rescue beacons within the IFNM boundaries. Specific locations are yet to be determined; however some could be located on public land.

4.7.2 Cumulative Impacts By Resource Category

Cumulative impacts are discussed only for resources or uses that may experience impacts. The potential for cumulative impacts to the following resource and resources uses is discussed below: air quality, soil and water resources, vegetation, wildlife and wildlife habitat, special status species, fire ecology, cultural resources, paleontological resources, scenic and visual resources, recreation, lands and realty, social and economic conditions, and public safety. Cumulative impacts are not anticipated to geological resources, energy and minerals, and special designations; therefore, these topics are not discussed.

4.7.2.1 Air Quality

Cumulative impacts on air quality could result when the geographic areas experiencing direct effects from different activities overlap. For instance, if a mineral recovery project were undertaken near an area with OHV recreation use on unpaved roads, the separate activities would contribute to cumulative impacts in a certain locale. Ground-disturbing activities in the vicinity of IFNM contribute to effects on air quality; these include agricultural activities (such as plowing), utility and highway construction, and urban development and associated construction activities. Other activities that contribute to these types of effects include the increased popularity of vehicle-based recreation using OHVs and ATVs, U.S. Border Patrol and BLM operations and maintenance activities using unpaved roads within the monument, and "dusty landing" training conducted by the Army National Guard in the vicinity. These cumulative impacts would generally be from increased inhalable particulate matter such as PM_{10} concentrations, which could contribute to continued nonattainment status for air quality in portions of the IFNM.

In cases where commodity production or industrial projects qualify for air quality permitting, the assessments required to obtain the permit would identify the possibility for cumulative impacts. If such impacts may violate regulatory criteria, then the permit could impose mitigation as appropriate. The locations most at risk for cumulative impacts would be areas surrounding the commodity production or industrial projects, particularly if those areas were located within the nonattainment area for PM_{10}.

4.7.2.2 Soil and Water Resources

BLM management actions combined with the proposed construction of additional urban and residential development, the West-wide Energy Corridor, and Southwest Transmission Cooperative's Sandario Project, together with infrastructure developments (including new and upgraded highways, utility lines, and renewable energy production plants) and agricultural activities, could increase localized erosion and

sediment loading. Comprehensive management plans for habitat and species conservation combined with city and county plans and ordinances that include surface-disturbing restrictions could mitigate the increased potential for soil erosion and the resulting degradation of water quality that could occur.

4.7.2.3 Vegetation

Past actions that may have affected the density and diversity of vegetation in the planning region include mining activities, community settlement and development, conversion of native land for agriculture, and past ranching activities that may have included overgrazing, particularly in times of drought. Some of these effects were offset by the practices established through the Taylor Grazing Act and the resource management and protection that often accompanied special land designations, such as national forest, national park or monument, etc.

Some of these same types of activities continue to influence vegetation today. Ongoing development continues to be a major force in converting vegetated areas to other uses, including communities, utility corridors, and transportation systems. Increases in recreation resulting from the proximity of larger populations to undeveloped areas and increases in UDI access and apprehension activities also affect vegetation. However, for the lands that remain undeveloped, more parks and wilderness areas have been established with better defined management plans to protect resources, including vegetation. These broad-scale protective measures help to protect vegetation, including ironwood trees and other drought-adapted vegetation, as well as other natural features that provide habitat for threatened, endangered, and rare species and thus these and other objects of the monument. BLM management actions combined with the proposed construction of additional urban and residential development (and associated increased recreational activities), increased roads and highways, the West-wide Energy Corridor and the Southwest Transmission Company's Sandario Project, and any other land-disturbing activities could increase localized removal of or disturbance to vegetation. State, county, and city comprehensive management plans and HCPs, as well as the IFNM RMP, would restrict surface-disturbing activities, resulting in some mitigation of the vegetation removal or disturbance. Land acquisitions by BLM, or other jurisdictions with interest in maintaining vegetation and wildlife habitat could increase the potential to mitigate removal and/or disturbance of vegetation, especially where such acquisitions by BLM would result in large contiguous blocks of public land. Integrated weed management would reduce the spread and potential for noxious weeds and invasive species establishment, but the continued potential for spreading non-native seeds attached to vehicles that travel from place to place on road networks would continue to make weed management a challenging issue.

4.7.2.4 Wildlife and Wildlife Habitat

The cumulative impact boundaries for wildlife and wildlife habitat vary by species. Mobile species and species with a large home range include areas both within and outside the monument boundary. Cumulative impacts on the wildlife and wildlife habitat would result from surface disturbance and disruptive activities in and near the IFNM, such as land development, road construction, and increased recreational activities associated with an increasing population. Cumulative impacts from surface-disturbing activities or added barriers (fences, highways, canals, etc.) could include fragmentation of habitat, including important movement corridors, as well as overall degradation of habitat. State, county, and city comprehensive management plans and HCPs, as well as the IFNM RMP, would restrict surface-disturbing activities, resulting in some mitigation of the habitat degradation. However, the quantity and quality of habitat available for wildlife would be expected to decline over time. Actions taken by Federal, State, and county governments to set aside land that will be minimally developed—including IFNM, Sonoran Desert National Monument, Saguaro National Park, State and county parks, and zoning ordinances that promote land conservation—will contribute to the preservation of wildlife habitat, an object of the monument. Land acquisitions by BLM, or other jurisdictions with interest in maintaining vegetation and wildlife habitat could increase the potential to mitigate degradation of wildlife habitat,

especially where such acquisitions by BLM would result in large contiguous blocks of public land. On a regional scale, the actions to preserve and protect large blocks of habitat would help to offset the development activities that remove or degrade habitat. Because actions within IFNM are more likely to enhance than degrade the quantity of wildlife and the quality of wildlife habitat, these objects of scientific interest would be protected at the scale of the monument.

4.7.2.5 Special Status Species

The cumulative impact boundaries for special status plants and wildlife vary by species. Mobile species and species with a large home range include areas both within and outside the IFNM boundary. Cumulative impacts on special status species would result from surface disturbance and disruptive activities in and near the IFNM, such as land development, road construction, new fences, and increased recreational activities associated with the increasing population. State, county, and city comprehensive management plans and HCPs, as well as the IFNM RMP, would restrict surface-disturbing activities, resulting in some mitigation of the habitat degradation. However, the quantity and quality of habitat available for special status species would be expected to decline over time. Actions taken by Federal, State, and county governments to set aside land that will be minimally developed—including IFNM, Sonoran Desert National Monument, Saguaro National Park, State and county parks, and zoning ordinances that promote land conservation—will contribute to the preservation of wildlife habitat, including habitat important to the special status species (objects of the monument) found within IFNM. Land acquisitions by BLM, or other jurisdictions with interest in maintaining vegetation and wildlife habitat, including habitat for special status species, could increase the potential to mitigate degradation of habitat, especially where such acquisitions by BLM would result in large contiguous blocks of public land.

4.7.2.6 Fire Ecology

Increased residential development on private lands adjacent to the IFNM would increase the amount of wildland-urban interface (WUI) areas in the IFNM over the long term. Residential development and increasing recreational use adjacent to the IFNM would increase the potential for accidental human caused ignitions, which could spread into or out of the IFNM. Other potential fire ignition risks within IFNM include campfires, fires used by UDIs for heat or cooking, fires started by hot catalytic converters on vehicles contacting dry vegetation, and construction-related activities (such as welding) for proposed utilities. These potential ignition sources are not synergistic, but each contributes to the need for wildfire planning.

4.7.2.7 Cultural Resources

Proposed construction and additional residential development, infrastructure and utility improvements and expansions could disturb cultural resources. In addition, the continued urban growth in the Tucson and Marana metropolitan areas and surrounding communities has created increased demand for recreational and other uses on public land, which also could disturb cultural resources. The loss of cultural resources resulting from development on non-public land adjacent to the IFNM, such as subdivisions, is likely to occur. In addition, the potential for degradation of cultural resources within the IFNM would increase given the increased visitation and recreational uses that are expected. Comprehensive management plans, as well as city and county plans, may include provisions to protect and conserve cultural resources. State, county, and city comprehensive management plans, as well as the IFNM RMP, would restrict surface-disturbing activities, resulting in some mitigation of the degradation of cultural resources of scientific interest (objects of the monument) within and outside the monument. However, disturbance and degradation of cultural resources would be expected to occur over time. Land acquisitions by BLM, or other jurisdictions with interest in maintaining cultural resources, could increase

the potential to mitigate degradation of these resources, especially where such acquisitions by BLM would result in large contiguous blocks of public land.

4.7.2.8 Paleontological Resources

Proposed construction and additional residential development, infrastructure and utility improvements and expansions could disturb paleontological resources, if significant resources were discovered. In addition, the continued urban growth in the Tucson and Marana metropolitan areas and surrounding communities has created increased demand for recreational and other uses on public land, which also could potentially disturb paleontological resources. The loss of paleontological resources resulting from development on non-public land adjacent to the IFNM, such as subdivisions, could occur. In addition, the potential for degradation of paleontological resources, if discovered within the IFNM, would increase given the increased visitation and recreational uses that are expected, combined with any new surface-disturbing features within the monument that are developed to accommodate changes in land use. Surface-disturbing activities within areas containing significant fossils have the potential to damage this fragile, nonrenewable resource. Therefore, disturbance and degradation of paleontological resources would be expected to occur over time.

4.7.2.9 Scenic and Visual Resources

Visual resources within the boundaries of the IFNM have been, and would continue to be affected by projects and activities that occur on lands that are not administered by the BLM, but which could be visible from public lands due to proximity and topography. Varied land use on private inholdings and parcels of land adjacent to the boundary of the IFNM tend to create visual contrasts along the borders of the IFNM. Road construction, farming, mining, utility lines, fences, and residential development are examples of the types of activities that have created these contrasts in the past and have resulted in contrasts of texture, form, line, and color that are often visible to the casual observer at varying distances. Future projects likely would involve increased residential development and road construction, which would continue to create visual contrasts with the landscape. Structures and roads that occur near the borders of the IFNM that are taller than existing vegetation and do not match colors commonly found in the monument landscape would have a cumulative impact because they would be visible in concert with those projects and activities that have, and would continue to occur on inholdings and parcels of land adjacent to the IFNM. However, Pima County's Buffer Overlay Zone Ordinance, if applicable to the IFNM, could require projects to "provide for an aesthetic visual appearance from and to Pima County's public preserves," resulting in some mitigation of the cumulative impacts on scenic and visual resources, including views of the Sonoran Desert. In addition, because most development tends to occur in valleys or areas with more level terrain, the rugged mountains (an object of the monument) are protected on a broad scale.

4.7.2.10 Wilderness Characteristics

Major mining complexes immediately adjacent to the IFNM could diminish lands with wilderness characteristics such as naturalness and opportunities for primitive recreation within the decision area if these operations were in direct view from localized portions of the IFNM. In addition, vehicle traffic to and from the mine sites may pass through the IFNM, which would add to traffic impacts to lands with wilderness characteristics. Mining activities that have occurred within the decision area in the past are generally numerous but small. Historic mine shafts and associated barriers, structures, and disturbances could reduce naturalness and opportunities for primitive recreation within the IFNM. Lands with wilderness characteristics could be impacted by projects that occur outside the planning area due to the visibility of outside projects from within the IFNM. The development of residential housing on private lands to the north and east of the IFNM, for example, could be visible from higher elevations in the IFNM such as the Sawtooth Mountains and the Samaniego Hills and would diminish naturalness, and

opportunities for solitude in the IFNM. Utility developments on lands adjacent to the IFNM or activation of utility rights-of-way within IFNM would have similar cumulative impacts as residential lands. Despite the potential for degradation of areas managed to protect wilderness characteristics within the IFNM, the designated wilderness within 50 miles of the IFNM would remain protected in perpetuity and such values in those areas would be preserved. Therefore, though some degradation to lands with wilderness characteristics could occur in the IFNM, the regional cumulative impacts on lands with wilderness characteristics would be very limited in nature.

4.7.2.11 Livestock Grazing

Removal of vegetation as a result of surface-disturbing activities, the presence and abundance of grazing wildlife, and general human disturbance including illegal undocumented immigrant travel would result in diminished potential for livestock grazing within and outside the IFNM. Increased recreation use, urban development, and the conversion of private or Arizona State Trust lands to other uses could reduce livestock numbers and forage available for livestock by increasing soil disturbance, vegetation removal, and noxious and invasive weed proliferation. Impacts on livestock grazing could be greater near areas with high recreation use or areas developed for residential, commercial or industrial uses.

Under Alternative B, managing the BLM-administered lands as unavailable to livestock grazing after existing leases expire in conjunction with increased population growth and recreation demands could reduce the number of livestock operators. This could reduce the demand for livestock grazing on Arizona State Trust lands and private lands or potentially increase demand for use of State Trust or private lands for grazing, since BLM-administered lands would not allow that use.

4.7.2.12 Recreation

Various past, present, and reasonably foreseeable future actions affect, or could affect, the supply of and demand for recreational opportunities within the planning area. In addition to the IFNM, the existence of the Coronado National Forest, wilderness areas within 50 miles, Saguaro National Park, State and county parks, various State and regional trails, and the Sonoran Desert National Monument each provide various recreational opportunities. The increased number of students in the next five years at the Western Army National Guard Aviation Training Site, increasing vehicle-based recreation, closure of shooting ranges, and the growing urban development and associated population growth all contribute to increased demand for recreational opportunities in the region. Because parts of the Coronado National Forest have been closed to recreational shooting and BLM proposes to close IFNM to recreational shooting, other regional facilities that provide this opportunity are likely to experience an increase in demand, and there may be environmental effects from increased use of those facilities. As demand for other types of outdoor recreational opportunities grows, the IFNM could experience increased recreational visitors over the life of the plan, which could degrade certain recreational settings resulting in diminished recreational opportunities and experiences, or increase user conflicts associated with dispersed unconfined recreational opportunities. Similarly, increasing development, utilities, or rescue beacons within or near the IFNM could degrade certain recreational settings, resulting in diminished recreational opportunities and experiences.

4.7.2.13 Lands and Realty

Restrictions on rights-of-way and utilities near the IFNM could result from implementation of the City of Tucson HCP, City of Marana HCP, and Pima County Plans (including the Pima County Comprehensive Plan, Sonoran Desert Conservation Plan, and Pima County Conservation Lands System), as well as within areas protected as open space, such as Saguaro National Park, Coronado National Forest, and other State and county parks. This could result in increased concentration of rights-of-way for utilities in areas around, but outside the IFNM. Utility projects outside the IFNM, such as Southwest Transmission Cooperative's Sandario Project could reduce demand for land use authorizations (e.g., rights-of-way) as

this may reduce the need for a right-of-way within the IFNM, but overall the same types of facilities would be required within the surrounding area. Similarly, the West-wide Energy Corridor Programmatic EIS would not establish additional corridors within the IFNM, but could result in major utilities being located in areas outside the monument, where such facilities would be concentrated. This would result in fewer impacts on the IFNM and the objects for which it was established to protect.

Sales (or exchanges, if permitted in the future) of Arizona State Trust land by the Arizona State Land Department could result in extensive changes to surface management within the IFNM boundaries. If BLM acquired non-Federal land within the IFNM, the demand for both major utilities and smaller-scale distribution utilities within the IFNM could decrease over time, because the potential for development of those lands (and the associated need for utilities) would decrease. In contrast, BLM likely would need to issue increased rights-of-way to new areas if State Trust lands were sold to private parties for future development.

4.7.2.14 Travel Management

Past, present, and reasonably foreseeable future actions have affected, and continue to affect travel management within the IFNM and surrounding area. Urban development patterns and areas protected from development have guided the location and development of many highways and roads near and within the IFNM. The continuing growth of vehicle-based recreation, urban development, planned road and highway projects, and population growth are expected to increase demand and construction of transportation routes near the planning area.

In contrast, travel within the IFNM would be restricted to certain roads and trails, and very few, if any, additional routes would be developed. However, UDI and drug smugglers passing through IFNM have contributed to the proliferation of new roads and trails. BLM has rehabilitated more than 10 miles of new roads in which the creation of the road was attributed to UDI and drug smuggler traffic. Observations of numerous vehicle intrusions into washes and other areas that have been made during management activities within IFNM would indicate that this is only a fraction of the roads established by UDI and drug smuggler traffic. BLM also has documented the creation of more than 35 miles of new foot trails that were attributed to UDI and drug smuggler traffic. In certain circumstances, such as search and rescue operations for UDIs and apprehension efforts to protect public safety, law enforcement agencies also may travel off established roads. The cross-country travel done by UDIs and law enforcement agencies should not be interpreted as an opportunity for new access within the IFNM, as public use of these cross-country paths will not be allowed. UDI traffic into the United States has recently decreased substantially, which may allow for some natural restoration of scarred areas if the trend continues.

While there could be increased concentrations of vehicles within the IFNM from population growth and recreational demand in the area, the cumulative increase in vehicle use would be expected to be minimal compared to the increase that would result from the travel management restrictions imposed under each alternative. That is, restricting the miles of roads open for motorized travel would be expected to increase vehicle concentrations more in the IFNM than the increased regional access and population growth.

4.7.2.15 Social and Economic Conditions

Trends such as population growth, increasing non-labor income, and the increasing importance of open space and preserved land to the regional economy (as evidenced by the number of conservation plans and HCPs developed) are largely independent of the alternatives, but have potential for additive or interactive effects with them. Cumulative impacts are evaluated in terms of the affected communities' capacity for change, which is interactive with the diversity of the economy and opportunities elsewhere locally and regionally. As statewide and local economies shift towards the services sector and non-labor sources of income, BLM-administered lands take on a greater role in community economic development because

they provide recreational opportunities and land/open space preservation to some extent. The increasing role of BLM-administered lands for recreation is covered above under Section 4.2.12.

Because of the small magnitude of the socioeconomic impact of BLM's proposed actions relative to the increasing development trends in Pima and Pinal Counties, the alternatives are unlikely to impact tax revenues, employment, population growth, and development of the area overall; however, the existence of the IFNM may cause long-term increases in property values for adjacent landowners. In addition, if BLM acquired non-Federal land within the IFNM boundaries over time, there could be increases in the PILT payments and a loss of property taxes to the respective jurisdictions.

4.7.2.16 Public Safety

In the past and at present the BLM does not limit an individual's ability to carry a firearm within the IFNM. Under the current conditions (No Action Alternative A), recreational shooting is allowed within the monument outside of developed areas in accordance with 43 CFR 8365. However, under Alternatives B and C, the use and discharge of firearms would be prohibited, except for permitted or authorized hunting activities conducted in accordance with AGFD hunting regulations. This would not preclude individuals and public safety officers from carrying firearms. Public safety is a concern, with target shooting in the IFNM occurring more frequently and closer to populated areas because these areas have become more accessible. While there have been no reports of injury or death resulting from target shooting in the INFM, as populations grow closer to the monument and as visitation increases, this may present a greater concern.

BLM acknowledges that not all recreational shooters contribute to the litter problem in the IFNM, but that the issues of trash and shooting are often interrelated and have accumulated to a serious public safety concern. BLM has rules prohibiting littering (43 CFR 8360 and 8365.1(1)). Furthermore, in accordance with 43 CFR 8365.1-4(a)(2), "No person shall … create a risk to other persons on public lands by engaging in activities which include … creating a hazard or nuisance." Shooting items that are not intended to be used as targets, including glass bottles, paint containers, appliances, vehicles, computer monitors, televisions, propane tanks, gas cans, aerosol cans, and furniture creates several hazards, including potential bullet ricochets, broken glass, and release of hazardous substances into the ground and air. Jagged metal, splintered wood, and broken glass are dangerous hazards to BLM employees and volunteers engaged in cleaning these dumping and shooting sites. Shooting these items turns one large piece of trash into many smaller pieces of trash that are more easily spread over a larger area, making cleanup a considerably more difficult task and increasing the safety risk to wildlife and permitted livestock. Shooting natural objects and vegetation is a violation of 43CFR 8365.1-5(a)(1) and (2).

Litter problems are exacerbated by recreationists who do not use provided trash receptacles or carry out trash and by undocumented immigrants who often travel through more remote areas and leave behind dirty diapers, water bottles, and other litter. Public lands also may be subject to wildcat dumping because the lands are vast and remote enough that the illegal dumping may not be observed by law enforcement officers. Wildcat dumping may potentially become a greater problem with the increasing urban population on land near the monument.

The BLM will continue its ongoing program of identifying and remediating hazardous mine sites. This program includes lands within the IFNM. The first step in this program is to identify and post physical hazards such as open shafts and pits. The BLM prioritizes the remediation of hazardous mine sites based on a relative risk ranking; mine sites with higher risks are addressed first. Risk factors include physical hazards such as open shafts and pits as well as chemical exposure factors such as the presence of hazardous materials. Risks to human health and the environment are considered in the prioritization of sites.

BLM has coordinates with agencies such as the U.S. Border Patrol, AGFD, Pima County Sheriff's Department, and Tohono O'odham Community for law enforcement and resource management in the IFNM, which includes illegal immigration. No management decisions are made in the plan related to illegal activities (including immigration) and associated law enforcement activities; however, there are public safety concerns about human and drug smugglers who use the IFNM to enter the United States. As a potential countervailing effect, the U.S. Border Patrol has recommended placement of rescue beacons within the IFNM boundaries. These rescue beacons, if installed, may be used by persons feeling threatened by smugglers as well as by persons who are lost or in need of medical attention.

4.8 IRREVERSIBLE AND IRRETRIEVABLE COMMITMENT OF RESOURCES

Section 102(2)(C) of NEPA requires discussion of any irreversible or irretrievable commitments of resources that would be involved in the plan if it were implemented. An irretrievable commitment of a resource is one in which the resource or its use is lost for a period of time. An irreversible commitment of a resource is one that cannot be reversed.

Implementation of the any of the management plan alternatives would not result in impacts that could be characterized as irreversible and irretrievable commitments as the RMP would provide objectives for resource management and guidance for future activity and implementation-level decisions that minimize the potential for irreversible and irretrievable impacts. Some localized disruption to resources might occur, but could be mitigated, as appropriate.

4.9 UNAVOIDABLE ADVERSE IMPACTS

Section 102(C) of NEPA requires disclosure of any adverse environmental effects that cannot be avoided if the any of the management plan alternatives were implemented. Unavoidable adverse impacts are those that remain following implementation of mitigation measures or impacts for which there are no mitigation measures. Some unavoidable adverse impacts would occur as a result of increased visitation and recreational use of the IFNM, in addition to surface disturbance. The alternatives were developed to respond to these impacts and to be protective of the resources while allowing land use to be as diverse as possible; however, some localized unavoidable adverse impacts could occur.

4.10 RELATIONSHIP BETWEEN LOCAL SHORT-TERM USES AND LONG-TERM PRODUCTIVITY

Section 102(C) of the National Environmental Policy Act requires discussion of the relationship between local, short-term uses of the human environment and maintenance and enhancement of long-term productivity of resources. “Short-term” is defined as expected to occur within 1 to 5 years of implementation of the plan. “Long-term” is defined as after the first 5 years of implementation but within the life of the RMP.

Any of the alternatives would result in various short-term effects, such as decreases in visual resource quality and recreational opportunities. The long-term productivity of resources within the IFNM would not be diminished, however, because these short-term uses would be minimized by management actions to effect the opposite change over the long term. (Refer to Section 2.3.5.)

CHAPTER 5.0 CONSULTATION AND COORDINATION

This Proposed Resource Management Plan and Final Environmental Impact Statement (PRMP/FEIS) represents the efforts and involvement of a broad range of participants, including public agencies, tribal councils, and private organizations and individuals. The Bureau of Land Management (BLM) met and consulted with various Federal, State, tribal, and local agencies throughout the process, including coordination with the Arizona Game and Fish Department (AGFD) which assumed a more formal role as a cooperating agency. BLM conducted and attended many meetings throughout the planning process to keep all interested parties informed, and to solicit opinions and input germane to management of public land resources within the Ironwood Forest National Monument (IFNM or monument). The general public also was brought into the process. All interested parties were invited into the process by means of various formal and informal methods, including meetings (with public agencies, tribal councils, interest groups, and individuals), scoping meetings, workshops, e-mail correspondence, and distribution of newsletters. This section summarizes these activities.

5.1 COMMUNICATION METHODS

The planning area is a special place to many people, and BLM recognizes there is great interest in the outcome of this planning process. It was the agency's task, therefore, to make the process as transparent as possible and engage the surrounding communities' help in identifying all relevant issues. All those with an interest in the RMP process—including communities, tribes, government agencies, various organizations and groups, and individuals—were informed that the planning process was underway, and presented with opportunities for involvement. The response to this, including verbal and written comments received during all phases of the planning process, was helpful to the development of this plan. Comments from the public will continue to be accepted for consideration in the subsequent phases of this planning process.

Internal guidelines were established to ensure that the planning process remain as open and inclusive as possible. In response to these guidelines, BLM followed through with these actions:

- Accepted public comments for consideration throughout all stages of the planning effort
- Granted all requests for information (unless the information was unavailable or prohibited by policy or law)
- Assigned staff and managers to meet with all groups and individuals requesting meetings to discuss the RMP process
- Opened internal processes for review by the cooperating agencies, and actively invited their comments and assistance
- Assigned staff and managers to prepare planning information for all meetings, such as meetings with Federal managers, tribal councils, the Grazing Advisory Board, and the Resource Advisory Council

BLM used the following means to inform all interested parties about the progress of the planning effort:

- Public scoping
- Community-based partnership and stewardship workshops
- Formal presentations to American Indian tribes and tribal representatives
- Informal presentations to interested groups

- Planning bulletins
- Posting of information on the BLM website
- Partnerships with cooperating agencies

5.2 PLANNING BULLETINS AND WEBSITE

Planning bulletins were sent to interested individuals and groups, affected Federal and State agencies, community groups, and tribes to inform them about planning issues and progress and to invite comment. The bulletins were also made available on BLM's website (http://www.blm.gov/az/LUP/ironwood/ironwood_plan.htm). Table 5-1 lists the four planning bulletins that were placed on the BLM website and sent to those who requested copies.

Table 5-1: IFNM Planning Bulletins for the Proposed and Draft RMP/EIS

Date	Contents
July 2002	Announcement of scoping meetings
August 2003	Update of planning process and schedule; announcement of URS Corporation as contractor to assist with the development of the RMP/EIS
February 2004	Summary of scoping results; announcement of meetings to develop goals for the long-term management of the IFNM
August 2005	Summary of preliminary draft alternatives; announcement of meeting to review preliminary draft alternatives
February 2007	Announce availability of the Draft RMP/EIS
July 2010	Announce availability of the Proposed RMP/FEIS

Planning information, including the schedule, meeting locations and dates, planning bulletins, the scoping report, the draft alternatives, associated maps, and a copy of the Proposed and Draft RMP/EIS was posted on the BLM website.

5.3 FORMAL PRESENTATIONS TO AMERICAN INDIAN TRIBES

Before and after the notice of intent was published and in accordance with the National Environmental Policy Act (NEPA), the National Historic Preservation Act, and Executive Order 13007, meetings were held with representatives of concerned American Indian tribes. The goal of these meetings was to inform and solicit input for the planning process from all American Indian Tribes or communities living on or near the IFNM. Table 5-2 lists those meetings.

Table 5-2: Meetings with American Indian Tribes

Date	Tribe, Band, or Council Meeting	Location
July 23, 2002	Gila River Indian Community	Sells, Arizona
October 19, 2004	Gila River Indian Community	Sacaton, Arizona
July 15, 2005	Four Southern Tribes Cultural Committee (Tohono O'odham, Gila River Indian Community, Salt River Pima-Maricopa Indian Community, Ak-Chin Indian Community) and elected officials	Salt River Pima-Maricopa Indian Community Learning Center
August 18, 2005	Tohono O'odham	BLM Tucson Field Office
January 12, 2006	Tohono O'odham	IFNM

Date	Tribe, Band, or Council Meeting	Location
May 23, 2007	Four Southern Tribes Cultural Committee (Tohono O'odham, Gila River Indian Community, Salt River Pima-Maricopa Indian Community, Ak-Chin Indian Community) and elected officials	Cyprus Tohono Mine, Tohono O'Odham Nation
May 19, 2009	Four Southern Tribes Cultural Committee (Tohono O'odham, Gila River Indian Community, Salt River Pima-Maricopa Indian Community, Ak-Chin Indian Community)and elected officials	Sells, Arizona

5.4 PUBLIC SCOPING MEETINGS

The planning process was initiated April 24, 2002, with the publication of a notice of intent in the Federal Register. In July 2002, the BLM Tucson Field Office hosted a series of nine open house public scoping meetings throughout southern Arizona to provide information and a forum for public input into both the plan and the process. The open-house scoping meetings were held in the Arizona communities of Mesa, Casa Grande, Eloy, Arizona City, Tucson, Sells, Picture Rock, Marana, and Green Valley.

5.5 PUBLIC MEETINGS ON DRAFT RMP/EIS

The release of the Draft RMP/EIS in March 2007 was accompanied by a 90-day public comment period during which BLM held six public meetings throughout southern Arizona and in the Phoenix area, as shown in Table 5-3. BLM received over 12,000 comments during the comment period from the public, agencies, and other organizations throughout the United States, with a few comments coming from outside the country (see Appendix J). Since the release of the Draft RMP, BLM has consulted further with the Four Southern Tribes, and participated in ongoing discussions with the Arizona Game and Fish Department, Arizona State Land Department, Pima and Pinal Counties, and other government entities as well as individuals and organizations to receive clarification on comments and discuss issues relevant to the IFNM RMP.

Table 5-3: Dates and Locations of Public Hearings on the Draft RMP/EIS

Date	Location
March 29, 2007	Tucson, Arizona
April 3, 2007	Sahuarita, Arizona
April 5, 2007	Chandler, Arizona
April 10, 2007	Sells, Arizona
April 12, 2007	Tucson, Arizona
May 19, 2007	Tucson, Arizona

5.6 COMMUNITY-BASED WORKSHOPS AND COLLABORATIVE PLANNING

BLM held 11 public workshops to encourage active community involvement in the planning process, and establish a management vision for the planning area. The specific goals of these workshops were to:

- Gather input and information from local communities, agencies, groups, and individuals to help establish goals and objectives for management of public land resources within the IFNM.
- Inform participants about the ongoing planning effort

- Encourage active involvement in planning for the IFNM, including establishment of community-based planning groups

Table 5-4 shows the date and topic for each community workshop. Each workshop was held at the Pima County Parks and Recreation Facility.

Table 5-4: Community Workshops

Date	Topic
March 8, 2004	Vision, overarching goals
March 29, 2004	Vision, overarching goals, public participation opportunities
April 29, 2004	Wildlife and wildlife habitat
May 19, 2004	Wildlife and wildlife habitat
May 26, 2004	Vegetation and special status species
June 9, 2004	Cultural resources
June 16, 2004	Soil, water, air, geology, and minerals
June 23, 2004	Recreation and visual resources
June 30, 2004	Travel Management
July 21, 2004	Livestock grazing
July 28, 2004	Mining and lands and realty

5.7 COOPERATING AGENCIES

As discussed in Section 1.6.1, BLM is required by law to prepare NEPA analysis and documentation "in cooperation with State and local governments," and other agencies with jurisdiction by law or special expertise (42 U.S.C. 4331(a), 4332(2)). Qualified agencies, tribes, or other governments that enter into formal cooperation under this provision are called cooperating agencies. In support of the cooperating agency mandate, BLM invited a broad range of Federal, State, tribal, and local agencies to become cooperating agencies on the development of the IFNM RMP. AGFD formally agreed to be a cooperating agency during this planning process, and developed a Memorandum of Understanding with BLM outlining the agencies' various responsibilities with regard to the planning process.

In addition, representatives from other interested Federal and State agencies and tribes provided BLM with ongoing verbal and/or written comments, and provided planning information, including Geographic Information System (GIS) data layers and information.

Various other groups have also played a vital role in the planning process. Their participation has been informal and infrequent. Public involvement in planning for the IFNM is ongoing. There will continue to be many opportunities for public involvement. Planning is merely the beginning of collaboration and communication that translates into healthy landscapes and continuing opportunities to use and appreciate the resources in a wide variety of ways.

5.8 IFNM PROPOSED AND DRAFT RMP/EIS DISTRIBUTION LIST

5.8.1 Federal Agencies

- Bureau of Indian Affairs
  - Phoenix, Arizona
  - Reston, Virginia

- Bureau of Land Management
    - Washington D.C. Office
    - Tucson Field Office
    - Phoenix District Office
    - Gila District Office
    - Arizona Strip District Office
    - Colorado River District Office
    - Arizona State Office
- Bureau of Reclamation, Denver, Colorado
- Federal Highway Administration, Phoenix, Arizona
- Department of Transportation, Washington, D.C.
- National Park Service
    - Washington Service Center, Washington, D.C.
    - Pacific West Region, San Francisco, California
    - Saguaro National Park, Tucson, Arizona
- Minerals Management Service
    - Denver, Colorado
    - Herndon, Virginia
- Natural Resources Conservation Service, Phoenix, Arizona
- Office of Environmental Policy and Compliance, Oakland, California
- Office of Surface Mining, Reclamation, and Enforcement, Washington, D.C.
- U.S. Bureau of Mines, Denver, Colorado
- U.S. Department of Energy, Office of Environmental Compliance (EH-23), Washington, D.C.
- U.S. Environmental Protection Agency
    - Washington, D.C.
    - Denver, Colorado
    - San Francisco, California
- U.S. Department of Defense
    - Air Force Regional Environmental Office, San Francisco, California
    - Army Corps of Engineers, Phoenix, Arizona
    - Davis Monthan Air Force Base, Arizona

- U.S. Department of Homeland Security
  - Laguna Nigule, California
  - U.S. Border Patrol, Tucson, Arizona
- U.S. Fish and Wildlife Service
  - Phoenix, Arizona
  - Tucson, Arizona
  - Division of Environmental Quality, Arlington, Virginia
- U.S. Forest Service
  - Coronado National Forest, Tucson, Arizona
- U.S. Geological Survey
  - Tucson, Arizona
  - Reston, Virginia

5.8.2 State Agencies and Organizations

- Arizona Army National Guard, Western Army National Guard Aviation Training Site
- Arizona Corporation Commission
- Arizona Department of Agriculture
- Arizona Department of Commerce
- Arizona Department of Environmental Quality
- Arizona Department of Water Resources
- Arizona Department of Mines and Mineral Resources
- Arizona Department of Transportation
- Arizona Game and Fish Department
- Arizona Geological Survey
- Arizona Historical Society
- Arizona Mines and Mineral Resources
- Arizona State Historic Preservation Office
- Arizona State Land Department
- Arizona State Parks

5.8.3 Local Governments

- Casa Grande, Arizona
- Eloy, Arizona
- Marana, Arizona
- Oro Valley, Arizona

- Pima Association of Governments
- Pima County
- Pinal County
- Tucson, Arizona

5.8.4 Tribal Governments

- Ak Chin Indian Community
- Gila River Indian Community
- Tohono O'odham Nation
- Salt River Pima-Maricopa Indian Community
- San Carlos Apache Indian Community

5.8.5 Congressional

- Senator Jon Kyl, Arizona
- Senator John McCain, Arizona
- Representative Raul Grijalva, Arizona
- Representative Gabrielle Giffords, Arizona
- Representative Rick Renzi, Arizona (Draft RMP/DEIS)
- Representative Anne Kirkpatrick, Arizona (Proposed RMP/FEIS)

5.8.6 Libraries

- Geasa-Marana Branch Library, Marana, Arizona
- Salazar-Ajo Branch Library, Ajo, Arizona
- Joel D. Valdez Main Library, Tucson, Arizona
- Casa Grande Public Library, Casa Grade, Arizona

5.9 RESPONSES TO COMMENTS

Written and oral comments on the Draft RMP/EIS that were received during the 90-day public comment period were reviewed and categorized into substantive and non-substantive comments. Most non-substantive comments expressed the commenter's opinion regarding which alternative is preferred. Substantive comments were further categorized by RMP topic. Substantive comments were summarized, particularly in cases where several individuals submitted a similar comment. The summarized substantive comments and responses to these comments are included in Appendix J.

For concerns or issues considered non-substantive, BLM extends its thanks to those commenters for participating in the IFNM RMP process.

Comment submittals may be viewed in their entirety by contacting the BLM at 520-258-7200 to arrange to review that information at the BLM's Tucson Field Office in Tucson, Arizona.

5.10 LIST OF PREPARERS

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The Environmental Company		
Carol Wirth	Social and Economic Conditions and Environmental Justice	B.S., Ecology and Evolutionary Biology
Clear Creek Associates		
Barbara H. Murphy	Paleontology and Cave Resources	B.A., Geology

GLOSSARY

A

Administrative Actions: The day-to-day activities required to serve the public and provide optimum management of the resources within the planning area. These actions are allowable and do not require authorization within an RMP, but may require site-specific analysis under the National Environmental Policy Act of 1969 (NEPA).

Agency: Any Federal, State, or county government organization participating with jurisdictional responsibilities.

Air Pollutant: Generally, an airborne substance that could, in high enough concentrations, harm living things or cause damage to materials. From a regulatory perspective, an air pollutant is a substance for which emissions or atmospheric concentrations are regulated or for which maximum guideline levels have been established due to potential harmful effects on human health and welfare.

Air Quality: The cleanliness of the air as measured by the levels of pollutants relative to standards or guideline levels established to protect human health and welfare. Air quality is often expressed in terms of the pollutant for which concentrations are the highest percentage of a standard (e.g., air quality may be unacceptable if the level of one pollutant is 150% of its standard, even if levels of other pollutants are well below their respective standards).

Air Quality Standard: Levels of air pollutants prescribed by regulations that may not be exceeded during a specified time in a defined area.

Allotment (range): A designated area of land available for livestock grazing upon which a specified number and kind of livestock may be grazed under management of an authorized agency. An allotment generally consists of Federal rangelands, but may include intermingled parcels of private, State, or Federal lands. BLM and the Forest Service stipulate the number of livestock and season of use for each allotment.

Ambient (air): The surrounding atmospheric conditions to which the general public has access.

Analysis: An examination of existing and/or recommended management needs and their relationships in order to discover and display the outputs, benefits, effects, and consequences of initiating a proposed action.

Animal Unit Month (AUM): The amount of forage needed to sustain one cow, five sheep, or five goats, for a month. A full AUM's fee is charged for each month of grazing by adult animals if the animal (1) is weaned, (2) is 6 months old or older when entering public land, or (3) will become 12 months old during the period of use. For fee purposes, an AUM is the amount of forage used by five weaned or adult sheep or goats or one cow, bull, steer, heifer, horse, or mule. The term AUM is commonly used in three ways: (1) stocking rate as X acres per AUM, (b) forage allocation as in X AUM's in allotment A, and (3) utilization as in X AUMs consumed from Unit B.

Aquifer: A groundwater bearing rock unit (unconsolidated or bedrock) that will yield water in a usable quantity to a well or spring.

Archaeology: The scientific study of the life and culture of past, especially ancient, peoples, by excavation of ancient cities, relics, artifacts, etc.

Archaeological Site: A discrete location that provides physical evidence of past human use.

Area of Critical Environmental Concern (ACEC): An area of public lands designated by BLM for special management attention to protect and prevent irreparable damage to important historic, cultural, or scenic values, fish and wildlife resources, or other natural systems or processes, or to protect life/provide safety from natural hazards. Areas designated as ACECs have met criteria for importance and relevance that are outlined in 43 CFR 1610.7-2(b).

Artifact: A manmade object.

Attainment Area: An area that the Environmental Protection Agency has designated as being in compliance with one or more of the National Ambient Air Quality Standards (NAAQS) for sulfur dioxide, nitrogen dioxide, carbon monoxide, ozone, lead, and particulate matter. An area may be in attainment for some pollutants but not for others.

Avoidance area: An environmentally sensitive area where rights-of-way may be granted only when no feasible alternative route is available.

B

Basin: A depressed area having no surface outlet (*topographic basin*); a physiographic feature or subsurface structure that is capable of collecting, storing, or discharging water by reason of its shape and the characteristics of its confining material (*water*); a depression in the earth's surface, the lowest part often filled by a lake or pond (*lake basin*); a widened part of a river or canal (*drainage, river, stream basin*).

Basin and Range: A geological and geographical landform common to western North America and characterized by a series of tilted-fault-block mountain ranges and broad intervening basins.

Biodiversity: The variety of life and its processes, and the interrelationships within and among various levels of ecological organization. Conservation, protection, and restoration of biological species and genetic diversity are necessary to sustain the health of existing biological systems. Federal resource management agencies must examine the implications of management actions and development decisions on regional and local biodiversity.

Biological Soil Crust: A living community of lichen, cyanobacteria, algae, and moss growing on the soil surface, creating a crust of soil particles bound together by organic materials. Biological soil crusts are also known as cryptogamic, microbiotic, cryptobiotic, and microphytic crusts and are commonly found in semiarid and arid environments throughout the world.

Border Patrol: The mobile law enforcement arm of the Immigration and Naturalization Service that detects and prevents illegal entry of aliens into the United States.

Browse: Leaf and twig growth of shrubs, woody vines, trees, cacti, and other non-herbaceous vegetation available for animal consumption.

C

Carbon Monoxide: A colorless, odorless, poisonous gas produced by incomplete burning of carbon-based fuels including gasoline, oil and wood. Carbon monoxide is also produced from incomplete combustion of many natural and synthetic products.

Cave: Any naturally occurring void, cavity, recess, or system of interconnected passages that occurs beneath the surface of the earth or within a cliff or ledge (including any cave resource therein, but not including any vug [a small cavity in a rock], mine, tunnel, aqueduct, or other manmade excavation) which is large enough to permit an individual to enter, whether or not the entrance is naturally formed or manmade. Such term includes any natural pit, sinkhole, or other feature that is an extension of the entrance.

Characteristic: That which constitutes a character; that which characterizes; a distinguishing trait, feature, or quality; a peculiarity.

Clean Air Act: Federal legislation governing air pollution. The Clean Air Act established NAAQS for carbon monoxide, nitrogen dioxide, ozone, particulate matter, sulfur dioxide, and lead. Prevention of Significant Deterioration classifications define the allowable increased levels of air quality deterioration above legally established levels. They include the following:

- Class I – minimal additional deterioration in air quality (certain national parks and wilderness areas)
- Class II – moderate additional deterioration in air quality (most lands)
- Class III – greater deterioration for planned maximum growth (industrial areas)

Clean Water Act (CWA): Federal legislation governing water quality. The CWA refers to a series of Federal laws and regulations that attempt to restore the beneficial uses of surface waters of the United States (also referred to as "waters of the U.S."). The CWA regulates such programs as the National Pollutant Discharge Elimination System, a permit-based set of regulations that control the discharge of pollution to U.S. waterways from an individual point (for example, the end of a pipe) and the discharge of concentrated storm water from highways, cities, and other built environments. The CWA also regulates the placing of fill in streams and washes for the construction of road crossings, pipelines, and power lines. The U.S. Environmental Protection Agency and the U.S. Army Corps of Engineers, which in some cases have extended responsibilities to the individual states, regulate these programs.

Community (ecological): The living part of an ecosystem. Communities change with succession, thereby forming distinctive ecological units both in time and space. The plant community and the animal community together form the biotic community. Size of area is not implied (i.e., organisms associated with a decaying log or with an entire forest each represent communities).

Compaction: The process of packing firmly and closely together; for example, mechanical compaction by vehicular, human or livestock activity. Soil compaction results from particles being pressed together so that the volume of the soil is reduced. It is influenced by the physical properties of the soil, moisture content, and the type and amount of compactive effort.

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.

Contrast: Diversity of adjacent parts, as in color, tone, or emotions. The closer the juxtaposition of two dissimilar perceptions, in time or space, the more powerful the appeal to the attention.

Corridor: A wide strip of land within which a proposed linear facility (e.g., pipeline, transmission line) could be located. A corridor may also be a strip of land that is set aside for conservation purposes, particularly to provide wildlife an area of use to move between patches of habitat.

Corrosivity: A characteristic defining a hazardous waste. Solid waste that is defined as corrosive demonstrates the capability to destroy gradually by chemical action.

Criteria Pollutant: An air pollutant that is regulated by NAAQS. The Environmental Protection Agency must describe the characteristics and potential health and welfare effects that form the basis for setting, or revising, the standard for each regulated pollutant. Criteria pollutants include sulfur dioxide, nitrogen dioxide, carbon monoxide, ozone, lead, and two size classes of particulate matter, less than 10 micrometers (0.0004 inch) in diameter, and less than 2.5 micrometers (0.0001 inch) in diameter. New pollutants may be added to, or removed from, the list of criteria pollutants as more information becomes available. (See National Ambient Air Quality Standards.)

Critical Habitat: Habitat essential to the conservation of an endangered or threatened species that has been designated as critical by the U.S. Fish and Wildlife Service or the National Marine Fisheries Service.

Cultural Resources: A cultural resource is any definite location of past human activity, occupation, or use, identifiable through inventory, historical documentation, or oral evidence. Cultural resources include archaeological, historical, or architectural sites, structures, places, objects, and artifacts.

D

Decibel: A unit of sound pressure level, abbreviated dB.

dBA: Unit of sound level. The sound pressure level weighted by the use of the "A" metering characteristic and weighting specified in American National Standards Institute (ANSI) Specifications for Sound Level Meter. Used to represent the response of the human ear to loudness.

Decision Area: BLM-administered public land and private split-estate (i.e., private surface acreage overlying federally owned minerals) within the planning area are referred to in this document as the decision area.

Desert Pavement: A surface of angular, interlocking fragments of pebbles, gravel, or boulders found in arid and semiarid environments. These surfaces are found on level or gently sloping desert flats, fans, or bajadas, and lake and river terraces. Desert pavement forms under the influence of daily thermal expansion and contraction as sandy particles slowly sort downward, leaving the larger stones at the surface.

Desired Plant Community: An objective regarding a group of compatible plant species, including the desired percentage of occurrence, considered ideal to meet land-management goals for the area.

Developed Recreation: Recreation that requires facilities that result in further concentrated use of the area. For example, off-road vehicles require parking lots and trails. Campgrounds require roads, picnic tables, and toilet facilities.

Distance Zones (views/visual resources): A subdivision of the landscape based on the distance from viewers along travel routes or other observation points. Viewing distance zones include the foreground-middleground, background, and seldom seen.

> ***Foreground-Middleground Zone***: The area that can be seen from each travel route for a distance of 3 to 5 miles where management activities might be viewed in detail. The outer boundary of this distance zone is defined as the point where the texture and form of individual plants are no longer apparent in the landscape.
>
> ***Background Zone***: The remaining area that can be seen from each travel route to approximately 15 miles. In order to be included within the distance zone, vegetation should be visible at least as patterns of light and dark.
>
> ***Seldom-Seen Zone***: Areas that are not visible within the foreground-middleground and background zones due to screening primarily by topographic or terrain features, and areas beyond the background zones.

E

Easement: A right or privilege one may have on another's land.

Ecological Site: A distinctive kind of rangeland that differs from other kinds of rangeland in its ability to produce a characteristic natural plant community.

Ecosystem: Any area or volume in which there is an exchange of matter and energy between living and nonliving parts; that is, the biotic community together with soil, air, water, and sunlight form an ecosystem. Ecosystems are the best units for studying the flow of energy and matter.

Endangered Species: Plants or animals that are in danger of extinction through all or a significant portion of their ranges and that have been listed as endangered by the U.S. Fish and Wildlife Service following the procedures outlined in the Endangered Species Act and its implementing regulations.

Enhance: To improve the productivity or quality of resources or resource uses.

Environmental Assessment: A concise public document for which a Federal agency is responsible. An EA serves (1) to briefly provide enough evidence and analysis for determining whether to prepare an environmental impact statement (EIS) or a finding of no significant impact; and (2) to aid an agency's compliance with the National Environmental Policy Act when no EIS is needed; and (3) to facilitate preparation of an EIS when one is needed.

Environmental Impact Statement: An analytical document that portrays potential impacts on the human environment of a particular course of action and its possible alternatives. The document is released to the public for review and comment. Required by the National Environmental Policy Act, an EIS is prepared for use by decision makers to assess the environmental consequences of a potential decision. An EIS must meet the requirements of the National Environmental Policy Act, the Council on Environmental Quality, and the directives of the agency responsible for the proposed action.

Environmental Justice: 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 groups, 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. Executive Order 12898 directs Federal agencies to make achieving environmental justice part of their missions by identifying and addressing disproportionately high and adverse effects of agency programs, policies, and activities on minority and low-income populations.

Erosion: Detachment or movement of soil or rock fragments by water, wind, or gravity. Accelerated erosion is much more rapid than normal, natural or geologic erosion, primarily as a result of the influence of surface-disturbing activities of people, animals or natural catastrophes.

Exclusion area: An environmentally sensitive area where rights-of-way would be granted only in cases where there is a legal requirement to provide such access.

Extraction: The removal of mineral resources from the land by mining, quarrying, or excavation.

F

Federal Lands: Lands, or interests in lands (such as easements and rights-of-way), owned by the United States.

Federal Undertaking: A project, activity, or program funded in whole or in part under the direct or indirect jurisdiction of a Federal agency including those carried out on or on behalf of the agency, those carried out with Federal financial assistance, those requiring a Federal permit, license or approval, and those subject to State or local regulation administered pursuant to a delegation or approval by a Federal agency.

Fire Frequency: A general term referring to the recurrence of fire in a given area over time. It is sometimes stated as number of fires per unit time in a designated area. It is also used to refer to the probability of an element burning per unit time

Fire Intensity: derived from the energy content of the fuel, the mass of fuel consumed, and the rate of spread of the fire. The units of fireline intensity reflect energy release (kW) per unit length (m) of the fireline: energy release along a linear front. The length of the flames of a fire can be related to its intensity.

Fire Regime: The characteristics of fire in a given ecosystem, including factors such as frequency, intensity, severity, and patch size. The terms used for the different fire regimes are Nonlethal, Mixed 1, Mixed 2, and Lethal. Nonlethal fires are generally of the lowest intensity and severity with the smallest patches of mortality, while lethal fires are generally of the highest intensity and severity with the largest patches of mortality. The others fall in between.

Fire Regime Condition Classes: Fire Regime Condition Classes are a qualitative measure describing the degree of departure from historical fire regimes, possibly resulting in alterations of key ecosystem components such as species composition, structural stage, stand age, canopy closure, and fuel loadings. One or more of the following activities may have caused this departure: fire exclusion, timber harvesting, livestock grazing, introduction and establishment of exotic plant species, introduced insects and disease, or other management activities.

Fluid Minerals: Oil, gas, geothermal resources, carbon dioxide, and coalbed methane.

Forage: All browse and herbaceous growth available and acceptable to grazing animals or that may be harvested for feeding purposes. Forage includes pasture, rangelands, and crop aftermath. Feed includes forage, hay and grains.

Forb: An herbaceous plant that is not a grass, sedge, or bush.

Form: The mass or shape of an object or objects which appear unified.

G

Game Species: Any species of wildlife or fish that is managed for hunters.

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 and defining goals.

Grazing: Consumption of native forage from rangelands or pastures by livestock or wildlife.

Grazing Allotment: An area where one or more livestock operators graze their livestock. An allotment generally consists of Federal public land but may include parcels of private or State-owned land.

Grazing Fee: A charge, usually on a monthly basis, for grazing a specific kind of livestock.

Grazing Lease: A document authorizing use of public lands outside an established grazing district. Grazing leases specify all authorized use including livestock grazing, suspended use, and conservation use. Leases specify the total number of AUMs apportioned, the area authorized for grazing use, or both.

Grazing Permit: An authorization that allows grazing on public lands. Permits specify class of livestock on a designated area during specified seasons each year.

Groundwater: Water below the ground surface in a zone of saturation.

Guidelines: Management approaches, methods, and practices that are intended to achieve a standard. Guidelines typically (1) identify and prescribe methods of influencing or controlling specific public land uses, (2) are developed and applied consistent with the desired condition and within site capability, and (3) may be adjusted over time.

H

Habitat: A specific set of physical conditions in a geographic area(s) that surrounds a single species, a group of species, or a large community. In wildlife management, the major components of habitat are food, water, cover, and living space.

Habitat Management Plan: A written and officially approved plan for a specific geographical area of public land that identifies wildlife habitat and related objectives, establishes the sequence of actions for achieving objectives, and outlines procedures for evaluating accomplishments.

Hazardous Materials: Substances or mixtures of substances that have the capability of either causing or significantly contributing to an increase in mortality or an increase in serious irreversible or incapacitating

reversible illness, or posing a substantial present or potential risk to human health or the environment. Hazardous wastes are defined as wastes or combination of wastes that, because of quantity, concentration, or physical, chemical, or infectious characteristics, may either cause, or significantly contribute to, an increase in mortality or an increase in serious irreversible illness, or pose a substantial present or potential hazard to human health or the environment when improperly treated, stored, transported, disposed of, or otherwise managed. Hazardous wastes are products or by-products of hazardous materials. In order to be classified as hazardous, wastes must either appear on a series of lists compiled by the U.S. Environmental Protection Agency or demonstrate the characteristics of ignitability, corrosivity, reactivity, or toxicity.

Hazardous Waste: The Resource Conservation and Recovery Act defines hazardous waste as a solid waste that may cause an increase in mortality or serious illness or pose a substantial threat to human health and the environment when improperly treated, stored, transported, disposed of, or otherwise managed. A waste is hazardous if it exhibits characteristics of ignitability, corrosivity, reactivity, and/or toxicity.

Haze: An atmospheric aerosol of sufficient concentration to be visible. The particles are so small that they cannot be seen individually, but are still effective in scene distortion and visual range restriction.

Historic Fire Regime: A classification of the effects of ecosystem disturbance caused by fire over time and space. Generally encompasses the period between 1500 to late 1800, before extensive settlement by European-Americans in many parts of North America, before intense conversion of wildlands for agricultural and other purposes, and before fire suppression effectively reduced fire frequency in many areas. Sometimes referred to as “presettlement” fire regimes.

I

Illegal Immigration: The entrance into the United States of an alien (non-citizen) without government permission.

Infiltration: The downward entry of water into soil or other material.

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.

J

Jurisdiction: The legal right to control or regulate use of land or a facility. Jurisdiction requires authority, but not necessarily ownership.

K

Key Observation Points: Locations with views of the planning area that are used to characterize the scenery for visual resource inventory purposes, and the locations from which visual impact assessments are conducted for proposed projects.

L

Land Use Plan: Any document developed to define the kinds of use, goals and objectives, management practices, and activities that will be allowed to occur on an individual parcel or group of land parcels.

Landform: A discernible natural landscape that exists as a result of geological activity, such as a plateau, plain, basin, or mountain.

Landscape: An aggregate of different but interacting landforms, sometimes united by a cultural attribute (e.g., a mosaic of farmland, including tilled fields, woodlots, stock ponds, swales, and fencerows). Landscape ecology generally operates at a scale of at least many acres/hectares or, more often, several square miles/square kilometers.

Leasable Minerals: Those minerals or materials designated as leasable under the Mineral Leasing Act of 1920. They include coal, phosphate, asphalt, sulfur, potassium, and sodium minerals, and oil, gas, and geothermal resources.

Lease: An authorization or contract by which one party (lessor) conveys the use of property, such as real estate, to another (lessee) in return for rental payments. In addition to rental payments, lessees also pay royalties (a percentage of value) to the lessor from resource production.

Line: The path, real or imagined, that the eye follows when perceiving abrupt differences in form, color, or texture or when objects are aligned in a one-dimensional sequence. Usually evident as the edge of shapes or masses in the landscape.

Locatable Mineral: Any valuable mineral that is not saleable or leasable including gold, silver, copper, uranium, etc., that may be developed under the General Mining Law of 1872.

Low-income populations: Defined in terms of Bureau of the Census annual statistical poverty levels (Current Population Reports, Series P-60 on Income and Poverty), may consist of groups or individuals who live in geographic proximity to one another or who are geographically dispersed or transient (such as migrant workers or Native Americans), where either type of group experiences common conditions of environmental exposure or effect.

M

Management Actions/Practices: 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.

Maintenance Intensity Definitions: Transportation management designations used to indicate priorities for maintenance of roads and trails depending on their access purpose, type and volume of use.

> **Level 0 Maintenance Description:** Existing routes that will no longer be maintained or declared as routes. Routes identified as Level 0 are identified for removal from the Transportation System entirely.

Level 1 Maintenance Description: Routes where minimal (low-intensity) maintenance is required to protect adjacent lands and resource values. These roads may be impassable for extended periods of time.

Level 3 Maintenance Description: Routes requiring moderate maintenance because of low-volume use (e.g., seasonally or year-round for commercial, recreational, or administrative access). Maintenance Intensities may not provide year-round access, but are intended to generally provide resources appropriate for keeping the route in use for the majority of the year.

Level 5 Maintenance Description: Routes for high (Maximum) maintenance because of year-round needs, high-volume traffic, or significant use. Also may include routes identified through management objectives as requiring high intensities of maintenance or to be maintained open year-round

Minimum Impact Suppression Techniques: A set of strategies utilized by wildland firefighters to suppressing wildfire while causing the fewest possible impacts to natural and/ or cultural resources in the vicinity.

Minority Populations: Minority populations exist where either (a) the minority population of the affected area exceeds 50 percent or (b) the minority population percentage of the affected area is meaningfully greater than in the general population or other appropriate unit of geographic analysis (such as a governing body's jurisdiction, a neighborhood, census tract, or other similar unit). “Minority” refers to individuals who are members of the following population groups: American Indian or Alaskan Native; Asian or Pacific Islander; Black, not of Hispanic origin; or Hispanic. Minority populations include either a single minority group or the total of all minority persons in the affected area. They may consist of groups of individuals living in geographic proximity to one another or a geographically dispersed / transient set of individuals (such as migrant workers or Native Americans), where either type of group experiences common conditions of environmental exposure or effect.

Minimum Impact Suppression Techniques (MIST): A Set of strategies utilized by wildland firefighters to suppressing wildfire while causing the fewest possible impacts to natural and/or cultural resources in the vicinity.

Multiple Use: Multiple use as defined by the Multiple Use – Sustained Yield Act 1960 means (1) the management of all the various renewable surface resources so that they are used in the combination that will best meet the needs of the American people, (2) making the most judicious use of the land for some or all of these resources or related services over areas large enough to provide sufficient latitude for periodic adjustments in use to conform to changing needs and conditions, (3) that some land will be used for less than all of the resources, and (4) harmonious and coordinated management of the various resources, each with the other, without impairment of the productivity of the land, with consideration being given to the relative values of the various resources, and not necessarily the combination of uses that will be given the greatest dollar return or the greatest unit output.

N

National Ambient Air Quality Standards (NAAQS): The allowable concentrations of air pollutants in the air specified by the Federal Government. The air quality standards are divided into primary standards (based on the air quality criteria and allowing an adequate margin of safety and requisite to protect the public health) and secondary standards (based on the air quality criteria and allowing an adequate margin

of safety and requisite to protect the public welfare) from any unknown or expected adverse effects of air pollutants.

National Environmental Policy Act of 1969 (NEPA): An Act that encourages productive and enjoyable harmony between man and his environment and promotes efforts to prevent or eliminate damage to the environment and biosphere and stimulate the health and welfare of man; enriches understanding of the ecological systems and natural resources important to the Nation, and established the Council on Environmental Quality.

National Register of Historic Places (National Register): The official list of the Nation's cultural resources that are worthy of preservation. The National Park Service maintains the list under direction of the Secretary of the Interior. Buildings, structures, objects, sites, and districts are included in the National Register for their importance in American history, architecture, archeology, culture, or engineering. Properties included on the National Register range from large-scale, monumentally proportioned buildings to smaller scale, regionally distinctive buildings. The listed properties are not just of nationwide importance; most are significant primarily at the State or local level.

Native Species: With respect to a particular ecosystem, a species that, other than as a result of an introduction, historically occurred or currently occurs in that ecosystem.

Naturalness: A characteristic of lands where the imprint of human activity is substantially unnoticeable. Imprints of human activity typically include travel routes or trails, fences, and other landscape modifications.

Nonattainment Area: An area that does not meet (or that contributes to ambient air quality in a nearby area that does not meet) any of the Federal primary or secondary ambient air quality standards for the pollutant.

Noxious Weeds: Plant species that have been legally designated as unwanted or undesirable. This includes national, State and county or local designations. According to the Federal Noxious Weed Law, native plant species are not designated "noxious." Native plant species that may be of a management concern, such as poisonous plants or desert shrub and subshrub species, are not considered priorities for noxious weed work or funding.

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.

O

Objectives: The planned results to be achieved within a stated time period. Objectives are subordinate to goals, more narrow in scope, and shorter in range. Objectives must specify time periods for completion, and products or achievements that are measurable.

Off-Highway Vehicle (OHV) or Off-Road Vehicle: Any motorized vehicle capable of, or designed for, travel on or immediately over land, water, or other natural terrain, excluding: (1) any nonamphibious 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 in times of national defense emergencies.

Off-Highway Vehicle (OHV) Designations:

Open: An area where all types of vehicle use is permitted at all times, anywhere in the area subject to the operating regulations and vehicle standards set forth in 43 CFR Subparts 8341 and 8342.

Limited Area: An area restricted at certain times, in certain areas, and/or to certain vehicular use. These restrictions may be of any type, but can generally be accommodated within the following type of categories: Numbers of vehicles; types of vehicles; time or season of vehicle use; permitted or licensed use only; use on existing roads and trails; use on designated roads and trails; and other restrictions. In areas limited to designated routes, motorized uses are allowed on the designated routes, with reasonable use of the shoulder and immediate roadside, allowing for vehicle passage, emergency stopping, or parking, unless otherwise posted.

Closed: An area where off-road vehicle use is prohibited. Use of off-road vehicles in closed areas may be allowed for certain reasons; however, such use shall be made only with the approval of the authorized officer.

Ozone (O_3): A gas that is a variety of oxygen. The oxygen gas found in the air consists of two oxygen atoms stuck together; this is molecular oxygen. Ozone consists of three oxygen atoms stuck together into an ozone molecule. Ozone occurs in nature; it produces the sharp smell you notice near a lightning strike. High concentrations of ozone gas are found in a layer of the atmosphere—the stratosphere—high above the earth. Stratospheric ozone shields the earth against harmful rays from the sun, particularly ultraviolet B. Smog's main component is ozone; this ground-level ozone is a product of reactions among chemicals produced by burning coal, gasoline, and other fuels, and chemicals found in products including solvents, paints, hairsprays, etc.

P

Particulate Matter: Includes dust, soot, and other tiny bits of solid materials that are released into and move around in the air. Particulates are produced by many sources, including burning of diesel fuels by trucks and buses, incineration of garbage, mixing and application of fertilizers and pesticides, road construction, industrial processes such as steel making, mining operations, agricultural burning (field and slash burning), and operation of fireplaces and woodstoves.

Permit: Permits are one of three forms of a land use authorization (the others are leases and easements). Permits are short-term, revocable authorizations to use public lands for specific purposes that involve either little or no land improvement, construction, or investment that can be amortized within the term of the permit. A permit conveys no possessory interest. The permit is renewable at the discretion of the authorized officer and may be revoked in accordance with its terms and applicable regulations.

pH: A number used by chemists to express the acidity of solutions, including water. A pH value lower than 7 indicates an acidic solution, a value of 7 is neutral, and a value of higher than 7 indicates an alkaline solution. Most groundwater in the United States has pH values ranging from about 6.0 to 8.5.

Planning Area: As used in this document, includes all land within the planning area boundaries regardless of jurisdiction or ownership.

Preference: Grazing preference or preference means 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.

Prevention of Significant Deterioration (air): A Clean Air Act requirement to include a permit review process applicable to the construction and operation of new and modified stationary sources in attainment areas.

Primitive Recreation: Includes non-motorized, nonmechanical forms of recreation, such as hiking or bird watching, in areas without or with minimal developed recreation facilities.

Primitive Road: A linear route managed for four-wheel drive or high-clearance vehicles. Primitive roads do not normally meet any BLM road design standards.

Priority Habitat: Unique vegetation type with a dominant plant species of primary importance to wildlife. A priority habitat may be described as an area having unique or significant value to many wildlife species, a successional stage, or a specific habitat element (e.g., columnar cacti) that is of key value to wildlife.

Q

R

Range Improvement: An authorized physical modification or treatment designed to improve production of forage; change vegetation composition; control patterns of use; provide water; stabilize soil and water conditions; and restore, protect and improve the condition of rangeland ecosystems to benefit livestock, wild horses, burros, fish and wildlife. The term includes, but is not limited to, the structure, treatment projects, and use of mechanical devices, or modifications achieved through mechanical means.

Rangeland: A type of land on which the native vegetation or natural potential consists predominantly 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, most deserts, tundra, alpine communities, coastal marshes, and wet meadows.

Reclamation: Rehabilitation of a disturbed area to make it acceptable for designated use. This normally involves regrading, replacement of topsoil, revegetation and other work necessary to restore it for use.

Resource Management Plan (RMP): A land use plan that establishes land use allocations, multiple-use guidelines, and management objectives for a given planning area. The RMP planning system has been used by the BLM since 1980.

Restore Habitat: Return the quantity and quality of habitat to a previous, naturally occurring condition, most often a baseline considered suitable and sufficient to support self-sustaining wildlife populations.

Restore/Restoration: The process of returning an ecosystem as closely as possible to the pre-disturbance condition and function. Note: restoration involves restoring a site to a specific point in time.

Revegetate: The replacement of vegetation into a disturbed area with little or no concern for ecological conditions or functions.

Right-of-Way: Land authorized to be used or occupied for the construction, operation, maintenance, and termination of a project, pursuant to a right-of-way authorization.

Riparian: Situated on or pertaining to the bank of a river, stream, or other body of water, including areas of transition between permanently saturated wetlands and upland areas. These areas exhibit vegetation or physical characteristics reflective of permanent surface or subsurface water influence.

Riparian Habitat: Riparian habitat is an ecological transition between an in-stream community of plants and animals and the adjacent, upland community. Normally the term is used for perennial, or year-round flowing streams. However, in Arizona the term xeroriparian habitat is used to describe the distinct plant and animal communities that concentrate around dry washes and are sustained by desert storms.

Road: Linear route declared a road by the owner, managed for use by low-clearance vehicles having four or more wheels, and maintained for regular and continuous use.

Route: Generic term for transportation related linear features used for access and travel by motorized, non-motorized means, designated or not, and includes roads, primitive roads, trails paths and ways.

S

Salable Minerals: Minerals that may be sold under the Material Sale Act of 1947, as amended. Included are common varieties of sand, stone, gravel, and clay.

Saturated: When referring to soil, the maximum amount of water that can be held either when the soil is frozen or the spaces between the soil particles are filled with water. Any additional seepage over saturated soil will result in runoff.

Scale: The proportionate size relationship between an object and the surroundings in which it is placed.

Scenic Quality: The relative worth of a landscape from a visual perception point of view. Seven factors (landform, vegetation, water, color, adjacent scenery, scarcity, and cultural modifications) are examined to evaluate the scenic quality of a landscape. The relative scenic quality (A, B, or C) assigned a landscape by applying the scenic quality evaluation key factors; scenic quality A being the highest rating, B a moderate rating, and C the lowest rating. The scenic quality-rating unit is defined as a portion of the landscape, which displays primarily homogenous visual characteristics of the basic landscape features (land and water form, vegetation, and structures).

Scoping: An early and open process for determining the scope of issues to be addressed in an environmental impact statement and for identifying the significant issues related to a proposed action.

Sensitive and Fragile Soils: Soils that are located on steep topography, are highly susceptible to wind and/or water erosion, have high potential for mass failure, are shallow to bedrock, are saline or alkaline, or soils that are virtually impossible or extremely difficult to reclaim.

Sensitive Species: Species not yet officially listed but that are undergoing status review for listing on the U.S. Fish and Wildlife Service's official threatened and endangered list; species whose populations are small and widely dispersed or restricted to a few localities; and species whose numbers are declining so rapidly that official listing may be necessary.

Solitude: Occurs in areas where the sights, sounds, and evidence of human activity are rare or infrequent and where visitors can be isolated, alone, or secluded from others.

Special Status Species: Plant or animal species listed as threatened, endangered, candidate, or sensitive by State governments or the Federal government.

Soil Compaction: The pressing of soil particles closer together, reducing the soil's capacity to hold organic matter, organisms, water, and air, all of which are essential for optimal plant growth.

Standards: Goals for the desired condition of the biological and physical components and characteristics of rangelands. Standards (1) are measurable and attainable; and (2) comply with various Federal and State statutes, policies, and directives applicable to BLM rangelands.

Structural Diversity: The diversity of the composition, abundance, spacing, and other attributes of plants in a community.

Sulfur Dioxide (SO_2): A gas produced by burning coal, most notably in power plants. Some industrial processes, such as production of paper and smelting of metals, produce sulfur dioxide. Sulfur dioxide is closely related to sulfuric acid, a strong acid. Sulfur dioxide plays an important role in the production of acid rain.

Surface Disturbance: The physical disturbance, which alters the structure and composition of vegetation and topsoil/ subsoil.

Surface Water: All bodies of water on the surface of the earth and open to the atmosphere, such as rivers, lakes, reservoirs, ponds, seas, and estuaries.

Sustained Yield: The concept of steady-state management of timber, wildlife, and many other natural resources. Consumption is matched by production.

T

Texture: The aggregation of small forms or color mixtures into a continuous surface pattern; the aggregated parts are enough that they do not appear as discrete objects in the composition of the scene.

Total Dissolved Solids: The total quantity (reported in milligrams per liter) of dissolved materials in water.

Toxicity: A characteristic defining a hazardous waste. Toxicity refers to the ability of a material to produce injury or disease on exposure, ingestion, inhalation, and assimilation by a living organism.

Trail: 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.

Transportation Asset: Generic term for transportation related routes used for access and travel by motorized or non-motorized means, designated by the BLM as a "road, primitive road, or trail. Transportation assets are designated in transportation plans, with a defined functional class, maintenance intensity, and type of access depending on their purpose and use, with maintenance standards for their physical and geometric requirements.

Trend: The direction of change over time, either toward or away from desired management objectives.

U

Uplands: Land at a higher elevation than the alluvial plain or low stream terrace; all lands outside the riparian-wetland and aquatic zones.

V

Valid Existing Rights: Locatable mineral development rights (mining claims) that existed as of the date of the Monument Proclamation (June 9, 2000) are presumed are presumed to be valid unless they fail to 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 the BLM to conduct a valid existing rights determination. These valid existing rights may be forfeit if the claimant fails to timely pay annual claim maintenance fees or timely file a maintenance fee waiver certificate.

Viable: A [wildlife] population that has the estimated numbers and distribution of reproductive individuals to ensure its continued existence.

Viewshed: The landscape that can be directly seen under favorable atmospheric conditions from a viewpoint or along a transportation corridor.

Visual Resources: The visible physical features on a landscape (e.g., land, water, vegetation, animals, structures, and other features). Visual resources are managed by inventory and planning actions taken to identify resource values and to establish objectives for managing those values; and the management actions taken to achieve the visual management objectives.

W

Watershed: The land area that drains water to a particular stream, river, or lake. It is a land feature that can be identified by tracing a line along the highest elevations between two areas on a map, often a ridge.

Water Quality: The chemical, physical, and biological characteristics of water in respect to its suitability for a particular purpose.

Way: Linear feature or disturbance used by vehicles having four or more wheels but not declared a road or other transportation asset by the owner, and which receives no maintenance to guarantee regular and continuous use.

Weed: A non-native plant that disrupts or has the potential to disrupt or alter the natural ecosystem function, composition, and diversity of the site it occupies. Its presence deteriorates the health of the site, it makes efficient use of natural resources difficult, and it may interfere with management objectives for that site.

Wetlands: Those areas that are inundated by surface or groundwater with a frequency sufficient to support, and under normal circumstances do or would support, a prevalence of vegetative or aquatic life that requires saturated or seasonally saturated soil conditions for growth and reproduction. Wetlands generally include swamps, marshes, bogs, and similar areas (e.g., sloughs, potholes, wet meadows, river overflow areas, mudflats, natural ponds).

Wilderness Characteristics: These attributes include the area's size, its apparent naturalness, and outstanding opportunities for solitude or a primitive and unconfined type of recreation. They may also include supplemental values. Lands with wilderness characteristics are those lands that have been inventoried and determined by the BLM to contain wilderness characteristics as defined in section 2 (c) of the Wilderness Act.

Wildland Urban Interface: The area where developed and undeveloped lands meet.

X

Xeroriparian Habitat: The distinct plant and animal communities that concentrate around dry washes and are sustained by desert storms.

Y

Z

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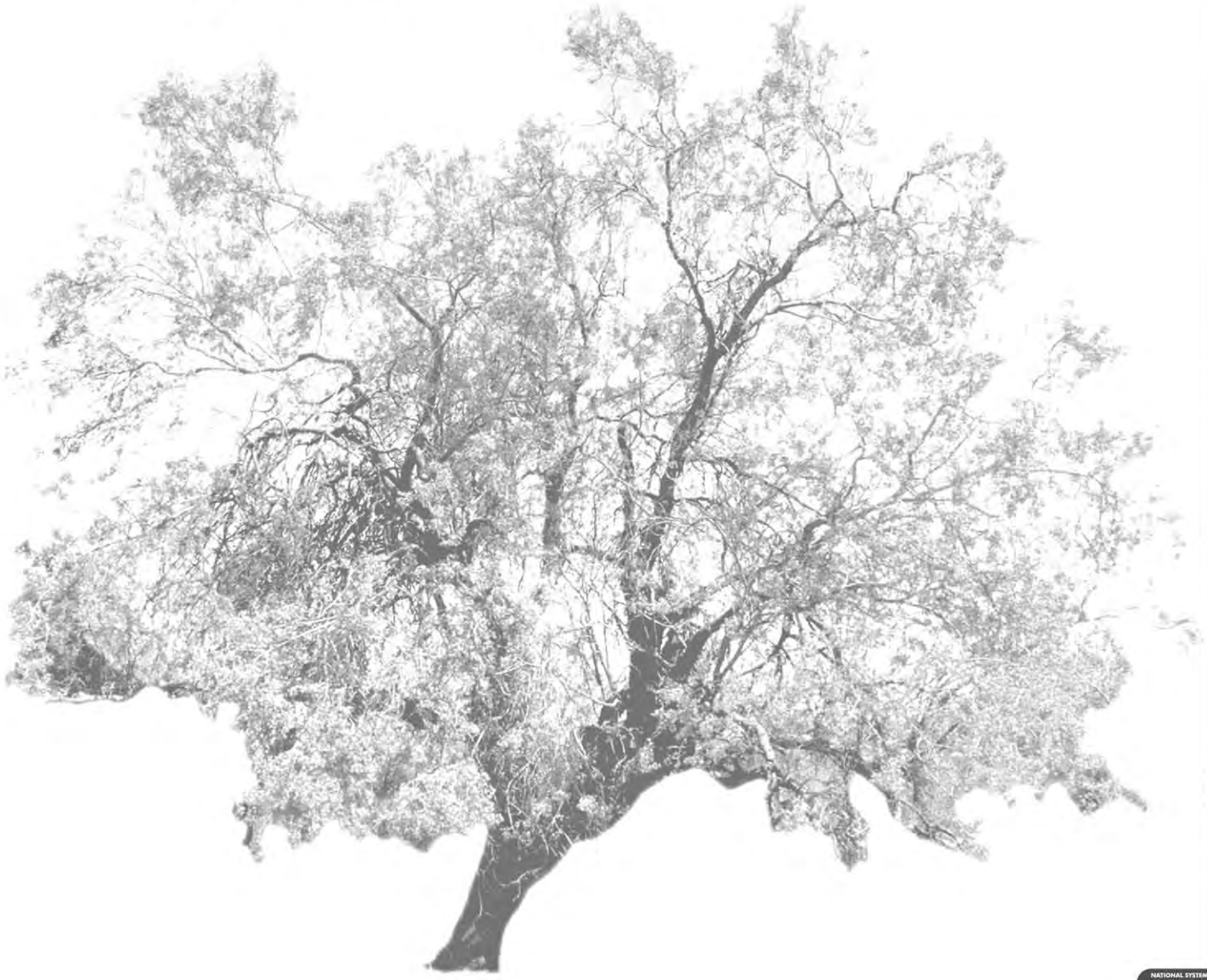
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BLM

IRONWOOD FOREST NATIONAL MONUMENT

Proposed Resource Management Plan and Final Environmental Impact Statement Appendices



Tucson Field Office

NATIONAL SYSTEM OF PUBLIC LANDS
U.S. DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT

September 2011

APPENDIX A
PRESIDENTIAL PROCLAMATION 7320

Monday, June 12, 2000

Volume 36, Issue 23; ISSN: 0511-4187

Proclamation 7320 — Establishment of the Ironwood Forest National Monument

William J. Clinton

June 9, 2000

By the President of the United States of America

A Proclamation

The landscape of the Ironwood Forest National Monument is swathed with the rich, drought-adapted vegetation of the Sonoran Desert. The monument contains objects of scientific interest throughout its desert environment. Stands of ironwood, palo verde, and saguaro blanket the monument floor beneath the rugged mountain ranges, including the Silver Bell Mountains. Ragged Top Mountain is a biological and geological crown jewel amid the depositional plains in the monument.

The monument presents a quintessential view of the Sonoran Desert with ancient legume and cactus forests. The geologic and topographic variability of the monument contributes to the area's high biological diversity. Ironwoods, which can live in excess of 800 years, generate a chain of influences on associated understory plants, affecting their dispersal, germination, establishment, and rates of growth. Ironwood is the dominant nurse plant in this region, and the Silver Bell Mountains support the highest density of ironwood trees recorded in the Sonoran Desert. Ironwood trees provide, among other things, roosting sites for hawks and owls, forage for desert bighorn sheep, protection for saguaro against freezing, burrows for tortoises, flowers for native bees, dense canopy for nesting of white-winged doves and other birds, and protection against sunburn for night blooming cereus.

The ironwood-bursage habitat in the Silver Bell Mountains is associated with more than 674 species, including 64 mammalian and 57 bird species. Within the Sonoran Desert, Ragged Top Mountain contains the greatest richness of species. The monument is home to species federally listed as threatened or endangered, including the Nichols turk's head cactus and the lesser long-nosed bat, and contains historic and potential habitat for the cactus ferruginous pygmy-owl. The desert bighorn sheep in the monument may be the last viable population indigenous to the Tucson basin.

In addition to the biological and geological resources, the area holds abundant rock art sites and other archeological objects of scientific interest. Humans have inhabited the area for more than 5,000 years. More than 200 sites from the prehistoric Hohokam period (600 A.D. to 1450 A.D.) have been recorded in the area. Two areas within the monument have been listed on the National Register of Historic Places, the Los Robles Archeological District and the Cocoraque Butte Archeological District. The archeological artifacts include rhyolite and brown chert chipped stone, plain and decorated ceramics, and worked shell from the Gulf of California. The area also contains the remnants of the Mission Santa Ana, the last mission constructed in Pimeria Alta.

Section 2 of the Act of June 8, 1906 (34 Stat. 225, 16 U.S.C. 431), authorizes the President, in his discretion, to declare by public proclamation historic landmarks, historic and prehistoric structures, and other objects of historic or scientific interest that are situated upon the lands owned or controlled by the Government of the United States to be national monuments, and to reserve as a part thereof parcels of land, the limits of which in all cases shall be confined to the smallest area compatible with the proper care and management of the objects to be protected. Whereas it appears that it would be in the public interest to reserve such lands as a national monument to be known as the Ironwood Forest National Monument:

Now, Therefore, I, William J. Clinton, President of the United States of America, by the authority vested in me by section 2 of the Act of June 8, 1906 (34 Stat. 225, 16 U.S.C. 431), do proclaim that there are hereby set apart and reserved as the Ironwood Forest National Monument, for the purpose of protecting the objects identified above, all lands and interests in lands owned or controlled by the United States within the boundaries of the area described on the map entitled "Ironwood Forest National Monument" attached to and forming a part of this proclamation. The Federal land and interests in land reserved consist of approximately 128,917 acres, which is the smallest area compatible with the proper care and management of the objects to be protected.

All Federal lands and interests in lands within the boundaries of this monument are hereby appropriated and withdrawn from all forms of entry, location, selection, sale, or leasing or other disposition under the public land laws, including but not limited to withdrawal from location, entry, and patent under the mining laws, and from disposition under all laws relating to mineral and geothermal leasing, other than by exchange that furthers the protective purposes of the monument.

For the purpose of protecting the objects identified above, the Secretary of the Interior shall prohibit all motorized and mechanized vehicle use off road, except for emergency or authorized administrative purposes.

Lands and interests in lands within the proposed monument not owned by the United States shall be reserved as a part of the monument upon acquisition of title thereto by the United States. The Secretary of the Interior shall manage the monument through the Bureau of Land Management, pursuant to applicable legal authorities, to implement the purposes of this proclamation. The Secretary of the Interior shall prepare a transportation plan that addresses the actions including road closures or travel restrictions, necessary to protect the objects identified in this proclamation.

The establishment of this monument is subject to valid existing rights. 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.

This proclamation does not reserve water as a matter of Federal law. Nothing in this reservation shall be construed as a relinquishment or reduction of any water use or rights reserved or appropriated by the United States on or before the date of this proclamation. The Bureau of Land Management shall work with appropriate State authorities to ensure that any water resources needed for monument purposes are available. Nothing in this proclamation shall be deemed to enlarge or diminish the rights of any Indian tribe.

Laws, regulations, and policies followed by the Bureau of Land Management in issuing and administering grazing permits or leases on all lands under its jurisdiction shall continue to apply with regard to the lands in the monument.

Nothing in this proclamation shall be deemed to revoke any existing withdrawal, reservation, or appropriation; however, the national monument shall be the dominant reservation.

Warning is hereby given to all unauthorized persons not to appropriate, injure, destroy, or remove any feature of this monument and not to locate or settle upon any of the lands thereof.

In Witness Whereof, I have hereunto set my hand this ninth day of June, in the year of our Lord two thousand, and of the Independence of the United States of America the two hundred and twenty-fourth.

William J. Clinton

[Filed with the Office of the Federal Register, 10:47 a.m., June 12, 2000]

NOTE: This proclamation will be published in the Federal Register on June 13.

APPENDIX B

PLANNING CRITERIA

Bureau of Land Management (BLM) planning regulations (Title 43, Code of Federal Regulations, Section 1610 [43 CFR 1610]) require preparation of planning criteria to guide development of all plans. Planning criteria ensure that plans are tailored to the identified issues and ensure that unnecessary data collection and analysis are avoided. Planning criteria are based on applicable law, agency guidance, public comment, and coordination with other Federal, State, and local governments, and Native American Indian tribes. Specific laws and regulations related to development of the Ironwood Forest National Monument (IFNM) Resource Management Plan (RMP) are listed in the table below.

Law/Regulation	Applies to:
LAWS	
Act of March 3, 1909, as amended and Act of May 11, 1938	Minerals on Indian lands
Administrative Procedures Act of 1946, Title 5, United States Code, Section 551 (5 U.S.C. 551 et seq.)	Procedures
American Indian Religious Freedom Act of 1978, 42 U.S.C. 1996	Native American religious places and access
Antiquities Act of 1906	Cultural resources, national monuments, special areas
Archeological Resources Protection Act, 16 U.S.C. 470	Archaeological resources
Clean Air Act of 1970, as amended 1990, 42 U.S.C. 7401 et seq.	Air quality
Clean Water Act of 1987, as amended, 33 U.S.C 1251 et seq.	Surface water quality
Comprehensive Environmental Response, Compensation, and Liability Act of 1980 as amended by the Superfund Amendments and Reauthorization Act of 1986	Hazardous sites
Electronic Freedom of Information Act of 1996, Public Law (PL) 104-231	Information available in electronic format
Endangered Species Act of 1973, as amended, 16 U.S.C, 1531 et seq.	Threatened and endangered species
Energy Policy Act of 1992, 42 U.S.C. 13201	Energy
Federal Advisory Committee Act of 1972	Public meetings, committees, information
Federal Cave Resource Protection Act of 1988	Caves
Federal Land Exchange Facilitation Act of 1988, 43 U.S.C. 1716, 1740	Federal land exchanges
Federal Land Policy and Management Act of 1976, 43 U.S.C. 1701	Federal lands, special management areas, planning
Federal Noxious Weed Act of 1974, as amended	Noxious weeds
Federal Onshore Oil and Gas Leasing Reform Act of 1987	Oil and gas
Federal Pollution Control Act, as amended 1972	Watersheds
Freedom of Information Act of 1966 and Electronic Freedom of Information Act, as amended 1996, 5 U.S.C. 552	Public access to information
Government Performance Results Act of 1993	Strategic goals, program efficiencies

Law/Regulation	Applies to:
Historic Sites Act of 1935	Historic sites
Information Technology Management Reform Act of 1996	Use of information technology
Land and Water Conservation Fund Act of 1965	Outdoor recreation
Materials Act of 1947, as amended	Mineral materials
Migratory Bird Conservation Act of 1929, as amended	Migratory birds
Migratory Bird Treaty Act of 1918, as amended	Migratory birds
Mineral Leasing Act of 1920, as amended, and Mineral Leasing Act for Acquired Lands of 1947	Leaseable minerals
Mining and Minerals Policy Act of 1970	Mining
Mining in the Parks Act of 1912	Mining
Mining Law of 1872, as amended	Mining claims
National American Graves Protection and Repatriation Act of 1990	Native American human remains, cultural objects, and sacred objects
National Environmental Policy Act of 1969 (NEPA), as amended, 42 U.S.C. 4321 et seq.	Federal undertakings
National Historic Preservation Act of 1966	Archaeological and historic properties
National Management Strategy for Motorized Off-Highway Vehicle Use on Public Lands	Vehicle travel
National Mountain Bicycling Strategic Action Plan	Recreation
National Materials and Minerals Policy Research Development Act of 1980	Mineral resources
National Park Service Organic Act of 1916, National Parks and Recreation Act of 1978, National Historic Trails, National Trails System Act of 1968, as amended	National trails
Public Rangelands Improvements Act of 1978	Rangeland and wildlife management
Privacy Act of 1974, 5 U.S.C. 552a	Privacy of information
Recreation and Public Purposes (R&PP) Act of 1926, as amended and R&PP Amendment Act of 1988	Land disposal for public purposes
Reorganization Plan No. 3 of 1946	Establishes the BLM
Resource Conservation and Recovery Act of 1986, as amended	Hazardous or solid waste
Sikes Act of 1974, 16 U.S.C. 1170	Fish and wildlife management
Soil Conservation and Domestic Allotment Act of 1935	Watersheds
Soil and Water Resources Conservation Act of 1977	Conservation, protection, and enhancement of soil, water, and related resources
Taylor Grazing Act of 1934	Livestock grazing
Treasury and General Government Appropriations Act of 2001 (PL 106-554; HR 5658) Sec. 515	Information Quality Act for quality, objectivity, utility, and integrity of information
Timber on the Public Lands, 16 U.S.C. 594	Protection of timber
Water Quality Act of 1987	Riparian areas, wetlands
Watershed Protection and Flood Control Act of 1954	Watersheds
Wild and Scenic Rivers Act of 1968,16 U.S.C. 1271 et seq.	Wild and scenic rivers
Wild Free Roaming Horse and Burro Act of 1971, as amended 1978	Wild horse and burro
Wilderness Act of 1964	Wilderness

Law/Regulation	Applies to:
ORDERS & MEMORANDA	
Secretary of the Interior Order 3175 (2 DM 512)	Indian trust assets
Executive Order 11514	Protection and enhancement of environmental quality
Executive Order 11593	Preservation of the cultural environment
Executive Orders 11644 and 11989	Off-road vehicles
Executive Order 11988	Floodplain management
Executive Order 11990	Wetlands, riparian zones
Executive Order 12088	Pollution control
Executive Order 12898	Environmental justice
Executive Order 12906	Data standards
Executive Order 12962	Recreational fishing
Executive Order 13007	Indian sacred sites
Executive Order 13112	Invasive species
Executive Order 13175	Tribal consultation and coordination
Executive Order 13186	Migratory birds
Executive Order 13212	Energy policy
Executive Order 13287	Preserve America
Presidential Proclamation 7320 of June 9, 2000	Established Ironwood Forest National Monument
Council on Environmental Quality (CEQ) memo on Cooperating Agency Status, January 30, 2002	Cooperating agency status for federal agencies
CEQ memo on identifying non-Federal cooperating agencies, September 25, 2000; CEQ memo on designating non-Federal cooperating agencies, July 28, 2999	Cooperating agency status for non-Federal agencies
CEQ memo on environmental justice, December 10, 1999	Environmental justice
CEQ memo regarding pollution prevention, January 12, 1993	Pollution prevention and NEPA
CEQ memo on scoping, April 30, 1981	Scoping
CEQ memo on agricultural lands, August 11, 1980, and analysis of impacts related to agricultural lands, August 11, 1980	Agricultural lands and NEPA
CEQ memo on wild and scenic rivers and national historic trails, August 2, 1979, and consultation to mitigate effects on rivers, August 10, 1980	Wild and scenic rivers and national historic trails
CEQ memo on implementing CEQ NEPA regulations, January 19, 1979	NEPA
CEQ guidance on NEPA regulations, 1983	NEPA
CEQ guidance on Section 404(r) of Clean Water Act involving dredging and fill, January 17, 1980	Clean Water Act
CEQ 40 most asked questions for NEPA, March 23, 1981	NEPA
CEQ explanation on implementing Executive Order 11988 and Executive Order 11990, March 21, 1978	Floodplain management and wetlands
CEQ environmental review related to Section 1424(e) of the Safe Drinking Water Act of 1974	Water
BLM WO Instruction Memorandum 2008-014, Travel Management Planning	Comprehensive travel management planning

In addition to the planning criteria provided by the above laws and regulations, the Tucson Field Office established the following planning criteria specific to the IFNM RMP:

- The IFNM RMP will establish the guidance upon which the BLM will manage the IFNM, and will supersede all other BLM RMPs for the lands covered by the IFNM RMP.
- The RMP will be completed in compliance with Federal Land Policy and Management Act of 1976, Endangered Species Act, NEPA, and all other relevant Federal law and Executive Orders (including wilderness legislation) and management policies of the BLM. The RMP also will meet the requirements of the Presidential Proclamation to protect the objects of biological, archaeological, historical, and geological value within the IFNM.
- Where planning decisions have previously been made that still apply, they will be reevaluated to determine if they are compatible with the Presidential Proclamation, and then those decisions will be carried forward into the RMP. They also will use information developed and management alternatives proposed in previous studies of the planning area.
- The planning team will work collaboratively with the State of Arizona; Pinal and Pima Counties; tribal governments; municipal governments; other Federal agencies; the Resource Advisory Council; and all other interested groups, agencies, and individuals. Decisions in the RMP will strive to be compatible with existing plans and policies of adjacent Federal, State, local, and tribal agencies, consistent with Federal law and regulations.
- American Indian 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 U.S. Fish and Wildlife Service (USFWS) will take place throughout the planning process in accordance with the National Memorandum of Agreement to identify conservation actions and measures for inclusion in the plan.
- Coordination with the Arizona State Historic Preservation Office will be conducted throughout the planning process.
- The RMP will recognize the State of Arizona's authority to manage wildlife and regulate hunting and fishing activities within the planning area.
- The RMP will establish whether visitor facilities will be located within the monument, while recognizing the desire to maintain the existing natural and cultural landscapes.
- The RMP will set forth a framework for managing recreational and commercial activities in order to maintain existing natural landscapes and provide for the enjoyment and safety of the visiting public.
- The lifestyles of area residents, including activities of grazing, hunting, and back country motorized use and recreation, will be considered in the RMP.
- Any lands or interests located within the IFNM boundary, which are acquired by BLM, will be managed consistently with the RMP, subject to any constraints associated with the acquisition.
- The RMP will address transportation and access for all public lands by all forms of travel, including designations for hiking, equestrian, motorized and mechanized uses.
- The RMP will recognize all existing rights.
- Federal Geographic Data Committee standards and other applicable BLM standards will be followed.

APPENDIX C

ARIZONA GUIDELINES FOR GRAZING ADMINISTRATION

The Arizona Guidelines for Grazing Administration are a series of management practices used to ensure that grazing activities meet the Land Health Standards. These guidelines apply to management of all public lands, and are therefore common to all alternatives presented in this document.

1-1. Management activities will maintain or promote ground cover that will provide for infiltration, permeability, soil moisture storage, and soil stability appropriate for the ecological sites within management units. The ground cover should maintain soil organisms and 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.

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.

2-1. Management practices maintain or promote sufficient vegetation to maintain, improve or restore riparian-wetland functions of energy dissipation, sediment capture, groundwater recharge and stream bank stability, thus promoting stream channel morphology (e.g., gradient, width/depth ratio, channel roughness and sinuosity) and functions appropriate to climate and landform.

2-2. New facilities are located away from riparian-wetland areas if they conflict with achieving or maintaining riparian-wetland function. Existing facilities are used in a way that does not conflict with riparian-wetland functions or are relocated or modified when incompatible with riparian-wetland functions.

2-3. The development of springs and seeps or other projects affecting water and associated resources shall be designed to protect ecological functions and processes.

3-1. The use and perpetuation of native species will be emphasized. However, when restoring or rehabilitating disturbed or degraded rangelands, non-intrusive, nonnative plant species are appropriate for use where native species (a) are not available, (b) are not economically feasible, (c) cannot achieve ecological objectives as well as nonnative species, and/or (d) cannot compete with already established nonnative species.

3-2. Conservation of Federal threatened or endangered, proposed, candidate, and other special status species is promoted by the maintenance or restoration of their habitats.

3-3. Management practices maintain, restore, or enhance water quality in conformance with State or Federal standards.

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.

3-5. Grazing on designated ephemeral (annual and perennial) rangeland may be authorized if the following conditions are met:

- 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 horses and burros); and monitoring is conducted during grazing to determine if objectives are being met.

3-6. Management practices will target those populations of noxious weeds which can be controlled or eliminated by approved methods.

3-7. Management practices to achieve desired plant communities will consider protection and conservation of known cultural resources, including historical sites, and prehistoric sites and plants of significance to Native American peoples.

APPENDIX D

ADMINISTRATIVE ACTIONS BY RESOURCE

AIR QUALITY

Regardless of the alternative selected, the Bureau of Land Management (BLM) may conduct the following administrative actions for air quality management:

- Work with local businesses that have non-major permits within 6 miles (10 kilometers) of the Ironwood Forest National Monument (IFNM) to establish an understanding of the potential impacts their operations may have on the monument.
- Attend work group meetings pertaining to new or revised regulations that will impact the IFNM, with fugitive-dust regulations being a priority, and provide comments as necessary and appropriate.
- Establish interpretive displays in recreationally used portions of the monument with themes based on the importance of improving or maintaining the existing visibility and air quality conditions in the monument.
- Promote the study of air quality conditions at the monument, including the effects of ozone, acid deposition, and other related pollutants on plants and the supporting ecosystems, with academic institutions and other interested parties.
- Enlist volunteers and partners to assist with environmental education and public awareness campaigns related to air quality.
- Work with permitting authorities to ensure that the IFNM is treated as a pseudo "affected state" for the purposes of major-source air quality permitting for facilities within 100 kilometers of the IFNM. This would allow BLM to review applications for major source permits, in conjunction with the permitting agency, to determine the potential air quality impacts a proposed major source could have on the IFNM.
- Work with permitting authorities to ensure BLM has an opportunity to review non-major-source permits within 6 miles (10 kilometers) of the IFNM to determine their effects on air quality and monument resources.
- Work with Federal, State, and local agencies to install air quality and/or meteorological monitors in the IFNM. Recommended air quality monitors include those that measure visibility, particulate matter, ozone, and acid deposition. Use the data collected to identify air quality trends that could impact the IFNM.
- Keep informed of the compliance status of minor and major sources near the IFNM, and inform the applicable permitting agency of potential violations if necessary.
- Coordinate with adjoining land managers and county or municipal authorities for specific measures to mitigate air quality effects on the IFNM (e.g., controlling fugitive-dust emissions from unpaved roads, construction sites, or other activities within the vicinity of the IFNM).
- Include stipulations for controlling dust in right-of-way grants.
- Follow the development of new and revised State regulations and designations of nonattainment area to determine what public lands will be affected.

GEOLOGY AND CAVE RESOURCES

Regardless of the alternative selected, BLM may conduct the following administrative actions related to geologic resources, including caves:

- Interpret unique geologic features for their scientific and educational value and for protection of those features.
- Establish liaison with local and regional scientific and academic communities to promote opportunities to study the unique geologic features found in the monument.
- Provide administrative and logistical support for detailed scientific studies of unique geologic features in the monument.
- Identify and inventory unique geologic features, assess potential impact from human visits, and evaluate impact from uses of other resources.
- Conduct field surveys for cave locations on IFNM lands prior to any ground-disturbing activities, and to develop an inventory of cave locations within the monument.
- Conduct surveys where, based on geology, caves may occur. If a cave is located, evaluate the discovery for cultural, scientific, biological, geological, hydrological, educational, and recreational values and management related to primary cave values.
- Establish a database for the inventory of caves on the monument, including information to assess the quality of the caves. This may include locations that should remain confidential (adequate protection must be developed for these data entries) until a time, as determined by the BLM Director, from advisement of resource staff that the cave has been evaluated and methods of protection from human entry established, if suitable.
- Establish memorandums of understanding (MOUs) for cooperative agreements with appropriate scientific organizations, caving groups, and other Federal and State agencies to allow for discovery and inventory of cave locations, and assessment of cave condition.
- Establish criteria to assess the quality of the cave, including cultural, geological, biological, hydrological, educational, and recreational values.

SOIL AND WATER RESOURCES

Regardless of the alternative selected, BLM may conduct the following administrative actions:

- Work with appropriate State authorities to ensure that any water resources needed for monument purposes are available.
- Address erosion, and consider soil types and measurable factors that compare conditions to Rangeland Health Standards when making land management decisions.
- Use best management practices (BMPs) for road maintenance and other allowed and authorized surface disturbances to limit soil loss and erosion.
- Determine the current existence, location, and condition of desert pavement and biological soil crusts.
- Identify and evaluate sensitive areas that may require special management to prevent soil loss, soil destruction, and excessive erosion.

- Work with the U.S. Geological Survey (USGS) and Arizona Department of Environmental Quality (ADEQ) to identify the groundwater and surface water quality parameters most likely to be impacted by the current and forecast public land uses in the monument.
- Identify locations where groundwater and surface water can be sampled for analysis under the ADEQ ambient monitoring program.
- Develop an MOU, or an amendment of the existing State non-point-source monitoring program MOU, to support ADEQ monitoring of groundwater and surface water at selected locations in the monument.
- Identify locations within the monument where groundwater levels can be monitored. Begin to develop cooperative agreements with the USGS to compare and analyze groundwater data on the public land.
- Develop a water quantity database to assess the current and forecast water needs of the monument and to evaluate impairments to public land water resources from other water users.
- Identify, quantify, and secure legal entitlement for existing and future water sources on public lands within the monument by acquiring surface water rights/well permits, when possible, to ensure water availability to meet the purposes of the monument.
- Ensure that land management practices and policies protect the water supply by exercising existing land management authorities under the National Environmental Policy Act (NEPA) to protect and maintain all available water and natural flows in the monument.
- Determine BLM interests and needs for a surface and groundwater protection agreement with the State of Arizona.
- Begin a dialog with appropriate State of Arizona policy, legal, and water resources staff on the development of a cooperative agreement on the protection of water resources within the monument. Conclude this process with a formal agreement between the State and BLM that supports the objectives and preserves the resources listed in the IFNM enabling proclamation.
- Develop, with range conservation staff, a data collection protocol for specific watershed metrics that can be routinely collected during watershed health assessments.
- Develop and maintain an electronic database of watershed health metrics that is useful for rapidly identifying trends and prescribing management corrections when problems are apparent.
- Increase public awareness and appreciation of water resources and healthy watersheds through interpretive displays as part of the public outreach program and visitor facilities planning for the monument.
- Work with ADEQ to apply the non-point-source pollution MOU within the guidance for public land health (both grazed and ungrazed). Use this cooperative approach to evaluate water quality impacts to impaired waters of the United States (303d List) and pollutant load reductions to any future listed streams. Use rangeland health BMPs, as suggested in the Arizona Standards and Guidelines and any new land health guidance developed by BLM.
- Track data from the existing state water quality database that could indicate impairment to resources of the planning area.
- Review regional water level data on an annual basis to determine if a monitoring program is needed.
- Review Pima County Flood Control District surface-water monitoring stations and suggest a new site close to the planning area.

- Develop a historical database of water quality data from the planning area and adjacent regions.
- Develop a database from watershed assessments information. Maintain with data as problems are addressed.
- Work with existing research programs to identify and map desert pavement and biological soil crusts, and develop a conservation strategy for these areas.
- Develop and require implementation of BMPs for road maintenance and other allowed and/or authorized surface disturbances to limit soil loss from erosion and minimize impacts on natural water flow patterns.

VEGETATION

Regardless of the alternative selected, BLM may conduct the following administrative actions related to vegetation:

- Monitor the Ragged Top vegetation assemblage and Nichol Turk's head cactus population within the IFNM.
- Monitor vegetation and progress toward achieving desired outcomes with an emphasis on invasive species and noxious weed treatment areas and reclaimed and restored areas.
- Identify and monitor areas of invasion by nonnative, invasive species and noxious weeds.
- Support and/or implement public education programs addressing management of invasive species and noxious weeds by developing a volunteer or docent program to control these species and interpret related issues to visitors, providing literature on nonnative, invasive species and noxious weed issues to visitors, and constructing permanent graphics at selected points along the roadways of the monument.
- Monitor the effects of fire suppression activities on the spread of nonnative species.
- Develop monitoring plans for establishing sample plots within each of the unique or important vegetation associations. The monitoring plan will identify key areas within each community where monitoring would be conducted. Permanent photo points will be established for long-term monitoring.
- Collect monitoring information on one-half of the sample plots within vegetation associations or key areas every year, ensuring that all vegetation associations or key areas are monitored every 2 years.
- Implement a long-term monitoring program that includes rainfall and temperature gauges, permanent photo points, plant plots, mammal trapping transects, bird call points, and wildlife/plant community surveys (emphasis on herpetofauna).
- Monitor invasive species and noxious weed treatment areas for at least three years to evaluate population trends and establish a baseline for evaluating the results of management actions; identify resurgence of treated species; evaluate the effectiveness of control treatments; and determine if re-treatment is necessary.

WILDLIFE AND WILDLIFE HABITAT

Regardless of the alternative selected, BLM may conduct the following administrative actions related to wildlife and wildlife habitat:

- Develop, implement, and update wildlife habitat management through the use of wildlife habitat management plans, developed in cooperation with Arizona Game and Fish Department (AGFD).
- Coordinate with AGFD for species-specific management to achieve desired outcomes (e.g., coordinate during development of any habitat management plans).
- Coordinate with AGFD to conduct population monitoring and movement studies on bighorn sheep, javelina, and mule deer.
- Identify and describe disturbed and degraded areas throughout the monument, and describe their potential for restoration.
- Support research by qualified biologists from other agencies, and academic and private groups.
- Coordinate with outside entities to identify and protect wildlife corridors that extend beyond the boundaries of the monument.
- Compile observation data on roadkills from monument employees, visitors, residents, and other volunteers.
- Support and/or implement public education program(s) addressing management of wildlife and wildlife habitat.
- Develop and implement a cooperative program with agency, academic, and private groups to assist with research and monitoring of wildlife habitats.
- Conduct extensive literature review of past and present studies (wildlife movements), and compile in a summary format, updating, as appropriate.
- Conduct movement studies on bighorn sheep, javelina, and mule deer in cooperation and coordination with AGFD.
- Mitigate for wildlife habitat degradation, loss, and fragmentation if and when such effects are unavoidable.

SPECIAL STATUS SPECIES

Regardless of the alternative selected, BLM may conduct the following administrative actions related to special status species:

- For the Nichol Turk's head cactus, coordinate with U.S. Fish and Wildlife Service (USFWS) and the State of Arizona to enforce existing regulations under the Endangered Species Act (ESA), Convention on International Trade in Endangered Species of Wild Fauna and Flora, Lacey Act, and Arizona Native Plant Law.
- Continue to actively participate in regional planning efforts, such as Pima County's Sonoran Desert Conservation Plan and the Town of Marana's Habitat Conservation Plan, and other conservation efforts.
- Monitor the effectiveness of conservation measures associated with issuance of BLM authorizations, including rights-of-way, easements, and special use permits.

- Actively participate in the recovery of, and any revision of the recovery plan for, listed plant species on BLM lands.
- Monitor the effects of fire suppression activities on all populations of listed plants.
- Fund, aid, or establish research or study projects regarding fire ecology and conservation listed plant species on BLM lands.
- Educate employees and public users about listed plant species.
- Support and/or implement public education programs addressing management of special status species by developing a volunteer or docent program to interpret information on such species to visitors, providing literature on special status species issues to visitors, and constructing permanent graphics at selected points along the roadways of the monument.
- Support research by qualified biologists from other agencies, universities, or private organizations.
- Develop increased awareness of tortoises on the public lands.
- Develop and maintain effective coordination and cooperation with outside agencies and BLM constituents concerning tortoise population and habitat management.
- Provide training by BLM and cooperators on data gathering according to protocols and methods.
- Refine data on distribution and densities of Nichol Turk's head cactus in or near the habitat management plan area.
- Continue to assist USFWS and other organizations to gather biological data and meet objectives and goals of species recovery plans.
- Monitor populations of Nichol Turk's head cactus occurring on BLM land for at least 10 years.
- Develop a resource monitoring and evaluation plan for special status species to evaluate population stability and habitat condition in habitat area-wide annually using field surveys and site inspection of habitat.
- Implement a monitoring program for federally listed species, Arizona Wildlife of Special Concern, and BLM Sensitive Species.
- Continue support of conservation efforts (including monitoring) of species occurring within the monument and designated by other agencies (Pima County, Arizona Department of Agriculture) as rare, sensitive, protected, vulnerable, or other special status, and consider each for addition to the BLM Sensitive Species list.
- Evaluate species for addition to BLM Sensitive Species list every fourth year beginning in the fourth year after the completion of the baseline inventory.
- Provide for a monitoring program for special status species through partnerships that would include completing baseline survey and inventory, data review and evaluation, threat analysis and response, and monitoring. Where monitoring identifies threats to these populations, take actions (based on the best available data and science) to protect the special status species and their habitats.

FIRE ECOLOGY AND MANAGEMENT

Regardless of the alternative selected, BLM may conduct the following administrative action related to fire management:

- Undertake education, enforcement, and administrative fire prevention mitigation measures.

CULTURAL RESOURCES

Regardless of the alternative selected, BLM may conduct the following administrative actions related to cultural resources:

- Continue to participate in Arizona Archaeology Awareness Month events and other educational outreach, to highlight the values of cultural resources and the need to protect these resources.
- Promote use of volunteers to enhance cultural resource values, including site documentation, research, protection, and educational projects.
- Promote and increase patrol and monitoring of sites by site stewards, BLM staff, cooperating organizations, and agencies, to the extent possible and practicable.
- Plan and conduct future inventories, focusing efforts in areas important for understanding the cultural history of the monument or where significant resources could be degraded by uses of the monument or erosion.
- Provide pamphlets and brochures containing information about sites allocated to public use.
- Consider management practices to achieve desired plant communities protection and conservation of known cultural resources, including historical sites, and prehistoric sites and plants of significance to Native American peoples.
- Coordinate with tribal groups and other interested groups to inventory any traditional cultural resources.
- Continue the program of monitoring archaeological and historical sites, and implement adaptive management responses to identified threats, including but not limited to, signing, fencing, trash removal, road closures, erosion control measures, backfilling, stabilization, restrictions on other land uses, and law enforcement if warranted.
- Provide educational and interpretive opportunities to enhance public understanding and appreciation of the cultures that created the archaeological and historical resources within the monument (discretionary). Topics could include (1) prehistoric adaptations to the Sonoran Desert, (2) Tohono O'odham interactions with past, present, and future landscapes, and (3) historic mining and ranching.
- Provide opportunities for the public to actively participate in volunteer programs that protect, preserve, conserve, and interpret cultural resources on the monument.
- Promote public interpretation of selected cultural resources (those allocated to public use) in partnership with other organizations pursuing heritage tourism.
- Promote cultural resource research through partnerships and cooperative programs.
- Develop cultural resource project plans for special status resources. These could include (1) portions of Los Robles Archaeological District within IFNM, (2) Cocoraque Butte Archaeological District, and (3) Santa Ana de Cuiquiburitac Mission Site (discretionary).

- Coordinate with the agencies, tribes, and private landowners that manage cultural resources on adjacent lands.
- Identify and evaluate opportunities to acquire non-Federal lands with significant cultural resources in the planning area. Potential acquisitions could include lands within the Los Robles Archaeological District (discretionary).
- Complete Class II (sample) and Class III (intensive) field inventories to identify cultural resources and evaluate the condition of sites, in accordance with the National Historic Preservation Act. Priorities for inventory will be determined based on resource use and protection priority areas and sites.
- Develop a monitoring scheme to evaluate the condition of cultural resources. Where adverse effects are occurring, implement protection measures to stop, limit, or repair damage to sites.
- Develop a cultural resource management plan for the IFNM based on the criteria in Section 110 of the NHPA.

PALEONTOLOGICAL RESOURCES

Regardless of the alternative selected, BLM may conduct the following administrative actions related to paleontological resources:

- Establish Memoranda of Understanding for Cooperative Agreements with a museum(s), university(ies), or other appropriate scientific organizations to allow for evaluation, collection, mitigation, curation, and protection of paleontological resources discovered on the monument and surrounding BLM lands.
- Evaluate paleontological resources, as they are discovered, considering their scientific, educational and recreational values. Adjust the appropriate paleontological sensitivity class and determine appropriate management and monitoring.
- Develop, maintain, and/or contribute information to a database for known and discovered paleontological sites within the monument and BLM administered lands.

SCENIC AND VISUAL RESOURCES

Regardless of the alternative selected, BLM may conduct the following administrative actions related to scenic and visual resources:

- Coordinate with adjacent jurisdictions and planning authorities to manage visual resources consistently on lands adjacent to the monument lands.
- Conduct visual resource contrast ratings in accordance with Bureau VRM Handbook H-8321 for all projects. Require measures to mitigate visual impact exceeding VRM Class visual contrast thresholds.

LIVESTOCK GRAZING

Regardless of the alternative selected, BLM may conduct the following administrative actions related to livestock grazing:

- Enforce against trespass grazing.
- Inventory and monitoring data will be collected on a regular basis as needed to determine achievement of Land Health Standards, or progress toward achieving standards.

- Include information on the role of ranching in interpretive materials generated for the monument.
- Evaluate existing exclosures, and as needed, establish new livestock/wildlife and livestock-only exclosures in each vegetation association in each allotment found within the Monument.
- Integrate into existing educational materials information explaining cultural, economic, and ecological role and impacts of ranching and proper grazing management.
- Form a team of land and resource management agencies, and BLM staff to develop a monitoring plan based on best available methodologies.
- Coordinate with AGFD, USFWS, SHPO, and others to remove range improvements if they are not necessary for management or conservation of other resources (e.g., cultural and wildlife resources, recreation, etc.). If removed, the owner shall be compensated at fair market value. Land Health Assessments, evaluations and re-evaluations will be tied to lease renewal schedules.
- Range improvement standards and design will meet specifications in BLM Manual 1740 or be designed to provide the maximum benefit and minimum adverse impact to wildlife and special status species.
- The extent, location and timing of range improvements will be based on allotment-specific management objectives adopted through the evaluation process, interdisciplinary development and analysis of proposed actions, and funding.
- BLM will consult with Arizona Game and Fish Department on the design and location of new fences.
- Existing fences that create wildlife movement problems would be modified.
- Stock pond sites would be selected based on available watershed and hydrologic information. All applicable state laws and regulations would be followed.
- Well sites would be selected based on geologic reports that predict the depth to reliable aquifers. All applicable state laws and regulations that apply to ground water would be observed.
- Provisions regarding access to range improvements for inspection, maintenance, and operation activities will be amended or added to existing grazing permits.

RECREATION

Regardless of the alternative selected, BLM may conduct the following administrative actions related to recreation management:

- Manage for camping activities in accordance with the following regulations (1) prohibit camping within 0.25 mile of wildlife waters as required by State law, (2) maintain the 14-day camping limit on dispersed camping within a 25-mile radius of one location on public lands, (3) allow camping on all lands open to public in accordance with standard operating procedures, (4) ensure compliance with 43 CFR §8360, Visitor Services, and §8365, Rules of Conduct for the protection of public lands and resources, and for the protection, comfort and well-being of the public in its use of recreation areas, sites and facilities on public lands, (5) ensure that recreation services, programs, and facilities are Americans with Disabilities Act compliant except where substantial harm to the cultural or natural features might occur or they might be compromised; compliance would alter the nature of the setting; or where compliance would not be feasible due to terrain or prevailing construction practices, and (6) close areas to camping per 43 CFR §8364.1.

- Allow large-group camping outside of identified sites for administrative purposes, such as for volunteer work groups, on a case-by-case basis provided the locations are suitable for such activity without new surface disturbance (clearing or grubbing) or improvement, as needed to accomplish a planned action that is consistent with other management objectives.
- Include camp stove and campfire safety and etiquette materials in public outreach materials developed and distributed for the IFNM, noting restrictions within the IFNM.
- Manage for the use and discharge of firearms in accordance with applicable Arizona Game and Commission Rules 17-301, 309, 312, and 12-4-303 (relating to hunting), and in accordance with 43 CFR §8364.1 relating to order issuance for land closures to protect persons, property, public lands and resources.
- Visitor center establishment is in accordance with 43 CFR §8360, Visitor Services, and §8365, Rules of Conduct for the protection of public lands and resources, and for the protection, comfort and well-being of the public in its use of recreation areas, sites and facilities on public lands.
- Management of sight seeing, driving for pleasure, vehicle touring, and OHV recreation in accordance with the existing route network and BLM's National Management Strategy for Motorized Off-Highway Vehicle Use on Public Lands.
- Manage non-motorized, mechanized recreational activities according to the BLM's National Mountain Biking Strategic Action Plan.
- Use limits of acceptable change monitoring and adaptive management methods to minimize potential impacts to sensitive natural and cultural resources.
- Develop a multi-faceted adaptive management process.
- Identify standards for achieving and maintaining the desired recreational resource settings, social settings, managerial conditions, accessibility, visitor services and facilities.
- Promote public safety by taking physical management actions where practicable and by providing the public with adequate information regarding potential risks.
- Manage special recreation use permits to accommodate a variety of recreation opportunities consistent with land use allocations and management objectives.
- Manage commercial/group vehicle touring opportunities in accordance with special recreation use permits (SRPs).
- Manage SRPs in accordance with 43 CFR §2930 Special Recreation Permits requirements for: (1) commercial, (2) competitive, (3) vending, (4) individual or group use in special areas, and (5) organized group activity and event use, and on a case-by-case basis, and to achieve recreation management objectives.
- Limit issuance of SRPs based on the potential for resource damage and conflicts with other uses.
- Provide maintenance and minimal improvement to prevent resource damage at large group campsites.
- Ensure recreation tours remain on the designated route system.
- Coordinate with the BLM State Office and other agencies for managing emerging recreation issues.
- Enlist volunteers to assist in monitoring, maintenance (including litter cleanup), and education, thereby potentially lessening recreation use conflicts.

Under Alternatives B, C, or D, BLM may conduct the following administrative actions related to recreation:

- Provide minimal improvements and maintenance to accommodate allowable uses in accordance with RMZ objectives.
- Establish restrictions pursuant 43 CFR 8340 and 43 CFR 8360, as appropriate, to limit motorized vehicle use, non-motorized use, non-motorized mechanized use to designated routes, and limit recreation use to designated sites in accordance with RMZ objectives and prescriptions.
- Install regulatory, informational, identification, and interpretive signing as needed.
- Install visitor and traffic control devices.
- Provide regular or periodic visitor contact and law enforcement patrols, with frequency depending on RMZ and or time of year.
- Provide litter and trash clean up as needed.
- Coordinate recreation management with the ASLD and other adjacent land owners.
- Establish or develop partnerships or local volunteer resources to assist in implementing monitoring, maintenance and improvement projects to achieve recreation management objectives.

TRAVEL MANAGEMENT

Regardless of the alternative selected, BLM may conduct the following administrative actions related to travel management:

- Take corrective action including maintenance and repairs to remedy damage to resource concerns and safety hazards along the designated transportation system routes.
- Enlist volunteers and partners to assist in fieldwork and other stewardship functions, such as monitoring and maintaining routes.
- Maintain an ongoing monitoring system and database to track and measure motorized and non-motorized use and prescribe route maintenance.
- Provide signing, mapping, and travel information to visitors that reinforces protection of monument resources.
- Expand and pursue partnerships for sources of funding for travel and transportation management.
- Enforce route designation restrictions for all users, including permittees (e.g., hunters, wood gatherers, livestock operators) and authorize exceptions for motorized vehicle travel on a case-by-case basis.
- Allow AGFD the use of motorized and mechanized equipment off designated routes in suitable locations (as agreed to by AGFD and BLM) for such purposes including, but not limited to the following: law enforcement activities, wildlife water supplementation, collar retrieval, capture and release of wildlife, telemetry, surveys, habitat evaluation, and research activities.
- Establish supplementary rules pursuant to 43 CFR 8340 and 43 CFR 8365 as needed to implement OHV area and travel route designations.
- Authorize motorized administrative use on non-motorized routes subject to physical condition of the route, and on a case-by-case basis.

- Manage OHV use and travel activities, and implement best management practices according to the Arizona BLM Guidelines for OHV Recreation Management (BLM 2007b).
- Allow non-motorized non-mechanized access to active mining claims for casual use activities. Require a plan of operations to use motor vehicles on areas or routes closed to vehicle use.
- Seek access agreements, easements or rights–of-way, or adjudication of existing physical access for routes across non-federal land needed to access monument lands for administrative purposes or public use.
- Limit motorized vehicle use to the designated route travelway, with reasonable use of the shoulder and immediate roadside, allowing for vehicle passage, emergency stopping, or parking unless otherwise posted.
- Prepare an implementation plan to define maintenance and operational activities needed to carry out the Travel Management decisions established in this RMP/Final EIS. Identify initial on the ground measures for closures and access restrictions, maintenance and repair work, and work needed for a sustainable long-term transportation system. Define monitoring and maintenance standards or guidelines and schedules. Define the designated access point and route system for both motorized and non-motorized uses of public lands. BLM would pursue partnerships with Federal, State, local, and educational agencies and institutions, and users in developing and adapting the ongoing operations plan. The implementation plan will provide the basis for initial ground work and ongoing adaptive management and activities. At a minimum, it will address:
    - initial condition surveys for each road and trail, and describe corrective or stabilization, maintenance and repair work needed;
    - traffic counter monitoring system to sample the amount and pattern of use of the network;
    - schedule for periodic condition surveys with intervals depending on the type of route, condition and use;
    - initial site surveys for road or trailside turnouts and activity areas, describe baseline footprint for monitoring change in ground conditions, and for defining limits of acceptable change. Describe thresholds for adaptive management action, consistent with RMZ objectives;
    - user and traveler sampling to describe users experience (as part of recreation management program studies);
    - design and maintenance guidelines and procedures for managing access points, roads and trails, consistent with the route's access purpose and design vehicle;
    - guidelines and procedures for adjustments to route designations and the transportation plan. (Note: Because route designations are implementation-level decisions, these can be modified without amending the RMP);
    - maintenance schedule for each route (road or trail), consistent with its maintenance intensity designation; and
    - site specific route analysis to determine if a new route needs to be created, or an existing route needs to be re-routed to prevent damage to resources, alleviate safety problems, avoid conflicts with other land uses, or if there is no other means of securing legal access.

APPENDIX E

CONSERVATION MEASURES FOR SPECIAL STATUS SPECIES

Conservation Measures from the Lesser Long-nosed Bat Recovery Plan

BLM will manage public land within the IFNM in accordance with the following conservation measures for the lesser long-nosed bat:

1. Continue protecting roost sites and evaluate the need for and implement protection for food plants.
2. Monitor all major roosts in Arizona, New Mexico, and Mexico once a year.
3. Continue surveying for additional roosts in the United States and Mexico.
4. Develop and conduct a public education and information campaign in Arizona, New Mexico, and Mexico on the beneficial aspects of bats in general and the lesser long-nosed bat specifically.
5. Conduct critical research on population census techniques, physical requirements for roosts, foraging ranges of roosts, reproduction and mating systems and other life history and habitat questions.

Conservation Measures from Desert Tortoise Habitat Management on the Public Lands: A Rangewide Plan

The following management objectives were developed to help BLM meet its overall goal for preserving and managing tortoises and their habitats.

Objective 1. Develop increased awareness of tortoise resources on the public land.

Objective 2. Complete and maintain on a continuing basis an inventory and monitoring program for tortoise populations and habitats to assist in making management decisions on the public lands.

Objective 3. Develop and maintain a monitoring program specifically for land-use activities that adversely affect tortoise habitats. This program will, be used in the analysis of and response 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 the public lands.

Objective 5. Develop and maintain effective coordination and cooperation with outside agencies and Bureau constituents concerning tortoise population 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 category goals and other objectives of the Rangewide Plan. This implies management for the existence of an adequate number of healthy and vigorous tortoise populations of sufficient size and resilience to withstand the most severe environmental impacts, 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, and mitigate the effects of issuing rights-of-way across public lands.

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

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

Objective 11. Provide for herd management for wild horses and burros which is consistent with the category goals, objectives, and management actions of the Rangewide Plan. This may include limiting or precluding wild horse and/or burro use, as appropriate. (No wild horses or burros exist within the IFNM.)

Objective 12. Provide for management of wildlife other than desert tortoises on the public lands consistent with the category goals, objectives, and management actions of the Rangewide Plan.

Objective 13. Cooperate with state wildlife agencies and the Animal and Plant Health Inspection Service to effect appropriate types and levels of predator control, to meet the category goals, objectives, and management actions of the Rangewide Plan. This will be considered only where predation is interfering with maintaining viable tortoise populations.

Objective 14. Manage the BLM's energy and minerals program in a manner consistent with the category goals, objectives, and management actions of the Rangewide Plan.

Conservation Measures from the Arizona Statewide Land Use Plan Amendment for Fire, Fuels, and Air Quality Management

The following conservation measures for fire management activities are common to all alternatives and will be implemented for all authorized management activities. These conservation measures are intended to provide State-wide consistency in reducing or eliminating the effects of management actions on Federally endangered, threatened, proposed, and candidate species, as well as species included on the Wildlife Species of Concern in Arizona and BLM Arizona Sensitive Species lists.

Wildland Fire Suppression

The following conservation measures will be implemented during fire suppression operations unless firefighter or public safety, or the protection of property, improvements, or natural resources, render them infeasible during a particular operation. Each conservation measure has been given an alphanumerical designation for organizational purposes (e.g., FS-1). Necessary modifications of the conservation measures or impacts to Federally protected species and habitat during fire suppression operations will be documented by the Resource Advisor, and coordinated with the USFWS.

- **FS-1** Protect known locations of habitat occupied by Federally listed species. Minimum Impact Suppression Tactics (M.I.S.T.) will be followed in all areas with known Federally protected species or habitat [*Interagency Standards for Fire and Aviation Operations 2003*, or updates].
- **FS-2** Resource Advisors will be designated to coordinate natural resource concerns, including Federally protected species. They will also serve as a field contact representative (FCR) responsible for coordination with the USFWS. Duties will 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 to Federally protected species and their habitats are minimized. On-the-ground monitors will be designated and used when fire suppression activities occur within identified occupied or suitable habitat for Federally protected species.

- **FS-3** All personnel on the fire (firefighters and support personnel) will be briefed and educated by Resource Advisors or designated supervisors about listed species and the importance of minimizing impacts to individuals and their habitats. All personnel will 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.
- **FS-4** Permanent road construction will not be permitted during fire suppression activities in habitat occupied by Federally protected species. Construction of temporary roads 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.
- **FS-5** Crew camps, equipment staging areas, and aircraft landing and fueling areas should be located outside of listed species habitats, and preferably in locations that are disturbed. If camps must be located in listed species habitat, the Resource Advisor will 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 indirect effects to aquatic habitat or species located off-site).

Species Specific Conservation Measures

The following species-specific conservation measures will be applied during wildfire suppression to the extent possible, and will be required during fuels treatment activities. Necessary modifications of the conservation measures or impacts to Federally protected species and habitat during fire suppression operations will be documented by the Resource Advisor, and coordinated with the USFWS.

Cactus ferruginous pygmy-owl

- **FP-1** Treatment of riparian habitat, Sonoran desert/desertscrub, or mesquite-invaded grasslands under 4,000 feet in elevation that may support nesting cactus ferruginous pygmy owls will 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 approved by the USFWS have alleviated negative consequences.
- **FP-2** Develop mitigation plans in coordination with the USFWS for fuels treatment projects (mechanical, chemical, or biological treatments) that may adversely affect cactus ferruginous pygmy-owls or their habitat. Mitigation plans will be approved by the USFWS.
- **FP-3 (Recommended)** 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 will be given to activities in or near occupied or recently (w/in the last 10 years) occupied habitat.

Flowering Plants

The following conservation measures for known locations and unsurveyed habitat of all Federally protected plant species within the planning area will be implemented during fire suppression to the extent possible, and are mandatory for fuel treatment activities:

- **PL-1** Known locations and potential habitat for plant populations will be mapped to facilitate planning for vegetation treatments, and to ensure protection of these populations during fire suppression.
- **PL-2** BLM will coordinate with FWS to delineate buffer areas around plant populations prior to vegetation treatment activities. BLM will coordinate with USFWS during any emergency response to ensure protection of plant populations from fire and fire suppression activities.
- **PL-3** During fire suppression, in habitat occupied by federally protected plant species, no staging of equipment or personnel will be permitted within 100 meters of identified individuals or populations, nor will 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**). One of the primary threats to many of these plant species is trampling/crushing from personnel and vehicles.

Lesser long-nosed bat

- **LB-1** Instruct all crew bosses (wildfire suppression and mechanical, chemical, biological treatments) in the identification of agave and columnar cacti and the importance of their protection.
- **LB-2** Prior to implementing any fuels treatment activities (mechanical, chemical, biological treatments), preproject surveys will be conducted for paniculate agaves and saguaros that may be directly affected by fuels management activities.
- **LB-3** 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 (mechanical, chemical, biological 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 will be located in disturbed sites, if possible.
- **LB-4** No seeding/planting of nonnative plants will occur in any wildfire rehabilitation site or fuels treatment site with paniculate agaves or saguaros.
- **LB-5** A mitigation plan will be developed by the Bureau in coordination with the USFWS for fuels management projects (mechanical, chemical, biological treatments) within 0.5 mi of bat roosts or in areas that support paniculate agaves or saguaros. The mitigation plan will ensure that effects to bat roosts and forage plants are minimized and will include monitoring of effects to forage plants. The plan will be approved by the USFWS.
- **LB-6 (Recommended)** BLM personnel should examine concentrations of agaves (including shindagger (*A. schottii*) within each proposed fuels treatment area, and protect from treatments any significant concentrations of agaves that appear to be amidst fuel loads that could result in mortality greater than 20 percent (>50% 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 (>50% for *A. schottii*).

Desert tortoise, Sonoran population

Implement the conservation measures for desert tortoise, Mojave population (listed below), as appropriate, for fire suppression and fuels treatment activities (mechanical, chemical, biological treatments), excluding requirements for notification to USFWS.

Conservation Measures for Desert tortoise, Mojave population

- **DT-1** Take appropriate action to suppress all wildfires in desert tortoise habitat, based on preplanned analysis and consistent with land management objectives, including threats to life and property. Full suppression activities will be initiated within key desert tortoise habitat areas identified in site-specific Fire Management Plans.
- **DT-2** Suppress all wildfires in desert tortoise habitat with minimum surface disturbance, in accordance with the guidelines in Duck et al. (1995) and the 1995 programmatic biological opinion on fire suppression on the Arizona Strip (2-21-95-F-379).
- **DT-3** Pre-position suppression forces in critical areas during periods of high fire dangers.
- **DT-4** As soon as practical, all personnel involved in wildfire suppression (firefighters and support personnel) will be briefed and educated about desert tortoises and the importance of protecting habitat and minimizing take, particularly due to vehicle use. Fire crews will be briefed on the desert tortoise in accordance with Appendix II of Duck et al. (1995).
- **DT-5** If wildfire or suppression activities cannot avoid disturbing a tortoise, the Resource Advisor or monitor will relocate the tortoise, if safety permits. The tortoise will be moved into the closest suitable habitat within two miles of the collection site that will ensure the animal is reasonably safe from death, injury, or collection associated with the wildfire or suppression activities. The qualified biologist will be allowed some discretion to ensure that survival of each relocated tortoise is likely. If the extent or direction of movement of a fire makes sites within two miles of the collection site unsuitable or hazardous to the tortoise or biologists attempting to access the area, the tortoise may be held until a suitable site can be found or habitat is safe to access and not in immediate danger of burning. The Resource Advisor will contact the USFWS Arizona Ecological Services Field Office (AESFO) as soon as possible concerning disposition of any animals held for future release. Desert tortoises will not be placed on lands outside the administration of the Federal government without the written permission of the landowner. Handling procedures for tortoises, including temporary holding facilities and procedures, will adhere to protocols outlined in Desert Tortoise Council (1994).
- **DT-6** Upon locating a dead, injured, or sick desert tortoise, initial notification must be made to the appropriate USFWS Law Enforcement Office within three working days of its finding. Written notification must be made within five calendar days and include the date, time, and location of the animal, a photograph, and any other pertinent information. The notification will be sent to the Law Enforcement Office with a copy to the AESFO.
- **DT-7** Care must be taken in handling sick or injured animals to ensure effective treatment and care, and in handling dead specimens to preserve biological material in the best possible state. If possible, the remains of intact desert tortoises will be placed with educational or research institutions holding appropriate State and Federal permits. If such institutions are not available, the information noted above will be obtained and the carcass left in place. Arrangements regarding proper disposition of potential museum specimens will be made with the institution prior to implementing the action. Injured animals should be transported to a qualified veterinarian by an authorized biologist. Should any treated desert tortoise survive, the USFWS should be contacted regarding final disposition of the animal.
- **DT-8** The Resource Advisor or monitor(s) will maintain a record of all desert tortoises encountered during fire suppression activities. This information will include for each desert tortoise: (1) locations and dates of observation; (2) general condition and health, including injuries and state of healing, and whether animals voided their bladders; (3) location moved from

and to; and (4) diagnostic markings (i.e., identification numbers of marked lateral scutes). No notching of scutes or replacement of fluids with a syringe is authorized.

- **DT-9** Prior to moving a vehicle, personnel will inspect under the vehicle for tortoises. If a tortoise is found under the vehicle, the tortoise will be allowed to move away from the vehicle on its own accord, if possible. Otherwise an individual will move the tortoise to a safe locality in accordance with **FS-2** and **DT-5**.
- **DT-10** Off-road vehicle activity will be restricted to the minimum necessary to suppress wildfires. Vehicles will be parked as close to roads as possible, and vehicles will use wide spots in roads or disturbed areas to turn around. Whenever possible, a biologist or crewperson trained to recognize tortoises and their shelter sites will precede any vehicle traveling off-road to direct the driver around tortoises and tortoise burrows. Whenever possible, local fire-fighting units should provide direction and leadership during off-road travel because of their expertise and knowledge of area sensitivities.
- **DT-11** Fire-related vehicles will drive slow enough to ensure that tortoises on roads can be identified and avoided.
- **DT-12** Fire crews or rehabilitation crews will, to the extent possible, obliterate off-road vehicle tracks made during fire suppression in tortoise habitat, especially those of tracked vehicles, to reduce future use.
- **DT-13** To the maximum extent practical, campsites, aircraft landing/fueling sites, and equipment staging areas will be located outside of desert tortoise habitat or in previously disturbed areas. If such facilities are located in desert tortoise habitat, 100 percent of the site will be surveyed for desert tortoises by a qualified biologist approved by BLM, whenever feasible. Any tortoises found will be moved to a safe location in accordance with **FS-2** and **DT-5**. All personnel located at these facilities will avoid disturbing active tortoise shelter sites.
- **DT-14** Elevated predation by common ravens or other predators attributable to fire suppression activities will be reduced to the maximum extent possible. Work areas, including campsites, landing/fueling sites, staging areas, etc. will be maintained in a sanitary condition at all times. Waste materials at those sites will be contained in a manner that will avoid attracting predators of desert tortoises. Waste materials will be disposed of at an appropriate waste disposal site. "Waste" means all discarded matter including, but not limited to, human waste, trash, garbage, refuse, oil drums, petroleum products, ashes, and equipment.
- **DT-15** Backfiring operations are permitted where necessary in desert tortoise habitat. Burning out patches of identified habitat within or adjacent to burned areas is not permitted as a standard fire suppression measure unless necessary for firefighter or public safety or to protect property, improvements, or natural resources.
- **DT-16** Use of foam or retardant is authorized within desert tortoise habitat.
- **DT-17** Rehabilitation of vegetation in tortoise habitat will be considered, including seeding, planting of perennial species, etc.
- **DT-18** Recovery of vegetation will be monitored, including establishing and monitoring paired plots, inside and outside burned areas in tortoise habitat. Recovery plans will be coordinated with the USFWS and AGFD.
- **DT-19** The effectiveness of wildfire suppression activities and desert tortoise conservation measures will be evaluated after a wildfire. Procedures will be revised as needed.

APPENDIX F

PERENNIAL, EPHEMERAL, AND PERENNIAL-EPHEMERAL ALLOTMENT CLASSIFICATIONS

In Arizona, BLM 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 briefly produce unusual volumes of forage to accommodate livestock grazing. There is a Special Rule for Ephemeral Range.
- Perennial-Ephemeral Rangeland: produces perennial forage each year and also 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.

Criteria for Classifying Allotments as Ephemeral

Allotments may be classified as Ephemeral through Rangeland Health Assessments in accordance with the Special Ephemeral Rule, published December 7, 1968. BLM has established criteria based upon the Special Rule through which allotments can be classified as ephemeral. These criteria include:

1. Rangelands are within the hot desert biome.
2. Average annual precipitation is less than 8 inches.
3. Rangelands produce less than 25 pounds per acre of desirable forage grasses.
4. The vegetative community is composed of less than 5% desirable forage species.
5. The rangelands are generally below 3,500 feet in elevation.
6. Annual production is highly unpredictable and forage availability is of a short duration.
7. Usable forage production depends on abundant moisture and other favorable climatic conditions.
8. Rangelands lack potential to improve existing ecological status and produce a dependable supply of forage through intensive rangeland management practices.

IFNM Allotment Classifications

The two allotments currently classified as ephemeral (Morning Star and Tejon Pass) no longer meet the criteria for classification as ephemeral. The allotments produce more than 25 pounds per acre of desirable grass species, and the community is composed of more than five percent desirable forage species. Most of the rangelands are in a high or better ecological status. Those few areas that may be in medium or low ecological status have the potential to improve and produce a dependable supply of forage through intensive rangeland management practices. However, these allotments are not being reclassified at this time because BLM does not have sufficient information to identify forage capacity on these allotments, which is required when allotments are classified as perennial. As ephemeral allotments, no grazing preference levels are currently assigned to them. BLM is conducting additional monitoring to determine appropriate forage capacity; therefore, the decision to reclassify these allotments is being deferred until BLM can collect the data necessary to support and identify an appropriate forage capacity level and conduct an associated environmental analysis.

The nine allotments classified as perennial/ephemeral under No Action Alternative A are reclassified as perennial under Alternatives C and D. These allotments are reclassified because allotments do not meet the ephemeral criteria. BLM can issue temporary, non-renewable licenses to allow for seasonal use, when forage conditions warrant. This change provides BLM with additional discretion in reviewing seasonal use and ensuring use that protects monument objects.

APPENDIX G

ROUTE INVENTORY AND EVALUATION

Route Inventory Process

Through the RMP process and associated environmental analysis, BLM will establish a Travel Management Plan (TMP), as directed by the Presidential Proclamation and consistent with BLM policy. The IFNM TMP development process considers long-term monitoring, maintenance, and management of the designated route system to accommodate motorized and non-motorized use for administrative purposes and public use. An inventory of existing travel routes within the IFNM, which serves as the foundation of the TMP, was competed in 2003 under a cooperative project between the School of Renewable Natural Resources at the University of Arizona and the BLM (Gimblett 2004). Existing road and trail networks, route conditions, facilities, improvements and public use areas accessed by the routes (range improvements, wildlife improvements, recreation activity areas, gates, fences, trailheads, and other features) were inventoried and mapped. Inventory procedures were designed to collect information necessary for planning and management for the IFNM. Tools and procedures used to complete the inventory included route identification using aerial photography, on-the-ground verification and data collection with global positioning system (GPS) equipment, and documentation of route conditions. The routes identified in the inventory were later evaluated to identify route designation alternatives for developing the comprehensive TMP. This appendix describes the route evaluation process in detail, lists the criteria that were applied to each route during evaluation, and explains how route designations in this RMP were derived from the route evaluation process.

Description of the Route Evaluation Tree Process©

The BLM in Arizona has adapted the Route Evaluation Tree Process©, designed by Advanced Resource Solutions, Inc., for evaluating and designating routes. The Route Evaluation Tree Process© applies a standard analytical method to existing routes to assist in determining route designations. This process was used to evaluate routes on the IFNM.

The Route Evaluation Tree Process© is a tool designed to assist agency staff with the systematic collection and compilation of data necessary for the thorough evaluation, analysis, and/or designation of both motorized and non-motorized routes. It builds upon the history of past efforts of route designation, assists with addressing various issues and concerns raised by both private and public entities (e.g., planning policy, sensitive resource protection, commercial access needs, recreational access preferences), and helps to assess compliance with state and federal statutory requirements that need to be considered in this type of planning effort. The Route Evaluation Tree Process© helps to build into the land use planning process a means by which to achieve desired outcomes that are specifically tailored to the needs and issues unique to a planning area. It is not a replacement for the NEPA process, documents, or analysis, but rather is a tool designed to assist with the systematic collection of sensitive resource and route-use information that can then be subsequently used to evaluate and designate routes. The Route Evaluation Tree Process© or its software does not make any final decisions regarding route designation. Route designation recommendations are made by agency staff utilizing both data collected during the Route Evaluation Tree Process© and from other agency data sources. Ultimately, any decisions made regarding route designation are made by BLM managers as part of the Record of Decision.

In order to address the many facets of route evaluation and transportation planning, the Route Evaluation Tree Process© is divided into a number of smaller steps that fine-tune the information needed to successfully evaluate and designate routes. The process is illustrated on the "Route Evaluation Tree Process© for Travel Management Planning" at the end of this appendix.

The Route Evaluation Tree©[1] is only one step within the overall Route Evaluation Tree Process©. The process takes a systematic approach to collect data and evaluate routes individually, as well as collectively, based upon statutory requirements and issues raised by the public, and plan alternative themes developed by the BLM. The result of this process is the creation of different potential designated route networks that address identified issues and constraints (see "Route Evaluation Tree©" diagram at the end of this appendix). The data collected through this route evaluation process may assist agency planners is making potential decisions within the environmental impact analysis process required by NEPA. The Route Evaluation Tree Process© has been extensively used by the BLM and other land management agencies. The process meets or exceeds the needs of the BLM Land Use Planning Handbook. The details and results of this process are summarized in this appendix and documented fully in the IFNM Route Evaluation Database, available for public review at the Tucson Field Office.

Route Evaluation Criteria

During the route evaluation process, a BLM interdisciplinary team used detailed variables or criteria to evaluate each route. Route evaluations were then applied to the themes governing each alternative to produce a range of alternatives and route designations, as presented in Chapter 2. The criteria developed were based foremost upon the overarching "minimization criteria" for location of OHV areas and trails as specified in 43 CFR 8341:

> (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.
>
> (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.
>
> (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.
>
> (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.

Under consideration of these criteria, BLM developed the following guidelines (listed in no particular order) and applied them to the route evaluation process on the IFNM.

1. Provide access to meet management objectives and other administrative requirements (including Border Patrol use and access needs for fire management activities and vehicle types).

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[1] The process has previously been referred to as the "Route Evaluation/Designation Decision Tree Process" or "Decision Tree." A "decision tree" is a technique or tool for assisting in the decision making process by leading one through a series of yes/no questions based upon input received (flowchart). A "decision" in the context of NEPA has a more legalistic meaning specifically relating to the NEPA process. The name "Decision Tree" was used to indicate it was created in a style; however, to avoid the potential for misunderstanding of the meaning of the word "decision," it has been removed from the title of the process.

2. Provide access to inholdings and for valid, existing rights through easement or right-of-way grants.

3. Retain reasonable access that appropriately accommodates current recreational activities.

4. Minimize the number of routes by closing duplicative routes.

5. Designate routes to support protection of monument objects, enhancement, and restoration of sensitive resources.

6. Accommodate universal access needs by designating access points and routes for both motorized and non-motorized uses to provide a range of recreation opportunities (e.g., landscape /visual, ecological, cultural/historic, wildlife) along the Avra Valley - Silverbell - Sasco Road loop route.

7. Close/limit public use where there is a high risk of damage to Monument objects or sensitive resource values from public access and use.

8. Watershed (Air, Soil, Water Resources):

   - Minimize designation of motorized and non-motorized routes as open on/across dust-prone soils.
   - Unsurfaced (i.e., unpaved) routes designated as open in silty-clay soils may be closed during wet soil conditions to prevent damage.
   - Minimize designation of routes as open to motorized or non-motorized use that cross or include a segment that follows a wash; where possible, close those routes where the purpose or presence of the route contributes to the deteriorating condition of the wash, soil loss, damage to the plant community, cultural damage, or other resource damage.

9. Biological Resources

   - Minimize designation of routes as open to motorized use or non-motorized mechanized use in or across vegetative communities identified as unique or important; blocks of undisturbed habitat; special management areas identified for bighorn sheep; Nichol Turk's Head cactus habitat; xeroriparian areas used as movement corridors by mule deer and javelina; and (for desert tortoise protection) across incised washes between Samaniego Hills, Waterman, Roskruge, and Pan Quemado Mountains.
   - Minimize designation of routes as open to motorized use or non-motorized mechanized use within Nichol Turk's Head cactus habitat and desert tortoise habitat.

10. Cultural Resources

    - Provide adequate access to cultural sites allocated for public use.
    - Minimize selection of routes as open to motorized use or non-motorized mechanized use on/across significant cultural sites.
    - Close existing vehicle route spurs that end at significant cultural sites.

11. Paleontological Resources and Caves: close to motorized and non-motorized mechanized use existing vehicle route spurs that end at significant caves with significant resource values.

12. Lands and Realty: close access roads to public use on routes to sensitive facilities.

13. Recreation

    - In order to meet recreation objectives, retain existing routes that provide for a key sightseeing, driving for pleasure, and vehicle touring opportunities (including watchable

wildlife) as open to public access; close/limit public access in favor of natural/cultural resource protection even if opportunities for high value for this recreation activity are compromised.

- Close overgrown routes. Vegetation treatment (clearing/trimming) may be authorized to provide access on overgrown access routes to existing utilities. Allow use of these routes for emergency purposes and administrative purposes, provided vegetation cover is protected.
- Routes identified for closure to motorized and non-motorized mechanized vehicles would be either (1) closed to all travel, obliterated, and revegetated, or (2) remain open for non-motorized use, excluding mechanized use (bicycles), based on recreation management and natural/cultural resource objectives.
- Identify and address proper management of historic routes, including those that may be abandoned and reclaiming those that may be associated with the Juan Bautista de Anza National Historic Trail. Consider designation of Sasco Road trails project, which would provide interpretation along the historic railroad route.

14. Visual: provide access to identified scenic overlooks.

The following is a sample of additional specific data that was collected to assist agency staff with recommending route designations for each alternative:

1. <u>Resource Issues</u>:

Association or Proximity of Route to:

- Known Cultural Site
- Site or Area of Tribal Significance
- Sites on National Register of Historic Places
- Vegetation Habitat Management Area
- Area of Critical Environmental Concern
- Portal Access to National Monument
- Wilderness Charateristics
- Wildife Habitat Management Area
- Emergency Closure Areas
- Exemplary Plant Communities
- Sensitive Plant Species Area
- Special Status Plant Species
- Sensitive Wildlife Species Area

Other Resource Considerations:

- Air Quality
- Desert Wash
- Dumping
- High Density Route Area
- Route Proliferation
- Soils
- Critical Habitat Designations
- Recreation Opportunity Spectrum
- Visual Resource Management
- Hazards

2. Public Uses

Existing Public Uses:

- ATV Use
- Birding
- Camping – Developed
- Camping – Primitive
- Equestrian
- Firewood Gathering – Illegal
- Firewood Gathering – Legal
- Geocaching
- Hiking
- Hunting
- Motorcycle Trials
- Motorcycle Use
- Mountain Biking
- New Age Visitors
- OHV Touring
- Paintball
- Parking Area – Improved
- Parking Area – Unimproved
- Public Use Site Access/Interpretative Panel
- Rockhounding
- Shooting
- SUV Touring
- Vistas, Sightseeing, Photography
- Wildlife Watching

Other Public Use Considerations:

- Route Contributes to Public Safety
- Route Contributes to User Conflicts
- Route Helps Minimize User Conflicts
- Route is a Concern for Public Safety
- Commercial Recreation Permit
- Special Recreation Use Permit

3. Commercial, Administrative, Property Access, and Economic Issues:

Commercial Ranching Facilities

- Active Allotment
- Allotment Boundary Fenceline
- Cattleguard
- Corral
- Fence Line (not Allotment Boundary Fenceline)
- Gate
- Pipeline
- Ranch
- Ranch HQ
- Tank, Trough
- Water Catchment

- Well
- Windmill

Administrative Uses

- Administrative Gate
- Compliance/Enforcement Monitoring
- Fire Suppression
- Monitoring Site
- Resource Treatment
- Weed Abatement
- Wildlife Agency Monitoring
- Wildlife Catchment
- Wildlife Water / Guzzler

Utilities

- Gate
- Utility Corridor
- Cell Site
- Communication Site
- Gas Pipeline
- Electrical Transmission / Powerline
- Telephone

Land Access

- City Gate
- City Land Access
- County Land Access
- Private Property Access
- State Land
- Tribal Land Access

Other

- Active/Inactive Mines
- Apiary Site
- Cemetery
- Desert Plant Sales (from Private Land)
- Dude Ranch
- Landing Strip
- Military Facility
- Mining Claims
- Officially recognized in Federal Planning Document and Maintained
- Route is recognized as contributing to the local economy
- Route is recognized in a local plan
- Route provides connection to public highway system (Federal, State, county)

Adaptation of Route Evaluation Process to IFNM Travel Management

The route evaluation concluded in a variety of route specific management designations, which vary by alternative (as each alternative has a different management theme). These designations are identified in the list below as "designation codes." Each of the 28 designation codes that resulted from the route evaluation process was then grouped under one of the following three route designations for this RMP:

motorized use, non-motorized use (excluding non-motorized mechanized use), or reclamation. These resulting designations are identified below as "route designations."

Alternatives B, C, and D each propose a travel management plan for the long-term monitoring, maintenance and management of the designated access point and route system for both motorized and non-motorized/non-mechanized uses of public lands (see Table 2-16 in the Proposed Resource Management Plan and Final Environmental Impact Statement). The travel management plan proposed by each alternative would differ with regard to which roads and trails would remain open or be closed. The designations below help to define the travel management plan objectives and discuss how each route with that designation code would be treated in the implementation phase of the travel management plan. The travel management objectives and definitions for each designation also are listed below:

Designation Code:	C01
Objective:	Route will be closed and not maintained as a trail.
Definition:	Closed to all motorized and mechanized travel year-round. Revegetate and stabilize erosion.
Route Designation:	None. Route would be reclaimed.

Designation Code:	C07
Objective:	Route will be closed and not maintained as a trail.
Definition:	Closed to all motorized and mechanized travel year-round. Revegetate and stabilize erosion.
Route Designation:	None. Route would be reclaimed.

Designation Code:	C08
Objective:	Route will be closed and not maintained as a trail.
Definition:	Closed to all motorized and mechanized travel year-round. No maintenance work will be performed to accommodate non-motorized public use. Open to non-motorized public use except for mechanized uses (bicycles) subject to route conditions.
Route Designation:	Non-motorized use.

Designation Code:	C26
Objective:	Route will be closed and not maintained as a trail.
Definition:	Closed to all motorized and mechanized travel year-round. Revegetate and stabilize erosion.
Route Designation:	None. Route would be reclaimed.

Designation Code:	ML02-TransAllNM
Objective:	Route will be maintained as a non-motorized, non-mechanized trail.
Definition:	Closed to all public motorized and mechanized use year-round. Maintain to accommodate non-motorized public use with the exception of mechanized use (bicycles).
Route Designation:	Non-motorized use.

Designation Code:	ML02-UserAdminMtrPermitteeMtr
Objective:	Route is available for authorized motorized and mechanized use only year-round, which at a minimum will be for motorized and mechanized administrative use and right-of-way holder only. Future authorizations may be granted on a case by case basis such as to other permittees, lessees, etc.

Definition:	Open to motorized and mechanized vehicle use year-round by right-of-way or permit holder and for official administrative purposes or authorized private property access. Open to non-motorized public use year-round, with the exception of bicycles. Closed to motorized and non-motorized mechanized public use year-round.
Route Designation:	Non-motorized use.

Designation Code:	ML02-UserAdminMtrPermitteeMtrPvtPropMtr
Objective:	Route is available for authorized motorized and mechanized use only year-round, which at a minimum will be for motorized and mechanized administrative use, right-of-way holder, and authorized private property access only. Future authorizations may be granted on a case by case basis such as to permittees, lessees, etc.
Definition:	Open to motorized and mechanized vehicle use year-round by right-of-way or permit holder and official administrative purposes. Open to non-motorized public use year-round, with the exception of bicycles. Closed to motorized and non-motorized mechanized public use year-round.
Route Designation:	Non-motorized use.

Designation Code:	ML02-UserAdminMtrPermitteeMtr-TransPublicNM
Objective:	Route is available for authorized motorized and mechanized use only year-round, which at a minimum will be for motorized and mechanized administrative use and right-of-way holder only. Future authorizations may be granted on a case by case basis such as to other permittees, lessees, etc. Route will also be identified as and maintained for a non-motorized and non-mechanized trail.
Definition:	Open to motorized and mechanized vehicle use year-round by right-of-way or permit holder and official administrative purposes. Maintain to accommodate non-motorized, non-mechanized public use. Closed to motorized and mechanized public use year-round.
Route Designation:	Non-motorized use.

Designation Code:	ML02-UserAdminMtrPvtPropMtr
Objective:	Route is available for authorized motorized and mechanized use only year-round, which at a minimum will be for motorized and mechanized administrative use and authorized private property access only. Future authorizations may be granted on a case by case basis such as to permittees, lessees, etc.
Definition:	Open to motorized and mechanized vehicle use year-round by right-of-way or permit holder and official administrative purposes. Open to non-motorized public use year-round, with the exception of bicycles. Closed to motorized and non-motorized mechanized public use year-round.
Route Designation:	Non-motorized use.

Designation Code:	ML05-UserAdminMtrPermitteeMtr
Objective:	Route is available for authorized motorized and mechanized use only year-round, which at a minimum will be for motorized and mechanized administrative use and permittees only. Future authorizations may be granted on a case by case basis such as to other permittees, lessees, etc.

Definition:	Open to motorized and mechanized vehicle use year-round by right-of-way or permit holder and official administrative purposes. Open to non-motorized public use year-round, with the exception of bicycles. Closed to motorized and non-motorized mechanized public use year-round.
Route Designation:	Non-motorized use.

Designation Code:	ML06-SeasonOther___Day Use Only - no overnight camping
Objective:	Day use only; no overnight camping allowed.
Definition:	Open to motorized and mechanized public use year-round. Open to non-motorized public use year-round.
Route Designation:	Motorized use.

Designation Code:	ML06-TransAllNM
Objective:	Route will be maintained as a non-motorized trail.
Definition:	Open to non-motorized public use year-round , with the exception of bicycles. Closed to all motorized and mechanized public use year-round.
Route Designation:	Non-motorized use.

Designation Code:	ML06-TransAllNMM
Objective:	Route will be maintained as a non-motorized and non-mechanized trail.
Definition:	Open to non-motorized and non-mechanized public use year-round. Closed to all public motorized and mechanized use year-round.
Route Designation:	Non-motorized use.

Designation Code:	ML06-TransAllNM-SeasonOther___Day Use Only - no overnight camping
Objective:	Route will be maintained as a non-motorized and non-mechanized trail. Day use only; no overnight camping allowed.
Definition:	Open to non-motorized and non-mechanized public use year-round during day time. Closed to all motorized and mechanized vehicle use year-round.
Route Designation:	Non-motorized use.

Designation Code:	ML06-TransAllNM-SeasonSPC_January 1_April 1_
Objective:	Route will be maintained as a non-motorized and non-mechanized trail. The route is closed to all public uses (motorized, non-motorized, and non-mechanized, including hiking and equestrian) from January 1 to April 1.
Definition:	Open to non-motorized public use, with the exception of bicycles, April 1 to December 30. Closed to all public entry and use January 1 to April 1.
Route Designation:	Non-motorized use.

Designation Code:	ML06-UserAdminMtrPermiteeMtr
Objective:	Route is available for authorized motorized and mechanized use only year-round, which at a minimum will be for motorized and mechanized administrative use and permittees only. Future authorizations may be granted on a case by case basis such as to other permittees, lessees, etc.
Definition:	Open to motorized and mechanized vehicle use year-round by right-of-way or permit holder and official administrative purposes. Open to non-motorized public use year-round, with the exception of bicycles. Closed to motorized and mechanized public use year-round.
Route Designation:	Non-motorized use.

Designation Code:	ML06-UserAdminMtrPermitteeMtrPvtPropMtr
Objective:	Route is available for authorized motorized and mechanized use only year-round, which at a minimum will be for motorized and mechanized administrative use, permittees, and authorized private property access only. Future authorizations may be granted on a case by case basis such as to permittees, lessees, etc.
Definition:	Open to motorized and mechanized vehicle use year-round by right-of-way or permit holder and official administrative purposes. Open to non-motorized public use year-round, with the exception of bicycles. Closed to motorized and mechanized public use year-round.
Route Designation:	Non-motorized use.

Designation Code:	ML06-UserAdminMtrPermitteeMtr-TransPublicNM
Objective:	Route is available for authorized motorized and mechanized use only year-round, which at a minimum will be for motorized and mechanized administrative use and permittees only. Future authorizations may be granted on a case by case basis such as to other permittees, lessees, etc. Route will also be identified as and maintained for a non-motorized trail.
Definition:	Open to motorized and mechanized vehicle use year-round by right-of-way or permit holder and official administrative purposes. Maintain to accommodate non-motorized public use with the exception of mechanized use (bicycles). Closed to motorized and mechanized public use year-round.
Route Designation:	Non-motorized use.

Designation Code:	ML06-UserAdminMtrPermitteeMtr-TransPublicNMM
Objective:	Route is available for authorized motorized and mechanized use only year-round, which at a minimum will be for motorized and mechanized administrative use and permittees only. Future authorizations may be granted on a case by case basis such as to other permittees, lessees, etc. Route will also be identified as and maintained for a non-motorized and non-mechanized trail.
Definition:	Open to motorized and mechanized vehicle use year-round by right-of-way or permit holder and official administrative purposes. Maintain to accommodate non-motorized and non-mechanized public use, with the exception of bicycles. Closed to motorized and mechanized public use year-round.
Route Designation:	Non-motorized use.

Designation Code:	ML06-UserAdminMtrPvtPropMtr
Objective:	Route is available for authorized motorized and mechanized use only year-round, which at a minimum will be for motorized and mechanized administrative use and authorized private property access only. Future authorizations may be granted on a case by case basis such as to permittees, lessees, etc.
Definition:	Open to motorized and mechanized vehicle use year-round by right-of-way or permit holder and official administrative purposes. Open to non-motorized public use year-round, with the exception of bicycles. Closed to motorized and mechanized public use year-round.
Route Designation:	Non-motorized use.

Designation Code:	ML06-UserAdminOnlyATV
Objective:	Route is available for authorized ATV use only, which at a minimum will be for ATV administrative use only. Future authorizations may be granted on a case by case basis such as to permittees, lessees, etc.

Definition:	Open to motorized vehicle under 42 inch width use year-round by right-of-way or permit holder and official administrative purposes.
Route Designation:	Motorized use.

Designation Code:	ML06-UserAdminOnlyMtr
Objective:	Route is available for authorized motorized and mechanized use only year-round, which at a minimum will be for motorized and mechanized administrative use only. Future authorizations may be granted on a case by case basis such as to permittees, lessees, etc.
Definition:	Open to motorized and mechanized vehicle use year-round by right-of-way or permit holder and official administrative purposes. Open to non-motorized public use year-round, with the exception of bicycles. Closed to motorized and mechanized public use year-round.
Route Designation:	Non-motorized use.

Designation Code:	ML06-UserAdminOnlyMtr-TransPublicNM
Objective:	Route is available for authorized motorized and mechanized use only year-round, which at a minimum will be for motorized and mechanized administrative use only. Future authorizations may be granted on a case by case basis such as to permittees, lessees, etc. Route will also be identified as and maintained for a non-motorized and non-motorized mechanized trail.
Definition:	Open to motorized and mechanized vehicle use year-round by right-of-way or permit holder and official administrative purposes. Open to non-motorized public use year-round, with the exception of bicycles. Closed to motorized and mechanized public use year-round
Route Designation:	Non-motorized use.

Designation Code:	ML16-UserAdminMtrPermitteeMtr
Objective:	Route is available for authorized motorized and mechanized use only year-round, which at a minimum will be for motorized and mechanized administrative use and permittees only. Future authorizations may be granted on a case by case basis such as to other permittees, lessees, etc.
Definition:	Open to motorized and mechanized vehicle use year-round by right-of-way or permit holder and official administrative purposes. Open to non-motorized public use year-round, with the exception of bicycles. Closed to motorized and mechanized public use year-round.
Route Designation:	Non-motorized use.

Designation Code:	ML16-UserAdminOnlyMtr
Objective:	Route is available for authorized motorized and mechanized use only year-round, which at a minimum will be for motorized and mechanized administrative use only. Future authorizations may be granted on a case by case basis such as to permittees, lessees, etc.
Definition:	Open to motorized and mechanized vehicle use year-round by right-of-way or permit holder and official administrative purposes. Open to non-motorized public use year-round, with the exception of bicycles. Closed to motorized and mechanized public use year-round.
Route Designation:	Non-motorized use.

Designation Code:	MO01
Objective:	Route will be open to all vehicles which are legal for the type of route.
Definition:	Open to all motorized and mechanized public use year-round. Open to all non-motorized public use year-round.
Route Designation:	Motorized use.

Designation Code:	MO03
Objective:	Route will be open to all vehicles which are legal for the type of route.
Definition:	Open to all motorized and mechanized vehicle use year-round. Open to all non-motorized public use year-round.
Route Designation:	Motorized use.

Designation Code:	O04
Objective:	Route will be open to all vehicles which are legal for the type of route.
Definition:	Open to all motorized and mechanized vehicle use year-round. Open to all non-motorized public use year-round.
Route Designation:	Motorized use.

Other Route Attributes and Prescriptions

Route designations, as proposed in Table 2-16 and depicted on Maps 2-20 through 2-22, are the basic elements of the transportation management plan that would be implemented for the IFNM, depending on the alternative selected. As part of the route evaluation, and in accordance with BLM policy, other transportation plan prescriptions, including route functional class, maintenance intensity level, and access standard are assigned to each route so that BLM can better identify the needs associated with each route and define its intended use for administrative and public uses. To facilitate public review of the proposed transportation plan, Table G-1 lists each route on BLM-administered lands within the IFNM and identifies the following attributes:

1. Route Number
2. Land Owner
3. Length: Length of route in feet
4. Miles: Length of route in miles
5. **Alt B Code**: Route designation code derived from the route evaluation process, Alternative B
6. **Alt C Code**: Route designation code derived from the route evaluation process, Alternative C
7. **Alt D Code**: Route designation code derived from the route evaluation process, Alternative D (NOTE: For items 5-7, see Table G-1 for the definitions and objectives associated with each route designation code.)
8. **Route Designation**: Proposed designation of each route for Alternative C (preferred alternative). Designations include motorized, non-motorized, and closed for reclamation. Proposed route designations for Alternatives B, C, and D are found in Table 2-16 and depicted on Maps 2-20 through 2-22.
9. **Asset Type**: BLM transportation system asset type code, as defined below. The following codes are used in Table G-1:
    - **RD = Road**: A linear route declared a road by the owner, managed for use by low-clearance vehicles having four or more wheels, and maintained for regular and continuous use.
    - **RDP = 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.

- **RDPA = Primitive Road, Administrative Vehicles Only**: A linear route managed for human-powered, stock, or infrequent off-highway vehicle use for administrative purposes only.
- **TNM = Trail, non-motorized**: A linear route managed for human-powered, stock, or historical or heritage values. Trails are not generally managed for use by four-wheel drive or high-clearance vehicles.
- **NA = Not Applicable**: Not a transportation asset (such as fencelines).

10. **FC**: Functional class, as defined in BLM transportation planning guidance. The following codes are used in Table G-1:
    - **C = Collector road**: These Bureau roads normally provide primary access to large blocks of land, and connect with or are extensions of a public road system. Collector roads accommodate mixed traffic and serve many uses. They generally receive the highest volume of traffic of all the roads in the Bureau road system. User cost, safety, comfort, and travel time are primary road management considerations. Collector roads usually require application of the highest standards used by the Bureau. As a result, they have the potential for creating substantial environmental impacts and often require complex mitigation procedures.
    - **L = Local road**: These Bureau roads normally serve a smaller area than collectors, and connect to collectors or public road systems. Local roads receive lower volumes, carry fewer traffic types, and generally serve fewer uses. User cost, comfort, and travel time are secondary to construction and maintenance cost considerations. Low volume local roads in mountainous terrain, where operating speed is reduced by effort of terrain, may be single lane roads with turnouts. Environmental impacts are reduced as steeper grades, sharper curves, and lower design speeds than would be permissible on collector roads are allowable.
    - **R = Resource road**: These Bureau roads normally are spur roads that provide point access and connect to local or collector roads. They carry very low volume and accommodate only one or two types of use. Use restrictions are applied to prevent conflicts between users needing the road and users attracted to the road. The location and design of these roads are governed by environmental compatibility and minimizing Bureau costs, with minimal consideration for user cost, comfort, or travel time.
    - **NA** = Not applicable
11. **MI**: Maintenance intensity, as defined in the BLM Roads and Trails Terminology Report (reference this); definitions of maintenance intensity levels listed below are also found in the RMP glossary. The following codes are used in Table G-1:
    - **L0 = Level 0**: remove from travel route inventory.
    - **L1 = Level 1**: minimum maintenance.
    - **L3 = Level 3**: moderate maintenance.
    - **L5 = Level 5**: high maintenance
12. **DSTD**: Typical design vehicle or criteria for route. The following codes are used in Table G-1:
    - P = Passenger car (per AASHTO)
    - PT = Passenger car and camper trailer (equivalent: truck and stock trailer) (per AASHTO)
    - MH = Motor home, recreational vehicle (per AASHTO)
    - WB-50 = Semi trailer (per AASHTO)
    - 4WD = Passenger can with 4WD or high clearance
    - ATV = All terrain vehicle, under 48"
    - MX = Motorcycle

- EQ = Equestrian
- H = Hiking
- MB = Mountain bike
- NES = Natural ecological site potential (route closed for reclamation)

Proposed travel management routes are shown on Maps G-1 through G-4. Maps depicting route numbers can be reviewed online at http://www.blm.gov/az/LUP/ironwood/reports.htm or at the Tucson Field Office at 12661 E. Broadway, Tucson, Arizona.

Table G-1
Travel Route Designations

INDEX	Route Number (Ars_id)	OWNERSHIP	FEET	MILES	Alt B Code	Alt C Code	Alt D Code	Proposed Route Designation	Asset Type	FC	MI	DSTD
1	2 Total	BLM	12835	2.43	MO01	MO01	MO01	Motorized	RD	C	L5	MH
2	2E1 Total	BLM	1317	0.3	C08	C08	C08	Non-motorized	TNM	R	L1	EQ
3	2E2 Total	BLM	1955	0.4	ML06-UserAdminOnlyMtr	ML06-UserAdminOnlyMtr	MO03	Motorized	RDPA	R	L1	EQ
4	600 Total	BLM	14917	2.8	MO03	MO03	MO03	Motorized	RD	L	L3	P
5	601 Total	BLM	5113	1.0	ML02-UserAdminMtrPermitteeMtr	ML02-UserAdminMtrPermitteeMtr	ML02-UserAdminMtrPermitteeMtr	Motorized	RDPA	R	L1	EQ
6	602 Total	BLM	5695	1.1	MO03	MO03	MO03	Motorized	RD	L	L1	P
7	608 Total	BLM	10338	2.0	ML06-UserAdminOnlyMtr	ML06-SeasonOther___Day Use Only - no overnight	MO03	Motorized	RDP	R	L1	4WD
8	608.5 Total	BLM	3093	0.6	C08	C08	MO03	Non-motorized	TNM	R	L1	EQ
9	608.6 Total	BLM	131	0.0	C08	C08	C08	Non-motorized	TNM	R	L1	EQ
10	610 Total	BLM	20183	3.8	MO03	MO03	MO03	Motorized	RD	L	L3	P
11	610.5 Total	BLM	134	0.0	C08	C08	MO03	Non-motorized	TNM	R	L1	EQ
12	610.9 Total	BLM	795	0.2	ML06-UserAdminOnlyMtr	ML06-UserAdminOnlyMtr	MO03	Motorized	RDPA	R	L1	EQ
13	614 Total	BLM	23857	4.5	MO01	MO01	MO01	Motorized	RD	L	L3	P
14	616.5 Total	BLM	3385	0.6	C08	ML06-SeasonOther___Day Use Only - no overnight	MO03	Motorized	RDP	R	L1	4WD
15	620 Total	BLM	47507	9.0	MO01	MO01	MO01	Motorized	RD	C	L5	MH
16	621 Total	BLM	15311	2.9	ML06-UserAdminMtrPermitteeMtr-TransPublicNM	MO03	MO03	Motorized	RDP	R	L3	4WD
17	622 Total	BLM	36671	7.0	ML02-UserAdminMtrPermitteeMtr	ML02-UserAdminMtrPermitteeMtr	ML02-UserAdminMtrPermitteeMtr	Motorized	RDPA	R	L1	EQ
18	623 Total	BLM	12376	2.3	MO01	MO01	MO01	Motorized	RD	R	L3	PT
19	624 Total	BLM	22675	4.3	MO01	MO01	O04	Motorized	RD	C	L5	MH
20	625 Total	BLM	600	0.1	ML06-TransAllNMM	ML06-TransAllNM	ML06-TransAllNM	Non-motorized	TNM	R	L1	EQ
21	626 Total	BLM	2281	0.4	ML06-UserAdminMtrPermitteeMtr	MO03	MO03	Motorized	RDP	R	L1	4WD
22	627 Total	BLM	3070	0.6	ML06-UserAdminMtrPermitteeMtr	MO03	MO03	Motorized	RDP	R	L1	4WD
23	628 Total	BLM	9303	1.8	C08	ML06-UserAdminMtrPermitteeMtr	MO03	Motorized	RDPA	R	L1	EQ
24	629 Total	BLM	18191	3.5	MO03	MO03	MO03	Motorized	RDP	R	L1	4WD
25	630 Total	BLM	9003	1.7	ML06-UserAdminMtrPermitteeMtr	ML06-UserAdminMtrPermitteeMtr	MO03	Motorized	RDPA	R	L1	EQ
26	631 Total	BLM	6474	1.2	MO03	MO03	MO03	Motorized	RDP	R	L1	4WD
27	632 Total	BLM	12574	2.4	MO03	MO03	MO03	Motorized	RDP	R	L1	4WD
28	633 Total	BLM	10645	2.0	MO03	MO03	MO03	Motorized	RDP	R	L1	4WD
29	634 Total	BLM	10740	2.0	ML06-UserAdminMtrPermitteeMtr	ML06-UserAdminMtrPermitteeMtr	MO03	Motorized	RDP	R	L1	4WD
30	635 Total	BLM	34572	6.6	ML02-UserAdminMtrPermitteeMtr	ML02-UserAdminMtrPermitteeMtr	ML02-UserAdminMtrPermitteeMtr	Motorized	RDPA	R	L1	EQ
31	636 Total	BLM	10597	2.0	C08	MO03	MO03	Motorized	RDP	R	L1	4WD
32	637 Total	BLM	20383	3.9	C08	ML06-UserAdminMtrPermitteeMtrPvtPropMtr	MO03	Motorized	RDPA	R	L1	EQ

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Travel Route Designations

INDEX	Route Number (Ars_id)	OWNERSHIP	FEET	MILES	Alt B Code	Alt C Code	Alt D Code	Proposed Route Designation	Asset Type	FC	MI	DSTD
33	638 Total	BLM	4493	0.9	ML06-UserAdminMtrPermitteeMtr	MO03	MO03	Motorized	RDP	R	L1	4WD
34	639 Total	BLM	35574	6.7	ML02-UserAdminMtrPermitteeMtr	ML02-UserAdminMtrPermitteeMtr	ML02-UserAdminMtrPermitteeMtr	Motorized	RDPA	R	L1	4WD
35	641 Total	BLM	7986	1.5	MO03	MO03	MO03	Motorized	RD	L	L3	WB-50
36	647 Total	BLM	2622	0.5	ML06-UserAdminMtrPvtPropMtr	MO03	MO03	Motorized	RDP	R	L1	4WD
37	648 Total	BLM	2633	0.5	C08	ML06-UserAdminMtrPermitteeMtr	MO03	Motorized	RDPA	R	L1	EQ
38	650 Total	BLM	26014	4.9	ML06-UserAdminMtrPermitteeMtr	ML06-UserAdminMtrPermitteeMtr	ML06-UserAdminMtrPermitteeMtr	Motorized	RDPA	R	L1	EQ
39	652 Total	BLM	5327	1.0	ML06-UserAdminOnlyMtr	MO03	MO03	Motorized	RDP	R	L1	4WD
40	656 Total	BLM	3472	0.7	ML06-UserAdminMtrPermitteeMtr-TransPublicNMM	MO03	MO03	Motorized	RDP	R	L1	4WD
41	658 Total	BLM	7936	1.5	ML06-TransAllNM	MO03	MO03	Motorized	RDP	R	L1	4WD
42	660 Total	BLM	2204	0.4	ML06-UserAdminOnlyMtr	MO03	MO03	Non-motorized	TNM	R	L1	EQ
43	662 Total	BLM	10092	1.9	C08	C08	C08	Non-motorized	TNM	R	L1	EQ
44	664 Total	BLM	955	0.2	C08	C08	C08	Non-motorized	TNM	R	L1	EQ
45	665 Total	BLM	78	0.0	C08	MO03	MO03	Motorized	RDP	R	L1	4WD
46	620E1 Total	BLM	3269	0.6	C08	MO03	MO03	Motorized	RDP	R	L1	4WD
47	610E2 Total	BLM	11075	2.1	C08	C08	MO03	Non-motorized	TNM	R	L1	EQ
48	622E5 Total	BLM	2240	0.4	C08	C08	MO03	Non-motorized	TNM	R	L1	EQ
49	622E6 Total	BLM	789	0.2	C08	C08	C08	Non-motorized	TNM	R	L1	EQ
50	622E7 Total	BLM	441	0.1	C08	C08	ML06-UserAdminMtrPermitteeMtr	Non-motorized	TNM	R	L1	EQ
51	622E8 Total	BLM	2337	0.4	C08	C08	ML06-UserAdminMtrPermitteeMtr	Non-motorized	TNM	R	L1	EQ
52	622E9 Total	BLM	827	0.2	C08	C08	ML06-UserAdminMtrPermitteeMtr	Non-motorized	TNM	R	L1	EQ
53	622E10 Total	BLM	4366	0.8	C08	C08	ML06-UserAdminMtrPermitteeMtr	Non-motorized	TNM	R	L1	EQ
54	622E11 Total	BLM	298	0.1	C08	C08	ML06-UserAdminMtrPermitteeMtr	Non-motorized	TNM	R	L1	EQ
55	622E12 Total	BLM	119	0.0	C08	C08	ML06-UserAdminMtrPermitteeMtr	Non-motorized	TNM	R	L1	EQ
56	622E13 Total	BLM	188	0.0	C08	C08	ML06-UserAdminMtrPermitteeMtr	Non-motorized	TNM	R	L1	EQ
57	622E14 Total	BLM	391	0.1	C08	C08	ML06-UserAdminMtrPermitteeMtr	Non-motorized	TNM	R	L1	EQ
58	622E61 Total	BLM	198	0.0	C08	C08	C08	Non-motorized	TNM	R	L1	EQ
59	2A Total	BLM	3006	0.6	C08	C08	C08	Non-motorized	TNM	R	L1	EQ
60	2A1 Total	BLM	659	0.1	C08	C08	C08	Non-motorized	TNM	R	L1	EQ
61	2A2 Total	BLM	1982	0.4	C08	C08	C08	Non-motorized	TNM	R	L1	EQ
62	2B Total	BLM	5252	1.0	ML02-UserAdminMtrPermitteeMtr	ML02-UserAdminMtrPermitteeMtr	ML02-UserAdminMtrPermitteeMtr	Motorized	RDPA	R	L1	EQ

Table G-1
Travel Route Designations

INDEX	Route Number (Ars_id)	OWNERSHIP	FEET	MILES	Alt B Code	Alt C Code	Alt D Code	Proposed Route Designation	Asset Type	FC	MI	DSTD
63	2C Total	BLM	2265	0.4	C08	C08	ML06-UserAdminMtrPermitteeMtr	Non-motorized	TNM	R	L1	EQ
64	2D Total	BLM	807	0.2	C08	C08	C08	Non-motorized	TNM	R	L1	EQ
65	2E Total	BLM	3249	0.6	ML06-UserAdminOnlyMtr	ML06-UserAdminOnlyMtr	MO03	Motorized	RDP	R	L1	4WD
66	2F Total	BLM	5357	1.0	C08	C08	C08	Non-motorized	TNM	R	L1	4WD
67	2H Total	BLM	2931	0.6	C08	MO03	MO03	Motorized	RDP	R	L1	4WD
68	2H1 Total	BLM	3152	0.6	C08	C08	MO03	Non-motorized	TNM	R	L1	EQ
69	2J Total	BLM	7021	1.3	C08	MO03	MO03	Motorized	RDP	R	L1	4WD
70	2J1 Total	BLM	595	0.1	C08	MO03	MO03	Motorized	RDP	R	L1	4WD
71	2J2 Total	BLM	3974	0.8	C08	C08	ML06-TransAllNM	Non-motorized	TNM	R	L1	EQ
72	2J3 Total	BLM	13221	2.5	MO03	MO03	MO03	Motorized	RDP	R	L1	4WD
73	2X Total	BLM	17298	3.3	MO03	MO03	MO03	Motorized	RD	C	L5	MH
74	2Z Total	BLM	5277	1.0	C08	MO03	MO03	Non-motorized	TNM	R	L1	EQ
75	600A1 Total	BLM	16659	3.2	ML06-TransAllNM	ML06-UserAdminMtrPermitteeMtr	MO03	Motorized	RDPA	R	L1	EQ
76	600A1A Total	BLM	8814	1.7	ML06-TransAllNM	ML06-TransAllNM	MO03	Non-motorized	TNM	R	L1	EQ
77	600A2 Total	BLM	500	0.1	C26	C26	C26	Reclamation	NA	NA	L0	NES
78	600C Total	BLM	2274	0.4	C08	ML06-UserAdminMtrPermitteeMtr	ML06-UserAdminMtrPermitteeMtr	Motorized	RDPA	R	L1	EQ
79	600D Total	BLM	5781	1.1	C08	C08	MO03	Non-motorized	TNM	R	L1	EQ
80	600D1 Total	BLM	752	0.1	MO03	MO03	MO03	Non-motorized	TNM	R	L1	EQ
81	600D2 Total	BLM	823	0.2	C08	ML06-UserAdminMtrPvtPropMtr	MO03	Motorized	RDPA	R	L1	EQ
82	600D3 Total	BLM	321	0.1	C08	ML06-UserAdminMtrPvtPropMtr	MO03	Motorized	RDPA	R	L1	EQ
83	600D9 Total	BLM	1648	0.3	C08	ML06-UserAdminMtrPermitteeMtr	MO03	Motorized	RDPA	R	L1	EQ
84	600G Total	BLM	1706	0.3	ML06-UserAdminOnlyMtr	ML06-UserAdminMtrPermitteeMtr	MO03	Motorized	RDPA	R	L1	EQ
85	600G1 Total	BLM	2862	0.5	ML06-UserAdminOnlyMtr	ML06-UserAdminOnlyMtr	MO03	Motorized	RDPA	R	L1	EQ
86	600H Total	BLM	2346	0.4	C08	C08	C08	Non-motorized	TNM	R	L1	EQ
87	600I Total	BLM	200	0.0	ML06-UserAdminMtrPermitteeMtr	ML06-UserAdminMtrPermitteeMtr	ML06-UserAdminMtrPermitteeMtr	Motorized	RDPA	R	L1	EQ
88	600J Total	BLM	985	0.2	C08	MO03	MO03	Motorized	RDP	R	L1	4WD
89	600K Total	BLM	1186	0.2	MO03	MO03	MO03	Motorized	RDP	R	L1	4WD
90	600L Total	BLM	2000	0.4	C08	C08	MO03	Non-motorized	TNM	R	L1	EQ
91	600M Total	BLM	1308	0.3	C08	MO03	MO03	Motorized	RDP	R	L1	4WD
92	600N Total	BLM	1746	0.3	ML06-TransAllNM	ML06-TransAllNM	MO03	Non-motorized	TNM	R	L1	EQ
93	600N1 Total	BLM	1754	0.3	C08	C08	C08	Non-motorized	TNM	R	L1	EQ
94	601A Total	BLM	1580	0.3	ML06-UserAdminMtrPermitteeMtr	ML06-UserAdminMtrPermitteeMtr-SeasonSPC_Sept 1_	MO03	Motorized	RDPA	R	L1	EQ
95	601A1 Total	BLM	922	0.2	C08	C08	C08	Non-motorized	TNM	R	L1	EQ
96	601B Total	BLM	15172	2.9	ML06-UserAdminOnlyATV	ML06-UserAdminOnlyATV	ML06-UserAdminOnlyATV	Motorized	RDPA	R	L1	EQ
97	601B1 Total	BLM	969	0.2	ML06-UserAdminOnlyATV	ML06-UserAdminOnlyATV	ML06-UserAdminOnlyATV	Motorized	RDPA	R	L1	EQ
98	601BC Total	BLM	10556	2.0	ML02-UserAdminMtrPermitteeMtr	ML02-UserAdminMtrPermitteeMtr	ML02-UserAdminMtrPermitteeMtr	Motorized	RDPA	R	L1	EQ

Table G-1
Travel Route Designations

INDEX	Route Number (Ars_id)	OWNERSHIP	FEET	MILES	Alt B Code	Alt C Code	Alt D Code	Proposed Route Designation	Asset Type	FC	MI	DSTD
99	601D Total	BLM	5256	1.0	ML06-UserAdminMtrPermitteeMtr	MO03	MO03	Motorized	RD	R	L1	PT
100	601E Total	BLM	4949	0.9	ML06-UserAdminMtrPermitteeMtr	MO03	MO03	Non-motorized	TNM	R	L1	EQ
101	601X Total	BLM	5027	1.0	ML02-UserAdminMtrPermitteeMtr	ML02-UserAdminMtrPermitteeMtr	ML02-UserAdminMtrPermitteeMtr	Motorized	RDPA	R	L1	EQ
102	606A Total	BLM	5363	1.0	ML06-UserAdminMtrPermitteeMtr	MO03	MO03	Motorized	RDP	R	L1	4WD
103	606A1 Total	BLM	6796	1.3	C08	MO03	MO03	Motorized	RDP	R	L1	4WD
104	606B Total	BLM	1547	0.3	C08	C08	C08	Non-motorized	TNM	R	L1	EQ
105	606C Total	BLM	685	0.1	ML06-UserAdminMtrPermitteeMtr	ML06-UserAdminMtrPermitteeMtr	ML06-UserAdminMtrPermitteeMtr	Motorized	RDPA	R	L1	EQ
106	606C1 Total	BLM	192	0.0	ML06-UserAdminMtrPermitteeMtr	ML06-UserAdminMtrPermitteeMtr	ML06-UserAdminMtrPermitteeMtr	Motorized	RDPA	R	L1	EQ
107	606F Total	BLM	3160	0.6	C08	C08	C08	Non-motorized	TNM	R	L1	EQ
108	606F1 Total	BLM	5228	1.0	ML06-UserAdminMtrPermitteeMtr	ML06-UserAdminMtrPermitteeMtr	ML06-UserAdminMtrPermitteeMtr	Motorized	RDPA	R	L1	EQ
109	607A Total	BLM	255	0.1	C08	C08	C08	Non-motorized	TNM	R	L1	EQ
110	608B Total	BLM	213	0.0	ML06-UserAdminOnlyMtr	ML06-SeasonOther___Day Use Only - no overnight	MO03	Motorized	RDP	R	L1	4WD
111	609A Total	BLM	489	0.1	C08	C08	C08	Non-motorized	TNM	R	L1	EQ
112	609B Total	BLM	177	0.0	C08	C08	C08	Non-motorized	TNM	R	L1	EQ
113	610C Total	BLM	28952	5.5	MO03	MO03	MO03	Motorized	RDP	R	L1	4WD
114	610C1 Total	BLM	4002	0.8	ML06-UserAdminMtrPermitteeMtrPvtPropMtr	MO03	MO03	Motorized	RDP	R	L1	4WD
115	610D Total	BLM	10363	2.0	C08	MO03	MO03	Motorized	RDP	R	L1	4WD
116	610D1 Total	BLM	2075	0.4	C08	MO03	MO03	Motorized	RDP	R	L1	4WD
117	610D2 Total	BLM	425	0.1	C08	MO03	MO03	Motorized	RDP	R	L1	4WD
118	610E Total	BLM	5737	1.1	C08	C08	MO03	Non-motorized	TNM	R	L1	EQ
119	611A Total	BLM	7107	1.4	C08	ML06-UserAdminMtrPermitteeMtr	MO03	Motorized	RDPA	R	L1	EQ
120	612A Total	BLM	5712	1.1	C08	ML06-UserAdminMtrPermitteeMtr	MO03	Motorized	RDPA	R	L1	EQ
121	613A Total	BLM	6758	1.3	C08	C08	MO03	Non-motorized	TNM	R	L1	EQ
122	614A Total	BLM	5288	1.0	ML02-UserAdminMtrPermitteeMtr	ML02-UserAdminMtrPermitteeMtr	ML02-UserAdminMtrPermitteeMtr	Motorized	RDPA	R	L1	EQ
123	614A1 Total	BLM	3896	0.7	C08	C08	MO03	Non-motorized	TNM	R	L1	EQ
124	614B Total	BLM	4990	1.0	ML06-UserAdminMtrPermitteeMtr-TransPublicNM	ML06-UserAdminMtrPermitteeMtr-TransPublicNM	MO03	Motorized	RDPA	R	L1	EQ
125	614B1 Total	BLM	1018	0.2	ML06-UserAdminMtrPermitteeMtr	ML06-UserAdminMtrPermitteeMtr	MO03	Motorized	RDPA	R	L1	EQ
126	614B1A Total	BLM	1697	0.3	C08	C08	MO03	Non-motorized	TNM	R	L1	EQ
127	614B2 Total	BLM	2537	0.5	C08	C08	MO03	Non-motorized	TNM	R	L1	EQ
128	614B2A Total	BLM	589	0.1	C08	C08	MO03	Non-motorized	TNM	R	L1	EQ
129	614B2B Total	BLM	415	0.1	C08	C08	MO03	Non-motorized	TNM	R	L1	EQ

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Travel Route Designations

INDEX	Route Number (Ars_id)	OWNERSHIP	FEET	MILES	Alt B Code	Alt C Code	Alt D Code	Proposed Route Designation	Asset Type	FC	MI	DSTD
130	614B3 Total	BLM	1253	0.2	C08	C08	C08	Non-motorized	TNM	R	L1	EQ
131	614B4 Total	BLM	9048	1.7	ML06-TransAllNM	ML06-UserAdminMtrPermitteeMtr-TransPublicNM	MO03	Motorized	RDPA	R	L1	EQ
132	614C Total	BLM	5721	1.1	C08	C08	MO03	Non-motorized	TNM	R	L1	EQ
133	614C1 Total	BLM	6827	1.3	C08	C08	MO03	Non-motorized	TNM	R	L1	EQ
134	614C1A Total	BLM	116	0.0	C08	C08	MO03	Non-motorized	TNM	R	L1	EQ
135	614I Total	BLM	124	0.0	MO03	MO03	MO03	Motorized	RD	L	L3	4WD
136	614J Total	BLM	831	0.2	MO03	MO03	MO03	Motorized	RDP	R	L3	P
137	614K Total	BLM	819	0.2	MO03	MO03	MO03	Motorized	RDP	R	L3	P
138	614L Total	BLM	13388	2.5	MO03	MO03	MO03	Motorized	RD	L	L3	4WD
139	615A Total	BLM	5698	1.1	C08	ML06-UserAdminMtrPermitteeMtr	MO03	Motorized	RDPA	R	L1	EQ
140	616A Total	BLM	5402	1.0	C08	ML06-UserAdminMtrPermitteeMtr	ML06-UserAdminMtrPermitteeMtr	Motorized	RDPA	R	L1	EQ
141	617A Total	BLM	9533	1.8	ML06-UserAdminMtrPermitteeMtr	ML06-UserAdminMtrPermitteeMtr	MO03	Motorized	RDPA	R	L1	EQ
142	617A1 Total	BLM	1602	0.3	C07	C07	C07	Reclamation	NA	NA	L0	NES
143	617A2 Total	BLM	6788	1.3	C08	ML06-UserAdminMtrPermitteeMtr	MO03	Motorized	RDPA	R	L1	EQ
144	617B Total	BLM	1586	0.3	C08	C08	C08	Non-motorized	TNM	R	L1	EQ
145	617C Total	BLM	4240	0.8	ML06-UserAdminMtrPermitteeMtr	ML06-UserAdminMtrPermitteeMtr	MO03	Motorized	RDPA	R	L1	EQ
146	617C1 Total	BLM	1008	0.2	C08	ML06-UserAdminMtrPermitteeMtr	MO03	Motorized	RDPA	R	L1	EQ
147	617D Total	BLM	11263	2.1	ML06-UserAdminMtrPermitteeMtr	ML06-UserAdminMtrPermitteeMtr	MO03	Motorized	RDPA	R	L1	EQ
148	617D1 Total	BLM	359	0.1	C08	C08	C08	Non-motorized	TNM	R	L1	EQ
149	617D4 Total	BLM	4096	0.8	ML02-UserAdminMtrPermitteeMtr	ML02-UserAdminMtrPermitteeMtr	ML02-UserAdminMtrPermitteeMtr	Motorized	RDPA	R	L1	EQ
150	617D4A Total	BLM	5350	1.0	ML02-UserAdminMtrPermitteeMtr-TransPublicNM	ML02-UserAdminMtrPermitteeMtr-TransPublicNM	MO01	Motorized	RDPA	R	L1	EQ
151	617D5 Total	BLM	9064	1.7	ML06-TransAllNM	ML06-TransAllNM	MO03	Non-motorized	TNM	R	L1	EQ
152	617D9 Total	BLM	7713	1.5	C08	ML06-UserAdminMtrPermitteeMtr	MO03	Motorized	RDPA	R	L1	EQ
153	617E Total	BLM	4374	0.8	C08	ML06-TransAllNM	MO03	Non-motorized	TNM	R	L1	EQ
154	618A Total	BLM	11489	2.2	MO03	MO03	MO03	Motorized	RDP	R	L1	4WD
155	618A1 Total	BLM	11460	2.2	MO03	MO03	MO03	Motorized	RDP	R	L1	4WD
156	618B Total	BLM	2252	0.4	C08	ML06-SeasonOther___Day Use Only - no overnight	MO03	Motorized	RDP	R	L1	4WD
157	618B1 Total	BLM	5183	1.0	C08	C08	MO03	Non-motorized	TNM	R	L1	EQ
158	618B2 Total	BLM	3553	0.7	C08	ML06-TransAllNM	MO03	Non-motorized	TNM	R	L1	EQ
159	618C Total	BLM	4036	0.8	MO03	MO03	MO03	Motorized	RDP	R	L1	4WD
160	618C1 Total	BLM	1942	0.4	C08	C08	MO03	Non-motorized	TNM	R	L1	EQ

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Travel Route Designations

INDEX	Route Number (Ars_id)	OWNERSHIP	FEET	MILES	Alt B Code	Alt C Code	Alt D Code	Proposed Route Designation	Asset Type	FC	MI	DSTD
161	618D Total	BLM	3596	0.7	C08	ML06-UserAdminMtrPermitteeMtrPvtPropMtr	MO03	Motorized	RDPA	R	L1	EQ
162	618D1 Total	BLM	3095	0.6	ML06-TransAllNM-SeasonOther___Day Use Only - no overn	ML06-TransAllNM	ML06-TransAllNM	Non-motorized	TNM	R	L1	EQ
163	618E Total	BLM	1701	0.3	C08	C08	C08	Non-motorized	TNM	R	L1	EQ
164	618G Total	BLM	716	0.1	C08	ML06-TransAllNM	ML06-TransAllNM	Non-motorized	TNM	R	L1	EQ
165	618Y Total	BLM	2377	0.5	ML06-UserAdminMtrPermitteeMtr	ML06-UserAdminMtrPermitteeMtr	ML06-UserAdminMtrPermitteeMtr	Motorized	RDPA	R	L1	EQ
166	618Y1 Total	BLM	1827	0.4	C08	C08	C08	Non-motorized	TNM	R	L1	EQ
167	618Y10 Total	BLM	4596	0.9	C08	C08	MO03	Non-motorized	TNM	R	L1	EQ
168	618Y11 Total	BLM	6155	1.2	ML02-UserAdminMtrPermitteeMtr	ML02-UserAdminMtrPermitteeMtr	ML02-UserAdminMtrPermitteeMtr	Motorized	RDPA	R	L1	EQ
169	618Y11A Total	BLM	391	0.1	ML06-UserAdminMtrPermitteeMtr	ML06-UserAdminMtrPermitteeMtr	ML06-UserAdminMtrPermitteeMtr	Motorized	RDPA	R	L1	EQ
170	618Y12 Total	BLM	929	0.2	C08	ML06-UserAdminMtrPermitteeMtr	MO03	Motorized	RDPA	R	L1	EQ
171	618Y13 Total	BLM	163	0.0	C08	ML06-UserAdminMtrPermitteeMtr	MO03	Motorized	RDPA	R	L1	EQ
172	618Y14 Total	BLM	308	0.1	C08	ML06-UserAdminMtrPermitteeMtr	MO03	Motorized	RDPA	R	L1	EQ
173	618Y15 Total	BLM	920	0.2	C08	C08	C08	Non-motorized	TNM	R	L1	EQ
174	618Y16 Total	BLM	6929	1.3	ML02-TransAllNM	ML02-UserAdminMtrPvtPropMtr	MO01	Motorized	RDPA	R	L1	EQ
175	618Y16A Total	BLM	813	0.2	C08	ML06-UserAdminMtrPvtPropMtr	MO03	Reclamation	NA	NA	L0	NES
176	618Y16B Total	BLM	659	0.1	C08	C08	MO03	Non-motorized	TNM	R	L1	EQ
177	618Y17D Total	BLM	617	0.1	C08	C08	C08	Non-motorized	TNM	R	L1	EQ
178	618Y2 Total	BLM	240	0.1	C08	C08	C08	Non-motorized	TNM	R	L1	EQ
179	618Y20 Total	BLM	116	0.0	ML06-UserAdminOnlyMtr	ML06-UserAdminOnlyMtr	ML06-UserAdminOnlyMtr	Motorized	RDPA	R	L1	EQ
180	618Y3 Total	BLM	7950	1.5	MO03	MO03	MO03	Motorized	RD	R	L5	WB-50
181	618Y4 Total	BLM	450	0.1	C01	C01	C01	Reclamation	NA	NA	L0	NES
182	618Y5 Total	BLM	406	0.1	C08	ML06-UserAdminMtrPermitteeMtr	ML06-UserAdminMtrPermitteeMtr	Motorized	RDPA	R	L1	EQ
183	618Y6 Total	BLM	911	0.2	C08	ML06-UserAdminMtrPermitteeMtr	ML06-UserAdminMtrPermitteeMtr	Motorized	RDPA	R	L1	EQ
184	618Y7 Total	BLM	1482	0.3	C08	ML06-UserAdminMtrPermitteeMtr	ML06-UserAdminMtrPermitteeMtr	Motorized	RDPA	R	L1	EQ
185	618Y8 Total	BLM	2023	0.4	C08	ML06-UserAdminMtrPermitteeMtr	ML06-UserAdminMtrPermitteeMtr	Motorized	RDPA	R	L1	EQ
186	619A Total	BLM	6040	1.1	C08	C08	MO03	Non-motorized	TNM	R	L1	EQ
187	619A1 Total	BLM	4521	0.9	C08	ML06-UserAdminMtrPermitteeMtr	MO03	Motorized	RDPA	R	L1	EQ
188	619C Total	BLM	279	0.1	C08	C08	ML06-TransAllNM	Non-motorized	TNM	R	L1	EQ

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Travel Route Designations

INDEX	Route Number (Ars_id)	OWNERSHIP	FEET	MILES	Alt B Code	Alt C Code	Alt D Code	Proposed Route Designation	Asset Type	FC	MI	DSTD
189	619G Total	BLM	1415	0.3	ML06-TransAllNM-SeasonOther___Day Use Only - no overn	ML06-TransAllNM	ML06-TransAllNM	Non-motorized	TNM	R	L1	EQ
190	619I Total	BLM	185	0.0	ML06-UserAdminMtrPermitteeMtr	ML06-UserAdminMtrPermitteeMtr	ML06-UserAdminMtrPermitteeMtr	Motorized	RDPA	R	L1	EQ
191	620A Total	BLM	1436	0.3	C08	ML06-UserAdminMtrPermitteeMtr	ML06-UserAdminMtrPermitteeMtr	Motorized	RDPA	R	L1	EQ
192	620AX Total	BLM	3707	0.7	C08	ML06-SeasonOther___Day Use Only - no overnight	ML06-SeasonOther___Day Use Only - no overni	Non-motorized	TNM	R	L1	EQ
193	620B Total	BLM	6566	1.2	ML06-TransAllNMM	ML06-SeasonOther___Day Use Only - no overnight	MO03	Motorized	RDP	R	L1	4WD
194	620B1 Total	BLM	1059	0.2	ML06-TransAllNMM	ML06-SeasonOther___Day Use Only - no overnight	MO03	Non-motorized	TNM	R	L1	EQ
195	620BX Total	BLM	5269	1.0	ML02-UserAdminMtrPermitteeMtr	ML02-UserAdminMtrPermitteeMtr	ML02-UserAdminMtrPermitteeMtr	Motorized	RDPA	R	L1	EQ
196	620C Total	BLM	2478	0.5	C08	C08	C08	Motorized	RDP	R	L1	4WD
197	620C1 Total	BLM	2094	0.4	C08	C08	ML06-UserAdminMtrPermitteeMtr	Non-motorized	TNM	R	L1	EQ
198	620C2 Total	BLM	1328	0.3	C08	C08	ML06-UserAdminMtrPermitteeMtr	Non-motorized	TNM	R	L1	EQ
199	620D Total	BLM	3521	0.7	C08	C08	C08	Non-motorized	TNM	R	L1	EQ
200	620DX1 Total	BLM	653	0.1	MO03	MO03	MO03	Motorized	RDP	R	L1	4WD
201	620DX2 Total	BLM	412	0.1	MO03	MO03	MO03	Motorized	RDP	R	L1	4WD
202	620DX3 Total	BLM	243	0.1	MO03	MO03	MO03	Motorized	RDP	R	L1	4WD
203	620E Total	BLM	1301	0.3	MO03	MO03	MO03	Motorized	RDP	R	L1	4WD
204	620F Total	BLM	10918	2.1	ML06-UserAdminMtrPermitteeMtr	ML06-SeasonOther___Day Use Only - no overnight	MO03	Motorized	RDP	R	L1	4WD
205	620F1 Total	BLM	1349	0.3	C08	ML06-UserAdminOnlyMtr	ML06-UserAdminOnlyMtr	Motorized	RDPA	R	L1	EQ
206	620F1A Total	BLM	2683	0.5	C08	ML06-UserAdminOnlyMtr	ML06-UserAdminOnlyMtr	Motorized	RDPA	R	L1	EQ
207	620F2 Total	BLM	262	0.1	C08	ML06-SeasonOther___Day Use Only - no overnight	MO03	Motorized	RDP	R	L1	4WD
208	620F2A Total	BLM	2335	0.4	C08	C08	C08	Non-motorized	TNM	R	L1	EQ
209	620F3 Total	BLM	1365	0.3	ML06-UserAdminMtrPermitteeMtr	ML06-SeasonOther___Day Use Only - no overnight	MO03	Non-motorized	TNM	R	L1	EQ
210	620F4 Total	BLM	453	0.1	C08	C08	C08	Non-motorized	TNM	R	L1	EQ
211	620F5 Total	BLM	360	0.1	ML06-UserAdminMtrPermitteeMtr	ML06-SeasonOther___Day Use Only - no overnight	MO03	Non-motorized	TNM	R	L1	EQ
212	620H Total	BLM	619	0.1	MO03	MO03	MO03	Motorized	RDP	R	L1	4WD
213	620H1 Total	BLM	2404	0.5	C08	MO03	MO03	Non-motorized	TNM	R	L1	EQ
214	620H2 Total	BLM	191	0.0	MO03	MO03	MO03	Non-motorized	TNM	R	L1	EQ
215	620J Total	BLM	3271	0.6	C08	MO03	MO03	Motorized	RDP	R	L1	4WD
216	620K Total	BLM	3081	0.6	C08	MO03	MO03	Motorized	RDP	R	L1	4WD
217	620K1 Total	BLM	773	0.2	C08	MO03	MO03	Non-motorized	TNM	R	L1	EQ
218	620K2 Total	BLM	1572	0.3	C08	ML06-SeasonOther___Day Use Only - no overnight	MO03	Motorized	RDP	R	L1	4WD
219	620K2A Total	BLM	3953	0.8	C08	C08	C08	Non-motorized	TNM	R	L1	EQ
220	620K3 Total	BLM	1224	0.2	C08	MO03	MO03	Non-motorized	TNM	R	L1	EQ

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INDEX	Route Number (Ars_id)	OWNERSHIP	FEET	MILES	Alt B Code	Alt C Code	Alt D Code	Proposed Route Designation	Asset Type	FC	MI	DSTD
221	620N Total	BLM	781	0.2	C08	ML06-UserAdminMtrPermitteeMtr	MO03	Motorized	RDPA	R	L1	EQ
222	620O Total	BLM	8397	1.6	ML02-UserAdminMtrPermitteeMtr	ML02-UserAdminMtrPermitteeMtr	ML02-UserAdminMtrPermitteeMtr	Motorized	RDPA	R	L1	EQ
223	620O1 Total	BLM	3228	0.6	ML02-UserAdminMtrPermitteeMtr	ML02-UserAdminMtrPermitteeMtr	ML02-UserAdminMtrPermitteeMtr	Motorized	RDPA	R	L1	EQ
224	620O2 Total	BLM	38	0.0	ML02-UserAdminMtrPermitteeMtr	ML02-UserAdminMtrPermitteeMtr	ML02-UserAdminMtrPermitteeMtr	Motorized	RDPA	R	L1	EQ
225	620P Total	BLM	11457	2.2	ML06-UserAdminMtrPermitteeMtr	MO03	MO03	Motorized	RDP	R	L1	4WD
226	620P1 Total	BLM	2247	0.4	C08	C08	C08	Non-motorized	TNM	R	L1	EQ
227	620P2 Total	BLM	1092	0.2	C08	C08	C08	Non-motorized	TNM	R	L1	EQ
228	620P3 Total	BLM	2451	0.5	ML06-TransAllNM	ML06-UserAdminOnlyMtr-TransPublicNM	MO03	Motorized	RDPA	R	L1	EQ
229	620P4 Total	BLM	4541	0.9	ML06-TransAllNM	ML06-UserAdminOnlyMtr-TransPublicNM	MO03	Motorized	RDPA	R	L1	EQ
230	620P4A Total	BLM	4277	0.8	C08	C08	MO03	Non-motorized	TNM	R	L1	EQ
231	620Q Total	BLM	11	0.0	C07	ML05-UserAdminMtrPermitteeMtr	ML05-UserAdminMtrPermitteeMtr	Motorized	RDPA	R	L1	EQ
232	620S Total	BLM	1303	0.3	C08	ML06-UserAdminMtrPermitteeMtr	MO03	Motorized	RDPA	R	L1	EQ
233	620S1 Total	BLM	370	0.1	C08	C08	C08	Non-motorized	TNM	R	L1	EQ
234	620T Total	BLM	1401	0.3	C08	MO03	MO03	Motorized	RD	R	L1	WB-50
235	620X Total	BLM	19162	3.6	ML02-UserAdminMtrPermitteeMtr	ML02-UserAdminMtrPermitteeMtr	ML02-UserAdminMtrPermitteeMtr	Motorized	RDPA	R	L1	EQ
236	620Z Total	BLM	1722	0.3	C08	C08	C08	Non-motorized	TNM	R	L1	EQ
237	621-1 Total	BLM	8899	1.7	ML06-UserAdminMtrPermitteeMtr	MO03	MO03	Motorized	RDP	R	L1	4WD
238	621B1 Total	BLM	4300	0.8	C07	C07	C07	Non-motorized	TNM	R	L1	EQ
239	621B2 Total	BLM	4451	0.8	ML06-TransAllNM-SeasonSPC_January 1_April 1_	ML06-TransAllNM-SeasonSPC_January 1_April 1_	ML06-TransAllNM-SeasonSPC_January 1_April 1	Non-motorized	TNM	R	L1	EQ
240	621B3 Total	BLM	1012	0.2	C08	C08	C08	Non-motorized	TNM	R	L1	EQ
241	621B4 Total	BLM	3038	0.6	C07	C07	C07	Reclamation	NA	NA	L0	NES
242	621E Total	BLM	8969	1.7	C08	MO03	MO03	Motorized	RDP	R	L1	4WD
243	621F Total	BLM	8662	1.6	ML06-UserAdminOnlyMtr	MO03	MO03	Motorized	RDP	R	L1	4WD
244	621F1 Total	BLM	439	0.1	C08	C08	C08	Non-motorized	TNM	R	L1	EQ
245	621F2 Total	BLM	805	0.2	C08	MO03	MO03	Motorized	RDP	R	L1	4WD
246	621F3 Total	BLM	6039	1.1	ML06-UserAdminOnlyMtr	MO03	MO03	Motorized	RDPA	R	L1	EQ
247	621G Total	BLM	1676	0.3	C08	MO03	MO03	Motorized	RDP	R	L1	4WD
248	621G2 Total	BLM	625	0.1	C08	MO03	MO03	Motorized	RDP	R	L1	4WD
249	621H Total	BLM	14026	2.7	ML02-UserAdminMtrPermitteeMtr	ML02-UserAdminMtrPermitteeMtr	ML02-UserAdminMtrPermitteeMtr	Motorized	RDPA	R	L1	EQ
250	621H1 Total	BLM	985	0.2	C08	C08	MO03	Non-motorized	TNM	R	L1	EQ
251	621H2 Total	BLM	539	0.1	C08	MO03	MO03	Motorized	RD	R	L3	PT
252	621K Total	BLM	1891	0.4	C08	C08	MO03	Non-motorized	TNM	R	L1	EQ
253	622A Total	BLM	1017	0.2	C08	C08	C08	Non-motorized	TNM	R	L1	EQ

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INDEX	Route Number (Ars_id)	OWNERSHIP	FEET	MILES	Alt B Code	Alt C Code	Alt D Code	Proposed Route Designation	Asset Type	FC	MI	DSTD
254	622B Total	BLM	6272	1.2	C08	C08	MO03	Non-motorized	TNM	R	L1	EQ
255	622C Total	BLM	6328	1.2	C08	C08	C08	Non-motorized	TNM	R	L1	EQ
256	622C1 Total	BLM	1949	0.4	C08	C08	C08	Non-motorized	TNM	R	L1	EQ
257	622C1.1 Total	BLM	294	0.1	C08	C08	C08	Non-motorized	TNM	R	L1	EQ
258	622E Total	BLM	5436	1.0	C08	C08	MO03	Non-motorized	TNM	R	L1	EQ
259	622F Total	BLM	6866	1.3	C08	C08	MO03	Non-motorized	TNM	R	L1	EQ
260	622F1 Total	BLM	6461	1.2	C08	C08	C08	Non-motorized	TNM	R	L1	EQ
261	622F12 Total	BLM	2313	0.4	C08	C08	C08	Non-motorized	TNM	R	L1	EQ
262	622F13 Total	BLM	717	0.1	C08	C08	C08	Non-motorized	TNM	R	L1	EQ
263	622F14 Total	BLM	483	0.1	C08	C08	C08	Non-motorized	TNM	R	L1	EQ
264	622G Total	BLM	1290	0.2	C08	C08	C08	Non-motorized	TNM	R	L1	EQ
265	622I Total	BLM	577	0.1	C08	C08	ML06-UserAdminOnlyMtr	Non-motorized	TNM	R	L1	EQ
266	622I1 Total	BLM	5938	1.1	C08	C08	ML06-UserAdminOnlyMtr	Non-motorized	TNM	R	L1	EQ
267	622I2 Total	BLM	5431	1.0	C08	C08	ML06-UserAdminOnlyMtr	Non-motorized	TNM	R	L1	EQ
268	622I3 Total	BLM	803	0.2	C08	C08	ML06-UserAdminOnlyMtr	Non-motorized	TNM	R	L1	EQ
269	622I4 Total	BLM	2689	0.5	C26	C26	ML16-UserAdminOnlyMtr	Reclamation	NA	NA	L0	NES
270	622J Total	BLM	5762	1.1	C08	ML06-UserAdminOnlyMtr	ML06-UserAdminOnlyMtr	Motorized	RDPA	R	L1	EQ
271	622J1 Total	BLM	687	0.1	C08	ML06-UserAdminOnlyMtr	ML06-UserAdminOnlyMtr	Motorized	RDPA	R	L1	EQ
272	622K1 Total	BLM	46	0.0	C08	C08	ML06-UserAdminOnlyMtr	Non-motorized	TNM	R	L1	EQ
273	622M1 Total	BLM	12526	2.4	C08	C08	C08	Non-motorized	TNM	R	L1	EQ
274	622N Total	BLM	2211	0.4	C08	C08	C08	Non-motorized	TNM	R	L1	EQ
275	622P Total	BLM	345	0.1	C08	C08	C08	Non-motorized	TNM	R	L1	EQ
276	623A Total	BLM	16334	3.1	ML02-UserAdminMtrPermitteeMtr	ML02-UserAdminMtrPermitteeMtr	ML02-UserAdminMtrPermitteeMtr	Motorized	RDPA	R	L1	EQ
277	623B Total	BLM	2488	0.5	C08	ML06-UserAdminMtrPermitteeMtrPvtPropMtr	MO03	Motorized	RDPA	R	L1	EQ
278	623B1 Total	BLM	1349	0.3	C08	ML06-UserAdminMtrPermitteeMtrPvtPropMtr	MO03	Reclamation	NA	NA	L0	NES
279	623D Total	BLM	9339	1.8	C26	C26	C26	Reclamation	NA	NA	L0	NES
280	623E Total	BLM	4946	0.9	ML06-UserAdminOnlyMtr	ML06-UserAdminOnlyMtr	ML06-UserAdminOnlyMtr	Motorized	RDPA	R	L1	EQ
281	623F Total	BLM	18127	3.4	ML02-UserAdminMtrPermitteeMtr	ML02-UserAdminMtrPermitteeMtr	ML02-UserAdminMtrPermitteeMtr	Motorized	RDPA	R	L1	EQ
282	623G Total	BLM	4072	0.8	ML02-UserAdminMtrPermitteeMtr	ML02-UserAdminMtrPermitteeMtr	ML02-UserAdminMtrPermitteeMtr	Motorized	RDPA	R	L1	EQ
283	624C1 Total	BLM	72	0.0	C08	MO03	MO03	Motorized	RDP	R	L1	4WD
284	624D Total	BLM	81	0.0	C08	MO03	MO03	Motorized	RDP	R	L1	4WD
285	624F Total	BLM	507	0.1	C26	C26	C26	Reclamation	NA	NA	L0	NES
286	624G Total	BLM	120	0.0	ML06-UserAdminMtrPermitteeMtr	MO03	MO03	Motorized	RDP	R	L1	4WD
287	624H Total	BLM	6268	1.2	C08	MO03	MO03	Non-motorized	TNM	R	L1	EQ
288	624H1 Total	BLM	130	0.0	C08	MO03	MO03	Motorized	RDP	R	L1	4WD
289	624J Total	BLM	10	0.0	ML06-UserAdminMtrPermitteeMtr	MO03	MO03	Motorized	RD	R	L3	WB-50
290	624J1 Total	BLM	2572	0.5	ML06-UserAdminMtrPermitteeMtr	ML06-UserAdminMtrPermitteeMtr	ML06-UserAdminMtrPermitteeMtr	Motorized	RDA	R	L3	WB50

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INDEX	Route Number (Ars_id)	OWNERSHIP	FEET	MILES	Alt B Code	Alt C Code	Alt D Code	Proposed Route Designation	Asset Type	FC	MI	DSTD
291	624K1 Total	BLM	7797	1.5	C08	ML06-UserAdminMtrPermitteeMtr	MO03	Motorized	RDPA	R	L1	EQ
292	624K2 Total	BLM	7265	1.4	C08	ML06-UserAdminMtrPermitteeMtr	ML06-UserAdminMtrPermitteeMtr	Motorized	RDPA	R	L1	EQ
293	624KA Total	BLM	2883	0.6	C08	C08	ML06-UserAdminMtrPermitteeMtr	Non-motorized	TNM	R	L1	EQ
294	624KB Total	BLM	501	0.1	C08	C08	ML06-UserAdminMtrPermitteeMtr	Non-motorized	TNM	R	L1	EQ
295	624L Total	BLM	827	0.2	ML06-UserAdminMtrPermitteeMtr	MO03	MO03	Motorized	RDP	R	L1	PT
296	624L1 Total	BLM	1533	0.3	C08	C08	C08	Non-motorized	TNM	R	L1	EQ
297	624M Total	BLM	3634	0.7	C08	C08	C08	Non-motorized	TNM	R	L1	EQ
298	624M1 Total	BLM	2323	0.4	C08	C08	C08	Non-motorized	TNM	R	L1	EQ
299	624M2 Total	BLM	2221	0.4	C08	C08	C08	Non-motorized	TNM	R	L1	EQ
300	624M3 Total	BLM	1829	0.4	C08	C08	C08	Non-motorized	TNM	R	L1	EQ
301	624P Total	BLM	417	0.1	C08	C08	C08	Non-motorized	TNM	R	L1	EQ
302	624Q Total	BLM	9339	1.8	ML02-UserAdminMtrPermitteeMtr	ML02-UserAdminMtrPermitteeMtr	ML02-UserAdminMtrPermitteeMtr	Motorized	RDPA	R	L1	EQ
303	624R Total	BLM	1148	0.2	C26	C26	C26	Reclamation	NA	NA	L0	NES
304	624S Total	BLM	507	0.1	C26	C26	C26	Reclamation	NA	NA	L0	NES
305	624T Total	BLM	716	0.1	C26	C26	C26	Reclamation	NA	NA	L0	NES
306	625A Total	BLM	8519	1.6	C08	ML06-SeasonOther___Day Use Only - no overnight	MO03	Motorized	RDP	R	L1	4WD
307	625A1 Total	BLM	1275	0.2	C08	C08	MO03	Non-motorized	TNM	R	L1	EQ
308	625B Total	BLM	445	0.1	C08	ML06-SeasonOther___Day Use Only - no overnight	MO03	Motorized	RDP	R	L1	4WD
309	625C Total	BLM	187	0.0	C08	C08	MO03	Non-motorized	TNM	R	L1	EQ
310	625D Total	BLM	7592	1.4	ML06-TransAllNMM	ML06-TransAllNM	ML06-TransAllNM	Non-motorized	TNM	R	L1	EQ
311	625D1 Total	BLM	1493	0.3	ML06-TransAllNMM	ML06-TransAllNM	ML06-TransAllNM	Non-motorized	TNM	R	L1	EQ
312	625E Total	BLM	1618	0.3	ML06-TransAllNMM	ML06-TransAllNM	ML06-TransAllNM	Non-motorized	TNM	R	L1	EQ
313	625F Total	BLM	3672	0.7	ML02-UserAdminMtrPermitteeMtr	ML02-UserAdminMtrPermitteeMtr	ML02-UserAdminMtrPermitteeMtr	Motorized	RDPA	R	L1	EQ
314	626A Total	BLM	8048	1.5	ML06-UserAdminMtrPermitteeMtr	MO03	MO03	Motorized	RDP	R	L1	4WD
315	626B Total	BLM	12376	2.3	C08	C08	MO03	Non-motorized	TNM	R	L1	EQ
316	626C Total	BLM	6578	1.3	C08	ML06-UserAdminMtrPermitteeMtr	MO03	Motorized	RDPA	R	L1	EQ
317	626D Total	BLM	346	0.1	C08	C08	MO03	Non-motorized	TNM	R	L1	EQ
318	627C Total	BLM	7220	1.4	C08	MO03	MO03	Motorized	RDP	R	L1	4WD
319	627C1 Total	BLM	4083	0.8	C08	ML06-UserAdminMtrPermitteeMtr	MO03	Motorized	RDPA	R	L1	EQ
320	627F Total	BLM	9502	1.8	ML06-UserAdminMtrPermitteeMtr	MO03	MO03	Motorized	RDP	R	L1	4WD
321	627G Total	BLM	4632	0.9	ML06-UserAdminMtrPermitteeMtr	ML06-UserAdminMtrPermitteeMtr	MO03	Motorized	RDPA	R	L1	EQ
322	628A Total	BLM	1740	0.3	C08	C08	MO03	Non-motorized	TNM	R	L1	EQ
323	628B Total	BLM	9772	1.9	C08	C08	MO03	Non-motorized	TNM	R	L1	EQ

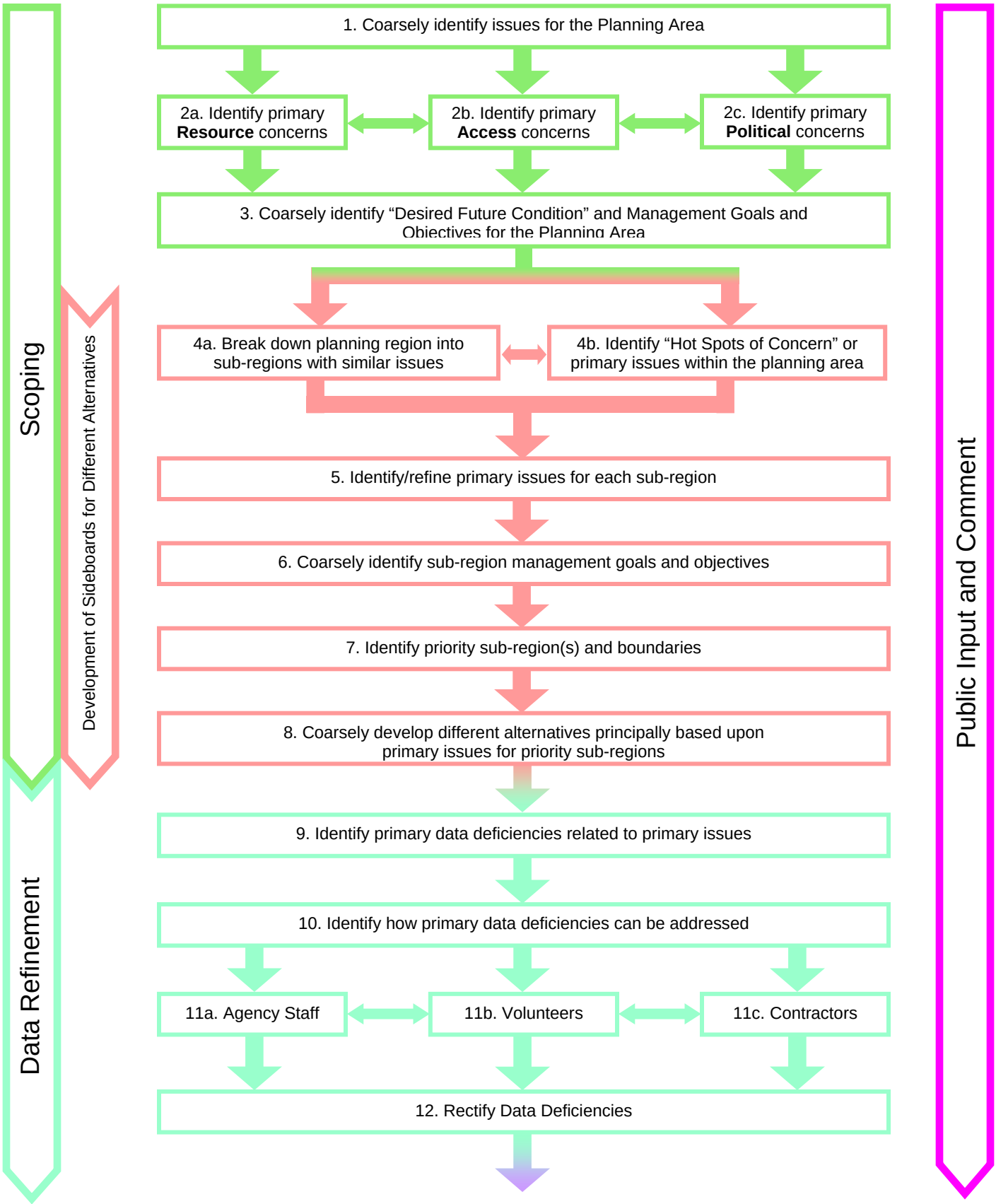
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Travel Route Designations

INDEX	Route Number (Ars_id)	OWNERSHIP	FEET	MILES	Alt B Code	Alt C Code	Alt D Code	Proposed Route Designation	Asset Type	FC	MI	DSTD
324	629B1 Total	BLM	4164	0.8	C08	C08	MO03	Non-motorized	TNM	R	L1	EQ
325	629B1A Total	BLM	2915	0.6	C08	C08	MO03	Non-motorized	TNM	R	L1	EQ
326	629C Total	BLM	4538	0.9	C08	C08	MO03	Non-motorized	TNM	R	L1	EQ
327	629C1 Total	BLM	2872	0.5	MO03	MO03	MO03	Motorized	RDP	R	L1	4WD
328	629C2 Total	BLM	8993	1.7	C08	C08	MO03	Non-motorized	TNM	R	L1	EQ
329	629C3 Total	BLM	820	0.2	MO03	MO03	MO03	Non-motorized	TNM	R	L1	EQ
330	629D Total	BLM	10660	2.0	ML06-UserAdminOnlyMtr-TransPublicNM	ML06-UserAdminMtrPermitteeMtr-TransPublicNM	MO03	Motorized	RDPA	R	L1	EQ
331	629E Total	BLM	15085	2.9	C08	C08	MO03	Non-motorized	TNM	R	L1	EQ
332	629F Total	BLM	265	0.1	C08	ML06-UserAdminMtrPermitteeMtr	MO03	Motorized	RDPA	R	L1	EQ
333	629F2 Total	BLM	4444	0.8	C08	ML06-UserAdminMtrPermitteeMtr	MO03	Motorized	RDPA	R	L1	EQ
334	629G Total	BLM	5368	1.0	C08	ML06-UserAdminOnlyMtr	MO03	Motorized	RDPA	R	L1	EQ
335	629M1 Total	BLM	3121	0.6	C08	C08	C08	Non-motorized	TNM	R	L1	EQ
336	629M1A Total	BLM	4588	0.9	C08	C08	C08	Non-motorized	TNM	R	L1	EQ
337	631A Total	BLM	330	0.1	C08	MO03	MO03	Motorized	RDP	R	L1	4WD
338	631B Total	BLM	13699	2.6	C08	MO03	MO03	Motorized	RDP	R	L1	4WD
339	632A Total	BLM	2858	0.5	ML06-UserAdminOnlyMtr	MO03	MO03	Motorized	RDP	R	L1	4WD
340	632A1 Total	BLM	1345	0.3	C08	ML06-UserAdminMtrPermitteeMtr-TransPublicNM	MO03	Motorized	RDPA	R	L1	EQ
341	632A2 Total	BLM	569	0.1	ML06-UserAdminOnlyMtr	MO03	MO03	Non-motorized	TNM	R	L1	EQ
342	632E Total	BLM	5520	1.1	C08	MO03	MO03	Motorized	RDP	R	L1	4WD
343	633B Total	BLM	4866	0.9	ML06-UserAdminMtrPermitteeMtr	MO03	MO03	Motorized	RDP	R	L1	4WD
344	634A Total	BLM	1796	0.3	ML06-UserAdminMtrPermitteeMtr	ML06-UserAdminMtrPermitteeMtr	MO03	Motorized	RDPA	R	L1	EQ
345	634A1 Total	BLM	3107	0.6	C08	C08	MO03	Non-motorized	TNM	R	L1	EQ
346	634A2 Total	BLM	1671	0.3	C08	C08	MO03	Non-motorized	TNM	R	L1	EQ
347	634AX Total	BLM	10444	2.0	C07	C07	ML05-UserAdminMtrPermitteeMtr	Reclamation	NA	NA	L0	NES
348	635A Total	BLM	233	0.0	C08	C08	C08	Non-motorized	TNM	R	L1	EQ
349	638A Total	BLM	16427	3.1	C26	C26	ML16-UserAdminMtrPermitteeMtr	Reclamation	NA	NA	L0	NES
350	638B Total	BLM	479	0.1	ML06-UserAdminMtrPermitteeMtr	MO03	MO03	Motorized	RDP	R	L1	4WD
351	638B1 Total	BLM	17907	3.4	C08	MO03	MO03	Motorized	RDP	R	L1	4WD
352	638C Total	BLM	13580	2.6	ML06-UserAdminMtrPermitteeMtr	MO03	MO03	Non-motorized	TNM	R	L1	EQ
353	638D Total	BLM	4233	0.8	C08	ML06-UserAdminMtrPermitteeMtr	ML06-UserAdminMtrPermitteeMtr	Motorized	RDPA	R	L1	EQ
354	639A Total	BLM	42764	8.1	C26	C26	ML16-UserAdminMtrPermitteeMtr	Reclamation	NA	NA	L0	NES
355	639B Total	BLM	3850	0.7	ML06-UserAdminMtrPermitteeMtr	ML06-UserAdminMtrPermitteeMtr	ML06-UserAdminMtrPermitteeMtr	Motorized	RDP	R	L1	4WD

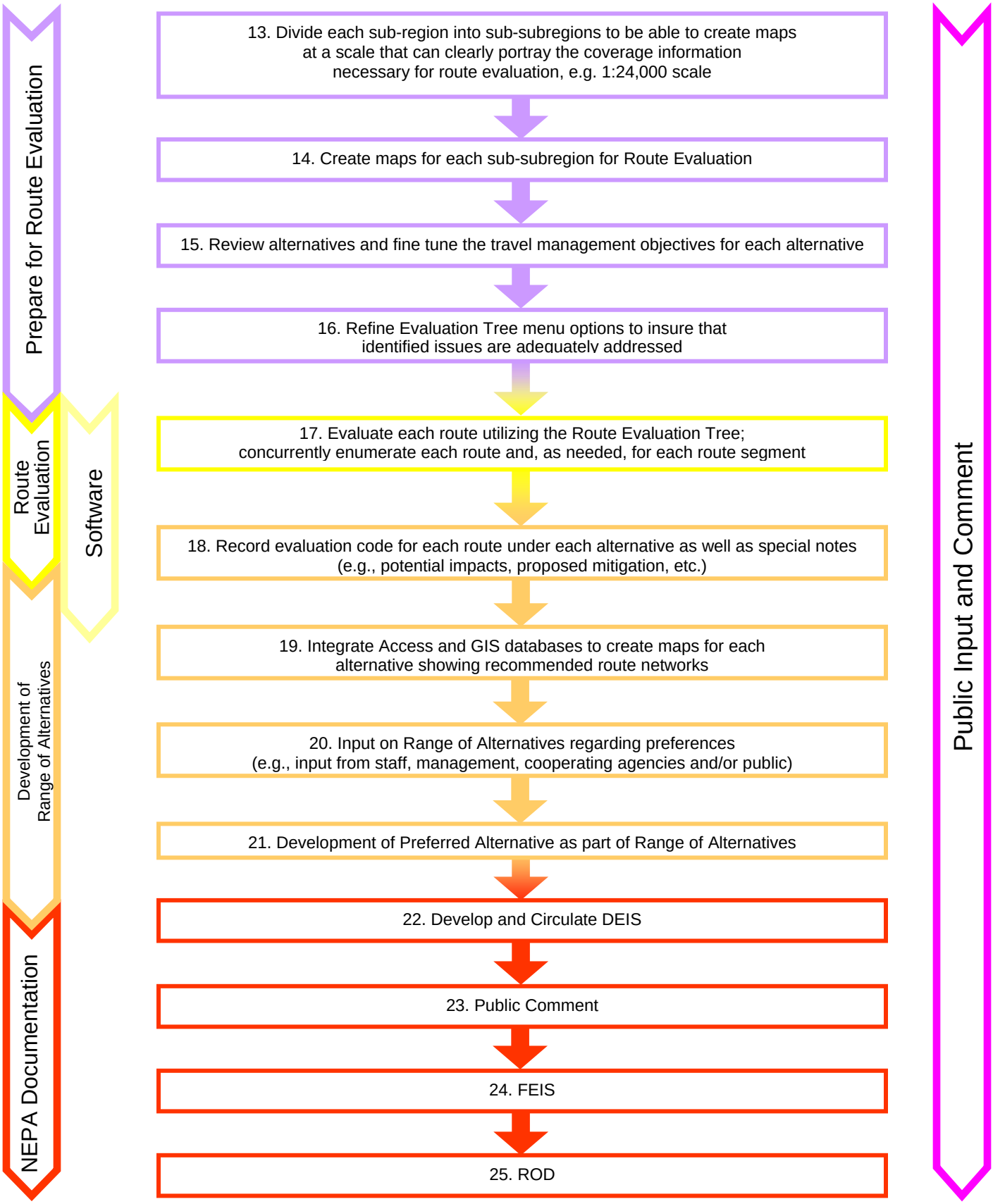
Table G-1
Travel Route Designations

INDEX	Route Number (Ars_id)	OWNERSHIP	FEET	MILES	Alt B Code	Alt C Code	Alt D Code	Proposed Route Designation	Asset Type	FC	MI	DSTD
356	639C Total	BLM	1074	0.2	ML02-UserAdminMtrPermitteeMtr	ML02-UserAdminMtrPermitteeMtr	ML02-UserAdminMtrPermitteeMtr	Motorized	RDPA	R	L1	EQ
357	648A Total	BLM	5293	1.0	ML02-UserAdminMtrPvtPropMtr	MO01	MO01	Motorized	RD	R	L3	WB-50
358	650C Total	BLM	1740	0.3	ML06-UserAdminMtrPermitteeMtr	ML06-UserAdminMtrPermitteeMtr	ML06-UserAdminMtrPermitteeMtr	Motorized	RDPA	R	L1	EQ
359	652B Total	BLM	11801	2.2	ML06-UserAdminMtrPermitteeMtr-TransPublicNM	MO03	MO03	Motorized	RDPA	R	L1	EQ
360	652B2 Total	BLM	7791	1.5	ML06-TransAllNM	ML06-UserAdminOnlyMtr-TransPublicNM	ML06-UserAdminOnlyMtr-TransPublicNM	Motorized	RDPA	R	L1	EQ
361	652F Total	BLM	6573	1.2	C08	C08	MO03	Non-motorized	TNM	R	L1	EQ
362	652H Total	BLM	2438	0.5	ML06-TransAllNM	ML06-TransAllNM	MO03	Non-motorized	TNM	R	L1	EQ
363	652H1 Total	BLM	258	0.1	C08	ML06-TransAllNM	MO03	Non-motorized	TNM	R	L1	EQ
364	652I Total	BLM	2744	0.5	C08	C08	MO03	Motorized	RDP	R	L1	4WD
365	652I1 Total	BLM	1132	0.2	C08	C08	MO03	Non-motorized	TNM	R	L1	EQ
366	652J Total	BLM	329	0.1	C08	C08	C08	Non-motorized	TNM	R	L1	EQ
367	652M Total	BLM	8050	1.5	C08	C08	C08	Non-motorized	TNM	R	L1	EQ
368	654A Total	BLM	2859	0.5	ML06-TransAllNMM	MO03	MO03	Motorized	RDP	R	L1	4WD
369	654A1 Total	BLM	7042	1.3	ML06-TransAllNMM	ML06-UserAdminMtrPermitteeMtr	MO03	Motorized	RDP	R	L1	4WD
370	654A2 Total	BLM	6902	1.3	ML06-TransAllNMM	ML06-TransAllNM	MO03	Non-motorized	TNM	R	L1	EQ
371	654AA Total	BLM	1312	0.3	ML06-TransAllNMM	ML06-TransAllNM	ML06-TransAllNM	Non-motorized	TNM	R	L1	EQ
372	654AB Total	BLM	1260	0.2	ML06-TransAllNMM	MO03	MO03	Motorized	RDP	R	L1	4WD
373	654AB1 Total	BLM	7814	1.5	ML06-TransAllNMM	MO03	MO03	Non-motorized	TNM	R	L1	EQ
374	654AB2 Total	BLM	4856	0.9	ML06-TransAllNMM	MO03	MO03	Non-motorized	TNM	R	L1	EQ
375	654AC Total	BLM	187	0.0	MO03	MO03	MO03	Non-motorized	TNM	R	L1	EQ
376	656A Total	BLM	1933	0.4	C08	C08	MO03	Non-motorized	TNM	R	L1	EQ
377	656B Total	BLM	2712	0.5	UserAdminMtrPermitteeMtr-TransPublicNMM	MO03	MO03	Motorized	RDPA	R	L1	EQ
378	656C Total	BLM	15158	2.9	ML06-TransAllNMM	MO03	MO03	Non-motorized	TNM	R	L1	EQ
379	658B Total	BLM	6066	1.2	ML06-TransAllNMM	MO03	MO03	Motorized	RDP	R	L1	4WD
380	658B1 Total	BLM	1873	0.4	ML06-TransAllNMM	MO03	MO03	Non-motorized	TNM	R	L1	EQ
381	660A Total	BLM	4955	0.9	C08	C08	MO03	Non-motorized	TNM	R	L1	EQ
382	662I1 Total	BLM	34	0.0	C08	C08	ML06-UserAdminOnlyMtr	Non-motorized	TNM	R	L1	EQ
383	662I2 Total	BLM	61	0.0	C08	C08	ML06-UserAdminOnlyMtr	Non-motorized	TNM	R	L1	EQ
384	665A Total	BLM	15976	3.0	C08	MO03	MO03	Non-motorized	TNM	R	L1	EQ
	TOTAL		1844723	349.48								

Route Evaluation Process©
for Travel Management Planning



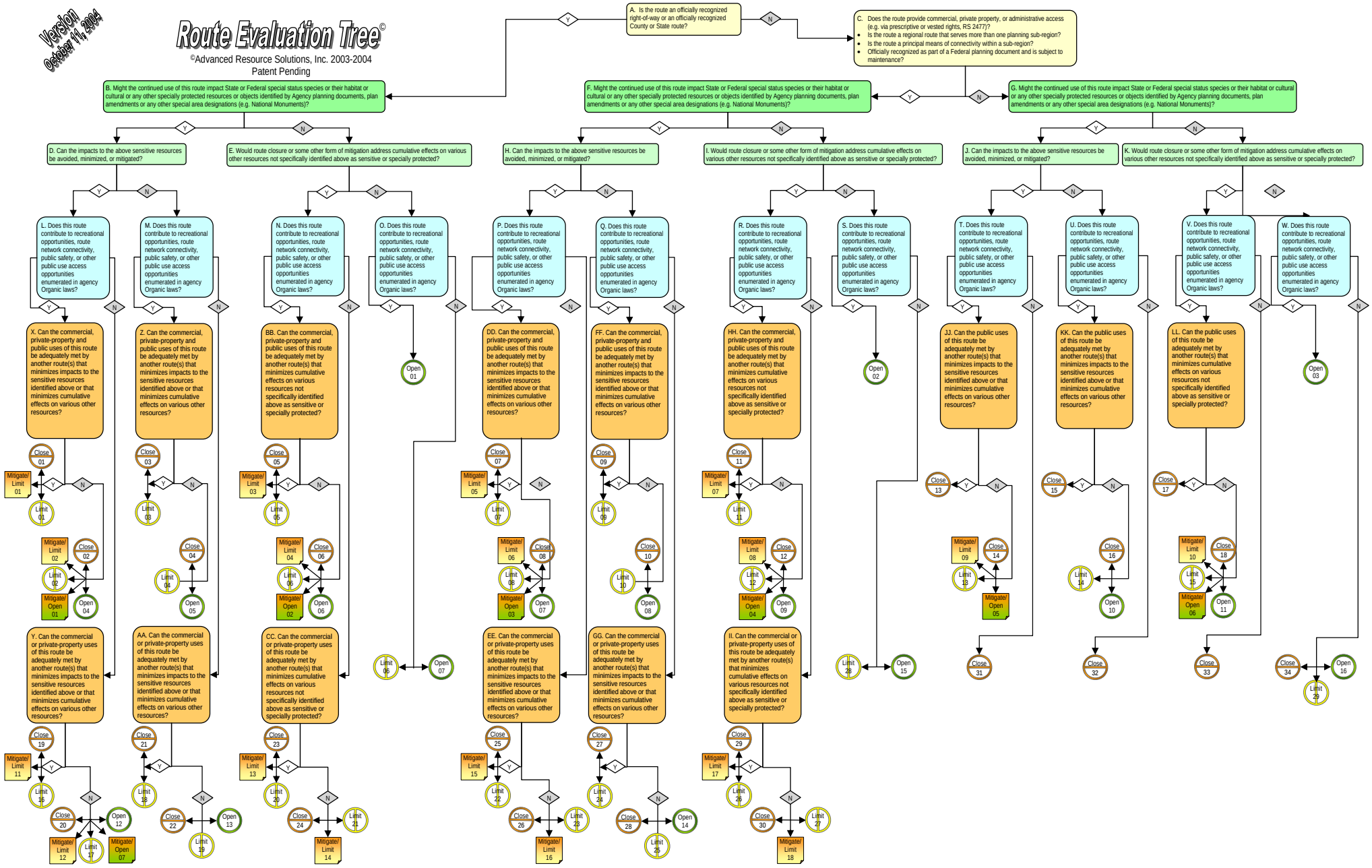
Route Evaluation Process©
for Travel Management Planning



Version October 11, 2004

Route Evaluation Tree©

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Patent Pending



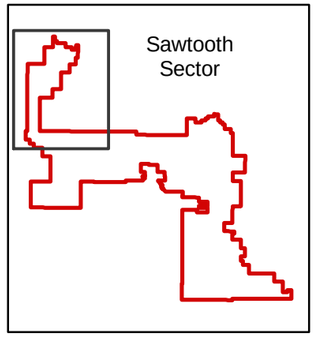
Universal Tranverse Mercator
Zone 12, Units Meters
Clark 1866 Spheroid
NAD27 Datum

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0 0.5 1 2 Miles

0 0.5 1 2 Kilometers

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Proposed Travel Management Sawtooth Sector

Ironwood Forest National Monument
PRMP/FEIS

Legend

Route Designations

Motorized

- Road
- Primative Road
- Trail

Non-Motorized

- Road, Administrative Vehicles Only
- Primative Road, Administrative Vehicles Only
- Non-Mechanized Trail
- Not Designated

Surface Management

- Bureau of Land Management
- State Trust Lands
- Private

Data Source:
Route Alternative Designations: BLM 2008
Base Information: BLM 2003
Quadrangle Image: TOPO!, ©2007 National Geographic Maps, All Rights Reserved

General Reference

- County Boundary
- Main public access routes to monument. County administered roads connecting monument travel route system to public highways.

Planning Area

- Ironwood Forest National Monument

Pinal County
Pima County

Map G-1

Proposed
Travel Management
West Silver Bell Sector

Ironwood Forest National Monument
PRMP/FEIS

Legend

Route Designations

Motorized

- Road
- Primative Road
- Trail

Non-Motorized

- Road, Administrative Vehicles Only
- Primative Road, Administrative Vehicles Only
- Non-Mechanized Trail
- Not Designated, on ASLD

Surface Management

- Bureau of Land Management
- State Trust Lands
- Private

Data Source:
Route Alternative Designations: BLM 2008
Base Information: BLM 2003
Quadrangle Image: TOPO! (tm) (c) 2002 National Geographic Holdings (www.topo.com)

General Reference

- County Boundary
- Main public access routes to monument. County administered roads connecting monument travel route system to public highways.

Planning Area

- Ironwood Forest National Monument

Universal Tranverse Mercator
Zone 12, Units Meters
Clark 1866 Spheroid
NAD27 Datum
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0 0.5 1 2 Miles

0 0.5 1 2 Kilometers

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West Silver Bell Sector

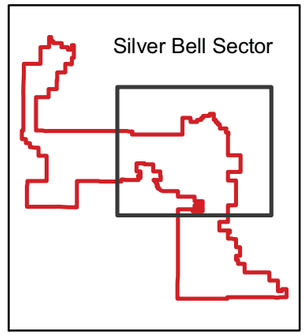
Map G-2

Universal Tranverse Mercator
Zone 12, Units Meters
Clark 1866 Spheroid
NAD27 Datum
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0 0.5 1 2 Miles

0 0.5 1 2 Kilometers

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Proposed Travel Management Silver Bell Sector

Ironwood Forest National Monument
PRMP/FEIS

Legend

Route Designations

Motorized

- Road
- Primative Road
- Trail

Non-Motorized

- Road, Administrative Vehicles Only
- Primative Road, Administrative Vehicles Only
- Non-Mechanized Trail
- Not Designated

Surface Management

- Bureau of Land Management
- Military Reservations
- State Trust Lands
- Private

Data Source:
Route Alternative Designations: BLM 2008
Base Information: BLM 2003
Quadrangle Image: TOPO!, ©2007 National Geographic Maps, All Rights Reserved

General Reference

- County Boundary
- River
- Main public access routes to monument. County administered roads connecting monument travel route system to public highways.

Planning Area

- Ironwood Forest National Monument

Map G-3

R. 09 E.

Proposed Travel Management Cocoraque Sector

Ironwood Forest National Monument
PRMP/FEIS

Legend

Route Designations

Motorized

- Road
- Primative Road
- Trail

Non-Motorized

- Road, Administrative Vehicles Only
- Primative Road, Administrative Vehicles Only
- Non-Mechanized Trail
- Not Designated

Surface Management

- Bureau of Land Management
- State Trust Lands
- Private
- Pima County

Data Source:
Route Alternative Designations: BLM 2008
Base Information: BLM 2003
Quadrangle Image: TOPO!, ©2007 National Geographic Maps, All Rights Reserved

General Reference

- Central Arizona Project (CAP) Canal
- Main public access routes to monument. County administered roads connecting monument travel route system to public highways.

Planning Area

- Ironwood Forest National Monument

Universal Tranverse Mercator
Zone 12, Units Meters
Clark 1866 Spheroid
NAD27 Datum
No warranty is made by the Bureau of Land Management (BLM) for the use of this map for purposes not intended by BLM, or to the accuracy, reliability, or completeness of the information shown. Spatial information may not meet National Map Accuracy Standards. This information may be updated without notification.

0 0.5 1 2 Miles
0 0.5 1 2 Kilometers

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Cocoraque Sector

Map G-4

APPENDIX H

WATERMAN MOUNTAINS AREA OF CRITICAL ENVIRONMENTAL CONCERN

Section 202 of the Federal Land Policy and Management Act (FLPMA) requires BLM to give priority to designation and protection of Areas of Critical Environmental Concern (ACECs) during the land use planning process.

DEFINITION OF AN ACEC

BLM regulations (43 CFR part 1610) define an ACEC as:

> *An area within the public lands where special management attention is required (when such areas are developed or used or where no development is required) to protect and prevent irreparable damage to important historic, cultural, or scenic values, fish and wildlife resources, or other natural systems or processes, or to protect life and safety from natural hazards.*

ACECs differ from other special management designations such as wilderness study areas in that the designation, by itself, does not automatically prohibit or restrict other uses in the area. The only regulatory requirement is that a Plan of Operation is necessary for any proposed locatable mineral exploration or development within an ACEC (which would apply only to valid existing mining claims within the Waterman Mountains). Private land and lands administered by other agencies are not included within the boundaries of ACECs. The ACEC designation is an administrative designation and is accomplished through the land use planning process.

THE WATERMAN MOUNTAINS ACEC

The Bureau of Land Management (BLM) designated approximately 2,240 acres of BLM-administered land in the Waterman Mountains as an ACEC in the Phoenix Resource Management Plan. The area was designated to protect the federally endangered Nichol Turk's head cactus (*Echinocactus horizonthalonius* var. *nicholii*). As the Nichol Turk's head cactus remains endangered, the values for which this ACEC was designated have not changed. However, based on the establishment of the IFNM, which completely encompasses the ACEC, this area may no longer warrant special management, as the management of the IFNM could provide adequate protection of the resource values within the Waterman Mountains. As a result, BLM can and has considered removal of the ACEC designation from the area under the alternatives presented in the Draft Resource Management Plan and Environmental Impact Statement.

APPENDIX I

IRONWOOD FOREST NATIONAL MONUMENT SHOOTING ANALYSIS SUMMARY

INTRODUCTION

The preferred management action in the Ironwood Forest National Monument (IFNM) Draft Resource Management Plan (RMP) to prohibit target shooting in the monument generated a great deal of controversy and public interest. BLM received many comments both in favor of and against the prohibition. Due to the number of questions regarding the prohibition, and the high level of public interest surrounding it, BLM chose to re-examine the decision and go through a well-documented, methodological, and transparent analysis to determine if there are areas on the IFNM that could potentially support the continuation of target shooting into the future, given the management constraints, safety considerations, and protected status of the IFNM.

SHOOTING ON IRONWOOD FOREST NATIONAL MONUMENT

Target shooting is currently allowed on BLM lands throughout the entire IFNM, except where prohibited by law (for example, within a quarter-mile of an occupied residence). Target shooting is prohibited on State Trust lands within the IFNM boundary, and throughout all of Arizona, per Arizona State Land Department regulations. Target shooting activity is dispersed throughout the IFNM and recurring activity has been documented at over 30 individual locations. Because IFNM is easily accessed by several residential areas bordering the monument, and sits in close proximity to Tucson and other outlying population centers, it has become a regular destination for visitors wanting to engage in unregulated shooting and plinking.

Target shooting has increasingly become a management concern on the IFNM as the number of visitors, including shooters, has increased. The intensity at which this activity now occurs on the monument is causing new noticeable impacts, reaching levels that monument resources may not be able to sustain. The IFNM was established in 2000 by Presidential Proclamation 7320, "for the purpose of protecting the objects identified [in the Proclamation] [1]," which include resources such as Sonoran Desert vegetation, wildlife species, archeological sites and artifacts, and geological resources. The Proclamation, derived from authorities given through the Antiquities Act, set a relatively high standard of protection for objects within the IFNM, prohibiting injury, destruction, or removal of any feature in the monument. Through monitoring and visitor contacts, BLM has found that target shooting, because of the magnitude and intensity of the activity, is causing damage to monument objects in localized areas and presenting conflicts with other monument users. Current trends based on rapid growth of the areas surrounding the monument indicate that these impacts are likely to increase in scale as more IFNM visitors engage in target shooting.

SHOOTING ANALYSIS PROCESS

BLM initiated the IFNM shooting analysis by identifying various criteria to apply to monument lands with regard to target shooting. Criteria were developed in consideration of existing laws and regulations governing shooting, the provisions of Presidential Proclamation 7320, safe shooting practices and guidelines, and the RMP goals and objectives. It was determined that a Geographic Information System (GIS) spatial analysis, followed up by on-site visits, would be the most effective and objective approach

[1] Presidential Proclamation 7320, Monday June 12, 2000. Volume 36, Issue 23; ISSN: 0511-4187. Proclamation 7320 – Establishment of the Ironwood Forest National Monument.

to evaluating the various criteria and subsequently in answering the question posed for this analysis (whether there are areas on the IFNM that could potentially support the continuation of target shooting into the future). Thus, two sets of criteria were established:

1. Criteria that could predominantly be evaluated through a spatial analysis (where relevant spatial data exist or could easily be generated)
2. Criteria that would need to be evaluated through field work and on-site visits (where relevant data cannot be mapped by GIS, have never been mapped, or are too site-specific to be feasible for GIS application)

Criteria are listed in Table 1, with further explanation of specifications and rationale for each criterion provided in Sections 1 and 2, below.

Table 1: Shooting Analysis Criteria

1. Criteria applied through GIS analysis	**2. Criteria applied through on-site visits**
1.1 Significant presence of monument objects or high natural and cultural resource sensitivity	2.1 Significant presence of monument objects or high natural and cultural resource sensitivity that was not captured through GIS analysis
1.2 Existing law regarding target shooting	2.2 Visitor safety and experience; areas where safety would be jeopardized, where shooting is incompatible with other uses, or where it could result in adverse impacts to facilities, public use sites or other BLM and private assets
1.3 Areas with high sensitivity to noise generated from target shooting (nearby residences, etc.)	2.3 Accessibility
1.4 Presence of suitable terrain for shooting (existing natural backstop or berm)	2.4 Physical suitability of terrain for shooting activity (factors not captured trough GIS analysis)

1. Criteria Evaluated through GIS Analysis

1.1 Significant presence of monument objects or high natural and cultural resource sensitivity

BLM identified areas in the monument where target shooting would be incompatible with IFNM management objectives related to the protection of monument objects and resources. BLM used existing resource data that captured the biological, cultural, and geological resources that must be protected per the Presidential Proclamation, by way of the Antiquities Act, or as provided for in the management goals and objectives established for the IFNM in the RMP. BLM used the following data layers to identify areas with a significant presence of monument objects or with high natural and cultural resource sensitivity, where concentrated target shooting would be likely to cause damage or destruction of known monument resources:

- **Desert Tortoise Habitat, Categories I and II (46,169 acres – Map I-1)**
  Rationale: BLM's Desert Tortoise Habitat Management Plan establishes the policy of "no net loss in quantity or quality of Category I and II Habitat Areas[2]." Target shooting into hillsides/rocky

[2] Desert Tortoise Habitat Management on the Public Lands: A Rangewide Plan, U.S. Dept of the Interior, Bureau of Land Management, November 1988, at page 19.

areas within tortoise habitat can have detrimental effects to local tortoise populations, including direct impacts from bullets (tortoises resemble rocks and blend in with surroundings), damage to physical habitat with large caliber ammunition, degradation of habitat through loss of vegetation used as forage, rock and soil pulverization, and dumped trash from used targets and other litter. Trash also attracts predators which makes tortoises more susceptible to predation. BLM is committed to maintaining viable tortoise populations in Category I and II habitats through implementation of specific management actions. Areas identified as Category III are of lower value in maintaining viable populations of tortoises on public lands, and thus can be subjected to lower management intensity specifically for tortoise' than habitats in the other categories. Thus, Category III habitat was not included because lower densities of tortoise makes direct harm less likely and indirect harm to habitat less significant. See Map I-1 for location of desert tortoise Category I and II Habitat Areas.

- **Significant Vegetation (28,746 acres – Map I-2)**
  Rationale: This data set includes dense Arizona upland patches, Lower Colorado River Valley xeroriparian areas, areas with dense and large ironwoods, jojoba chaparral, xeroriparian woodlands, dense and large saguaro stands, and cactus dunes, among other vegetation types that are considered to be sensitive because of high biological diversity, vulnerability to disturbance, or rarity. Several are specifically mentioned in the proclamation. Some of these vegetation types, such as saguaro, are especially susceptible to shooting damage, as intentional or incidental destruction of saguaro is commonly found at shooting sites. Saguaros are also an Arizona Protected Native Plant[3] that provide habitat, cavity nesting, and forage for threatened and endangered species (such as the lesser long nosed bat on the IFNM) and numerous other species. Several of these vegetation types also provide nesting habitat for raptors and migratory birds, cactus ferruginous pygmy owl habitat in certain areas, and thermal cover for mammalian species.

- **Rare Plants (4,809 acres – Map I-3)**
  Rationale: This data set includes uncommon perennial plants, many of which are relict populations of species that were widespread during the late Pleistocene, such as Parish goldeneye and cuneate turpentine bush. The populations of various other plants such as the Sonoran rose mallow are isolates of plants that are common in more tropical areas in Sonora, Mexico, but very rare in the Sonoran Desert of Arizona. Plants in this data layer are considered rare and vulnerable, and are especially susceptible to disturbance. Plants are often the first casualty at shooting sites because they are used to support targets, are found behind targets, and are more susceptible to direct shooting impacts toward the ground as well as impacts from trampling (from placing and recovering targets). Many of these species consist of small populations or possibly one or two individual plants, and would be susceptible to destruction and total loss as a result of concentrated shooting activity. This data set includes a quarter-mile buffer around each plant.

- **Vegetation Habitat Management Areas (9,058 acres – Map I-4)**
  Rationale: This data set includes the Waterman Mountains and Ragged Top Vegetation Habitat Management Areas (VHA), both of which are proposed for designation in the IFNM RMP. The vegetation in these areas is considered sensitive because of its rarity, ecological diversity, or vulnerability to disturbance by human trampling, fire, or invasion by exotic plants. The Waterman Mountains VHA contains habitat for a listed endangered species of cactus (Nichol Turk's head cactus) and the Ragged Top VHA contains an unusually high concentration of rare plants.

[3] See http://www.azda.gov/esd/nativeplants.htm (last visited 5/30/08) for listing of Arizona Protected Native Plants and laws governing their use and protection.

- **Desert Bighorn Sheep Wildlife Habitat Management Area (30,692 acres – Map I-5)**
  Rationale: This data set includes the Desert Bighorn Sheep Wildlife Habitat Management Area, as proposed in the IFNM RMP. The range of the bighorn population in the IFNM is generally limited to the central part of the monument, predominately in the Silverbell Mountains. This confinement leaves the population vulnerable to elimination through disease outbreaks or other catastrophic events. Disruptions to breeding activities from target shooting could prevent BLM and Arizona Game and Fish Department (AGFD) efforts to help the sheep to re-establish a sub population in the Waterman Mountains that would help ensure against elimination of the sheep population through a catastrophic event.

- **Inventoried Cultural Sites (1,530 acres)**
  Rationale: This data set includes catalogued cultural sites from various inventories that have occurred throughout the IFNM. Permanent damage to petroglyph sites and other cultural resources can occur from direct bullet impact and ricochet. Associated damage can also occur as a result of excessive vehicle and human trampling, trash accumulation, and indirect impacts including unauthorized collection of artifacts and vandalism. Site types most likely to be impacted by bullets are standing structures and petroglyphs. Site types most likely to be impacted by vehicles, trampling, incidental erosion, and trash include artifact scatters, campsites, villages, historic archaeological sites, historic and prehistoric trails, and standing structures. Many archeological sites on the IFNM are considered sacred by the neighboring Tohono O'odham Nation. Note that only about 15% of the IFNM has been inventoried for cultural resources, so the data for cultural resources is incomplete, and additional surveys and on-site evaluation would be required for any areas found to be potentially suitable for shooting. Due to protection of archeological data under the Archeological Resources Protection Act and the National Historic Preservation Act, cultural sites are not displayed on the attached maps.

- **Visual Resources from Primary Roads (7,855 acres – Map I-6)**
  Rationale: Visual contrast and potential impacts were considered based on the IFNM RMP management goal to "preserve the monument's natural and scenic visual values," and because the scenic qualities of IFNM are specifically mentioned in the proclamation. This data set consists of a quarter-mile buffer from the primary road network and five principle touring routes in the IFNM, including Manville Road, Avra Valley Road, Pump Station Road, Silverbell Road, and Sasco Road. The primary road network will carry the bulk of public recreational traffic in the monument, and the scenery along these routes is an important resource. Target shooting activity causes noticeable visual impacts that can detract from the natural landscape and sight-seeing by visitors, particularly areas visible in the foreground viewing distance from the roads.

Of the 128,000 total BLM acres in the IFNM, a total of 77,585 acres[4] were identified as having sensitive resources present (see Map I-7). This acreage was eliminated from further consideration for target shooting activity.

[4] Several of the sensitive resource areas overlap, so this number does not reflect a total sum of the resource acreages listed with each resource on pages 3-5.

1.2 Existing Laws and Regulations

Certain laws, regulations and statutes governing shooting on public lands in Arizona effectively restrict shooting activity in some areas of BLM administered land that are otherwise open for this purpose. Where possible, BLM mapped these areas within the IFNM in order to avoid them in this analysis. Arizona Revised Statute (A.R.S.) 17-309a(4), includes the following restriction:

> *A.R.S. 17-309a(4): It is unlawful for a person to discharge a firearm while taking wildlife within one-fourth mile of an occupied farmhouse or other residence, cabin, lodge or building without permission of the owner or resident.*

Known as the "quarter-mile law," A.R.S. 17-309a(4) contains a specific measurement of one quarter-mile that BLM included in its spatial analysis to depict areas where shooting is restricted due to proximity to occupied residences. Quarter-mile buffers were placed around occupied residences within the monument (and outside of the monument where residences are located within a quarter-mile of its boundary).

Current federal regulations also contain the following restriction on shooting:

> *43 CFR 8365.2-5: On developed recreation sites and areas, unless otherwise authorized, no person shall: (a) Discharge or use firearms, other weapons, or fireworks*

While IFNM does contain areas that are frequently used for recreation, no "developed recreation sites" exist, and none are proposed in the RMP. Therefore, this regulation was not considered during this analysis.

Restrictions on shooting in relationship to the locations of roads and railways are also found in current law:

> *A.R.S. 17-301b: No person may knowingly discharge any firearm or shoot any other device upon, from, across or into a road or railway.*

While the location of roads in the IFNM can be mapped, this restriction could not feasibly be included in the GIS analysis because the position of the shooter would need to be known to determine if a road was in the shooter's shooting fan. This law was considered during on-site visits where the potential location of the shooter could be reasonably determined (see section 2.2, below).

Of the 128,000 total BLM acres in the IFNM, 1,643 acres fall within a quarter-mile of occupied residences (see Map I-7). Combined with the acreage of areas with high resource sensitivity (77,585 acres) a cumulative sum of approximately 78,538[5] acres were eliminated from further consideration as being suitable for shooting activity.

[5] Of the 1,643 acres falling within a quarter-mile of occupied residences, 953 acres did not overlap with areas eliminated for sensitive resources. Thus, 953 + 77,585 = 78,538.

1.3 Areas with high sensitivity to shooting noise

A.R.S. 17-602 sets a limit on the amount of noise that can be emitted from outdoor shooting ranges in Arizona to an Leq(h) (hourly average) of 64 dBA within a mile of residences and other similarly occupied structures, and areas that are zoned for such structures. Section 17-602(B) includes the provision that "*ranges that are located at least one mile from areas that are zoned for residences, schools, hotels, motels, hospitals or churches are exempt from this subsection*," implying that an Leq(h) of 64 dBA is typically reached at a distance of less than a mile from the source. BLM has used the one-mile measurement as a guideline for this shooting analysis by placing a one mile noise buffer from a "person's residence, school, hotel, motel, hospital or church, or the proposed location . . . if the property is zoned for such a structure but is currently unimproved" (17-602(E)1).

While this law applies to shooting ranges and not dispersed, undeveloped shooting activity, recreational target shooting on the IFNM is typically concentrated to select areas, and noise emitted from these areas can be comparable to shooting ranges during high points of activity. Noise measurements are variable depending upon various factors including type of firearm being used (which is not regulated on public lands) and specific characteristics of the area, and exceptions will exist where an hourly average of 64 dBA is reached well before and beyond one mile. For example, while shooting on the IFNM would not generally be at the same intensity of a shooting range, ambient noise levels on the monument are much lower than those typically associated with developed areas where ranges would be located. Recognizing the variable nature of these measurements, BLM has used the one-mile measurement from A.R.S. 17-602 as a standard for noise measurement.

Of the 128,000 total BLM acres in the IFNM, 22,078 acres fall within the one-mile noise buffer from residences and areas slated for residential use development (see Map I-8). Combined with the acreage of areas with high resource sensitivity (77,585 acres) and areas within a quarter mile of occupied residences (1,643) a cumulative sum of approximately 86,244[6] acres were eliminated from further consideration as being suitable for shooting activity.

1.4 Presence of suitable terrain for shooting (existing natural backstops)

Under the Code of Federal Regulations, it is unlawful to create a public hazard, public nuisance, or create a risk to other persons on public lands (43 CFR 8365 1-4). In order for dispersed, undeveloped target shooting to occur in a safe environment on public lands without risk to others, a natural backstop or berm with sufficient dimensions must be located behind the target. There are large flat areas in the IFNM where target shooting is naturally precluded due to the absence of any natural backstops. The BLM used a GIS terrain analysis to identify areas in the monument where target shooting could safely occur based on the location of natural backstops or berms. The BLM used information from the following sources to establish appropriate safety criteria and develop guidelines for the terrain analysis:

[6] Of the 22,078 acres falling within a mile of current and future residential areas, 7,706 acres did not overlap with areas eliminated for sensitive resources and the ¼-mile law. Thus, 7,706 + 78,538 = 86,244.

- "Baffles, Berms and Backstops" by David Luke, Range Technical Team Advisor, National Rifle Association. Article available on the National Association of Shooting Ranges website at http://www.rangeinfo.org/resource_library/resLibDoc.cfm?filename=facility_mngmnt/design/baffles_berms.htm&CAT=Facility%20Management
- Technical advice and information given by Dave Daughtry, Pima County Shooting Sports Program Manager, in a meeting held October 10, 2007 at BLM Tucson Field Office.

Based on these sources, a minimum height of 15 feet for a shooting backstop is acceptable but 20 to 25 feet is recommended. The recommended slope for a backstop is 45 degrees or greater. Because these criteria were established for constructed ranges, and not for unmanaged, open shooting areas, they were taken as guidelines to evaluate the natural terrain's capability to provide target shooting site backstops in the IFNM. For example, areas with a 45 degree slope are very scarce in the IFNM, so this was not included as a primary criterion to locate safe shooting areas. On the other hand, a hill rising to 15 or 20 feet may not be sufficiently safe, depending on the slope of the hill, position of shooter, and other factors.

In order to locate all areas in the IFNM with potentially appropriate backstop dimensions, and thus providing areas for safe shooting, BLM used GIS software to perform a terrain analysis identifying areas within the monument that have slopes steeper than 15 degrees. This lower-threshold dimension was employed so that all areas with significant elevation changes could be identified and examined further for their potential as safe shooting areas; the intent was to cast a wide net so that all potential areas could be considered. A 400-yard buffer was then placed around these areas to encompass a typical shooter-to-target distance. Areas identified under this exercise are called "potential shooting terrain."

Of the 128,000 total BLM acres in the IFNM, 47,017 acres of BLM land were found to be within "potential shooting terrain" (see Map I-9). Of those 47,017 acres, 2,965 acres did not conflict (or overlap) with the 86,244 acres already eliminated from consideration, as identified above[7]. These 2,965 acres are depicted on Map I-10, and were further scrutinized during on-site visits, as described in section 2 below. The remainder of the IFNM was not considered further in this analysis.

1.5 Results of GIS Analysis

Based solely on the criteria used for this GIS analysis, approximately 2.3% of the IFNM is potentially suitable for recreational target shooting activity, subject to on-site analysis. This is significant because these preliminary GIS results indicate that the management of target shooting in the IFNM should probably be dramatically altered, going from the current policy of

[7] Some small, flat areas at the bases of hills that were identified as being within "potential shooting terrain" were cut off from the corresponding hill, or backstop, when the resource sensitivity data was overlaid on the terrain analysis. These small slivers of land (numerous polygons totaling about 670 acres) were eliminated from further analysis because the corresponding backstops, essential to a shooting area, had been eliminated due to resource sensitivity concerns. These 670 acres were subtracted from the 3,635 actual acres of potentially safe shooting terrain that did not overlap with areas that had been eliminated from further analysis to arrive at the 2,965 figure.

allowing dispersed shooting throughout the IFNM to either limiting shooting to relatively small areas, or depending upon the results of the on-site analysis, closing the IFNM to shooting. These management options are discussed in more detail in section 4, below.

2. Criteria Evaluated through On-site Analysis

The next step of the shooting analysis was to conduct on-site visits to the areas encompassing the 2,965 acres identified above. According to the GIS analysis, these areas appeared to meet the following criteria:

- minimal resource concerns present (low potential for resource damage)
- appropriate distance from residences (with regard to the quarter-mile law and emission of shooting noise)
- exhibit terrain potentially suitable for safe shooting (natural landforms providing sufficient backstops)

BLM conducted field visits to these areas to verify site conditions, gather additional information, and evaluate the areas with regard to their overall suitability for shooting activity. During the on-site visits, the second set of criteria was evaluated, as listed in Table 1 above and described in greater detail below. These criteria predominantly represent data that cannot be mapped by GIS, has never been mapped, or is too site-specific to be feasible for GIS application. They include factors that are important to the target shooting analysis but are primarily dependent upon the characteristics of a specific area.

To facilitate the on-site analysis process, BLM divided the 2,965 remaining acres into eight study areas (see Map I-10). These study areas are based on the geographic location of each polygon and common characteristics. Some areas contain one polygon while others contain two. Each area was given an overall ranking of high suitability, moderate suitability, or low suitability for target shooting activity based on the on-site criteria and the best available information for each area. Definitions for high, moderate, and low suitability under each of the categories were developed by a BLM interdisciplinary team and are provided in the accompanying tables below, along with rationale for the definitions where needed. Because the definitions contain some specific measurements and explicit criteria, many of the sites did not fit precisely under only one definition; it was in fact unusual for an area to exclusively meet all the specific criteria listed in a given definition. Therefore, the definitions were considered as general guidelines for evaluating and assigning a ranking to each area, while using the best available information for each site.

2.1 Significant presence of monument objects or high natural and cultural resource sensitivity (not captured through GIS analysis)

The data layers used in the GIS analysis to locate areas with high resource sensitivity included specific types of natural and cultural resources that represent areas with a significant presence of monument objects or with high natural and cultural resource sensitivity. They do not represent comprehensive surveys of all monument objects and resources that warrant protection. Because they are not comprehensive, on-site visits to potentially suitable shooting areas were conducted to determine if additional resources that were not captured in the GIS analysis were present. A good example is BLM's consideration of cultural data. While cultural data was used in the GIS analysis, only about 15% of the IFNM has been surveyed for cultural resources. During site visits, additional cultural resources were observed in some areas. This information was included and considered in the suitability rankings.

The following resource-related factors were observed during site visits:

- Characteristic vegetation; type and density of vegetation
- Presence of special status species habitat
- Presence of other biological resources
- Presence of geological resources
- Presence of cultural resources
- Presence of other objects of historic and scientific interest
- Visibility and visual quality

BLM developed the criteria in Table 2-1 below to rank suitability for target shooting in specific areas with regard to protection of resources and monument objects. These rankings were considered together with rankings from other criteria to determine overall suitability for shooting activity in each area (see section 3 below). Rationale for these criteria is discussed above in section 1.1.

Table 2-1: On-site Criteria for Resources and Monument Objects

Low Suitability	High diversity of vegetation; exemplary plants and assemblages present; dense vegetative cover and canopy; within sensitive wildlife habitats; within "suitable" pygmy owl habitat (as determined by the pygmy owl habitat occupancy assessment); known desert tortoise burrowing areas/sites in area; raptor nesting sites in area; high potential for defacing and damaging geological features; cultural resources present; area visible from main access routes; high potential for new noticeable visual contrast; no existing visual impacts
Moderate Suitability	Moderate diversity of vegetation, no exemplary plants and assemblages present, moderate vegetative cover and canopy; away from sensitive wildlife habitats; within "possibly suitable" pygmy owl habitat (as determined by the pygmy owl habitat occupancy assessment); no known desert tortoise burrowing areas/sites in area; no raptor nesting sites in area; minimal potential for defacing and damaging geological features; no known cultural resources present; area minimally visible from main access routes; low potential for new noticeable visual contrast; noticeable visual impacts present
High Suitability	Low vegetation diversity, no exemplary plants or assemblages present or adjacent, free of vegetative cover, or sparse vegetation; away from sensitive wildlife habitats; area determined to be "not suitable" for pygmy owl habitat (as determined by the pygmy owl habitat occupancy assessment); no known desert tortoise burrowing areas/sites in area; no raptor nesting sites in area; no potential for defacing and damaging geological features; no known cultural resources present; area not visible from main access routes; low potential for new noticeable visual contrast; noticeable visual impacts present

2.2 Visitor Safety; Nearby Uses and Facilities

The location of certain uses, sites, and facilities on the IFNM, relative to the location of target shooting activity, is an important factor because of issues related to visitor safety, incompatible uses, and protection of property. During on-site visits, the BLM identified nearby uses and facilities that could be affected by or have a bearing on shooting (according to the preferred

alternative of the RMP, where applicable), as well as potential safety issues with regard to proximate uses and activities.

The following factors were observed during site visits:

- Nearby facilities and other sites or areas temporarily occupied by persons, including:
    a. Designated camp sites, large group sites, and staging areas
    Rationale: temporary occupancy, user safety, visitor experience
    b. Corrals, stock ponds, tanks, wells, windmills, troughs
    Rationale: temporary occupancy, user safety, damage to facilities, disturbance of livestock
    c. Wildlife waters
    Rationale: user safety, disturbance to wildlife, damage to facilities
    d. Dispersed recreation areas (trailheads, etc)
    Rationale: temporary occupancy, user safety, visitor experience
    e. Cultural sites designated for public use
    Rationale: temporary occupancy, user safety, visitor experience
    f. Utility corridors and facilities (utility lines, pipelines, communication sites)
    Rationale: user safety, damage to facilities
- Location of roads and trails
  Rationale: user safety; state law does not allow shooting across or into roads (*A.R.S. 17-301b: No person may knowingly discharge any firearm or shoot any other device upon, from, across or into a road or railway*)
- Other potentially sensitive or conflicting land use activities in the area, or other nearby uses that could facilitate shooting activity

During site visits, BLM found that Sasco Road and Silverbell Road, two of IFNM's four major entrance and touring roads, were both within 0.5 to 1 mile shooting fan of a "potential shooting terrain" area of 139 acres east of the intersection of Sasco and Silverbell Roads. The topographical and other physical constraints of this small area would require potential shooters to shoot in a west to northwest direction toward Sasco and Silverbell Roads. This area was excluded from further analysis due to these clearly unsafe conditions.

BLM developed the criteria in Table 2-2 below to rank suitability for target shooting in specific areas with regard to safety and protection of nearby uses and facilities. These rankings were considered together with rankings from other criteria to determine overall suitability for shooting activity in each area (see Section 3 below). Rationale for the specific distances included in the criteria is also provided.

Table 2-2: Criteria for Safety and Nearby Uses and Facilities

Low Suitability	Within ¼ mile of livestock and wildlife waters, and corrals; within ¼ mile of designated camp sites, trailheads, and other temporarily occupied sites; roads or trails, livestock and wildlife waters, designated camp sites, trailheads, and other temporarily occupied sites, communications sites, utilities, or other surface facilities within 1 mile shooting fan; occupied residences within 1.5 to 2.5 mile shooting fan

Moderate Suitability	At least ¼ mile from livestock and wildlife waters, and corrals; at least ¼ mile from designated camp sites, trailheads, and other temporarily occupied sites; no roads or trails, livestock and wildlife waters, designated camp sites, trailheads, and other temporarily occupied sites, communications sites, utilities, or other surface facilities within 1 to 1.5 mile shooting fan; occupied residences within 2.5 to 3.5 mile shooting fan; at least 1.5 miles from closest residence or areas likely to be developed for residential use
High Suitability	At least ¼ mile from livestock and wildlife waters, and corrals and livestock gathering areas; at least ¼ mile from designated camp sites, trailheads, and other temporarily occupied sites; no roads or trails, livestock and wildlife waters, designated camp sites, trailheads, and other temporarily occupied sites, communications sites, utilities, or other surface facilities within 1.5-mile shooting fan; no occupied residences within 3.5-mile shooting fan; at least 2 miles from closest residence or areas likely to be developed for residential use
Rationale	• Quarter- mile from various temporarily occupied sites – *A.R.S 17-309a(4)* makes it unlawful for a person to shoot within one-fourth mile of an occupied residence. BLM applied this distance, which is based on safety concerns, to other sites with temporary or limited human occupancy and use, also in consideration of safety. • Shooting fan mileages – A downrange safety fan is an area beyond the backstop that captures that majority of errant bullets. A safety fan must be considered in assuring a safe shooting area. The fan's dimensions will depend on the suitability of the backstop. Sites with less than ideal backstops must have increasingly longer downrange safety fans, approaching the distances of 1.5 miles for pistols and 3.5 miles for high power rifles.[8] Distances of 0.5 mile to1.5 miles to protect users of roads, campsites, and other temporarily occupied sites are based on these considerations and the imperfect nature of the backstops used for dispersed shooting on the IFNM. Ratings of High, Moderate, or Low suitability for this category do take into account the suitability of the backstop at each given area, with lower requirements for fan distance where highly suitable backstops exist. Shooting fan distance thresholds are higher with regard to occupied residences within the shooting fans than for other temporarily used sites.

2.3 Accessibility

Target shooting in an undeveloped setting on public lands is almost exclusively associated with sites that are accessible by motorized vehicle, with shooting activity occurring very near the vehicle. Travel time and distance is also an important factor for visitors who engage in target shooting. Accessibility of shooting areas is considered in this analysis to account for these factors and to avoid identifying areas for shooting that are not accessible or too remote to accommodate the majority of target shooters. Areas that are not accessible within a short walking distance from an existing road or way were not considered for further evaluation. One area of 201 acres located northwest of the intersection of Sasco and Silverbell Roads was eliminated for this reason.

[8] "Baffles, Berms and Backstops" by David Luke, Range Technical Team Advisor, National Rifle Association. Article available on the National Association of Shooting Ranges website at http://www.rangeinfo.org/resource_library/resLibDoc.cfm?filename=facility_mngmnt/design/baffles_berms.htm&CAT=Facility%20Management

The criteria in Table 2.3 focus on the travel time/distance and relative ease and ability for the public to access potential shooting locations. Considerations include the condition of access routes, type of vehicle needed for access, and driving time from population served or public highways.

The following factors were observed during site visits:

- Site accessible by road with legal public access
- Travel time from highway/Tucson,
- Physical condition of travel route leading to site, type of vehicle needed
- Available area for parking (wide road, turnouts, etc.)

BLM developed the criteria in Table 2-3 below to rank suitability for target shooting in specific areas with regard to accessibility. These rankings were considered together with rankings from other criteria to determine overall suitability for shooting activity in each area (see section 3 below). Rationale for the specific measurements included in the criteria is also provided.

Table 2-3: Accessibility Criteria

Low Suitability	Area is accessible by 4 wheel drive, high clearance vehicles only; one hour or more driving time to arrive from Interstate; site not accessible by existing route; no legal public access
Moderate Suitability	Area is generally accessible by high clearance vehicle; within a 40 minute drive from Interstate; site accessible by existing route
High Suitability	Area is accessible by passenger cars; within a 20-40 minute drive from Interstate; sites accessible by existing route, designated for motorized use in Draft RMP
Rationale	• Driving time from Interstate – This factor was based on information related to the amount of time shooters will typically travel to engage in target shooting activities. Interviews conducted with shooters in the Tucson area have revealed that they "want shooting opportunities within a 15-30 minute drive from home."[9] One professional estimate put the time that Tucson shooters are *willing* to travel at 45 minutes.[10] Finally, interviews conducted with shooters throughout Arizona indicate that most typically travel about 45 minutes to shoot on federal lands.[11] For the purposes of the definitions below, Interstate-10 is used as the indicator of driving time for the average visitor to the IFNM originating in the Tucson metropolitan area. I-10 runs north-south along the east boundary of the monument, at a distance ranging from approximately 10 to 30 miles from the monument boundary, and is the major feeder of visitors to the IFNM. Driving times for visitors living in the residential areas situated between the I-10 and IFNM would be shorter, while driving times for visitors from Tucson, the major population center served by the IFNM, would be slightly longer depending on their specific origin. I-10 as a starting point does not reflect true driving times for all monument visitors, but is useful in measuring average driving times for visitors to the IFNM.

[9] "Final Report: Tucson basin Shooting on Public Lands Workshop Project," 2006. U.S. Institute for Environmental Conflict Resolution, Tucson Arizona. Available at: http://www.ecr.gov/ecr.asp?Link=406&Project=407

[10] Dave Daughtry, Pima County Shooting Sports Program Manager, quoted in notes from meeting at BLM Tucson Office, October 10, 2007.

[11] Preliminary results, "Recreational Shooting on Federal Lands (for the Federal Lands Hunting and Shooting Sports Roundtable), Arizona and California; May 2008. Available at BLM Tucson Field Office.

2.4 Physical Suitability

While the GIS terrain analysis detected areas on the IFNM with natural shooting backstops, on-site visits were needed to verify the presence of sufficient backstops and gather additional information on the physical characteristics of an area that could facilitate or impede shooting activity and provide for reasonably safe shooting opportunities. Several factors are considered in assessing the physical suitability of an area for target shooting activity. The most significant factors are an area's natural capability to contain bullets and the dimensions of natural landforms to provide a backstop. Other factors include the type of terrain located between the shooter and the backstop, which affects usability of a site for access to the target zone and backstop for setup/take down, and cleanup; the material makeup of the backstop itself, to assess the potential for ricocheting bullets; and the potential for an area to accommodate multiple shooting parties.

The following factors were observed during site visits:

- Size/extent of backstop
- Size of shooting area
- Terrain of shooting area
- Backstop surface

BLM developed the criteria in Table 2-4 below to rank suitability for target shooting in specific areas with regard to their physical suitability. These rankings were considered together with rankings from other criteria to determine overall suitability for shooting activity in each area (see section 3 below). Rationale for the specific measurements included in the criteria is also provided.

Table 2-4: Physical suitability criteria

Low Suitability	Site could support only one shooting party at a time; backstop provides horizontal fan under 15 degrees, vertical fan under 5 degrees; backstop surface predominantly hard rock or hard pan material; uneven, broken-up terrain with drainages, washes, dense vegetation or other obstacles that preclude target setup/retrieval and observation of others.
Moderate Suitability	Site could support 2 to 3 shooting parties at one time; backstop provides horizontal shooting fan over 15 to 45 degrees, vertical fan up to 20 degrees; backstop surface of mixed hard rock and unconsolidated material; uneven terrain with drainages or vegetation that could impede target setup/retrieval, and observation of others.
High Suitability	Site could support multiple shooting parties at one time (more than 3 parties); backstop provides wide horizontal shooting fan (greater than 45 degrees), and wide vertical shooting fan (greater than 20 degrees); backstop surface pre-dominantly unconsolidated, loose soil material; fairly even terrain with little or low vegetation that allows for target setup/retrieval and observation of others.
Rationale	• Number of shooting parties. – Because there is limited terrain potentially suitable for shooting in the IFNM, any area where shooting is allowed to continue should be able to accommodate more than one shooting party. Shooters typically space themselves out from each other, and a site with opportunities for doing so are more favorable than others that only offer close quarters. A site capable of accommodating only one party would promote the expansion of the activity into areas where it is restricted.

	• Shooting fan measurements – Larger landforms that provide broad and high backstops for a wide shooting fan are more effective at capturing errant bullets than those with a small hill that provides a narrow and low backstop.

3. Area Rankings

Table 3-1 shows the four rakings each site received based on the criteria discussed in section 2. A field data sheet for each area can be found in Appendix A.

Table 3-1: Site Rankings

Site	Acres	Resources & Monument Objects	Safety, Nearby Uses, Facilities	Accessibility	Physical Suitability
Avra Hill	406	M	L	H	H
Cerrito Represo	223	L	L	H	H
Cocio Hills	493	L	L	L	M
Cocoraque	205	L	M	L	M
Pan Quemado	319	L	M	L	L
Sasco Hills	160	L	L	M	L
Sawtooth North	551	L	L	M	L
Sawtooth South	542	L	L	L	M

H = High suitability for shooting area
M = Moderate suitability for shooting area
L = Low suitability for shooting area

While these rankings do offer a rough indication of the overall suitability of each site, BLM felt it was important to provide a single summary ranking for each site in order to more easily contrast overall suitability between sites and compare findings. To do this, values were assigned to each ranking, where H=2, M=1, and L=0. Each category of criteria was then weighted to reflect the significance of the category with regard to the purpose of the shooting analysis. The primary distinction between shooting on the IFNM and shooting on other BLM lands is the protected status of the biological, cultural, and geological resources on the IFNM. Management concerns and problems related to shooting on the IFNM focus more on resource damage than any other factor. Therefore, protection of resources and monument objects is one of the principal concerns and foci of this analysis, and was given a weight of three (W3). The safety, nearby uses, and facilities category was also assigned a W3 because of its strong human safety component, which is a critical element that must be considered on par with any resource considerations. The physical suitability of an area partially addresses safety issues as well, but also focuses on accommodation of shooting activity and the manageability of an area. These are less significant factors in determining appropriate shooting locations, so this category was given a weight of two (W2). Accessibility was a necessary factor to consider in this analysis, but was probably the least significant because it is relative to each shooter. In addition, areas entirely inaccessible by motorized vehicle were already eliminated from analysis, thus removing one of the most significant factors related to this category. For these reasons the accessibility factor was given a weight of one (W1). Site rankings, based on values assigned to each rating, and weights given to each category, are shown in Table 3-2.

Table 3-2: Weighted Site Rankings

Site	Resources & Monument Objects (W3)	Safety, Nearby Uses, Facilities (W3)	Accessibility (W1)	Physical Suitability (W2)	Numeric Suitability Ranking (Scale: 0-16)
Avra Hill	3	0	2	4	**9**
Cerrito Represo	0	0	2	4	**6**
Cocio Hills	3	0	0	2	**5**
Cocoraque	0	3	0	2	**5**
Pan Quemado	0	3	0	0	**3**
Sasco Hills	0	0	1	0	**1**
Sawtooth North	0	0	1	0	**1**
Sawtooth South	0	0	0	2	**2**

The next step of the process was to categorize each site based on its numeric suitability ranking. By dividing the 16-digit scale in thirds to generate ranges for low (0 – 5.3), moderate (5.4 – 10.6), and high (10.7 – 16), the sites fall into the following categories:

Table 3-3: Final site suitability rankings

Low Suitability	Moderate Suitability	High Suitability
Sasco Hills Sawtooth North Sawtooth South Pan Quemado Cocoraque Cocio Hills	Cerrito Represo Avra Hill	None

4. Analysis of Preliminary Results and Concentration of Shooting Activity

Based on the criteria used for this analysis, about 629 acres, or 0.5% of the IFNM can be defined as moderately suitable for target shooting activity, with the rest of the monument considered not suitable or demonstrating low suitability characteristics. These findings are significant because they show that very few locations on a landscape level could qualify as appropriate places to continue target shooting activity in the IFNM, and none exist that are ideal for accommodating this activity. The results of this analysis also indicate that shooting activity, were it to continue in the monument, would probably be limited to these two areas only. Thus, Cerrito Represo and Avra Hill must be further examined for their suitability in the context of moving all shooting activity in the IFNM to these two areas.

Analysis of effects of limiting shooting to Avra Hill and Cerrito Represo

A. Probable significant increase in damage to monument objects and resources

Target shooting activity is currently dispersed throughout the entire IFNM and recurring activity has been documented at 34 individual locations. Reducing the number of locations where shooting regularly occurs from 34 to 2 would cause significant impacts to these two locations because of the increased concentration of shooting activity that would occur there. Current shooting activity at Cerrito Represo and Avra Hill has already caused extensive damage to vegetation, geology, soils, cultural artifacts, and other resources, as shown in figures 1 and 2

below. Broad strips of land devoid of vegetation with disturbed rocks and soils and littered with brass and remnants of targets have appeared as a result of concentrated shooting in these areas. Cacti, trees, and bushes are frequently used as targets or as target holders (see figures 3 through 7). When vegetation in the vicinity is not specifically targeted by shooters, it is damaged by errant bullets, frequent trampling from target set-up and retrieval, ricochet, and other related causes.

Concentrating a significant quantity of additional use at these sites would cause this type of disturbance to spread further throughout the areas, affecting monument objects that are not currently in the probable line of fire. Additional shooters would intensify use of each area and create additional shooting lanes. In addition to the damage that would occur at the backstop and foreground, additional use would expand impacts to vegetation and other resources in the parking areas of each location. Generally, the current shooting sites would expand in size to eventually accommodate those shooters who had been displaced by closure of the rest of the monument. To visualize this potential scenario at Avra Hill, pictures of three sites within three miles of Avra Hill are shown below (figures 8 through 10). The impacts associated with these sites (in addition to the impacts from 10 other shooting sites within three miles of Avra Hill that are not pictured here) would be transferred to Avra Hill.

B. Potential safety issues associated with each area

Cerrito Represo and Avra Hill both received ratings of low suitability with regard to safety and nearby uses. Suitability with regard to safety would be decreased even further if all shooting use were to be concentrated in these areas. An administrative route that accesses two water facilities is located within a half-mile shooting fan of the Cerro Represo site, and another administrative route accessing a communications site is located within a two-mile shooting fan. Additional range facilities located less than 100 feet from the shooting area are frequently vandalized and used as targets. This potential shooting area also comprises one hill with roads accessing almost the full radius of the hill's base. If shooting was concentrated in this area, various shooting parties could very likely surround the hill at different locations, creating the unsafe scenario where each party is located in another party's shooting fan. At the Avra Hill site, pedestrian/equestrian trails are located within half-mile and mile shooting fans, and administrative routes and public roads are within a two mile shooting fan. Concentrated shooting at these sites would increase the safety threat considerably by increasing the frequency of the threat, making target shooting unsuitable for these locations.

In summary, increased concentration of shooting activity in the Cerrito Represo and Avra Hill areas would create significant problems related to increased environmental impacts and visitor safety, making Cerrito Represo and Avra Hill unsuitable for continued target shooting under this scenario. Therefore, the IFNM in its entirety should be considered an unsuitable area for continued target shooting activity, primarily based on the impacts to resources and safety considerations described above.

Figure 1: Cerrito Represo Shooting Area



Figure 2: Avra Hill shooting area



Figure 3: Saguaro cactus used as target



Figure 4: Saguaro cactus used as target; arms shot off

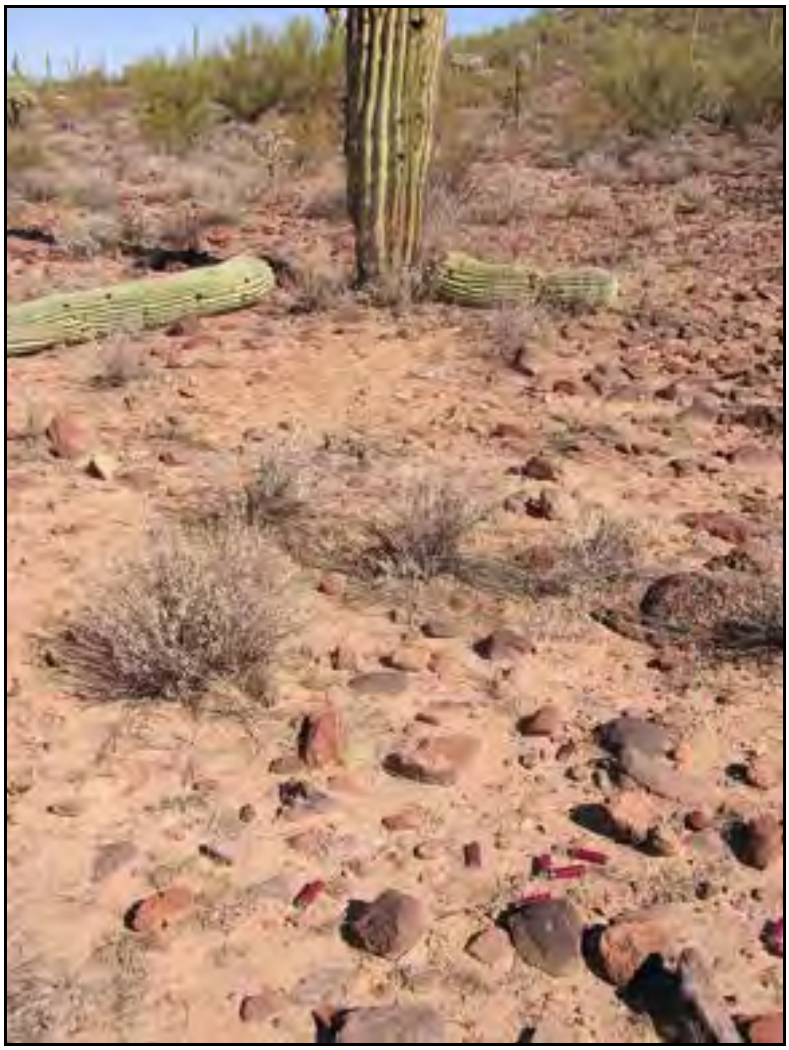


Figure 5: Target placed in mesquite tree



Figure 6: Ironwood tree used as target



Figure 7: Shooting area on Johnson Mine Road, just southwest of Avra Hill shooting area



Figure 8: Shooting area on pipeline road just east of Avra Hill shooting area



Figure 9: Shooting area on Johnson Mine Road, just southwest of Avra Hill shooting area



5. Management Scenarios

The IFNM should generally be considered unsuitable for continued target shooting activity based on the findings of this analysis. To provide context and further disclose the effects of target shooting on the IFNM, the potential impacts of four different management scenarios are provided below.

5.1 Management Scenario A: Limit target shooting to specific sites

The BLM could allow target shooting to continue only at specific, identified sites. These sites would probably be located within the most suitable areas as determined in Tables 3-2 and 3-3. All shooting activity would be consolidated at these sites, which would decrease damage to resources in other areas, reduce the likelihood of new target shooting destinations being created outside of these sites, and limit potential conflicts with non-shooting users of the monument. Target shooting violations could also be monitored more closely by law enforcement. Damage to resources at these sites would increase in extent and severity, though limits of acceptable change could be applied to mitigate damage. If thresholds are reached, adaptive management actions would be triggered that could include signing, other public education actions, and increased law enforcement; limits on the types of weapon or ammunition that may be used; and/or, temporary or permanent closure of the site to target shooting. Other impacts under this scenario would include increased potential for conflicts between shooting groups and an increased likelihood of unsafe shooting conditions, as more shooters congregate at a limited number of sites. Proliferation of unauthorized shooting sites would likely increase as many shooters who encounter a site already in use will find an alternative site in the general vicinity, or just further down the road. Shooting sites under this scenario would need to be clearly delineated with signs and/or fences to confine shooting activity to appropriate areas.

5.2 Management Scenario B: Limit target shooting to specific zones

The BLM could allow target shooting to continue only within specific areas, or zones. Zones would be larger areas than the sites described under Scenario A, and zone locations and boundaries would generally be based on the most suitable areas for target shooting as determined in Tables 3-2 and 3-3, totaling around 648 acres. Scenario B would allow for greater dispersal of shooting and associated impacts than Scenario A, while still confining the activity to appropriate locations. Other impacts would be very similar to those described under Scenario A, except that shooting impacts would cover a larger area. Unsafe shooting conditions and conflicts between shooting groups could also increase at a local level under Scenario B as shooting is confined to several sites within a relatively small zone. This scenario increases the probability that a shooting party would be located in the shooting fan of another party using the same zone, or otherwise located in an unsafe area relative to other shooting parties.

5.3 Management Scenario C: Allow target shooting throughout the IFNM

The BLM could allow target shooting to occur throughout the monument, which would be a continuation of current management. This would further disperse the environmental impacts of target shooting when compared to Scenarios A and B, but these impacts would continue to increase and spread throughout the monument. Shooting would continue to occur in areas that have been identified as unsuitable for target shooting activity, and monument objects would continue to be damaged on a broad scale. Unsafe conditions monument-wide would increase when compared to Scenarios A and B. Conflicts between shooters and non-shooting users of the monument would increase, but conflicts between shooting parties would decrease when compared to Scenarios A and B. New target shooting sites are likely to be created by users.

Limits of acceptable change would be established for certain areas where concentrated target shooting has been documented over time, and adaptive management actions would be the same as those listed under Scenario A. Enforcement of shooting rules and regulations would continue to be a challenge.

5.4 Management Scenario D: Prohibit target shooting throughout the IFNM

The BLM could prohibit target shooting throughout the IFNM. This would decrease resource damage and visitor conflicts on the IFNM and increase public safety. The shooters who currently visit the IFNM to target shoot would be displaced, and shooting activity would increase on non-monument BLM lands and other lands in the vicinity. Unauthorized target shooting on the IFNM would probably result; however, law enforcement could more effectively detect unauthorized activity.

ArcGIS Project: R:\projects\IFNMShootingAnalysis\avprojects\GeneralLocation_ResourceMaps\dthabitat.mxd

PDF Map file: Map-1-dthabitat.pdf

IRONWOOD FOREST NATIONAL MONUMENT

Map 1: Sonoran Desert Tortoise Habitat

- Main Access Roads
- Roads
- Primitive Roads
- Non-Motorized Trail
- Desert Tortoise Habitat, Category 1
- Desert Tortoise Habitat, Category 2

Harmon
Sunland Gin
Green Reservoir
Sunshine
Curtis
Picacho
Baumgartner
Cripple Creek
Coachway
Aries
Sagittarius
Night Sky
Indian Rte 15
Sasco
Pinal Airpark
Trico-Marana
Trico
El Tiro
Pump Station
Silver Bell
Avra Valley
Twin Peaks
Silverbell
Anway
Manville
Reservation
Sandario
Mile Wide
Kinney
Gates Pass

ArcGIS Project: R:\projects\IFNMShootingAnalysis\avprojects\GeneralLocation_ResourceMaps\majorvegetation.mxd

PDF Map file: Map-2-majorvegetation.pdf

IRONWOOD FOREST NATIONAL MONUMENT

Map 2: Significant Vegetation Areas

- Main Access Roads
- Roads
- Primitive Roads
- Non-Motorized Trail
- Significant Vegetation Areas

Harmon
Sunland Gin
Green Reservoir
Sunshine
Curtis
Picacho
Baumgartner
Cripple Creek
Coachway
Aries
Sagittarius
Night Sky
Indian Rte 15
Sasco
Pinal Airpark
Trico-Marana
Trico
El Tiro
Pump Station
Avra Valley
Twin Peaks
Silverbell
Silver Bell
Anway
Manville
Reservation
Sandario
Mile Wide
Kinney
Gates Pass

ArcGIS Project: R:\projects\IFNMShootingAnalysis\avprojects\GeneralLocation_ResourceMaps\selectedrareplants.mxd

PDF Map file: Map-3-selectedrareplants.pdf

IRONWOOD FOREST NATIONAL MONUMENT

Map 3: Rare and Unique Plants

- Main Access Roads
- Roads
- Primitive Roads
- Non-Motorized Trail
- Selected Rare Plants

ArcGIS Project: R:\projects\IFNMShootingAnalysis\avprojects\GeneralLocation_ResourceMaps\vhma.mxd

PDF Map file: Map-4-vhma.pdf

IRONWOOD FOREST NATIONAL MONUMENT

Map 4: Vegetation Habitat Management Areas (Proposed RMP)

- Main Access Roads
- Roads
- Primitive Roads
- Non-Motorized Trail
- Vegetation Habitat Management Areas

ArcGIS Project: R:\projects\IFNMShootingAnalysis\avprojects\GeneralLocation_ResourceMaps\dbswhma.mxd

PDF Map file: Map-5-dbswhma.pdf

IRONWOOD FOREST NATIONAL MONUMENT

Map 5: Desert Bighorn Sheep Wildlife Habitat Management Area (Proposed RMP)

- Main Access Roads
- Roads
- Primitive Roads
- Non-Motorized Trail
- Desert Bighorn Sheep Wildlife Habitat Management Area

Harmon
Sunland Gin
Green Reservoir
Sunshine
Curtis
Picacho
Baumgartner
Cripple Creek
Coachway
Aries
Sagittarius
Night Sky
Indian Rte 15
Sasco
Pinal Airpark
Trico-Marana
Trico
El Tiro
Pump Station
Avra Valley
Twin Peaks
Silverbell
Silver Bell
Anway
Sandario
Manville
Reservation
Mile Wide
Kinney
Gates Pass

ArcGIS Project: R:\projects\IFNMShootingAnalysis\avprojects\GeneralLocation_ResourceMaps\vrm.mxd

PDF Map file: Map-6-vrm.pdf

IRONWOOD FOREST NATIONAL MONUMENT

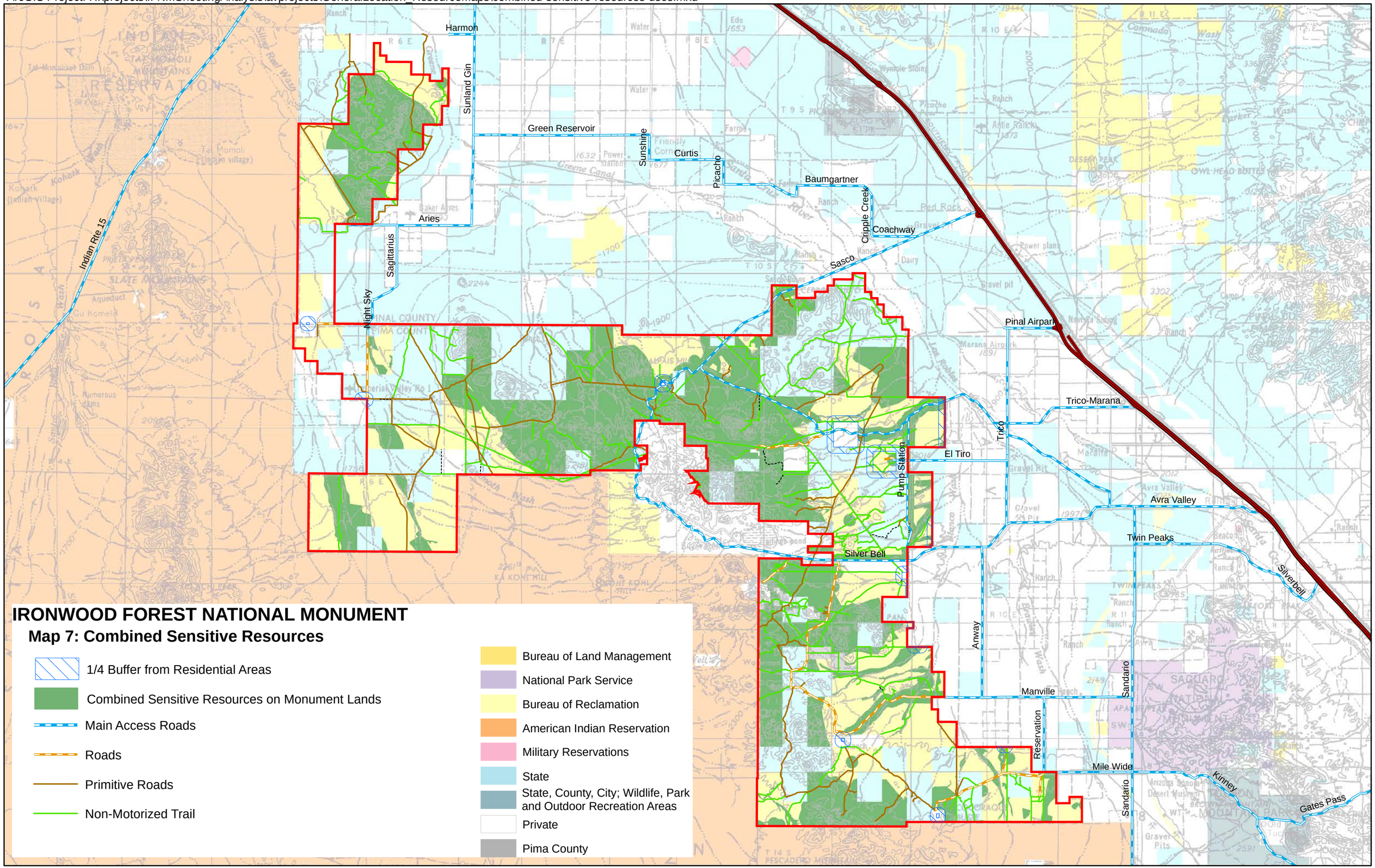
Map 6: Visual Resources from Main Roads

- Main Access Roads
- Roads
- Primitive Roads
- Non-Motorized Trail
- Foreground Scenery

Harmon
Sunland Gin
Green Reservoir
Sunshine
Curtis
Picacho
Baumgartner
Cripple Creek
Coachway
Sasco
Aries
Sagittarius
Night Sky
Indian Rte 15
Pinal Airpark
Trico-Marana
Trico
El Tiro
Pump Station
Avra Valley
Twin Peaks
Silverbell
Silver Bell
Anway
Manville
Reservation
Sandario
Mile Wide
Kinney
Gates Pass

ArcGIS Project: R:\projects\IFNMShootingAnalysis\avprojects\GeneralLocation_ResourceMaps\combined-sensitive-resources-uses.mxd

PDF Map file: Map-7-combined-sensitive-resources-uses.pdf



ArcGIS Project: R:\projects\IFNMShootingAnalysis\avprojects\GeneralLocation_ResourceMaps\noise.mxd

PDF Map file: Map-8-noise-sensitive.pdf

IRONWOOD FOREST NATIONAL MONUMENT

Map 8: Shooting Noise Sensitive Areas

- Area One Mile from Residential Areas
- Combined Sensitive Resources
- Main Access Roads
- Roads
- Primitive Roads
- Non-Motorized Trail

- Bureau of Land Management
- National Park Service
- Bureau of Reclamation
- American Indian Reservation
- Military Reservations
- State
- State, County, City; Wildlife, Park and Outdoor Recreation Areas
- Private
- Pima County

Harmon
Sunland Gin
Green Reservoir
Sunshine
Curtis
Picacho
Baumgartner
Cripple Creek
Coachway
Sasco
Aries
Sagittarius
Night Sky
Indian Rte 15
Pinal Airpark
Trico-Marana
Trico
El Tiro
Pump Station
Avra Valley
Twin Peaks
Silverbell
Silver Bell
Anway
Manville
Sandario
Reservation
Mile Wide
Kinney
Gates Pass

ArcGIS Project: R:\projects\IFNMShootingAnalysis\avprojects\GeneralLocation_ResourceMaps\hills-slopes-terrain.mxd

PDF Map file: Map-9-hills-slopes-terrain.pdf

IRONWOOD FOREST NATIONAL MONUMENT

Map 9: Potentially Safe Shooting Terrain

- Mountain Slopes and Footslopes
- Main Access Roads
- Roads
- Primitive Roads
- Non-Motorized Trail

- Bureau of Land Management
- National Park Service
- Bureau of Reclamation
- American Indian Reservation
- Military Reservations
- State
- State, County, City; Wildlife, Park and Outdoor Recreation Areas
- Private
- Pima County

ArcGIS Project: R:\projects\IFNMShootingAnalysis\avprojects\GeneralLocation_ResourceMaps\site-area-analysis.mxd

PDF Map file: Map-10-Site-area-analysis.mxd

Sawtooth North

Sawtooth South

Sasco Hills

Cocio Hills

Avra Hill

Pan Quemado

Cerrito Represo

Cocoraque

IRONWOOD FOREST NATIONAL MONUMENT

Map 10: Site Visit Locations

- Sites Visited
- Main Access Roads
- Roads
- Primitive Roads
- Non-Motorized Trail

- Bureau of Land Management
- National Park Service
- Bureau of Reclamation
- American Indian Reservation
- Military Reservations
- State
- State, County, City; Wildlife, Park and Outdoor Recreation Areas
- Private
- Pima County

APPENDIX J

RESPONSES TO PUBLIC COMMENTS

This appendix includes public comments on the Draft Resource Management Plan (RMP) and Environmental Impact Statement (EIS) for the Ironwood Forest National Monument (IFNM) and the Bureau of Land Management's (BLM's) responses to those comments. BLM provided the public with 90 days from the date of publication of the Notice of Availability (NOA) for the IFNM Draft RMP/EIS to review the plan and submit comments. The NOA was published in the Federal Register on March 2, 2007. The 90-day public comment period officially ended on May 30, 2007.

The National Environmental Policy Act (NEPA) and the Council on Environmental Quality regulations require that lead agencies evaluate comments received from persons who reviewed the Draft RMP/EIS and prepare a written response addressing the comments. Consistent with Title 40 of the Code of Federal Regulations Section 1503.4(b), all substantive comments will receive a response. Substantive comments are those that challenge the information in the Draft RMP/EIS as being inaccurate or inadequate or offer specific information that may influence BLM's decision. A substantive comment does one or more of the following:

- Questions, with a reasonable basis, the accuracy of the information in the EIS
- Questions, with a reasonable basis, the adequacy of environmental analysis as presented
- 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
- Causes changes or revisions in the draft plan/document

Comments that express an opinion for or against the project are not considered substantive. Non-substantive comments simply state a position in favor of, or against, an alternative; agree or disagree with BLM policy; or otherwise express an unsupported personal preference or opinion.

COMMENT ANALYSIS PROCESS

A standardized content analysis process was conducted to analyze the public comments on the Draft RMP/EIS. Each comment letter, email, fax or transcript received was read by members of the planning team to ensure that all substantive comments were identified and coded to the appropriate subject category.

Each substantive comment was assigned a unique identification number and coded (associated) based on comment categories that generally coincide with the section headings from the Draft RMP/EIS. Comments were coded to the following categories:

1. Purpose of and need for the RMP
2. Alternatives
3. Air quality
4. Geology and cave resources
5. Soil resources
6. Water resources
7. Vegetation
8. Wildlife and wildlife habitat
9. Special status species
10. Fire ecology and management

11. Cultural resources
12. Paleontological resources
13. Visual resources
14. Wilderness characteristics
15. Energy and minerals
16. Livestock grazing
17. Recreation
18. Shooting
19. Lands and realty
20. Travel management
21. Special designations
22. Social and economic conditions
23. Public safety
24. Consultation and coordination

Once identified, each substantive comment was entered into a database to allow sorting based on topic. Comments are included both as verbatim either as they were submitted, or as recorded at public meetings or paraphrased to capture the essence of the comment in a more condensed format. In some cases, several persons offered a comment that was similar or identical to another substantive comment. These similar comments were grouped and paraphrased into a comment summary, and a summary response was prepared.

The comments were not weighted by organizational affiliation or status of respondents, and the number of duplicate comments did not add more bias to one comment than another. The process was not one of counting votes, and no effort was made to tabulate the exact number of people for, or against, any given aspect of the Draft RMP/EIS. Rather, emphasis was placed on the content of a comment.

COMMENT OVERVIEW

All comments were reviewed for occurrences of similarity or replication. Where different commenters provided comments that were similar in theme or a repeat of the same comment, a summary was developed to aid BLM in developing uniform responses. These comment summaries were each assigned a unique identification number (e.g., 1[SR434] for Category 1, Summary Response number 434). This database code indicates it is a BLM response addressing similar comments about the Purpose and Need for the RMP.

Five topic areas represented the majority of the comments received on the Draft RMP/EIS: (1) shooting, (2) travel management, (3) livestock grazing, (4) public safety, and (5) alternatives. The Record of Decision will present the decisions made by BLM, and reflects consideration of these public comments on the Draft RMP/EIS.

HOW TO USE THIS COMMENT-RESPONSE DOCUMENT

More than 100 identical letters were submitted by the members and affiliates of two organizations. Table J-1 summarizes the comments from those two letters and identifies the code number for the responses. As BLM reviewed and analyzed all of the comments, it determined that other parties also offered similar comments; consequently, BLM prepared a summary response to these comments, as indicated by the acronym SR (e.g., SR52). While the names of more than 10,000 persons who submitted letters with the comments shown in Table J-1 are not included in this EIS, the list of those commenters is available at the Tucson Field Office, 12661 East Broadway Boulevard, Tucson, Arizona, or on the project website (http://www.blm.gov/az/st/en/prog/planning/ironwood.html).

Table J-1 Identical Letter Summary and Index

Organization	Comment	Index Location of Comments/Responses
Center for Biological Diversity	The Ironwood Forest is no place to sustain cattle operations without serious long-term consequences. The BLM should err on the side of common sense and caution and administratively close the grazing allotments unless it can be proven not to be harming the resources. The RMP should allow for voluntary and/or compensated permanent relinquishment of these permits and should set some firm science-based ecological parameters for administrative closure.	16(SR52)
	Alternative B, which allows for 63 miles of roads through 90,360 acres, offers more than enough area to manage for off-road vehicle travel. In addition to minimizing the total miles of routes open to off-road travel, the BLM also has the responsibility to ensure that routes and trails avoid and/or do not cause disturbance to sensitive wildlife habitats and riparian areas. These noisy, polluting machines disturb wildlife, degrade air quality, spread non-native species, crush vegetation, accelerate erosion and are generally not compatible with the preservation of monument resources or values. The BLM must not cave to political pressure to allow of-road users broad access to this national treasure. Imposing strong limits on off-road vehicles will also help prevent the further proliferation of illegal, user-created wildcat routes.	20(SR150)
The Wilderness Society	The Monument contains nearly 37,000 acres with wilderness characteristics, as inventoried by the Arizona Wilderness Coalition and the BLM. Yet, the plan's preferred alternative would only manage 9,510 acres, or one-fourth of the eligible lands, for wilderness characteristics. I urge you to manage all wilderness quality lands in a manner that protects their unique and irreplaceable characteristics.	14(SR51)
	Current livestock grazing practices within the Sonoran Desert ecosystem have been proven to be destructive to natural and cultural resources. The draft plan proposes to maintain the same grazing patterns as before the Monument was created, thus allowing for continued degradation to Monument resources. Consistent with Monument designation, BLM should propose a grazing plan that reduces harmful impacts on the cultural and natural resources for which the Monument was designated.	16(SR52)

Table J-2 provides alphabetical guides to the location of comments provided by organizations and individuals. Table J-2 lists anonymous submittals as "Anonymous" if no name was associated with the comment or if BLM could not read the signature associated with submitted comments. Commenters who requested their name be withheld are listed in Table J-2 as "Withheld." To find a comment and the BLM response, locate the commenter's name (by individual or organization) in Table J-2 and turn to the index location listed. The identification number in parentheses after the index location identifies the comment-response pair and an asterisk indicates the comments which are not substantive.

As an example, Jo Adams submitted a letter (comment document 1155) that contains one identified comment. To read the BLM responses to Jo Adams' comment, first find the name in Table J-2, and look up the location of the comment. Then, turn to the Comment-Response Document Category 18, and to

comment-response pairs 18(SR 26), and repeat for multiple comments where applicable. Note that BLM responded to all of Jo Adams' comment in summary responses as indicated by the acronym SR (e.g., SR26). To read Ms. Adam's original comment letter, the comment documentation is available for at the BLM Tucson Field Office.

Commenter Index

The following table displays the names of the individuals, organization, businesses and governmental agencies who commented on the Draft RMP/EIS and the corresponding comment codes (shown following the names). Comment letters from the public that did not have a comment that required a response are not included in Table J-2.

Table J-2 Commenter Index

Commenter Corrected	Organization	Submission ID	Location of Comments/Responses
,		299	18(SR19)
,		435	18(SR28)
Adams, Jo		1155	18(SR26)
Adams, Lyle		369	18(SR2)
Adams, Lyle		480	18(SR2)
Adams, Warren		12228	8(SR261), 8(SR292), 17(SR105), 18(SR23), 24(128)
Adamson, Dennis B.		453	18(SR12), 24(SR16)
Aden, Landis	Arizona State Rifle & Pistol Association	11009	23(SR428), 24(SR84)
Aja, Basilio F.		577	24(SR75)
Alcock, John		849	18(SR26), 20(639)
Alderson, George & Frances		416	2(SR26), 2(SR703), 8(SR257), 8(SR259), 14(SR51), 16(SR52), 20(SR45), 20(SR607), 20(SR742)
Aldrich, Thomas L.	ASARCO	12227	1(450), 1(451), 1(SR223), 2(719), 2(721), 3(463), 3(464), 3(465), 3(466), 3(467), 3(SR468), 6(248), 6(251), 6(507), 6(766), 6(SR98), 6(SR252), 6(SR253), 7(222), 7(228), 7(230), 7(232), 7(233), 7(234), 7(512), 7(SR223), 7(SR224), 7(SR227), 7(SR229), 7(SR231), 8(600), 8(SR258), 8(SR261), 8(SR268), 8(SR270), 8(SR271), 8(SR291), 9(578), 9(586), 9(587), 9(706), 9(707)*, 9(SR350), 9(SR351), 9(SR352), 9(SR353), 9(SR354), 9(SR377), 10(206), 10(212), 11(684), 11(685), 11(735), 11(736), 12(133), 13(198), 13(207), 13(208), 13(SR35), 13(SR104), 14(114), 14(115), 14(SR116), 14(SR116), 14(SR286), 14(SR306), 14(SR308), 14(SR309), 15(385), 15(386), 15(387), 15(389), 15(474), 15(SR439), 15(SR477), 17(672), 18(SR21), 19(670), 19(675), 19(SR676), 20(91), 20(539), 20(748), 20(SR750), 20(SR759), 22(394), 22(399), 22(401), 22(403), 22(406), 22(SR397), 22(SR402), 22(SR404), 22(SR405), 22(SR500), 23(438), 23(SR456), 24(825)

Commenter Corrected	Organization	Submission ID	Location of Comments/Responses
Allen, John R.		800	1(185)*, 18(SR23)
Allen, John R.		117	18(SR23)
Altherr, Ron and Lois		11041	18(907)
Amavisca, Raul G.		103	18(SR2)
Andersen, Dennis		404	24(SR16)
Andersen, Lori	Friends of Ironwood Forest	1126, 11047	6(SR497), 7(SR808), 14(SR51), 16(SR52), 17(195)*, 19(SR73), 20(SR150), 23(SR62)
Anderson, Greta	The Arizona Native Plant Society	12182	7(SR235), 7(SR236)
Anderson, Greta	Center for Biological Diversity and others	12231	2(407), 2(SR52), 8(602), 8(SR267), 8(SR293), 8(SR298), 8(SR300), 8(SR301), 8(SR302), 8(SR303), 8(SR304), 9(585), 9(603), 9(SR355), 9(SR356), 9(SR357), 9(SR358), 9(SR359), 9(SR371), 10(209), 11(SR809), 16(326), 16(327), 16(328), 16(329), 16(332), 16(340), 16(489), 16(490), 16(491), 16(SR52), 16(SR53), 16(SR56), 16(SR58), 16(SR60), 22(395), 22(652)
Anderson, Greta	Center for Biological Diversity and others	12232	1(422), 1(423), 1(SR149), 1(SR425), 1(SR434), 1(SR498), 2(718), 2(723), 2(SR62), 2(SR88), 2(SR434), 2(SR497), 2(SR722), 7(187), 7(511), 7(514), 7(515), 7(516), 7(569), 7(SR225), 7(SR235), 7(SR510), 7(SR808), 8(262), 8(593), 8(599), 8(SR265), 8(SR273), 8(SR281), 8(SR290), 8(SR510), 9(581), 9(582), 9(SR360), 9(SR361), 9(SR362), 9(SR363), 9(SR364), 10(211), 11(690)*, 11(SR737), 11(SR738), 14(117)*, 14(622), 14(646), 14(773), 14(SR51), 14(SR313), 14(SR314)*, 14(SR315), 17(194), 17(413), 17(415), 17(416), 17(417), 17(418), 17(SR425), 18(SR26), 19(673), 19(SR674), 20(168), 20(171), 20(175), 20(540), 20(557), 20(559), 20(560), 20(561), 20(562), 20(563), 20(626), 20(628), 20(630), 20(631), 20(633), 20(778), 20(SR605), 20(SR625), 20(SR632), 20(SR859), 20(SR860), 20(SR861), 20(SR862), 20(SR863), 20(SR864), 20(SR865), 20(SR866), 20(SR867), 20(SR868), 20(SR869), 20(SR870), 20(SR871), 20(SR872), 20(SR873), 20(SR874), 20(SR875), 20(SR876), 20(SR877), 20(SR878), 20(SR880), 20(SR881), 20(SR882), 20(SR883), 20(SR884), 20(SR885), 20(SR886), 20(SR887), 20(SR888), 20(SR889), 20(SR890), 20(SR891), 20(SR892), 20(SR893), 20(SR894), 20(SR895), 20(SR896), 20(SR897), 20(SR898), 20(SR899), 20(SR900), 22(SR397), 24(SR826)
Anderson, Jan		1135	2(SR80)*, 17(SR74)
Anderson, Mark		1039	18(SR23)
Anderson, Roy S		400	18(SR2), 18(SR8)
Anderson, Wayne		132	18(SR2)
Ando, Robert		455	18(SR21)

Commenter Corrected	Organization	Submission ID	Location of Comments/Responses
Andrews, Tom		3814	16(SR53), 20(SR41)
Annonymous, Frank		287	18(SR19)
Annonymous, Paul		279	22(SR66)
Anonymous, Anonymous		1154	8(SR274)*, 14(SR51), 16(SR52), 18(SR26), 20(SR41)
Anonymous, Anonymous		487	18(SR12), 18(SR28)*
Anonymous, Anonymous		489	18(SR2), 18(SR20), 18(SR23), 18(SR28)
Anonymous, Randall		442	18(SR2)
Anspach, Mike		22	18(SR20)
Antue, Rebecca	ASA4WDC	11062	2(SR87)*
Ardmore, M.		1106	18(SR21)
Arnold, Terry		725	18(SR12)
Artley, Dick		7327	16(487), 16(SR52), 16(SR493)
Aspinwall J.D., Charles S.		1095	18(SR26)
Aussems, Nicolaas A.		32	18(SR12), 18(SR19), 22(SR66)
Awansen, Gary David		55	18(SR2), 18(SR12), 18(SR21), 24(SR15)
Awerkamp, Eric		129	18(SR2)
Ayala, Jr., Dom		500	18(SR19)
B, Linda		602	20(SR41)
Babcock, Elkanah		145	18(SR19), 18(SR21)
Babler, Steve		314	18(SR2)
Badillo, Humberto	AWC	11088	20(177)
Bahr, Sandy		1124	2(SR80)*, 2(SR88), 16(SR53), 19(SR73), 20(SR605)
Bahr, Sandy	Sierra Club - Grand canyon Chapter	12231	2(407), 2(SR52), 8(602), 8(SR267), 8(SR293), 8(SR298), 8(SR300), 8(SR301), 8(SR302), 8(SR303), 8(SR304), 9(585), 9(603), 9(SR355), 9(SR356), 9(SR357), 9(SR358), 9(SR359), 9(SR371), 10(209), 11(SR809), 16(326), 16(327), 16(328), 16(329), 16(332), 16(340), 16(489), 16(490), 16(491), 16(SR52), 16(SR53), 16(SR56), 16(SR58), 16(SR60), 22(395), 22(652)
Bailey, Richard Alan		378	2(700), 23(SR8)
Baker, Lance		151	2(SR65), 18(SR21), 18(SR23)
Baker, Ron		466	18(SR22), 18(SR25)
Baker, Susanne		1133	1(SR434), 15(103), 20(180), 20(564), 23(SR455)
Ballmer, Steve		879	18(SR20)
Barker, John		4752	16(SR53), 20(SR41)
Barlow, Jeffrey		1013	18(SR25)

Commenter Corrected	Organization	Submission ID	Location of Comments/Responses
Barnes, David		167	20(SR41)
Barnes, Rod		190	18(SR25)
Barnes, Russell		348	18(SR2)
Barrett, Linn		6041, 12196	16(SR53), 20(SR77) 1(SR148),14(SR51),16(SR52)
Barry, Donald T.		68	18(SR2)
Bartlett, Edward		11033	18(SR21)
Bartlett, Richard		689	18(SR28)
Bartlett, Richard		451	18(SR2)
Bengston, Peter		119	1(SR149), 2(SR80)*, 7(SR236), 9(SR10), 15(381), 18(SR26), 20(SR41), 21(SR81)
Bennett, Chuck		97	18(SR2), 20(SR14)
Bennett, John		108	18(SR2)
Benz, John	ETC Compliance Solutions	1253	18(SR23)
Berg, Thomas W.	NRA	80	18(SR2)
Berlin, Irv		11910	16(SR52)
Bernauer, Joe		206	18(SR25)
Bernstein, Allen		756	18(SR21)
Bernstein, David M.		377	18(SR2)
Berrier, James L.		36	18(SR19)
Bertelsen, David		428	14(SR51), 18(SR26), 20(SR742)
Bevan, John		218	18(SR2), 18(SR20)
Bieda, Family		19	18(SR19)
Bilbrey, Bruce M.		220	18(SR2)
Billick, Don		49	18(SR2)
Bincer, Dana		1032	18(SR21)
Bird, Paul		474	23(SR8)
Blackketter, Jeanne and Larry		510	18(SR20), 18(SR23), 18(SR25)*, 22(SR66)
Blaine, Charles T.		18	18(SR2)
Blake, Dave		92	18(SR902)
Blake, Eileen		1144	18(SR26)
Blakely, Regina		429	18(SR21)
Blanchard, Edward		365	24(813)
Blazej, Nova	United States Environmental Protection Agency	12221	2(840)*, 3(462), 9(584), 9(SR365), 15(SR439), 16(SR52), 16(SR53), 20(634), 20(641), 20(642), 20(643), 20(SR41), 20(SR605), 21(648)*, 21(SR772), 23(476)
Bleeker, Don & Becky		411	18(SR19), 18(SR20), 23(457)
Block, David		722	18(SR21)
Block, David L.		432	18(SR2)
Boes, Kevin		1156	18(SR12)

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Bolesta, Murray	Friends of Ironwood Forest	12232	1(422), 1(423), 1(SR149), 1(SR425), 1(SR434), 1(SR498), 2(718), 2(723), 2(SR62), 2(SR88), 2(SR434), 2(SR497), 2(SR722), 7(187), 7(511), 7(514), 7(515), 7(516), 7(569), 7(SR225), 7(SR235), 7(SR510), 7(SR808), 8(262), 8(593), 8(599), 8(SR265), 8(SR273), 8(SR281), 8(SR290), 8(SR510), 9(581), 9(582), 9(SR360), 9(SR361), 9(SR362), 9(SR363), 9(SR364), 10(211), 11(690)*, 11(SR737), 11(SR738), 14(117)*, 14(622), 14(646), 14(773), 14(SR51), 14(SR313), 14(SR314)*, 14(SR315), 17(194), 17(413), 17(415), 17(416), 17(417), 17(418), 17(SR425), 18(SR26), 19(673), 19(SR674), 20(168), 20(171), 20(175), 20(540), 20(557), 20(559), 20(560), 20(561), 20(562), 20(563), 20(626), 20(628), 20(630), 20(631), 20(633), 20(778), 20(SR605), 20(SR625), 20(SR632), 20(SR859), 20(SR860), 20(SR861), 20(SR862), 20(SR863), 20(SR864), 20(SR865), 20(SR866), 20(SR867), 20(SR868), 20(SR869), 20(SR870), 20(SR871), 20(SR872), 20(SR873), 20(SR874), 20(SR875), 20(SR876), 20(SR877), 20(SR878), 20(SR880), 20(SR881), 20(SR882), 20(SR883), 20(SR884), 20(SR885), 20(SR886), 20(SR887), 20(SR888), 20(SR889), 20(SR890), 20(SR891), 20(SR892), 20(SR893), 20(SR894), 20(SR895), 20(SR896), 20(SR897), 20(SR898), 20(SR899), 20(SR900), 22(SR397), 24(SR826)
Booth, Norah		1034	18(SR26)
Borrell, Daniel		133	24(SR811)
Boswell, Art		343	18(SR21)
Bouck, Jerry		185, 1115, 12167	18(SR12), 20(SR42), 23(SR8)
Bouck, Jerry		502	20(SR42), 20(SR744), 22(SR66), 23(SR62)
Bowers, Russell "Rusty"	Arizona Rock Products Association	11093	13(205), 15(382), 15(383)
Bracy, Scott		478	18(SR2)
Brescia, Donald and Kathleen		345	20(SR744)
Brice, Jim		698, 699	23(SR427)
Bright, Coral		12201	1(473), 14(SR148)*, 16(SR52), 16(SR53)
Brister, Bob		859	20(SR41)
Britt, T.L.		403	13(199), 18(SR21), 23(SR428)
Broder, Charles		1194	18(SR26)
Brooks, Bruce		388	18(SR19)
Brown, Bob		270	18(SR2)
Brown, Don		394	18(SR21)
Brown, Howard		174	18(SR2)
Buatti, Peter		468	18(SR21), 18(SR22)
Bublitz, Richard		504	23(SR8), 23(SR59)

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Bucanek, Fred		293	18(SR2)
Buck, Edgar C.		12170	18(SR23)
Buck, Edgar C.		12224	2(SR65)
Budzynski, Michael		497	2(SR2)*
Burgess, Stephen		280	18(SR20), 18(SR20)
Burks, Patty		1018	18(SR26)
Burmahln, John C.		1075	2(SR709), 18(SR37)
Burton, David W.		372	18(SR2)
Cafferata, Edward		501	18(SR19), 18(SR23)
Cain, Daniel		495	18(SR21)
Calkins, Glenn E.		205	18(SR20), 22(SR66)
Calvert, Charles		482	18(SR8), 18(SR21), 18(SR23), 23(432)
Campbell, Carolyn	Coalition for Sonoran Desert Protection	12232	1(422), 1(423), 1(SR149), 1(SR425), 1(SR434), 1(SR498), 2(718), 2(723), 2(SR62), 2(SR88), 2(SR434), 2(SR497), 2(SR722), 7(187), 7(511), 7(514), 7(515), 7(516), 7(569), 7(SR225), 7(SR235), 7(SR510), 7(SR808), 8(262), 8(593), 8(599), 8(SR265), 8(SR273), 8(SR281), 8(SR290), 8(SR510), 9(581), 9(582), 9(SR360), 9(SR361), 9(SR362), 9(SR363), 9(SR364), 10(211), 11(690)*, 11(SR737), 11(SR738), 14(117)*, 14(622), 14(646), 14(773), 14(SR51), 14(SR313), 14(SR314)*, 14(SR315), 17(194), 17(413), 17(415), 17(416), 17(417), 17(418), 17(SR425), 18(SR26), 19(673), 19(SR674), 20(168), 20(171), 20(175), 20(540), 20(557), 20(559), 20(560), 20(561), 20(562), 20(563), 20(626), 20(628), 20(630), 20(631), 20(633), 20(778), 20(SR605), 20(SR625), 20(SR632), 20(SR859), 20(SR860), 20(SR861), 20(SR862), 20(SR863), 20(SR864), 20(SR865), 20(SR866), 20(SR867), 20(SR868), 20(SR869), 20(SR870), 20(SR871), 20(SR872), 20(SR873), 20(SR874), 20(SR875), 20(SR876), 20(SR877), 20(SR878), 20(SR880), 20(SR881), 20(SR882), 20(SR883), 20(SR884), 20(SR885), 20(SR886), 20(SR887), 20(SR888), 20(SR889), 20(SR890), 20(SR891), 20(SR892), 20(SR893), 20(SR894), 20(SR895), 20(SR896), 20(SR897), 20(SR898), 20(SR899), 20(SR900), 22(SR397), 24(SR826)
Campbell, John A.		79	18(SR28)
Canatsey, Lana		168	18(SR2)
Careton, Gerald A.		393	18(SR21)
Carle, Ronald H and Mary		67	1(17)
Carlton, Gloria		3475	16(SR53)
Carpenter, Linda		274	2(701), 18(SR23), 18(SR28), 23(SR8), 23(SR64)
Carpenter, Troy D.		29	18(SR20)
Carroll, Charles A.		386	18(SR12), 20(SR14)

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Carroll, Randall		1059	18(SR28), 22(SR66)
Carroll, Randall Wm.		807	18(SR28), 22(SR66)
Carroll, Randall Wm.		130	18(SR2), 22(SR66)
Cartwright, J.M.		380	18(SR2)
Cary, Nathan		1078	23(SR455)
Casey, David		390	18(SR21)
Cauton, Pierre M.		69	18(SR29)
Cervantes, Baldy		184	18(SR23), 23(SR8)
Chapdelain, Mike		159	18(SR21)
Chapman, Bert		488	18(SR8), 18(SR23)
Chase, Robert		1496	14(SR51), 16(SR52)
Chastain, Mark		334	18(SR19), 23(SR8)
Cheves, G.K.		189	18(SR2)
Chiantaretto, Harry & Lola		207	18(SR19), 18(SR38)
Chilian, Dick		320	18(SR2)
Chisholm, Keith		219	18(SR2)
Chivers, Billy		507	18(SR2)
Clark, Festus		476	18(SR8)
Clark, Jaqueline		140	18(SR2)
Clark, Leo		1101	2(SR8)
Clark, Sondra A		1221	18(SR23)
Clary, John		1249	18(SR25)
Clausson, David B.		88	18(SR23), 23(SR62)
Clewell, Salvatore		254	18(SR2)
Cline, Fred		696	23(SR64)
Coffern, Al		47	18(SR2)
Cole, Steven		191	18(SR2)
Coleman, Ron & Jill		368, 433	18(SR2), 18(SR25), 22(SR66)
Coleman, Ron & Jill		446	22(SR66)
Collins, Shawn		604	18(SR20)
Coniglio, Jim		164	23(SR59)
Conroy, Roger T.		601	2(704), 2(705), 2(SR8), 18(SR21), 18(SR23), 18(SR26)
Cook, David		572	24(SR75)
Cooper, Lutricia A.		14	18(SR2)
Coping, Cindy		1245, 1187, 12180	5(SR201)
Coping, Cindy		1021, 1022, 1247, 1185, 2880	1(420), 1(SR434), 18(SR23), 18(SR26), 8(SR259), 18(SR20), 18(SR38), 18(SR39), 20(SR42)

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Coping, Cynthia		11089	24(SR75)
Coping, Cynthia P.		573, 11049, 12193	24(SR75), 1(143), 1(421), 1(479), 2(715), 2(724), 5(SR201), 6(110), 6(111), 6(245), 6(249), 6(276), 6(SR247), 6(SR250), 7(518), 7(519), 7(SR223), 7(SR242), 7(SR338), 7(SR768), 8(SR299), 9(SR377), 9(SR378), 11(SR739), 13(210), 14(SR286), 16(319), 16(320), 16(321), 16(322), 16(324), 16(325), 16(337), 16(339), 16(343), 16(746), 16(SR54), 16(SR55), 16(SR335), 16(SR338), 16(SR342), 16(SR492), 17(158), 17(190), 19(666), 20(534), 20(535), 20(536), 20(538), 20(572), 20(624), 20(650), 20(747), 20(752), 20(756), 20(757), 20(758), 20(762), 20(763), 20(764), 20(765), 20(769), 20(784)*, 20(785), 20(786), 20(794), 20(805), 20(806), 20(SR42), 20(SR162), 20(SR533), 20(SR745), 20(SR750), 20(SR751), 20(SR753), 20(SR760), 20(SR761), 20(SR858), 20(SR917), 20(SR918), 20(SR919), 20(SR920), 20(SR921), 20(SR922), 20(SR923), 20(SR924), 22(393), 22(396), 22(522), 22(651), 22(SR499), 22(SR500), 23(440), 23(SR8), 23(SR64), 24(496)*, 24(819), 24(SR84)
Coping, Cynthia P.		413	8(255), 8(576), 8(SR258), 8(SR263), 8(SR264), 8(SR288), 8(SR290)
Correll, Richard		456	24(SR16)
Cosgrove, Harry		441	18(SR20), 18(SR27)
Coulter, James A.		1100	18(SR23)
Craig, Keith		831	18(SR21)
Crause, David		111	18(SR20)
Crawford, Brian		173	2(SR88)
Crout, Vernon J.		257	18(SR2)
Daniels, Larry		277	18(SR21)*
Daniels, Lee and Gail		840	18(SR2)
Daniels, Patrick		41	18(SR19), 23(SR8), 23(SR62)
Daughtry, Dave		10975	18(SR12), 23(SR8)
Davidson, Bob		438	18(SR2)
Davies, Margaret		1172, 12220	14(SR51), 16(SR52), 20(SR150) 1(SR148),14(SR51),16(SR52)
Davis, Augusta		1196	18(SR26), 20(SR41)
Deckard, Ralph		445	18(SR12), 24(SR16)
Demski, Robert		232, 12166	8(SR259), 18(SR12), 18(SR19), 20(771), 20(SR14), 23(SR429), 18(SR911)
DeMuth, Lynn		150	18(SR26), 20(SR41), 21(SR81)
Deo, Lyle		11044	18(SR21)
Deo, Lyle A.		12194	18(SR23)
Deo, Lyle A.		11077	18(SR21), 23(SR8)
Dew, Michael E.		417	20(638), 20(SR14), 23(SR62)

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Dezelan, Dennis		11022	22(SR66)
Dible, Craig		10968	1(447)
Dick, John H.		251	18(SR2)
DIMIN, LEE S.		12211	14(SR51), 16(SR52), 20(SR150)
Ditler, Larry		1151	17(SR58)*, 17(SR74), 20(SR14), 20(SR40)*
Dodge, Alexander		392	18(SR12)*
Dolan, Brian	Arizona Desert Bighorn Sheep Society	11018	24(SR75)
Dorsey, James H.		376	18(SR19)
Downing, Elaine and Kenneth		1073	1(182)*, 18(SR25)
Drews, Gus and Barbara		1019	18(SR26)
DuHamel, Jonathan		576	24(SR75)
Dutko, Judy		471	18(SR2)
Dwyer, Ken		139	18(SR21)
Dybus, Don		337	2(SR2)*
Eaton, Mr. and Mrs. David W.		25	24(SR15)
Eckstat, Arthur		1060	18(SR25), 18(SR28)
Edmonds, Michael		1142	20(166), 23(SR64)
Edwards, Anne		153	23(SR427)
Edwards, Richard		583	16(SR52)
Edwards, Richard and Anne		76, 992	1(SR149), 8(SR256), 20(SR41), 21(SR81), 18(SR25), 23(SR427)
Edwards, Robert		58	18(SR2)
Eldridge, William		11061	23(SR62), 23(SR428)
Elgin, Francis		5	18(SR2)
Emerine, Steve		574	24(SR75)
Esquivel, Adelina		12174, 12175	18(SR23)
Facista, George		629	18(SR25)
Faurot, William R.		123	18(SR21)
Fetterman, James V.		269	18(SR2)
Figueroa, Emilio	Silverbell allotment	11019	20(SR753), 24(SR75)
Fitzhugh, Lee	WFCB, University of California, Davis	1157	18(SR26)
Flack, Charles		259	18(SR2), 23(SR62)
Fleck, Doyle		678	18(SR25)
Flessa, Karl		1227	18(SR26)
Flett, Ron		308	2(SR26)*
Flood, Tim J.		171	2(SR88)*, 11(653), 14(SR51), 18(SR26), 20(SR605)
Flowers, Bobbie Dee		6134	16(SR52)

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Foley, Michael W.		12229	18(SR21), 18(SR903)
Ford, David A.		702	18(SR28)
Foutz, Larry		95	18(SR19)
Franckowiak, Paul		845	20(SR41)
Franklin, Greg		812	18(SR25)
Franklin, Greg		135	18(SR25)
Franklin, Keith		1104	18(SR25)
Franklin, Keith		509	18(SR2)
Freeman, Nancy		1206	1(SR434), 16(SR52), 18(SR26), 20(SR41)
Fuhrer, Fred		124	18(SR12), 18(SR25)
Fverst, William R.		425	18(SR21), 18(SR23)
Gaffney, David		165, 11055, 12222	24(SR837), 9(575), 18(SR38), 24(814), 18(SR26), 18(SR90), 20(532), 23(SR8)
Gafvert, Dave		767	18(SR24)
Galbraith, Tim		230	18(SR25)
Gardner, Mike		631	23(SR8)
Garono, Peter		1017	18(SR8), 23(SR8), 23(SR429)
Garrett, M. Lee		599	2(712)
Garrett, M. Lee		971	2(700)
Garrity, Bill		1128	14(SR51), 16(SR52), 20(SR605), 23(SR455)
Garske, Steve		1222	18(SR26)
Garvin, Tim		735	18(SR23)
Garvin, Tim		250	2(SR702), 18(SR19), 18(SR23)
Geer, James L.		427	18(SR2)
Gegetod, Michael R.		125	18(SR23)
Gellenbeck, Terrence		968	20(SR41)
George, Lawrence W		1230, 12206	18(SR23)
Gerszewski, Donald		39	18(SR2)
Gettier, Al		475	18(SR2)
Gibson, Jim		989	23(SR8), 23(SR429)
Gilbert, Philip		472	18(SR20)

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Gilllespie, Allen and Marcheta		12193	1(143), 1(421), 1(479), 2(715), 2(724), 5(SR201), 6(110), 6(111), 6(245), 6(249), 6(276), 6(SR247), 6(SR250), 7(518), 7(519), 7(SR223), 7(SR242), 7(SR338), 7(SR768), 8(SR299), 9(SR377), 9(SR378), 11(SR739), 13(210), 14(SR286), 16(319), 16(320), 16(321), 16(322), 16(324), 16(325), 16(337), 16(339), 16(343), 16(746), 16(SR54), 16(SR55), 16(SR335), 16(SR338), 16(SR342), 16(SR492), 17(158), 17(190), 19(666), 20(534), 20(535), 20(536), 20(538), 20(572), 20(624), 20(650), 20(747), 20(752), 20(756), 20(757), 20(758), 20(762), 20(763), 20(764), 20(765), 20(769), 20(784)*, 20(785), 20(786), 20(794), 20(805), 20(806), 20(SR42), 20(SR162), 20(SR533), 20(SR745), 20(SR750), 20(SR751), 20(SR753), 20(SR760), 20(SR761), 20(SR858), 20(SR917), 20(SR918), 20(SR919), 20(SR920), 20(SR921), 20(SR922), 20(SR923), 20(SR924), 22(393), 22(396), 22(522), 22(651), 22(SR499), 22(SR500), 23(440), 23(SR8), 23(SR64), 24(496)*, 24(819), 24(SR84)
Ginkins, E.E.		104	18(SR23)
Glebocki, Jeffrey M.	Strategy + Action Consulting, LLC	1149	18(SR26)
Goetter, Steve		1069	18(SR25)
Goetter, Steve		309	18(SR9)*
Gola, Anthony		8527	16(SR53), 20(SR41)
Goode, Robert	NRA	77	18(SR2), 24(SR494)
Goodman, Phil		295	18(SR2)
Graffagnino, Maryann and Frank		12210	20(618), 20(SR607)
Gray, Douglas		113	18(SR21)
Green, Michael J.		757, 827, 833	18(SR28)

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Green, Paul	Tucson Audubon Society	12232	1(422), 1(423), 1(SR149), 1(SR425), 1(SR434), 1(SR498), 2(718), 2(723), 2(SR62), 2(SR88), 2(SR434), 2(SR497), 2(SR722), 7(187), 7(511), 7(514), 7(515), 7(516), 7(569), 7(SR225), 7(SR235), 7(SR510), 7(SR808), 8(262), 8(593), 8(599), 8(SR265), 8(SR273), 8(SR281), 8(SR290), 8(SR510), 9(581), 9(582), 9(SR360), 9(SR361), 9(SR362), 9(SR363), 9(SR364), 10(211), 11(690)*, 11(SR737), 11(SR738), 14(117)*, 14(622), 14(646), 14(773), 14(SR51), 14(SR313), 14(SR314)*, 14(SR315), 17(194), 17(413), 17(415), 17(416), 17(417), 17(418), 17(SR425), 18(SR26), 19(673), 19(SR674), 20(168), 20(171), 20(175), 20(540), 20(557), 20(559), 20(560), 20(561), 20(562), 20(563), 20(626), 20(628), 20(630), 20(631), 20(633), 20(778), 20(SR605), 20(SR625), 20(SR632), 20(SR859), 20(SR860), 20(SR861), 20(SR862), 20(SR863), 20(SR864), 20(SR865), 20(SR866), 20(SR867), 20(SR868), 20(SR869), 20(SR870), 20(SR871), 20(SR872), 20(SR873), 20(SR874), 20(SR875), 20(SR876), 20(SR877), 20(SR878), 20(SR880), 20(SR881), 20(SR882), 20(SR883), 20(SR884), 20(SR885), 20(SR886), 20(SR887), 20(SR888), 20(SR889), 20(SR890), 20(SR891), 20(SR892), 20(SR893), 20(SR894), 20(SR895), 20(SR896), 20(SR897), 20(SR898), 20(SR899), 20(SR900), 22(SR397), 24(SR826)
Greenfield, Gene		397	16(SR52), 20(SR636), 23(SR8), 23(SR428)
Greer, Monette, Brian, and Tyler		781, 782	18(SR29)
Gregory, Barbara		1195	18(SR26)
Griffith, John		490	18(908)
Griffiths, Matt		1132	2(SR88)
Groseta, Andy	Arizona Cattle Growers Association Federal Lands Committee	609	24(SR75)
Guenien, Le		391	18(SR2)
Guenier, Gena		398	18(SR2)
Gueniero, Mary Ann		399	18(SR2)
Guenther, Herbert R.	ADWR	12230	6(112)
Guerie, L		414	18(SR2)
Gustafson, Jon		247	18(SR2)
Gutman, M.		289	18(SR2)
Gutman, M.		362	18(SR2)
H, Will J.		61	18(SR20)
Haebig, Gary		1219	18(SR23)

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Hague, Lynn		588	14(SR51), 16(SR52), 18(SR26), 20(SR41), 20(SR637)
Hahman, W. Richard	Hahman & Associates Geological Consultants	12185	18(SR19), 18(SR20), 18(SR21)
Hall, Charles L.		210	18(SR2)
Hanceford, Phil	BLM Action Center, The Wilderness Society	12216	2(SR720), 11(691), 11(692), 11(693), 11(SR809), 16(330), 16(331), 16(344), 16(345), 16(SR52), 16(SR53), 16(SR56)*
Hansen, Terry		86	18(SR2)
Hanson, Marilyn	Sonoran Desert Weedwackers	11082	16(SR52)
Hardy, James		1084	18(SR25)
Hardy, James		85	18(SR21)
Harrington, Michael F.		717	18(SR29)
Harstad, Ruthanne		1216	20(SR41)
Hart, Dean G.		479	22(SR66)
Hatcher, Warren		1097	2(SR708), 17(191)*, 20(609), 20(610), 21(277)
Haueisen, John and Steffanie		465	18(SR20)
Hawk, Bryan		57	18(SR2)
Hay, Stephen		158	18(SR2)
Hay, Sydney		12226	1(SR477), 13(SR35), 13(SR216), 15(SR70), 22(400), 22(SR402)
Hays, Ti	National Trust for Historic Preservation	10924, 12218	11(SR727), 11(SR737), 20(SR616), 20(SR625), 11(682), 11(SR30), 11(SR734), 11(SR738), 20(550), 20(552), 20(780), 20(SR551)
Heaps, Caryn Logan		1171	7(SR808), 16(SR52), 18(SR26), 20(SR41), 21(SR78)
Heathman, E. Stanley		65	18(SR28), 18(SR29)
Heinz, Reed W. & Margaret M.		252	18(SR846)
Heller, Charles		155, 160, 11063	18(SR21), 2(SR65), 18(SR12)
Hempel, John	BLM	1260, 1143	18(SR21), 18(SR24)
Hemry, Jerald and Debra D.		93	2(SR2)*
Henderson, Michael C.		175	18(SR2)
Hennings, Charles R.		10	18(SR25)
Henry, Jerrold		180	18(SR19), 18(SR21), 18(SR23), 18(SR27), 23(SR428)
Hernbrode, Bob	AZGF Commission	11058	18(SR28), 24(815)
Herro, Alan A.		37	18(SR2)
Hewitt, Tim		91	18(SR23)

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Higbee, Mike		253	1(SR61), 18(SR2), 18(SR19)
Hilliard, Bernard		261	18(SR19), 18(SR25)*, 18(SR25)
Hoag, Cori		11029	23(SR455)
Hoffman, Sean		11042	2(711), 18(SR24)
Hoffman and Family, Sean		1152	18(SR8), 18(SR21), 18(SR23), 18(SR24)
Holleman, Margaret		1163	18(SR26)
Hollenbeck, Gary C.		35, 1113	18(SR19)
Hollett, Carry		181	18(SR19), 18(SR23)
Holt, Tim		12197	18(SR26)
Holthaus, Maurice		1188	18(SR23)
Hoover, Mary		1131	2(SR80)*
Hopkins, Richard R.		645	18(SR12)
Horton, John		1049	18(SR28), 22(SR66)
Houser, B		1166	18(SR26)
Hover, Violet		1023	18(SR26)
Hoyt, Jr., Earle B.		839	22(SR69)
Huerstel, Gerald J.		12204	18(SR21)
Huff, Larry	Southwest Transmission Cooperative, Inc.	12219	19(677), 19(SR665), 19(SR668), 19(SR669), 19(SR671), 19(SR674), 20(555)
Hughes, James A.		283	18(SR2), 18(SR28)
Humphrey, Michael W.		296	18(SR12), 18(SR19)
Hutson, W. Gay		276	18(SR2)
Hutton, Hutton		1225	23(SR8)
Hyatt, Ron		370	18(SR2)
Hyatt, Ron		118	18(SR2)
Ihly, R.		1103	22(SR66)
Jacobs, Sky		12203	16(SR53), 23(SR8), 23(SR427)
James, David		363	18(SR2), 22(SR66)
Jarrett, PhD, James		430	17(192)*, 17(409)
Jasmer, Shelby		1121	14(SR51)
Jensen, Pamela		12202	14(SR51), 16(SR53), 20(SR77)
Jernigan, Marcus	Sierra Club	1137	8(SR280), 14(SR116), 16(SR52)
Jernigan, Marcus		11045	2(SR88), 20(SR151)
Jeter, Author R.		684	18(SR25)
Johns, DD		836	18(SR20)
Johnson, Al		1207	18(SR21), 18(SR23), 18(SR25)
Johnson, Al		755	18(SR21)
Johnson, Albert L.		50, 12207	18(SR21), 18(SR23)
Johnson, Brenda	Office of Environmental Affairs Program	2877	5(101), 6(244)
Johnson, Dean		818	23(SR62)

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Johnson, Dennis L.		402	18(SR19), 18(SR25)
Johnson, Ernest G.	Arizona Corporation Commission	12225	19(664), 19(SR665)
Johnson, Theresa		774	20(SR41)
Jones, Dan		183	2(SR8)*, 23(SR8)
Jones, Scott	Sierra Club	12232	1(422), 1(423), 1(SR149), 1(SR425), 1(SR434), 1(SR498), 2(718), 2(723), 2(SR62), 2(SR88), 2(SR434), 2(SR497), 2(SR722), 7(187), 7(511), 7(514), 7(515), 7(516), 7(569), 7(SR225), 7(SR235), 7(SR510), 7(SR808), 8(262), 8(593), 8(599), 8(SR265), 8(SR273), 8(SR281), 8(SR290), 8(SR510), 9(581), 9(582), 9(SR360), 9(SR361), 9(SR362), 9(SR363), 9(SR364), 10(211), 11(690)*, 11(SR737), 11(SR738), 14(117)*, 14(622), 14(646), 14(773), 14(SR51), 14(SR313), 14(SR314)*, 14(SR315), 17(194), 17(413), 17(415), 17(416), 17(417), 17(418), 17(SR425), 18(SR26), 19(673), 19(SR674), 20(168), 20(171), 20(175), 20(540), 20(557), 20(559), 20(560), 20(561), 20(562), 20(563), 20(626), 20(628), 20(630), 20(631), 20(633), 20(778), 20(SR605), 20(SR625), 20(SR632), 20(SR859), 20(SR860), 20(SR861), 20(SR862), 20(SR863), 20(SR864), 20(SR865), 20(SR866), 20(SR867), 20(SR868), 20(SR869), 20(SR870), 20(SR871), 20(SR872), 20(SR873), 20(SR874), 20(SR875), 20(SR876), 20(SR877), 20(SR878), 20(SR880), 20(SR881), 20(SR882), 20(SR883), 20(SR884), 20(SR885), 20(SR886), 20(SR887), 20(SR888), 20(SR889), 20(SR890), 20(SR891), 20(SR892), 20(SR893), 20(SR894), 20(SR895), 20(SR896), 20(SR897), 20(SR898), 20(SR899), 20(SR900), 22(SR397), 24(SR826)
Julian, Victor	Mergard	1191	18(SR8)
Kack, Jason R.		34, 238	18(SR2)
Kaping, Tim		763	18(157)
Kesicki, James T.		12208	18(SR19)
Kidd, Roger		709	18(SR19), 18(SR25)
Kilbride, Harold		473	18(SR22), 18(SR25)

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Kile, Ed and Arlene		12193	1(143), 1(421), 1(479), 2(715), 2(724), 5(SR201), 6(110), 6(111), 6(245), 6(249), 6(276), 6(SR247), 6(SR250), 7(518), 7(519), 7(SR223), 7(SR242), 7(SR338), 7(SR768), 8(SR299), 9(SR377), 9(SR378), 11(SR739), 13(210), 14(SR286), 16(319), 16(320), 16(321), 16(322), 16(324), 16(325), 16(337), 16(339), 16(343), 16(746), 16(SR54), 16(SR55), 16(SR335), 16(SR338), 16(SR342), 16(SR492), 17(158), 17(190), 19(666), 20(534), 20(535), 20(536), 20(538), 20(572), 20(624), 20(650), 20(747), 20(752), 20(756), 20(757), 20(758), 20(762), 20(763), 20(764), 20(765), 20(769), 20(784)*, 20(785), 20(786), 20(794), 20(805), 20(806), 20(SR42), 20(SR162), 20(SR533), 20(SR745), 20(SR750), 20(SR751), 20(SR753), 20(SR760), 20(SR761), 20(SR858), 20(SR917), 20(SR918), 20(SR919), 20(SR920), 20(SR921), 20(SR922), 20(SR923), 20(SR924), 22(393), 22(396), 22(522), 22(651), 22(SR499), 22(SR500), 23(440), 23(SR8), 23(SR64), 24(496)*, 24(819), 24(SR84)
King, Bob		248	18(SR2)
King, Frederick		361	18(SR19)
King, Kenneth J.		16	18(SR19)
King, Pat	Pima NRCD	11059	16(341), 16(480), 24(SR75), 24(SR828)
Knisley, Joe and Sue		1223	18(SR8), 18(SR23), 23(SR8)
Kobialka, Jan and Gayla		589	14(SR51), 18(SR26), 20(SR41), 20(SR637)
Kohnke, Karl C.		260	18(SR19)
Kokjohn, Tyler		2878	1(445), 20(SR616), 24(126)
Kokjohn, Tyler		11071	1(SR149), 2(SR87), 11(SR734), 14(SR51)
Kolakowsky, Mark		713	20(SR14)
Koppinger, Doug		999	17(SR74), 18(SR21), 18(SR26), 20(755), 20(SR41), 23(SR62)*
Kraniak, Robert		8	18(SR197)*
Krayer, Barry		1530	20(SR14), 21(141)

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Krentz, Susan		575, 12193	24(SR75), 1(143), 1(421), 1(479), 2(715), 2(724), 5(SR201), 6(110), 6(111), 6(245), 6(249), 6(276), 6(SR247), 6(SR250), 7(518), 7(519), 7(SR223), 7(SR242), 7(SR338), 7(SR768), 8(SR299), 9(SR377), 9(SR378), 11(SR739), 13(210), 14(SR286), 16(319), 16(320), 16(321), 16(322), 16(324), 16(325), 16(337), 16(339), 16(343), 16(746), 16(SR54), 16(SR55), 16(SR335), 16(SR338), 16(SR342), 16(SR492), 17(158), 17(190), 19(666), 20(534), 20(535), 20(536), 20(538), 20(572), 20(624), 20(650), 20(747), 20(752), 20(756), 20(757), 20(758), 20(762), 20(763), 20(764), 20(765), 20(769), 20(784)*, 20(785), 20(786), 20(794), 20(805), 20(806), 20(SR42), 20(SR162), 20(SR533), 20(SR745), 20(SR750), 20(SR751), 20(SR753), 20(SR760), 20(SR761), 20(SR858), 20(SR917), 20(SR918), 20(SR919), 20(SR920), 20(SR921), 20(SR922), 20(SR923), 20(SR924), 22(393), 22(396), 22(522), 22(651), 22(SR499), 22(SR500), 23(440), 23(SR8), 23(SR64), 24(496)*, 24(819), 24(SR84)
Kroeger, Karl		40	18(SR21)*
Krogh, Robert B.		136	18(SR20)
Kuhn, Jason		44	18(SR2)
Kulikowski, Kathie		850	24(SR16)
Kulman, Mike		783	18(SR25)
Kurtz, Roberta		863	20(SR41)
La Zarr, H.		106	18(SR23)
Lafferty, Teresa		395	18(SR23)
Lagrave, Louis J.		641	18(SR21)
Laird, Bill		339	18(SR2)
Langley, Michael		792	18(SR28)
Lantz, H. L.		268	18(SR20)
Lantz, Ron		7584	17(775), 18(SR25), 24(124), 24(SR494)
Lash, Cal		667, 1108	14(SR51)
Lashway, Alan		503	18(SR25)
Lathrop, Paul		633	2(SR8)*
Lebinan, Bill		59	18(SR19)
Ledogar, Frederick		492	18(SR25)
LeRoy, Jim		1047	22(SR66)
Levick, Lainie		1197	2(SR80)*, 7(SR235)*, 14(SR51), 16(SR52), 20(SR150)
Lewis, Even J.		243	18(SR20)
Lewis, Tom		744	1(SR147)*
Liessmann, Jim		635	18(SR20)
Lizotte, Geoff and Kristin		1250	18(SR26)

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Logan, William		297	18(SR19), 22(SR66)
Long, Daniel E.		340	18(SR12), 18(SR25)
Lopez, Kathy		566	7(SR808), 21(SR78)
Loudon, Clayton		193	18(SR25)
Lowe, Ryan		199	18(SR2)
Lucci, P.		789	18(SR20)
Luis, Laurian M.		964	18(SR25)
Lutz, David A.		1140	18(SR21), 23(443), 23(SR61), 23(SR455)
Lynn, Steven W.	Tucson Electric Power Company	12214	19(667), 19(SR665), 19(SR668), 19(SR669), 19(SR671), 19(SR674)
Mac, Sara		855	18(SR26), 20(SR41)
MacDonald, Michael R.		464	18(SR1)*
Mackey, Malcolm		84	18(SR2), 18(SR19)
Maddox, Greg		947	18(SR25), 22(SR66)
Madys, May		89	18(SR2)
Maicuel, Jack		4	18(SR1)*
Maier, Karen		743	18(SR21)
Marley, Chris		99	18(SR8), 18(SR23)
Martinez, Adrian		998	18(SR25)
Maryan, Colin C.		152	18(SR27)
Maslen, Del		332	18(SR2)
Mathisen, Warren		816	18(SR20)
Mathisen, Warren		244	18(SR25)
Mattausch, Dave	Concerned Outdoor Recreation Enthusiasts	11030	9(583), 23(441)
Mattei, John P.		329	18(SR2)
McBride, Kenneth		112	24(810)
McCaleb, Gary S.		1150	2(SR65), 18(906), 18(SR24), 18(SR36), 23(442)
McClure, Beau	Arizona Chapter, Public Lands Foundation	1031, 11092	18(SR21)
McCotter, Chris		11024	14(SR310), 17(414), 17(SR105), 20(161), 23(SR8), 24(123)
McCutcheon, T.K.		351	18(SR2)
McDowell, Don		335	18(SR20)
McGee, Alan L		452	18(SR25)
McGibbon, Andrew	Pima Natural Resource Conservation District	12191	24(817), 24(818)*

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McGibbon, Andrew	Pima Natural Resource Conservation District	12233, 12234	1(426), 1(SR916), 3(472), 5(217), 5(218), 5(219), 5(220), 5(221), 6(SR250), 7(520)*, 7(SR238), 7(SR242), 7(SR768), 8(SR261), 8(SR274), 8(SR275), 8(SR292), 9(SR366), 9(SR367), 9(SR368), 9(SR369), 9(SR370), 9(SR372), 9(SR373), 10(214), 10(SR468), 14(SR286), 16(483), 16(486), 16(503), 16(SR54), 16(SR57), 16(SR482), 16(SR485), 16(SR488), 16(SR492), 16(SR502), 17(193), 17(774), 18(SR28), 18(SR29), 20(781), 20(SR42), 22(SR501), 23(436), 23(SR8), 24(SR828), 24(SR832), 24(SR833), 6(767), 24(836)
McGibbon, Micaela		11066	2(SR87)*, 16(316), 16(SR54)
McKinney, George		194	18(SR20), 18(SR847)
McLean, William H.		177	18(SR19), 18(SR28)
McLeod, Lu		458	18(SR25)
McMorine, Thomas E.		216	23(SR8)
McMurray, Melvin and Maggie		23	18(SR2)
McPherson, R L		12209	18(SR21)
McWilliams, Laura		282	18(SR21)
Meador, Red		665	18(SR26)
Medow, Lawrence		434	18(SR9)*, 18(SR19), 18(SR21)
Meenk, Richard		437	18(SR12)
Melang, Robert A.		144	18(SR23)
Menweg, Ralph		264, 265	18(SR28)*
Meyer, Ralph		1164	18(SR26)
Michlin, Shelby		1162	18(SR26)
Miett, Roy		821	18(SR23)
Milford, Victor		81	18(SR2)
Miller, James		439	18(SR2)
Miller, James		461	18(SR20), 18(SR25), 22(SR66)
Miller, Jon		1153	18(SR26)
Miller, Linda		1042	18(SR26), 20(SR636)
Miller, Mike		82	18(SR2)
Miller, Richard W		1029	18(SR26)
Millet, Saralaine		1119	14(SR116), 16(SR52), 20(SR41), 20(SR44)
Mingledorff, Neil		1173	18(SR26)
Moffett, Charles		156	2(SR65), 24(812)
Montgomery, Rita		1129	7(SR242)*, 14(SR51), 16(SR53), 18(SR26), 20(608)
Moore, Duaine		116	18(SR8)
Moore, Paul A		459	18(SR25)
Mootz, Joseph A.		605, 608	17(SR278), 20(SR41), 20(SR46)*, 20(SR47), 18(SR26)

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Mootz, Joseph A.		209, 212	17(SR278), 20(526), 20(565), 20(SR41), 20(SR47), 18(SR26), 20(527)
Moran, Rocky		325	18(SR9)*
Moran, Rocky		223	18(SR2)
Moritz, Robert		291	18(SR28)
Morrison, John		814	18(SR21)
Morrison, John A.		28, 215	2(SR2)*, 18(SR21), 18(SR2)
Morse, Sr., James B.		384	18(SR8)
Moss, Archie		1089	22(SR66)
Moter, Heather		1136	2(SR88), 18(SR26), 23(433)
Mueller Ph.D., R.F.	Virginians for Wilderness	1180	20(SR41)
Muir, William		326	18(SR2)
Munson, Richard		288	8(SR259)*, 18(SR20)
Murphy, Dennis		10997	2(714), 18(SR20), 18(SR36), 24(SR83), 24(SR811)
Murphy, Dennis		11050	18(SR25), 24(SR811)
Murr, James		1050	18(SR12)
Murr, James		131	1(SR419), 18(SR27), 20(174), 20(SR14)
Murr, James	MetaSwitch	949	1(SR419), 18(SR27), 20(164)
Myers, Kevin		481	18(SR12)
Namihas, Matthew		236	18(SR2), 18(SR19)
Navratil, Thomas M.		143	18(SR23), 18(SR24)
Nehring, Scott		11064	18(SR21)
Nelson, Edward A. and Louise E.		1045	20(SR41)
Nemec, Joe C.		421	18(SR19), 18(SR21)*, 20(SR41)

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Nero, Heath	The Wilderness Society	12232	1(422), 1(423), 1(SR149), 1(SR425), 1(SR434), 1(SR498), 2(718), 2(723), 2(SR62), 2(SR88), 2(SR434), 2(SR497), 2(SR722), 7(187), 7(511), 7(514), 7(515), 7(516), 7(569), 7(SR225), 7(SR235), 7(SR510), 7(SR808), 8(262), 8(593), 8(599), 8(SR265), 8(SR273), 8(SR281), 8(SR290), 8(SR510), 9(581), 9(582), 9(SR360), 9(SR361), 9(SR362), 9(SR363), 9(SR364), 10(211), 11(690)*, 11(SR737), 11(SR738), 14(117)*, 14(622), 14(646), 14(773), 14(SR51), 14(SR313), 14(SR314)*, 14(SR315), 17(194), 17(413), 17(415), 17(416), 17(417), 17(418), 17(SR425), 18(SR26), 19(673), 19(SR674), 20(168), 20(171), 20(175), 20(540), 20(557), 20(559), 20(560), 20(561), 20(562), 20(563), 20(626), 20(628), 20(630), 20(631), 20(633), 20(778), 20(SR605), 20(SR625), 20(SR632), 20(SR859), 20(SR860), 20(SR861), 20(SR862), 20(SR863), 20(SR864), 20(SR865), 20(SR866), 20(SR867), 20(SR868), 20(SR869), 20(SR870), 20(SR871), 20(SR872), 20(SR873), 20(SR874), 20(SR875), 20(SR876), 20(SR877), 20(SR878), 20(SR880), 20(SR881), 20(SR882), 20(SR883), 20(SR884), 20(SR885), 20(SR886), 20(SR887), 20(SR888), 20(SR889), 20(SR890), 20(SR891), 20(SR892), 20(SR893), 20(SR894), 20(SR895), 20(SR896), 20(SR897), 20(SR898), 20(SR899), 20(SR900), 22(SR397), 24(SR826)
Nettlow, Roger A.		51	18(SR2)
Newman, Donna		1214	18(SR26)
Newton, R.		2891	23(SR8)
Nezelek, Vaughn		1139	16(SR57), 18(SR21), 20(SR14)
Nichols, Lanny		1218	2(SR85), 18(SR26)
Nicoletti, Gene		226	18(SR2), 18(SR19)
Nielsen, Dale		11	1(184)*
Nipperus, Norm		798	18(SR28)
Nipperus, Norm		115	18(SR28), 23(SR8)
Noggle, Carl		154	18(SR26)
Norman, Bill		697	18(SR25)
North, Louis J.		354	18(SR21)
Not provided, Not provided		292, 1067	18(SR19), 18(SR25)
Not provided, Not provided		1082	18(SR22)
Not Provided, Not Provided	Whiting Corporation	981	18(SR25)
Not Provided, Not Provided		1006	18(SR25)
Nunez, Hugo A.		313	18(SR21)
O'Brien, Tom		245	18(SR21)

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Ochoa Sr., Francisco J.		852	18(SR156)
Odom, John M.		166	18(SR20)
Offerson, Eric		321	18(SR2)
Offerson, Eric		974	18(SR25)
Oldani, John		483	18(SR2)
Olson, John		11032	23(SR131)
Olson, Lynn		1158	18(SR26)
Ortega, Tom		371	18(SR25)
Ostrander Jr., Arthur		249	18(SR2)
Owen II, Charles William		228	18(SR2), 18(SR25)
Owens, Gilbert		134	18(SR2)
Owens, Robert		469	18(SR9)*, 18(SR25)
Pagni, Lee		1130	2(SR80)*, 14(SR51)
Pagni, Lee		1254	20(SR79)
Palmer, Richard L.		241	18(SR2)
Palmer, Robert D.		122	18(SR19)
Palmer, Ron		346	23(SR8)
Pamperin, John		995	1(458), 20(SR742)
Parlee, Kimberly		11035	20(SR605), 20(SR613)
Patten, Steve and Dee		841	16(SR53)
Patterson, Daniel	Public Employees for Environmental Responsibility	12231	2(407), 2(SR52), 8(602), 8(SR267), 8(SR293), 8(SR298), 8(SR300), 8(SR301), 8(SR302), 8(SR303), 8(SR304), 9(585), 9(603), 9(SR355), 9(SR356), 9(SR357), 9(SR358), 9(SR359), 9(SR371), 10(209), 11(SR809), 16(326), 16(327), 16(328), 16(329), 16(332), 16(340), 16(489), 16(490), 16(491), 16(SR52), 16(SR53), 16(SR56), 16(SR58), 16(SR60), 22(395), 22(652)

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Patterson, Daniel	Public Employees for Environmental Responsibility	12232	1(422), 1(423), 1(SR149), 1(SR425), 1(SR434), 1(SR498), 2(718), 2(723), 2(SR62), 2(SR88), 2(SR434), 2(SR497), 2(SR722), 7(187), 7(511), 7(514), 7(515), 7(516), 7(569), 7(SR225), 7(SR235), 7(SR510), 7(SR808), 8(262), 8(593), 8(599), 8(SR265), 8(SR273), 8(SR281), 8(SR290), 8(SR510), 9(581), 9(582), 9(SR360), 9(SR361), 9(SR362), 9(SR363), 9(SR364), 10(211), 11(690)*, 11(SR737), 11(SR738), 14(117)*, 14(622), 14(646), 14(773), 14(SR51), 14(SR313), 14(SR314)*, 14(SR315), 17(194), 17(413), 17(415), 17(416), 17(417), 17(418), 17(SR425), 18(SR26), 19(673), 19(SR674), 20(168), 20(171), 20(175), 20(540), 20(557), 20(559), 20(560), 20(561), 20(562), 20(563), 20(626), 20(628), 20(630), 20(631), 20(633), 20(778), 20(SR605), 20(SR625), 20(SR632), 20(SR859), 20(SR860), 20(SR861), 20(SR862), 20(SR863), 20(SR864), 20(SR865), 20(SR866), 20(SR867), 20(SR868), 20(SR869), 20(SR870), 20(SR871), 20(SR872), 20(SR873), 20(SR874), 20(SR875), 20(SR876), 20(SR877), 20(SR878), 20(SR880), 20(SR881), 20(SR882), 20(SR883), 20(SR884), 20(SR885), 20(SR886), 20(SR887), 20(SR888), 20(SR889), 20(SR890), 20(SR891), 20(SR892), 20(SR893), 20(SR894), 20(SR895), 20(SR896), 20(SR897), 20(SR898), 20(SR899), 20(SR900), 22(SR397), 24(SR826)
Paulds, John A.		255	18(SR1)
Pepka, Albert P.		637	18(SR20)
Pershing, Donald		396	23(SR8), 23(SR428)
Peters, Jack and Peggy		1027	18(SR23)
Peters, Louis		506	18(SR22)
Peterson, Dean M.		13	18(SR20)
Phillips, John H.		237	18(SR2)
Picart, Alex		358	18(SR22)
Pike, Allen		192	18(SR20)
Polacek, Donald		318	18(SR12), 18(SR28)
Pool, John		484	18(SR20)
Poole, Bill		1232	18(SR36), 23(SR8)
Porro, Bob		505	18(SR2)
Pressly, Jerry		407	18(SR2)
Pringle, Thomas		10970	2(710), 16(317), 16(318), 16(SR52), 17(410), 20(SR44), 20(SR644)
R., A.		127	18(SR24)
Rader, John		137, 1110	2(SR2)*
Rader, John	SASS (Single Action Shooting Society)	11043	23(SR8)

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Raeber, Rick and Debra		862	18(SR21), 20(SR14)
Rathner, Todd		162, 162, 11052	18(SR2), 18(SR20), 24(SR83)
Ray, Gordon E.	G.E.R. Construction Co.	225	18(SR2)
Ray, James		304	18(SR12)
Recce, Susan	National Rifle Association of America, Institute for Legislative Action	12212	18(SR20), 18(SR21), 18(SR23), 18(SR25), 18(SR27), 18(SR28), 18(SR36), 18(SR90), 23(431), 23(437), 24(SR811)
Reckweg, John F		1041	18(SR21)
Reed, Dennis		381	18(SR2)
Reed, Jon M.		679	18(SR21)
Regula, William A.		460	22(SR66)
Reis, Kurt D.		847	18(SR23)
Richard, Wells		10974	18(SR21)
Richards, T. A.		11039, 11079	18(SR25)
Rickard, David A.		963	18(SR25)
Ricker, David T.		406	1(446), 18(SR19), 23(SR62), 24(155), 24(SR16)
Rivera, Jose'		1094	18(SR23)
Roberts, Marion and James		42	18(SR2)
Robinson, Jim & Liz		593	9(SR50)*, 14(SR51), 18(SR26), 20(SR41), 20(SR77), 20(SR637)
Robinson, William C.		256	18(SR20), 20(SR41)
Robinson, William S.		258	18(SR2)
Rogers, B.		60	18(SR19)
Rogers, Susan		1138	2(SR88)
Rogers, Susan L and Wm. E.		1010, 1009	18(SR26), 20(SR636)
Rogers, Tom		17	18(SR2)
Rogers, Virginia M.		1026	18(SR26)
Rogers, Jr., William E.		1134	2(SR88), 17(SR74)
Rohlik, Lenny		422	18(SR19), 18(SR23), 20(SR14)
Rome, Gil		988	16(SR52), 18(SR26), 20(SR77)
Roulanaitis, Jesse		48	18(SR19)
Rowe and Family, Jeff		962	18(SR23), 18(SR24)
Ruane, Catherine		1118	2(SR88), 20(SR150)
Runge, Bruce A.		12217	1(435), 18(SR21)
Rush, Paul		141	18(SR23)

Commenter Corrected	Organization	Submission ID	Location of Comments/Responses
Ruske, Paul and Kelly		96	18(SR22), 24(SR16)
Russo, Mike		957	16(SR53), 18(SR26), 20(SR41), 22(SR69)
Russo, Philip		1065	18(SR25)
Ryberg, Eric	Western Watersheds Project	12231	2(407), 2(SR52), 8(602), 8(SR267), 8(SR293), 8(SR298), 8(SR300), 8(SR301), 8(SR302), 8(SR303), 8(SR304), 9(585), 9(603), 9(SR355), 9(SR356), 9(SR357), 9(SR358), 9(SR359), 9(SR371), 10(209), 11(SR809), 16(326), 16(327), 16(328), 16(329), 16(332), 16(340), 16(489), 16(490), 16(491), 16(SR52), 16(SR53), 16(SR56), 16(SR58), 16(SR60), 22(395), 22(652)
Ryberg, Erik	Western Watersheds Project	12232	1(422), 1(423), 1(SR149), 1(SR425), 1(SR434), 1(SR498), 2(718), 2(723), 2(SR62), 2(SR88), 2(SR434), 2(SR497), 2(SR722), 7(187), 7(511), 7(514), 7(515), 7(516), 7(569), 7(SR225), 7(SR235), 7(SR510), 7(SR808), 8(262), 8(593), 8(599), 8(SR265), 8(SR273), 8(SR281), 8(SR290), 8(SR510), 9(581), 9(582), 9(SR360), 9(SR361), 9(SR362), 9(SR363), 9(SR364), 10(211), 11(690)*, 11(SR737), 11(SR738), 14(117)*, 14(622), 14(646), 14(773), 14(SR51), 14(SR313), 14(SR314)*, 14(SR315), 17(194), 17(413), 17(415), 17(416), 17(417), 17(418), 17(SR425), 18(SR26), 19(673), 19(SR674), 20(168), 20(171), 20(175), 20(540), 20(557), 20(559), 20(560), 20(561), 20(562), 20(563), 20(626), 20(628), 20(630), 20(631), 20(633), 20(778), 20(SR605), 20(SR625), 20(SR632), 20(SR859), 20(SR860), 20(SR861), 20(SR862), 20(SR863), 20(SR864), 20(SR865), 20(SR866), 20(SR867), 20(SR868), 20(SR869), 20(SR870), 20(SR871), 20(SR872), 20(SR873), 20(SR874), 20(SR875), 20(SR876), 20(SR877), 20(SR878), 20(SR880), 20(SR881), 20(SR882), 20(SR883), 20(SR884), 20(SR885), 20(SR886), 20(SR887), 20(SR888), 20(SR889), 20(SR890), 20(SR891), 20(SR892), 20(SR893), 20(SR894), 20(SR895), 20(SR896), 20(SR897), 20(SR898), 20(SR899), 20(SR900), 22(SR397), 24(SR826)
Saba, Don		11054	18(SR12), 23(SR8), 24(SR83)
Salisbury, Larry		353	18(SR2)
Sandlin, Betsy		982	16(SR52), 20(SR41)
Sanford, Bill R.		330	18(SR23)
Sapp, Robert V. and Sharon F.		146	18(SR2)
Savlove, John		4095	16(SR53)
Scar, Dick		1189	18(SR26)
Schaal, Randy		284	18(SR21)
Schaub, John & June		105, 1111	18(SR2)

Commenter Corrected	Organization	Submission ID	Location of Comments/Responses
Schlink III, Theodore A.		43	18(SR2)
Schroeder, Fred		447	18(SR2)
Schubert, Derek		1256	18(SR26)
Schulte & family, Gary		1147	18(SR20), 23(SR430)
Schutt, Bruce		224	18(SR22), 18(SR23)
Schwartz, Ivy		1002	18(SR26), 20(SR41), 20(SR605)
Schwartz, Michael B.		860	18(SR26), 20(SR41)
Schwarz, Kurt R.	Howard County Bird Club	1259	8(SR290), 16(SR53), 20(176)
Scott, Rich		302	18(SR20), 18(SR23)
Self, Clint		239	18(SR2)
Shade, M.D., Betsy		415	14(SR51), 18(SR26), 20(SR45), 20(SR637), 23(SR427)
Shea, James		1125	2(SR62), 2(SR88), 23(SR8), 23(SR427)
Sherman, Elmo C.		305	18(SR21)
Shroufe, Duane L.	The State of Arizona Game and Fish Department	12213	6(102), 6(246), 7(237), 8(601), 8(SR261), 8(SR282), 8(SR294), 8(SR295), 14(SR279), 14(SR287), 14(SR311), 14(SR312), 17(411), 17(SR105), 17(SR412), 20(547), 20(548), 20(623)*, 20(779), 20(SR530), 22(392), 24(820), 24(821), 24(822), 24(823), 24(824)
Shults, Larry M.	Environmental Solutions LLC	610	18(SR21)
Shumaker, Jon		11010	1(SR434), 1(SR498), 3(459), 4(99), 4(132), 5(107), 6(109), 6(SR243), 7(241), 7(568), 7(SR224), 8(SR226), 8(SR258), 8(SR260), 8(SR290), 9(577), 10(203), 10(213), 11(196), 11(460), 11(654), 11(655), 11(656), 11(657), 11(659), 11(728), 11(729), 11(730), 11(731), 11(SR30), 13(200), 13(204), 13(SR216), 16(SR52), 17(SR74), 19(661), 19(662), 19(663), 20(172), 20(528), 20(566), 20(754), 20(SR605), 22(140), 23(SR8), 23(SR62), 24(118), 24(119), 24(120), 24(122), 24(134), 24(816)
Shumate, Russ		11083	18(SR37)
Sides, J.Q.		46	18(SR25)
Siegrist, Toni		11404, 12168, 12190	16(SR53), 20(SR644) 1(SR148),14(SR51),16(SR52)
Siler, Randall		278	18(SR21)
Silvernail, Donald		824	18(SR21)
Singleton, John		6568	16(SR53)
Singleton, Rick		121	18(SR8), 18(SR24)
Sinyard, Donald		454	22(SR66)
Sirvent, Esq., Francisco P.		711	18(SR21), 18(SR901)

Commenter Corrected	Organization	Submission ID	Location of Comments/Responses
Sivek, B.A.		126	18(SR23)
Slaughter, Tom		262	18(SR8), 23(SR8)
Slawson, Thomas		1004	1(444), 14(SR51), 20(SR41)
Smallhouse, Chuck		11068	16(SR54), 23(SR8)
Smith, Zach		128	18(SR2)
Sollid, Jon E.		234	18(SR2)
Sovkoplas, Gregory		78	18(SR20), 18(SR25), 23(SR62)
Sperling, Herbert		423	1(138)
Sprankle, Ed		229	18(SR2)
Staab, Tim		1081	18(SR25)
Staab, Tim		662	18(SR12)
Steinhart, Raymond C.		373	18(SR2), 18(SR12)
Stevens, Cal		753	18(SR25)
Stevens, Karyn		747	18(SR25)
Stewart, C.A.		178	18(SR21), 20(SR743)
Stewart, Jeff	Southern Arizona WIldlife Callers, Inc.	11034	23(SR8)
Stewart, William R		176	2(SR2)*
Stokes, Wallace		21	18(SR2)
Stowers, Ron		101	2(145)
Strng, Marie-Claire P.		1025	18(SR26)
Strong, Tim		316	18(SR2)
Struebel, Mark		11040	5(202)
Sublett and Joseph Currie, Mathew L.		830	18(905), 18(SR8), 18(SR23)
Surmik, Stephen & Joann		281	1(183)*, 18(SR20)
Svancara, Greg		11046	24(SR16)
Swartzell, Mark		448	1(SR453)
Sweet, Gary		736	18(SR25)
Swenka, Scott		322	24(SR16)
Szydelko, Larry		405	18(SR20), 18(SR23), 23(SR428)
Tagler, P.M.		777	18(SR20)
Talosi, George		541	18(SR23)
Taylor, George Zachary		431	18(SR2), 18(SR21), 24(SR15), 24(SR18)*
Taylor, Taylor		1212	18(SR26)
Taylor, Tom		1122	9(SR50)*, 14(SR51), 16(SR52), 20(SR150)
Tetreault, Rheal	Arizona State Association of 4 Wheel Drive Clubs	1145	20(611), 20(SR613)
Thame, John P.		12199	2(713), 18(SR23)
Thomas, Hugh D.		12198	23(SR8)
Thomas, Roger L.		114	18(SR2)

Commenter Corrected	Organization	Submission ID	Location of Comments/Responses
Thompson, Charlie		303	18(SR23)
Thompson, Craig		806	18(SR25)
Thompson, Craig		217	18(SR22), 18(SR25)
Thornton, William C.		11081	7(240)
Threet, Esq., Sterling R.		688	18(SR20)
Tlapa, LJ		708	18(SR25)
Tolson, Tim		379	18(SR2)
Torry, John		138	18(SR21)
Traynor, John		336	18(SR19), 18(SR20), 18(SR25)
Treleven, Dennis		4897	14(SR51), 16(SR52)
Trowbridge, David G.		829	18(SR23)
Tyndall, Allen W.		62	18(SR23)
Unreadable, Unreadable		182	18(SR8), 18(SR23)
Vaaler, Jim		1127	7(SR808), 9(SR10), 11(678), 14(617), 18(SR30), 20(SR41)
Vaaler, Jim		172	9(SR10), 9(SR10), 14(SR51), 18(SR26), 19(660), 20(606), 20(SR41), 21(SR78)
Vailik, James T.		401	18(SR2)
Valentine, Wendy		1209	18(SR26)
Van Hemelych, Tim		66	18(SR21)*
Van Wettering, Paul		30	23(SR62)
Varnado, T.D.		508	18(SR2)
Vernon, Greg and Jackie		12193	1(143), 1(421), 1(479), 2(715), 2(724), 5(SR201), 6(110), 6(111), 6(245), 6(249), 6(276), 6(SR247), 6(SR250), 7(518), 7(519), 7(SR223), 7(SR242), 7(SR338), 7(SR768), 8(SR299), 9(SR377), 9(SR378), 11(SR739), 13(210), 14(SR286), 16(319), 16(320), 16(321), 16(322), 16(324), 16(325), 16(337), 16(339), 16(343), 16(746), 16(SR54), 16(SR55), 16(SR335), 16(SR338), 16(SR342), 16(SR492), 17(158), 17(190), 19(666), 20(534), 20(535), 20(536), 20(538), 20(572), 20(624), 20(650), 20(747), 20(752), 20(756), 20(757), 20(758), 20(762), 20(763), 20(764), 20(765), 20(769), 20(784)*, 20(785), 20(786), 20(794), 20(805), 20(806), 20(SR42), 20(SR162), 20(SR533), 20(SR745), 20(SR750), 20(SR751), 20(SR753), 20(SR760), 20(SR761), 20(SR858), 20(SR917), 20(SR918), 20(SR919), 20(SR920), 20(SR921), 20(SR922), 20(SR923), 20(SR924), 22(393), 22(396), 22(522), 22(651), 22(SR499), 22(SR500), 23(440), 23(SR8), 23(SR64), 24(496)*, 24(819), 24(SR84)
Voigt, Norman W.		324	18(SR2)

Commenter Corrected	Organization	Submission ID	Location of Comments/Responses
Voigt, Ron		12169	18(SR26)
Waite, Daniel		360	24(770)
Walker, Michael T.		26	18(SR2)
Wanamaker, Clela		440	18(SR20)
Wandrey, Ralph		273	18(SR20)
Ward, Rachelle		1064	18(SR23)
Warren, May		12223	2(SR65)*, 18(SR21), 23(SR62), 23(SR428)
Watson, James R.		10217	18(SR23)
Watt, B.C.		94	18(SR19)
Webb, Michael Travis		317	18(SR19)
Webber, Richard E.		227	18(SR2)
Weidman, James		793	18(SR21)
Welch, Roger C.		27	18(SR19), 20(SR14), 23(SR429)
Welsh, Frank		1217	16(SR52), 20(SR41)
Wernz, Celeste		772	16(SR53), 18(SR26), 20(SR41)
Wetherbee, Duane		11056	23(SR8)
White, Willard S.		436	18(SR2)
Whyman, Thomas R.		83	18(SR19)
Wilkinson, Rick		1063, 1066	2(SR702)
Wilkinson, Rick		312	2(SR702)
Williams, Daniel E.		620	18(SR20)
Williams, Hal		1255	7(SR808), 20(SR150), 22(SR69)

Commenter Corrected	Organization	Submission ID	Location of Comments/Responses
Williams, Jason	Arizona Wilderness Coalition	12232	1(422), 1(423), 1(SR149), 1(SR425), 1(SR434), 1(SR498), 2(718), 2(723), 2(SR62), 2(SR88), 2(SR434), 2(SR497), 2(SR722), 7(187), 7(511), 7(514), 7(515), 7(516), 7(569), 7(SR225), 7(SR235), 7(SR510), 7(SR808), 8(262), 8(593), 8(599), 8(SR265), 8(SR273), 8(SR281), 8(SR290), 8(SR510), 9(581), 9(582), 9(SR360), 9(SR361), 9(SR362), 9(SR363), 9(SR364), 10(211), 11(690)*, 11(SR737), 11(SR738), 14(117)*, 14(622), 14(646), 14(773), 14(SR51), 14(SR313), 14(SR314)*, 14(SR315), 17(194), 17(413), 17(415), 17(416), 17(417), 17(418), 17(SR425), 18(SR26), 19(673), 19(SR674), 20(168), 20(171), 20(175), 20(540), 20(557), 20(559), 20(560), 20(561), 20(562), 20(563), 20(626), 20(628), 20(630), 20(631), 20(633), 20(778), 20(SR605), 20(SR625), 20(SR632), 20(SR859), 20(SR860), 20(SR861), 20(SR862), 20(SR863), 20(SR864), 20(SR865), 20(SR866), 20(SR867), 20(SR868), 20(SR869), 20(SR870), 20(SR871), 20(SR872), 20(SR873), 20(SR874), 20(SR875), 20(SR876), 20(SR877), 20(SR878), 20(SR880), 20(SR881), 20(SR882), 20(SR883), 20(SR884), 20(SR885), 20(SR886), 20(SR887), 20(SR888), 20(SR889), 20(SR890), 20(SR891), 20(SR892), 20(SR893), 20(SR894), 20(SR895), 20(SR896), 20(SR897), 20(SR898), 20(SR899), 20(SR900), 22(SR397), 24(SR826)
Williams, Keller		813	18(SR20)
Williamson, Jeff	Arizona Zoological Society	12231	2(407), 2(SR52), 8(602), 8(SR267), 8(SR293), 8(SR298), 8(SR300), 8(SR301), 8(SR302), 8(SR303), 8(SR304), 9(585), 9(603), 9(SR355), 9(SR356), 9(SR357), 9(SR358), 9(SR359), 9(SR371), 10(209), 11(SR809), 16(326), 16(327), 16(328), 16(329), 16(332), 16(340), 16(489), 16(490), 16(491), 16(SR52), 16(SR53), 16(SR56), 16(SR58), 16(SR60), 22(395), 22(652)

Commenter Corrected	Organization	Submission ID	Location of Comments/Responses
Williamson, Jeff	Arizona Zoological Society	12232	1(422), 1(423), 1(SR149), 1(SR425), 1(SR434), 1(SR498), 2(718), 2(723), 2(SR62), 2(SR88), 2(SR434), 2(SR497), 2(SR722), 7(187), 7(511), 7(514), 7(515), 7(516), 7(569), 7(SR225), 7(SR235), 7(SR510), 7(SR808), 8(262), 8(593), 8(599), 8(SR265), 8(SR273), 8(SR281), 8(SR290), 8(SR510), 9(581), 9(582), 9(SR360), 9(SR361), 9(SR362), 9(SR363), 9(SR364), 10(211), 11(690)*, 11(SR737), 11(SR738), 14(117)*, 14(622), 14(646), 14(773), 14(SR51), 14(SR313), 14(SR314)*, 14(SR315), 17(194), 17(413), 17(415), 17(416), 17(417), 17(418), 17(SR425), 18(SR26), 19(673), 19(SR674), 20(168), 20(171), 20(175), 20(540), 20(557), 20(559), 20(560), 20(561), 20(562), 20(563), 20(626), 20(628), 20(630), 20(631), 20(633), 20(778), 20(SR605), 20(SR625), 20(SR632), 20(SR859), 20(SR860), 20(SR861), 20(SR862), 20(SR863), 20(SR864), 20(SR865), 20(SR866), 20(SR867), 20(SR868), 20(SR869), 20(SR870), 20(SR871), 20(SR872), 20(SR873), 20(SR874), 20(SR875), 20(SR876), 20(SR877), 20(SR878), 20(SR880), 20(SR881), 20(SR882), 20(SR883), 20(SR884), 20(SR885), 20(SR886), 20(SR887), 20(SR888), 20(SR889), 20(SR890), 20(SR891), 20(SR892), 20(SR893), 20(SR894), 20(SR895), 20(SR896), 20(SR897), 20(SR898), 20(SR899), 20(SR900), 22(SR397), 24(SR826)
Williamson, Jeff	Arizona Zoological Society	11048	1(SR149)
Wilson, Bob		20	18(SR2)
Wilson, Jean E.		675	24(SR494)
Wilson, Kim		861	18(SR26)
Wilson, Oliver R.		1001	18(SR25)
Wing, Ronald C.		865	1(186)*
Wingert, Bret		272	17(408)
Winkelman, Gordon C.		163	18(SR12)
Wintrode, Bill T.		837	18(SR22)
Wischmeyer, AJ		1120	2(SR88), 7(SR808), 14(SR51), 16(SR52), 20(SR41), 20(SR150)
Wise, Wendy		1123	18(SR26)
wolf, cynthia		978	18(SR26)
Wolf, Dave		739	18(SR25)
Wong, Sam		10977	23(SR8)
Wood, William		1099	18(SR25)
Woodland, Peter		161	18(SR21)
Workman, Bruce		6	18(SR2)
Wright, Quinn		240	18(SR2)
Yettaw, Liland		387	18(SR2)

Commenter Corrected	Organization	Submission ID	Location of Comments/Responses
Yost, Jon		9	18(SR19), 18(SR20)
Young, Irving S.		1228, 1226	18(SR12), 18(SR21), 18(SR20)
Ziemann, Lowell A.		357	18(SR9)*, 18(SR19)
Zimmerman, Harry		12	18(SR2), 23(SR59)

Note: The asterisk identifies the non-substantive comments where a response is not included in Appendix J.

Response to Comments

Category 1: Purpose of and Need for the Resource Management Plan

1(17)
Comment: Would it be that there is a massive land grab in place that the BLM wants to use to give big developers or some other business a break and further destroy our pristine wild area of Arizona?
Response: IFNM is on Federal land that has been established under Presidential Proclamation for the purpose of preserving, protecting, and managing the unique natural and cultural resources that lie within. There is no intent to turn IFNM lands over to private developers because this would impede the protection and preservation mandates.

1(138)
Comment: On the issue of banning recreational shooting in the Ironwood Forest National Monument, I have a hard time understanding how BLM can regulate control or otherwise manipulate land in the state of Arizona or any other state.
Response: BLM operates under 43 CFR and the FLPMA. Land administered by the BLM is land held in trust by the Federal Government for the people of the United States. On behalf of the people, BLM is mandated by law to manage the public land, its resources and various values for multiple uses that sustain the land and its resources for the long-term needs of future generations. Within the boundaries of the IFNM, BLM does not manage or propose to manage lands owned by the State of Arizona (administered by the ASLD). BLM's decisions apply only to Federal surface and mineral estate, as described in Section 1.2 of the document.

1(143)
Comment: The Proclamation requires the BLM to protect the objects of the monument, not to preserve them. Appendix D states that the BLM will work with the State of Arizona water authorities to create an MOU to "preserve" the resources mentioned in the Proclamation. Attempting to "preserve" any objects of the monument may violate the FLPMA multiple use mandates and exceeds the intent of the Proclamation. All occurrences of the word "preserve" must be removed from the Final Resource Management Plan.
Response: The requirements in BLM's organic act, FLPMA, include to "preserve and protect certain public lands in their natural condition." Preservation of resources managed by BLM is implicit in the Act.

1(420)
Comment: Use the word, "boundary" when referring specifically to the boundaries of federal lands that make up the Monument. Use the word "perimeter" when referring to the outer Monument perimeter, which encloses federal monument lands and non-federal, non-monument lands.
Response: In Section 1.2 of the RMP/EIS, BLM defines the Federal lands (surface and subsurface) that make up the IFNM as the decision area; all lands within the outer IFNM perimeter are defined as the planning area. No changes have been made to the document with respect to these definitions.

1(421)
Comment: We request the BLM add to this Resource Management Plan a prohibition of wild horses and burro introductions within IFNM.
Response: As stated in Table 2-5, BLM would evaluate and implement proposals to enhance wildlife populations in coordination with AGFD through reintroductions, transplants, and supplemental stockings, consistent with BLM policy. There are no wild horse or burro ranges within the IFNM; therefore Objective 11 does not apply to the IFNM. However, there are free-ranging wild burros and horses in Arizona, and there is a remote chance that feral equines could migrate or disperse into the IFNM in the future. This objective provides the BLM a means to remove or manage any wild burros or horses that may

enter the IFNM in the future. There is no statement in the RMP that burros or horses will be imported into the IFNM. A statement has been added to the objective to clarify that wild horses and burros do not currently exist within the IFNM.

1(422)
Comment: In an effort to assure resources are available to finance monitoring and mitigation, the final RMP and proposed action should request that the agency post a performance bond financed through fees, use and privilege assessments, paid by all who benefit from the landscape, in amounts sufficient to offset all costs driven by use to include education, law enforcements, monitoring and mitigation.
Response: It is beyond the scope of the RMP process for BLM to post a performance bond to finance implementation of the RMP. Though BLM has attempted to develop goals, objectives, and management actions that can be achieved, staffing and/or funding could influence the timing of such achievement.

1(423)
Comment: The BLM must also identify areas where enforcement of legal uses in compromised [sic] by illegal activities and modify management with provisional guidance to address the inability to adequately monitor or enforce uses in various parts of the Monument.
Response: Identifying where illegal uses occur, and how to increase law enforcement to minimize those activities, will be ongoing. These monitoring and enforcement activities do not require a decision in the RMP.

1(426)
Comment: Page 3-51 Section 3.4 Tribal Interests, second bullet "Tohono O'Odham ranchers have interest in retaining occasional access to the IFNM from the Schuk Toak District to retrieve cattle that have strayed off the reservation (Steere 2005). The Pima NRCD is an Arizona State Agency. The Supervisors have all signed oaths of office requiring us to defend and uphold the US Constitution and the Constitution of the State of Arizona. The 14th Amendment to the US Constitution requires the States to defend the right of all U.S. citizens to "equal protection" of the laws.
We therefore must insist that if the BLM wishes to allow Tohono O'Odham tribal members to search for stray cattle on any IFNM grazing permittee's allotments, it must only occur under a written agreement signed by the Tohono O'Odham Nation, providing reciprocal permission for the IFNM ranchers to hunt for their stray cattle that wander onto the reservation. We recommend the BLM and Tohono O'Odham Nation enter into a Memorandum of Understanding that allows ranchers from either side of the fence to search for stray cattle, provided that representatives for the allotment being inadvertently trespassed are present and that an Arizona brand inspector approves all intentional cattle movements. We also highly recommend all gates between the IFNM and Tohono O'Odham reservation be replaced by cattle guards. Illegal immigration results in the gates and fences along this boundary being torn down and put up on a daily basis.
Furthermore, as you may be aware, the USDA may eventually also require documentation of the mixing of cattle herds. In any event, the individual permittees and the Nation should both be keeping accurate records of any stray cattle found mixing with their herds, as this information may at some point be necessary to trace cattle involved in an agricultural pandemic. We recommend this issue be addressed in the MOU we have proposed.
Response: Tohono O'odham tribal members may legally access the IFNM at any time, and BLM does not attempt to allow or disallow Tohono O'odham tribal members from accessing the IFNM to search for stray cattle. Whether or not the Tohono O'odham Nation allows access to its lands for this purpose is outside of BLM's jurisdiction. The development of an MOU to allow access when retrieving cattle on either the IFNM or Tohono O'odham tribal lands is also beyond the scope of the RMP. The addition of gates and cattle guards are implementation-level decisions and may be included in allotment management plans. Illegal immigration and damage caused is discussed in the cumulative impacts section of Chapter 4.

1(435)
Comment: This is our land not the federal governments.
Response: Land administered by the BLM is land held in trust by the Federal Government for the people of the United States. On behalf of the people, BLM is mandated by law to manage the public land, its resources and various values for multiple uses that sustain the land and its resources for the long-term needs of future generations.

1(444)
Comment: According to the Draft Report, Alternative C attempts to balance historical use with conservation of resources. We do not believe that these conflicting objectives can be balanced, and we do not believe that this balance complies with the Presidential Proclamation. Alternative C certainly does not comply with the spirit of the Proclamation.
Response: BLM does not feel that the general retention of historical uses and conservation of resources of the monument are mutually exclusive objectives, so long as these activities are properly managed. Some historical uses such as target shooting may not be compatible with the conservation of resources on the monument, and these activities have been restricted as necessary in the proposed alternative. Other historical uses such as motorized travel and camping have been limited - but not prohibited - in order to protect the monument's resources.
The monument land will remain available for public use subject to the use restrictions needed to protect monument objects and minimize conflicts with other allowable uses. Refer also to the comment summary and response 1(SR434) for additional information on the guidance provided by the Proclamation and BLM's associated management responsibility.

1(445)
Comment: On page 2-5, (section 2.3.3) is the information that the BLM Land Use Planning Handbook H 1601-1 (2005) is the source of policies applicable to this RMP development. Examination of this document (page 32-33, section V. Monitoring, Evaluation and Adaptive Management) reveals that land use plans are required to establish intervals and standards for evaluations and assess effectiveness of the plan in the context of stated goals and objectives. Unless it is possible to stipulate that IFNM resources are insensitive to the potential problems and conditions identified within this draft document, these critical facets of land use plans must be included.
Response: A monitoring framework that establishes intervals and standards for evaluations will be included in the Approved RMP. BLM has added additional information in Section 2.3.5 about adaptive management, monitoring, and evaluation of monument resources, and will initiate a public process after the release of the Approved RMP to guide monitoring and evaluation in the IFNM.

1(446)
Comment: Item 1.1: The idea that a stand-alone RMP for all NLCS units is not feasible because of the vast differences nationwide amongst these units. Historically other attempts to manage using one-size-fits-all procedures have not worked.
Response: The text of the Draft RMP/EIS has been interpreted to mean the BLM would develop one plan for various NLCS units, which is not the case. To clarify, BLM has revised the wording to read, "to implement BLM's policy to prepare an RMP for each National Landscape Conservation System (NLCS) unit, including the IFNM."

1(447)
Comment: under the concept of "multiple use" of our public lands, all citizens should be allowed to pursue their legitimate outdoor interests without undue interference.
Response: While it is understood that every user of public land would like to exercise his or her particular use with little restriction or interference from others, BLM must identify uses that are compatible with the

Proclamation's mandate to protect and manage the objects of the monument (identified in Table 1-2), and manage those uses so that the purposes of the IFNM are achieved.

1(450)
Comment: Chapter One: Introduction 1.3.3 Vision SBM wishes to reiterate some of the comments made earlier in the planning process regarding the Vision. Specifically, the inclusion of open spaces and outstanding vistas is inappropriate. Nowhere in the proclamation establishing the IFNM is there a reference to any scenic or visual attributes of the IFNM. Instead, the entire focus is on the ecologic importance of ironwood ecosystem and archaeological/cultural value of the sites.
Response: The Proclamation does address the scenic and visual attributes of the IFNM when it states that "the monument presents a quintessential view of the Sonoran Desert with ancient legume and cactus forests." In addition, BLM's primary guidance for management of public land comes from the FLPMA, which requires that "public lands be managed in a manner that will protect the quality of scientific, scenic, historical, ecological, environmental, air and atmospheric, water resource, and archeological values... and that will provide for outdoor recreation and human occupancy and use..."The Proclamation and FLPMA have guided BLM's development of proposed management for the IFNM to protect monument objects and accommodate multiple uses.

1(451)
Comment: Overarching Goals: The term sustainable multiple-use should not preclude uses of land within the monument for mining, where valid existing rights exist. In the previous draft of the overarching goals, businesses were included in the list of entities that would benefit socially and economically from pursued partnerships. Businesses should be restored to this list.
Response: The term "sustainable multiple uses" does not state or imply that mining under valid existing rights would be restricted within the IFNM. Section 1.3.4 in the Proposed RMP/FEIS the overarching goals, businesses have been added to the list of those who could benefit from partnerships.

1(458)
Comment: Impacts of visitor use and grazing should be closely monitored and guidelines or triggers for action to protect the monument should be developed.
Response: Under all alternatives, livestock grazing practices would be adjusted in accordance with the Arizona Standards for Rangeland Health and Guidelines for Grazing Administration Refer also to the Alternatives comment summary and response 2(149). Visitor use will also be monitored and management actions can occur to address emerging trends. See Section 2.3.5 for additional information on monitoring that has been included in the Proposed RMP.

1(473)
Comment: I would like to see you protect the whole area of the monument from destruction of its unique qualities. We hunger for wild places. If you let it be destroyed, it will be forever.
Response: All the alternatives would provide resource protection and uses within the IFNM, consistent with the Proclamation and FLPMA.

1(479)
Comment: Arizona Desert Wilderness Act Page B-1 states that this act is related to the development of the DRMP. However, this act only applies to specific named areas, of which IFNM is not included, and therefore this act is irrelevant to IFNM.
Response: The Arizona Desert Wilderness Act has been removed from the list in Appendix B.

1(SR61)
Summary Comment: Recreational shooters are not to blame for the trash at the IFNM. Instead of imposing regulations on them, the BLM should create and enforce strict littering laws.

Summary Response: BLM enforces regulations regarding litter on public lands and coordinates with volunteer groups to remove litter from the monument and other public lands. BLM works with law enforcement personnel in the enforcement of regulations associated with public lands and looks forward to cooperation with the public to assist in litter control and pickup. Also see summary comment and response 18(SR8) for additional information regarding management of the monument.

1(SR149)
Summary Comment: The final resource management plan should include plans for careful monitoring. Guidelines or triggers for action to protect IFNM objects should be developed. These "limits of acceptable change" should be developed and should focus on vulnerable parameters such as sensitive and/or indicator species, numbers and impacts of people, grazing, unauthorized routes, and any other issues that might result in harm to IFNM objects.
Summary Response: In general, monitoring by resource or use has been included in the Draft RMP/EIS in Appendix D, and monitoring has been specifically identified for management decisions related to special status species, land restoration activities, recreation, travel management, and other resources and uses. Specific protocols for monitoring monument objects and other resources will be developed by BLM with input from partnering agencies, organizations, and the public. Several public comments on the Draft RMP have made specific suggestions for developing monitoring protocols, and these will also be considered. BLM has added additional information in Section 2.3.5 about monitoring and evaluation of monument resources and related adaptive management approaches. Monitoring is considered an administrative action (day-to-day activity conducted by BLM that does not require a NEPA analysis); as such, it is not specifically analyzed in the RMP.

1(SR223)
Summary Comment: The Draft RMP/EIS does not include a definition of the word "enhance." This could leave the interpretation of the word "enhance," necessary management actions, and measurement of enhancement up to the courts. Also because conservation incorporates reversal and elimination of threats, the terms "enhance" and "restore" are not necessary in the Draft RMP/EIS.
Summary Response: Throughout the document, the words "enhance" or "enhanced" are used in various places to indicate a desire to improve the productivity, value, or quality of resources or resource uses within the IFNM while meeting the intent of the Proclamation, which is to protect objects within the IFNM. The word "enhance" has been added to the glossary in the Proposed RMP/Final EIS. Although some benchmark or baseline data are available, monitoring and adaptive management will be conducted as part of implementation planning that will occur on a site-specific basis to ensure conditions of monument objects and resources are maintained and/or improved as part of the overall monument conservation and management strategy.

1(SR419)
Summary Comment: A summary document should be released in the future, as a way to provide a greater level of public accessibility and involvement.
Summary Response: BLM included a summary at the beginning of the Draft RMP/EIS to allow for a brief yet thorough description of the document. The Draft RMP/EIS, including the summary, was made available for public review in hard-copy format, CD-ROM, and on the BLM's website. This Proposed RMP/Final EIS also has been made available similarly.

1(SR425)
Summary Comment: There is not an evident protocol for calculating human carrying capacity and responding in ways that manage that activity so that it conserves into the future natural system values necessary to support future life with quality.
Summary Response: BLM agrees that there is not one evident protocol for determining human carrying capacity. BLM will use adaptive management strategies to adjust management as conditions and demands

on resources change within the IFNM; these strategies will help BLM manage in ways to conserve the objects of the IFNM, consistent with the values of the public as expressed in the vision for the monument.

1(SR434)
Summary Comment: Based on the biological, geological, and archaeological values identified in the Proclamation establishing IFNM, BLM should recognize that "multiple use" is secondary to resource protection and certain uses (for example, recreational shooting) are not appropriate within the IFNM.
Summary Response: BLM manages national monuments subject to the provisions of each individual proclamation and the guiding principles of FLPMA. FLPMA requires that "management be on the basis of multiple use and sustained yield … except that where a tract of such public land has been dedicated to specific uses according to any other provisions of law it shall be managed in accordance with such law." FLPMA also requires that "public lands be managed in a manner that will protect the quality of scientific, scenic, historical, ecological, environmental, air and atmospheric, water resource, and archeological values... and that will provide for outdoor recreation and human occupancy and use ..." BLM's management of the IFNM is also guided by Presidential Proclamation 7320, "pursuant to applicable legal authorities, to implement the purposes of this proclamation." The Proclamation and FLPMA have guided BLM's development of proposed management for the IFNM to protect monument objects and allow for multiple uses. Absent a conflict, the Proclamation does not supersede or preempt other applicable statutory guidance (e.g., FLPMA). In fact, the Proclamation states that "establishment of this monument is subject to valid existing rights" and specifically allows for the continuation of various uses such as grazing, among other things.
All alternatives and decisions proposed for the monument are designed to protect monument resources and the objects described in the Proclamation and as described in Section 1.3.1. Protection of these resources and objects does not preclude a certain amount of public use and recreational enjoyment. Though the Proclamation emphasizes the protection of these resources and objects, FLPMA allows for multiple uses as long as the protection of monument resources and objects is ensured, and this conclusion is reached in the impact assessments in Chapter 4. We believe the proposed alternative provides for the protection of monument resources and objects, while allowing compatible uses and enjoyment of the monument by the public.

1(SR453)
Summary Comment: The Federal government should enact any laws to ban recreational shooting on IFNM at a congressional level.
Summary Response: It is the responsibility of the BLM to identify and implement management appropriate and compatible with all uses of the monument subject to the provisions of the Proclamation and the guiding principles of FLPMA. While target shooting has been identified as a legitimate use of public lands in general, it is an activity that can be restricted based on the management goals and objectives for specific BLM lands.

1(SR477)
Summary Comment: The Mining and Minerals Policy Act of 1970 and the National Materials and Minerals Policy, Research and Development Act of 1980 have been omitted from the list of legislative requirements. The valid existing mineral rights in the IFNM should be managed consistently with the policy of promoting an orderly and economic development of domestic mineral resources.
Summary Response: The legislative requirements described in Section 1.4 are the primary requirements that influence BLM's development of an RMP; the information presented is not an exhaustive list of the laws, regulations, and policies applicable to public land administered by BLM. The language of the introduction of this section has been modified to read "These and other laws, regulations, and policies provide the framework for management of the IFNM." In accordance with the Proclamation, management of the IFNM will be subject to valid existing rights, which include valid existing mining claims.

1(SR498)
Summary Comment: BLM must identify the border situation as one of the cumulative effects concerning the management of monument objects and consider all legal uses in addition to the ongoing illegal ones.
Summary Response: The cumulative effects analysis included consideration of U.S. Border Patrol activities and illegal undocumented immigrant and drug smuggler entry to the United States (refer to Table 4-19 and Section 4.7.2).

1(SR916)
Summary Comment: The loss of operating cattle ranches poses the threat of habitat fragmentation due to the potential for State and private lands to be sold and converted into harmful incompatible uses.
Summary Response: The analyses of impacts from Alternative B have been revised to include the potentially diminished value of State and private lands for livestock grazing if public lands administered by BLM were not available for those purposes.

Category 2: Alternatives

2(145)
Comment: To properly enforce any rules including the Plan above the BLM would have to hire a small army of people, then supply adequate training, wages, uniform, vehicles, retirement programs, offices, and a larger management team. This would be for starters and [the] financial tax burden would be prohibitive. A plan of action to patrol sport shooting that may be financially acceptable would be to utilize one or two helicopters for patrols and enforcement.
Response: Though staffing, enforcement and cost are all considerations in developing a land use plan, the RMP does not make decisions on these topics. These are administrative actions that are a part of on-going agency management that operates outside the planning effort. The BLM's management would not preclude use of helicopters and helicopters are regularly used by BLM, in partnership with the Arizona National Guard, to patrol the IFNM for illegal smuggling activities. These patrols often result in indirect patrolling of other activities as well, such as recreational shooting. However, helicopter patrols are ineffective without concurrent coordination with a patrol unit on the ground. The BLM Tucson Field Office considers the best value when implementing the annual budget for law enforcement, and under the Federal Acquisition Regulations (Part 15), BLM could acquire additional helicopter services if they are determined to be necessary and cost effective.

2(407)
Comment: We do not agree that the Proclamation indicates that grazing leases should be allowed to continue on the IFNM. DRMP/DEIS at 2-2. The Proclamation language states that "Laws, regulations, and policies followed by the Bureau of Land Management in issuing and administering grazing permits or leases on all lands under its jurisdiction shall continue to apply with regard to the lands in the monument." See Proclamation. This only means that were permits to continue, the BLM would have to authorize them according to BLM policy, directives, and federal law. There is nothing preventing immediate administrative action to end grazing immediately in the case of harm to Monument objects.
Response: BLM has revised the text from Section 2.2.2 of the Draft RMP/EIS to explain that the immediate elimination of grazing from the IFNM was considered during the development of alternatives; however, it was felt to be unreasonable in terms of costs to BLM and IFNM lessees, manageability, enforcement, and various other issues. BLM opted to consider a more feasible approach to the elimination of livestock grazing on the IFNM through the removal of livestock grazing as existing leases expire (as part of Alternative B). The impact assessment (Chapter 4) addresses the potential for impacts to objects of the monument. The assessment concluded that implementation of the management actions associated with each alternative would generally result in impacts that would be undetectable or measurable only in localized areas and that the nature of the impacts would be consistent with "protection of the monument objects" as defined in Section 1.3.1. In addition, BLM evaluates grazing leases in accordance with BLM's

standards for rangeland health and guidelines for livestock grazing management; adaptive management principal would be implemented if these evaluations determined that monument objects were not being adequately protected.

2(700)
Comment: Instead of banning recreational shooting we could charge on weekends to enter areas, to help with wages of forest rangers, and to help clean what has been destroyed by ruthless individuals that have no regard for what we all have.(I wouldn't mind paying to see and use my deserts and forests)
Response: The reasons for proposing closure of IFNM lands to recreational shooting are primarily based on damage to resources, property damage and safety factors, not based on operational costs and availability funds. BLM has the authority under FLPMA to establish individual permit requirements for recreational use of special management areas, which could generate fee collections under the Federal Lands Recreation Enhancement Act (FLREA) for use in managing the area. At this time, establishing the IFNM as a fee area is not being proposed, but it can be considered in the future for recreational use of Monument lands.

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2(701)
Comment: I strongly support Alternative D (greater access) as the one that most closely meets the BLM's mission of providing enjoyment of the land for present and future generations [because] continuing to designate huge areas as off limits to motorized vehicles puts the BLM in the position of denying access to all but the most able-bodied who can pack in on foot or horseback.
Response: Aside from providing recreational opportunities when drafting land use planning documents, BLM has several mandates to consider including the Proclamation and FLMPA. Alternative C, BLM's proposed alternative, retains reasonable motorized access to the vast majority of the monument for touring, exploring, and sightseeing. Under the proposed plan, only 9 percent of the planning area would be completely closed to motorized vehicle use by way of area closures.

2(704)
Comment: Limit shooting to clubs and to shooters who carry an Arizona Concealed Carry permit (CCW). This would also tend to weed out the irresponsible shooters who damage the area and leave trash.
Response: BLM has chosen to consider a range of alternatives that includes either a continuation of existing management (Alternative A), prohibition on recreational target shooting (Alternatives B and C), or recreational target shooting only in designated areas (Alternative D). BLM did not analyze an alternative that permits recreational shooting only by certain members of the public. Such a management scenario would be unfair to many users and be extremely difficult and costly to manage.

2(705)
Comment: Limit recreational shooting to club-organized events, held in a specific location on specific days, with the understanding that the area would be cleaned up. Then go and check the area after the club

leaves, to make sure any trash or litter does not belong to the club participants. Do not hold the clubs responsible for damage and litter by other individuals.
Response: Organized recreational use such as club events can be permitted under existing regulations at 43 CFR 2930. However, if BLM were to receive an application for a recreational shooting event in the IFNM, BLM would likely work with the applicant to use public lands outside the monument better suited for such an event. Refer also to summary comment and response 18(SR21) for additional information regarding recreation shooting within the monument.

2(710)
Comment: I have seen very little from BLM way of management initiatives or presence in the 6-7 years since the establishment proclamation to bring Ironwood up to what the public expects for a National Monument other than a boundary sign or two. If we see no forward motion with this RMP, we need to consider turning land management responsibility over to the Park Service as a 3rd unit of SNP. The range of alternatives was not broad enough because it omitted this option.
Response: BLM does not have the authority to transfer responsibilities for the administration of the IFNM to the National Park Service. Such an option is outside the scope of the RMP.

2(711)
Comment: More time should be spent on education for recreational shooters, community efforts by recreational shooters to clean and maintain areas abused by others, enforcement of illegal activity, and maybe even the development of designated shooting areas.
Response: BLM has conducted education and cleanup efforts and will continue to do so, as described in Appendix D. Refer also to summary comment and response 18(SR21) for additional information regarding recreational shooting within the monument. In addition, BLM policy as established in Washington Office Instruction Memorandum 2008-074, Change 1 says the creation and management of shooting sites will only be considered on BLM land if those sites are disposed of to another entity for long term management. Disposal of land is not consistent with the proclamation, so such development would not be allowed on the monument.

2(712)
Comment: I have been informed that the BLM is planning to close the Ironwood Forest National Monument to recreational shooting. I presume this is in response to environmental concerns regarding the condition of the various "favorite" shooting areas. Surely a public awareness campaign could yield significant results.
Response: Numerous news stories, BLM-sponsored events, and contacts with the public since the designation of the monument have focused on the effects of shooting on monument objects. While some users have modified their shooting practices to the benefit of the monument's resources, overall impacts continue to worsen. Presidential Proclamation 7320 recognized the natural and cultural resources that exist in the planning area as the dominant reservation of public land in the IFNM. That Proclamation effectively charged land managers with the proper care and management of those objects to be protected. Some recreational activities are compatible with the care and protection of those objects. However, BLM's proposed alternative prohibits recreational shooting because that dispersed activity has the potential to adversely impact the biological and cultural resources for which the IFNM was established. Please refer to Chapter 4 and Appendix I for more information on the effects of shooting in the IFNM.

2(713)
Comment: If litter is a large part of the reason for closing recreational shooting, why not arrange for clean-up parties? Isn't it worth trying?
Response: BLM has included enlisting volunteers and cleaning up litter in the administrative actions that could be conducted for management of the IFNM (refer to Appendix D, Recreation). These actions do have an effect on monument objects. However, education and clean-up projects alone are not a

sustainable long-term solution to mitigate the impacts of recreational target shooting on the IFNM. Furthermore, Presidential Proclamation 7320 recognized the natural and cultural resources that exist in the planning area as the dominant reservation of public land in the IFNM. That Proclamation effectively charged land managers with the proper care and management of those objects to be protected. Some recreational activities are compatible with the care and protection of those objects. However, BLM's proposed alternative prohibits recreational shooting because that dispersed activity has the potential to adversely impact the biological and cultural resources for which the IFNM was established. Please refer to Chapter 4 and Appendix I for more information on the effects of shooting in the IFNM.

2(714)

Comment: BLM Reversal of Preliminary Draft Alternatives: The Proposed Alternative's ban on recreational shooting is inconsistent with the Preliminary Draft Alternatives published by BLM in August 2005. Specifically, three of the four alternatives in the Preliminary Draft included provisions for recreational shooting, including Alternative C, which is now the Proposed Alternative. BLM's schedule of events for the RMP/EIS process indicates no additional draft alternatives were released between August 2005 and the release of the Draft RMP/EIS in March 2007. Yet, while it is clear that BLM reversed its thinking on the issue of recreational shooting during this time, during the public meetings, no member of the BLM management team could explain the basis for the reversal.

Response: The preliminary draft alternatives were released to allow the public to be involved in alternative development by commenting on the alternatives before they were finalized. In the 1.5 years between release of the preliminary draft alternatives and the Draft RMP/EIS, a number of management actions were modified based on comments received, additional analysis of preliminary actions, and evaluation of the impacts of the alternatives. BLM's proposed alternative prohibits recreational shooting because that dispersed activity has the potential to adversely impact the biological and cultural resources for which the IFNM was established. BLM did consider identifying specific sites for recreational target shooting under Alternative D and the effects of establishing designated shooting areas at Avra Hill and Cerrito Represo are evaluated in Chapter 4. The analysis of the selection of specific sites for recreational shooting is included in the plan as Appendix I.

2(715)

Comment: WE OBJECT to the Proposed regulation on Page 2-10, Alternatives B, C, D, Row 3. "In areas of sensitive or fragile soils, prohibit new ground disturbing activities. Mitigate existing ground-disturbing activities." This would prohibit developing any new water sources, maintaining any roads, installing new cattle guards, installing new fencing, etc. In fact, it prohibits cars from driving down roads and creates a de-facto wilderness area out of the IFNM without legally required Congressional action.

Response: The proposed alternative would not prohibit new or existing ground-disturbing activities in areas of sensitive or fragile soils. Rather, it provides for management of ground disturbing activities to prevent fugitive dust through appropriate measures depending on the activity. Map 3-2 shows the areas that contain sensitive and fragile soils, and Table 3-3 has been included in the PRMP to disclose the number of acres of sensitive and fragile soils in the IFNM. This management action would not serve as a designation of wilderness. Motorized travel would be permitted throughout the majority of the monument as indicated on Map 2-21.

2(718)

Comment: We are concerned with the construction of wildlife waters within the Ironwood Forest National Monument. There may be some limited benefit of these wildlife waters to support migrating wildlife populations in response to global warming and climate change in the Sonoran Desert, but any decisions regarding construction and placement of such waters should be based on the best available science and not on multiple use requests. See Lynn et al 2006, Marshal et al 2006, O'Brien et al 2006. They should be analyzed relative to their overall impact to the system and the multitude of wildlife and not just a single species. For example, Arizona State University biologist David E. Brown has observed that helicopter

surveys of dry ranges south of the border have indicated a higher density of bighorn sheep than similar areas in the United States that have these water catchments. See "Artificial water holes awash in controversy" Arizona Daily Star, 01/18/04.
We note that during the earlier public process to collaborate on Ironwood Forest National Monument, the consensus group specifically agreed to an overarching assessment of the existing waters within the Monument and a comprehensive analysis of the need for future water developments. This was to provide a framework for the development of wildlife waters, and the agreed upon management is not contained in any of the alternatives. The informal agreement about this has already been breached.
Response: BLM intends to fully honor the informal agreement to complete an assessment of the existing waters and a comprehensive analysis of the need for future water developments within the IFNM, and this is provided for in the RMP. In Chapter 2, Table 2-5 Resource Management Alternatives for Wildlife and Wildlife Habitat, Decision 6 directs BLM to evaluate additions, modifications, and potential removal of wildlife waters. Any proposals for new waters would be evaluated in context of existing waters and the overall need for such waters within the IFNM. Wildlife safety and well-being is an inherent part of this evaluation. As required by the Proclamation, the management actions and strategies defined in the RMP were developed so that "proper care and management of the objects" is ensured. When new information is obtained through monitoring and research studies, and as conditions change in the IFNM, management actions and approaches may be adapted. BLM will continue to seek partnerships with universities, State and Federal agencies, ranchers, and science-based organizations in designing and implementing inventory and monitoring the IFNM so that protection of resources within the IFNM is ensured.

2(719)
Comment: In general, there is very little if any variation between resource management alternatives B, C and D on various aspects. The following aspects provide identical conditions for alternatives B, C and D:
• Air Quality
• Geology and Caves (with the exception of permitting collection of geologic resources
• Soil and Water Resources (with the exception of disturbing fragile soils)
• Wildlife and Wildlife Habitat (with the exception of prohibiting dogs)
• Fire Ecology and Management
• Paleontological Resources
• Energy and Mineral Resources
• Special Designations
There should be varying management conditions in all of these aspects to clearly present real alternatives. If there are no management alternatives, these aspects should not be presented in this format.
Response: The alternatives are presented in the table format to allow for quick comparison between the various alternatives. Where there is little variability between alternatives, it is often due to the management requirements or constraints of the Proclamation. For example, BLM is given virtually no latitude in management of energy and mineral resources, as the Proclamation prohibits new mining claims, mineral leases, or sales. BLM did not develop alternatives that would be illegal to implement or that fall outside the purpose and need of the RMP. Furthermore, each alternative should be considered as a whole when comparing the overall range of alternatives. While it may appear that wildlife habitat is treated the same in every alternative based on management action in that table, the route system, which varies extensively by alternative, will have a significant impact on wildlife habitat. Chapter 4 discloses the impacts of each action on other resources and resource uses, which vary widely by alternative. A quick view of these impacts and the variation between them is available in Table 2-18, Summary Comparison of Impacts.

2(721)
Comment: Resource Management Alternatives for Livestock Grazing
Objective 11 of Appendix E states: "Provide for herd management for wild horses and burros, which is consistent with the category goals, objectives, and management actions of the Rangewide Plan. This may include limiting or precluding wild horse and/or burro use, as appropriate."
While this excerpt is taken out of the order of the document, it must be commented upon within the context of grazing rights. There are currently no known herds of wild burros or horses within the IFNM. It would seem that if Alternative B is implemented and grazing allotments are withdrawn, then any plans to relocate or populate the monument with herds of wild burros or horses would also be precluded by the same preservation efforts.
Response: BLM does not intend to populate the monument with wild horses or burros; the text is included as a general guideline for such animals should they appear in the future. The objective is included as a conservation measure for special status species and also states that "This may include limiting or precluding wild horse and/or burro use, as appropriate." Refer also to summary comment and response 9(354) for additional information regarding wild horses and burros.

2(723)
Comment: Additionally, when describing the alternatives, the BLM has erred in its characterization of Alternative B. This alternative is repeatedly called the "most restrictive" alternative in the Draft RMP/EIS; in the preliminary draft alternatives, it was characterized as "minimizing human use." Neither of these provides an objective and unbiased viewpoint to the reader, since both convey "human use" as the purpose and signifier of the planning alternatives. In the context of the Monument designation, the conservation values of the alternatives should be emphasized. While some human uses may actually increase in response to increased natural values, this is not to be the foremost goal of Monument management.
Response: The alternative summaries are included to give readers a general understanding of the range of decisions considered by BLM for management of the IFNM. The summaries compare and contrast the alternatives based on the uses allowed, primarily because the variations in uses would result in different impacts on resource values. Language included in that section is not meant to imply that accommodating human use is the dominant goal of the management decisions.

2(724)
Comment: Page 2-19 "Remove fences, roads, and facilities that are no longer necessary for transportation, wildlife management, monument administration, or other purposes in their present location." this conflicts with Page 2-50 under Resource Management Alternatives for Livestock Grazing, Decisions for Management Actions, Allowable uses, and Use Allocations Item 3: "… Even if BLM initially decides to discontinue livestock use on some or all of an allotment, it may later decide to resume livestock use if it determines, based on its subsequent evaluation... that it is appropriate to do so."
Response: The text of the wildlife and wildlife habitat decision states "remove fences …that are no longer necessary for transportation, wildlife management, monument administration, or other purposes…" The other purposes mentioned could include livestock operations. However, if fencing is used to implement other management decisions, including the removal of livestock grazing under Alternative B, fences would not be removed.

2(SR8)
Summary Comment: There are sufficient laws and regulations regarding use of public land (e.g., recreational shooting, OHV use) that make it a crime to harm the land; the RMP should not introduce new law and regulation. People who break the law will continue to break the law. Rather than restricting use of the land, existing laws should be enforced. For example, misuse of firearms, fire hazards, littering, etc. require enforcement and heavy penalties.

Summary Response: Approval and implementation of the RMP will not result in passage of new laws or regulations. The purpose of the RMP is to establish a framework for managing the land, resources, and uses within the monument as established in the Proclamation and in accordance with FLPMA. Under this framework, BLM manages the land and enforces current laws, regulations, and policies. The decisions within the RMP define what types of activities or uses are allowed or prohibited within all or part of the monument. Enforcement activities are a component of BLM's management but cannot be used as a substitute for proactive land management, just as management decisions are not made as a substitute for law enforcement activities. Also note that legal uses of public lands can inadvertently cause resource damage, depending on the intensity of the use and other factors, which is one of the primary reasons why BLM develops allowable use restrictions and other management prescriptions.
Law enforcement within the monument requires and includes coordination with other agencies, and is heavily influenced by current staffing and funding. Employing additional law enforcement personnel is a question of funding appropriated by the U.S. Congress, and congressional funding legislation is beyond the scope of this RMP/EIS. Rather than making assumptions regarding future levels of congressional funding, the RMP/EIS attempts to address resource needs and identify actions to protect those resources, which can have the effect of making existing law enforcement resources more efficient by simplifying regulations. This strategy is intended to help protect natural and cultural resources and enables BLM rangers to devote more of their time to dealing with illegal dumping and other law enforcement issues.

2(SR26)
Summary Comment: Recreational shooting disrupts other recreational activities, such as solitary contemplation, nature viewing, bicycling, horseback riding, hiking, and birding. While some shooters are responsible, others are not, and both damage the monument.
Summary Response: The BLM has considered and analyzed continuing to allow recreational target shooting (under Alternative A) prohibiting recreational target shooting (Alternatives B and C), and allowing recreational target shooting in designated areas within IFNM (Alternative D). Effects of each alternative are addressed in Chapter 4.

2(SR52)
Summary Comment: Phasing out or relinquishing and/or buying out livestock grazing permits or leases in the IFNM will greatly enhance the area's natural vegetation and help erosion control. It is well known the detrimental impacts that livestock grazing has on desert landscapes and cultural resources, as it severely impacts plant community composition and destroys cryptobiotic soil communities, artifacts, and prehistoric features. Managing these lands as they have been is incompatible with their designation as the IFNM.
Summary Response: The Arizona Standards for Rangeland Health and Guidelines for Grazing Administration are common to all alternatives, and apply to all resources and resource uses. The guidelines state that livestock management practices to achieve desired plant communities will 1) maintain or promote ground cover that will provide for infiltration, permeability, soil moisture storage, and soil stability appropriate for the ecological sites within management units; 2) provide for growth and reproduction of those plant species needed to reach desired plant community objectives; and 3) consider protection and conservation of known cultural resources, including historical sites, and prehistoric sites and plants of significance to Native American peoples. Phasing out livestock grazing permits and leases is considered under Alternative B, and the possible affects of this decision are considered in the Draft RMP/EIS. The potential for the voluntary relinquishment of livestock grazing permits in the IFNM is considered and analyzed under Alternatives C and D. Current Federal regulations prevent agency buyouts of grazing permits and leases. Refer also to summary comments and responses 16(52) and 16(56) for additional information regarding livestock grazing within the monument.

2(SR62)
Summary Comment: Illegal immigration, drug running, and law enforcement activities cause damage and destruction to IFNM resources. BLM should address the topic of illegal immigration and enforcement activities.
Summary Response: BLM is required to analyze the impacts of BLM's management decisions on the IFNM. No management decisions are made in the RMP related to illegal activities (including immigration) and associated law enforcement activities. Apprehension of undocumented immigrants is the responsibility of the U.S. Border Patrol. However, BLM has analyzed the potential for impacts from those activities within the cumulative impacts section of the Draft RMP/EIS in Section 4.7.2. Additional information regarding these impacts has been included in the Proposed RMP/FEIS in Section 4.7.2. BLM continues to work with appropriate authorities to deal with illegal smuggling activities on the IFNM and the resource impacts that directly and indirectly result from these activities.

2(SR65)
Summary Comment: The BLM should use volunteer groups to clean up sites rather than banning recreational shooting altogether.
Summary Response: Under FLPMA, Section 301, a-e, BLM may accept volunteer help to aid in research, management, and protection (excluding law enforcement). BLM uses volunteers on a regular basis in the IFNM, primarily for assistance in clearing the monument of refuse. BLM will continue to use volunteers and groups to facilitate research, data collection, and litter cleanup within the IFNM. As valuable as these volunteers are to the ongoing maintenance and management of the IFNM, the work they do should not be considered a substitute for management actions that are needed to meet the goals and objectives for the area. Rather, volunteers help BLM fulfill its management responsibilities to meet those goals and objectives.

2(SR85)
Summary Comment: BLM should designate a special controlled location on the IFNM specifically for recreational shooting. It could be identified on maps and signed so people would know where to go for shooting or how to avoid it for public safety, and signage could be used to describe the penalties for littering, damaging resources, and using the range improperly.
Summary Response: BLM completed an analysis to identify specific sites for recreational target shooting; the results of this analysis are summarized in Appendix I. Two sites were identified for further analysis and were assessed for environmental impacts in Chapter 4 as a component of Alternative D. The analysis identified the potential for significant environmental effects, including impacts to monument objects that could not be mitigated. Also note that BLM policy as established in Washington Office Instruction Memorandum 2008-074, Change 1 says the creation and management of shooting sites will only be considered on BLM land if those sites are disposed of to another entity for long term management. Disposal of land is not consistent with the proclamation, so such development would not be allowed on the monument.

2(SR87)
Summary Comment: Don't restrict people from their public land. We need everyone out there to be extra eyes for the BLM and to help remove trash, report illegal activities, and help others in need on the IFNM.
Summary Response: BLM greatly appreciates the efforts made by many visitors and volunteers who remove trash, report illegal activities, and help others in need, not as a part of any organized volunteer activity, but as a regular part of their public land visits. BLM also regularly coordinates with volunteer groups to help meet management objectives for the IFNM, and none of the alternatives would preclude BLM from continuing to work with these groups or discourage anyone from continuing this good citizenship. Volunteers who wish to assist the agency in implementing the RMP would continue to be accommodated. However, this partnership would not be considered a substitute for proactive management

or enforcement of any provision of the RMP. Refer also to summary comment and response 2(65) for additional information regarding volunteer aid in research within the monument.

2(SR88)
Summary Comment: Choose management alternatives that provide the remaining IFNM resources the best protection from housing development, roads, and OHV use. None of the current alternatives provide enough protection. The IFNM should be given the same level of protection as the national parks.
Summary Response: BLM developed the four alternatives presented in the Draft RMP/EIS to demonstrate a range of allowable uses within the IFNM, consistent with the Proclamation and BLM's multiple use mandate. In the proposed alternative, BLM would restrict or prohibit certain uses or activities that have the potential to adversely impact the biological and cultural resources for which the IFNM was established. While they offer varying means of achieving our objectives, each alternative complies with the Proclamation.

2(SR434)
Summary Comment: Based on the biological, geological, and archaeological values identified in the Proclamation establishing IFNM, BLM should recognize that "multiple use" is secondary to resource protection and certain uses (for example, recreational shooting) are not appropriate within the IFNM.
Summary Response: BLM manages national monuments subject to the provisions of each individual proclamation and the guiding principles of FLPMA. FLPMA requires that "management be on the basis of multiple use and sustained yield … except that where a tract of such public land has been dedicated to specific uses according to any other provisions of law it shall be managed in accordance with such law." FLPMA also requires that "public lands be managed in a manner that will protect the quality of scientific, scenic, historical, ecological, environmental, air and atmospheric, water resource, and archeological values... and that will provide for outdoor recreation and human occupancy and use ..." BLM's management of the IFNM is also guided by Presidential Proclamation 7320, "pursuant to applicable legal authorities, to implement the purposes of this proclamation." The Proclamation and FLPMA have guided BLM's development of proposed management for the IFNM to protect monument objects and allow for multiple uses. Absent a conflict, the Proclamation does not supersede or preempt other applicable statutory guidance (e.g., FLPMA). In fact, the Proclamation states that "establishment of this monument is subject to valid existing rights" and specifically allows for the continuation of various uses such as grazing, among other things.
All alternatives and decisions proposed for the monument are designed to protect monument resources and the objects described in the Proclamation and as described in Section 1.3.1. Protection of these resources and objects does not preclude a certain amount of public use and recreational enjoyment. Though the Proclamation emphasizes the protection of these resources and objects, FLPMA allows for multiple uses as long as the protection of monument resources and objects is ensured, and this conclusion is reached in the impact assessments in Chapter 4. We believe the proposed alternative provides for the protection of monument resources and objects, while allowing compatible uses and enjoyment of the monument by the public.

2(SR497)
Summary Comment: Commenters request information regarding a drought plan for IFNM.
Summary Response: BLM and the State of Arizona developed an operational drought plan that was finalized in October 2004. The operational drought plan identifies a process for communication and coordination among Arizona State agencies, Federal agencies, tribal governments, State lawmakers, water users, resource managers, and scientists. BLM, as a member of the Interagency Coordinating Group, will provide policy guidance for plan implementation, agency emergency response options, and plan review and modification. The BLM is also a member of Arizona's Monitoring Technical Committee and will continue providing an essential role in tracking changes in climate and physical conditions and providing forecasts of likely future conditions. The Monitoring Technical Committee monitors and identifies

conditions throughout the state on an ongoing basis and detects and requests that the drought status be changed as data and conditions warrant.
BLM has the ability to modify management actions in this plan if changing environmental conditions, such as a major drought event, warrant such modifications. This can occur through adaptive management procedures or through more extensive efforts such as plan amendments and revisions. Numerous processes already in place, such as activities associated with BLM's standards and guidelines process, also address drought conditions.

2(SR702)
Summary Comment: BLM should develop an alternative that places no restrictions on recreational shooting and OHV use but instead cooperates with external groups that promote responsible recreational use and resource protection.
Summary Response: Alternative A, the No Action alternative addresses this management scenario. Chapter 3 describes the current situation that has resulted in management in this manner, and the impacts described in Chapter 4 describe the impacts currently being experienced and anticipated with its continuation. BLM coordinates with external conservation and sport organizations on a regular basis for volunteer projects, to promote responsible uses and other purposes, and none of the alternatives would preclude BLM from continuing to work with these groups. BLM will seek volunteers who wish to assist the agency in implementing the RMP. However, these partnerships would not be considered a substitute for proactive management or enforcement of any provision of the RMP. Refer also to summary comment and response 2(65) for additional information regarding volunteer aid in research within the monument.

2(SR703)
Summary Comment: BLM should adopt the route network proposed by Arizona conservation groups.
Summary Response: BLM considered the route designation proposal submitted, but did not analyze it in detail, as described in Section 2.2.3. BLM utilized the Route Evaluation Tree Process© to help achieve desired outcomes that were specifically tailored to the unique needs and issues of the IFNM. This process used several criteria to protect sensitive habitats and minimize excessive routes, including: 1) identifying and closing duplicative routes, 2) closing or limiting public use where there is a high risk of damage to sensitive resource values, and 3) retaining reasonable access, etc. Appendix G contains a comprehensive list of all the criteria used in the route designation process.

2(SR708)
Summary Comment: Visitors should be allowed to gather firewood that is already dead and down to aid in removal of excess wildfire fuels.
Summary Response: BLM had not included a provision for collection of dead and downed wood in the proposed alternative because it provides habitat for wildlife. The proposed alternative does provide for various types of hazardous fuels treatments where fuel loading is high.

2(SR709)
Summary Comment: BLM should place informational signs at the IFNM entrances to inform users that they must clean up after themselves and that fines would be imposed upon those who fail to comply.
Summary Response: BLM has the ability to place informational signage within the IFNM; this generally would be considered an administrative action and would not need to be considered as an alternative in the RMP. Several such signs are currently in place.

2(SR720)
Summary Comment: The Draft RMP/EIS does not provide a reasonable range of alternatives because only Alternative B gives primary consideration to conservation of monument resources.
Summary Response: While they offer varying means of achieving our objectives, each alternative complies with the Proclamation for protection of the monument objects. The action alternatives describe a

reasonable range of alternatives for management of the IFNM under applicable laws, regulations, and policies. BLM selected Alternative C as the proposed alternative because it provides protection of monument objects and public land resources, while maintaining opportunities for various traditional and recreational uses, to the extent such uses are compatible with the purposes of the IFNM.

2(SR722)
Summary Comment: There is a growing body of evidence that shows we are in an extended drought cycle. The RMP should give more consideration to climate change.
Summary Response: In order to disclose the environmental impacts of the four alternatives, some assumptions were made with respect to climatic fluctuation (see Section 4.3.4). We assumed, for example, that climatic fluctuation will continue to influence the health and productivity of plant communities. In order to deal with such uncertainties, the BLM intends to implement an adaptive management strategy for any alternative selected (see Section 2.3.5). The adaptive management approach would allow BLM the flexibility to protect the long-term productivity of the land, resources, and resource uses in the IFNM.

Category 3: Air Quality

3(459)
Comment: 2-7 AIR QUALITY Options fail to examine option of closing all (or all possible) roads to motorized traffic as a means of protecting and/or enhancing air quality. Points to analyze would include both fugitive dust emissions from roads and vehicle exhaust emissions including diesel vehicles, quads, and dirt bikes. And what about noise?
Response: Alternative B presents the minimum routes necessary for the management of the IFNM, including administrative access needs. Closing all routes to motorized traffic would not allow BLM to provide legal access or meet the management goals and objectives set for the IFNM (refer to revised Section 2.2.3 of the RMP/EIS). Air quality was specifically considered during the route designation process (refer to Appendix G of the RMP/EIS). As a result, BLM limited the miles of routes designated for motorized travel within nonattainment areas and areas with dust-prone soils. While BLM has not attempted to regulate noise in the planning area, BLM would enforce applicable State, county, and local noise regulations on the IFNM.

3(462)
Comment: To address air quality impacts in all of the alternatives considered, EPA recommends restricting OHV use in non-attainment areas and implementing mitigation measures to reduce the impacts of OHV use to air quality.
Response: Nonattainment areas were specifically considered during the route designation process, and motorized routes within these areas were limited based on air quality concerns. OHV use off designated routes is prohibited throughout the monument, except for emergency or authorized administrative purposes. Mitigation measures to reduce the impacts of motorized vehicle use on air quality are listed in Table 2-1.

3(463)
Comment: Draft Goals, Objectives and Alternatives - Air Quality
"Goal 1: Manage use to maintain Federal and State air quality standards."
SBM continues to object to the exclusion of valid existing rights in this goal. Drafting goals and objectives that do not recognize their existence is inappropriate.
Objective 3: Emphasize low polluting alternatives and fugitive dust mitigation measures within and near the monument, especially as they pertain to unpaved roads that traverse public lands and ground disturbing activities.

SBM continues to object to the term "near" as it implies that the management plan will have control over the activities outside of the public lands covered by this plan. The management activities of this plan should be limited to the 128,917 acres that BLM actually controls and even then must recognize that valid existing rights may be exercised in that area.
Response: The goals and objectives apply only to public land and give necessary consideration to valid existing rights, as do all the goals, objectives, and management decisions considered by BLM. It is not necessary to restate this for every goal, objective, and decision within the Draft RMP/EIS. With respect to the use of the word "near" in Objective 3, BLM would emphasize the use of low-polluting alternatives and fugitive dust mitigation measures on public land within and near the IFNM. Few sources of air pollution are exempt from Clean Air Act requirements, even those with valid, existing rights associated with mining claims, or those that affect areas at distances from the source. Downwind impacts are the nature of air pollution, and are regulated. However, BLM would not have authority to require any such measures off BLM-administered lands.

3(464)
Comment: 3.1.1.2 Visibility in Class I Areas
The Clean Air Act defines Class I areas as certain wilderness areas greater than 5000 acres...The planning area does not include any Class I areas.
Alternatives B and C include areas that will be managed for wilderness characteristics greater than 5000 acres. Even though the planning area doesn't contain any Class I areas, there is concern that air quality is one of the wilderness characteristics that will be managed. A Class I designation puts onerous conditions on air permit holders in the vicinity of the designated area. The full economic impact of this wilderness characteristic needs to be evaluated and addressed.
Response: BLM does not intend to manage lands with wilderness characteristics under provisions from the 1964 Wilderness Act. Section 201 of FLPMA directs the Secretary of the Interior to "maintain on a continuing basis an inventory of all public lands and their resource and other values," which provides BLM with the authority to inventory lands for wilderness characteristics. BLM's management of areas with wilderness characteristics does not include managing these areas with a Class I designation for air quality. Therefore, the analysis does not consider impacts that would result from a Class I designation.

3(465)
Comment: 4.3.1.3 Impacts on Air Quality
"Approximately 38,040 acres of the BLM surface lands would be closed to vehicular traffic...as compared with Alternative A, overall emissions within the IFNM likely would be reduced."
SBM believes this assessment is flawed in that it does not take into account increased travel from one part of the monument to another due to the closure of roads. SBM believes there could be a net emissions increase due to greater distances traveled.
Response: Over the life of the RMP, the overall emissions likely would be reduced because, in the closed areas, no new motorized routes could be authorized. BLM would designate routes for motorized travel between or adjacent to the closed areas to provide for continued access throughout the monument (refer to Map 2-21, Routes, Alternative C). A majority of the routes that would be designated for non-motorized travel would be routes that do not connect between two areas; that is, they are not "through routes" but instead "dead ends" within a certain area. As a result of the closed areas, it is likely that overall emissions would be reduced because fewer miles of routes would be available for motorized travel, but sufficient routes would be available to provide access throughout the IFNM. In addition, routes that become "through routes" and see increased travel and consequently increased fugitive dust emission can be mitigated through adaptive management by adjusting maintenance, vehicle speeds, surface stabilization, or other appropriate management actions intended to reduce fugitive dust production.

3(466)
Comment: We are concerned with items listed in the administrative actions as many go well beyond a simple administrative action and seek to impose additional regulatory burden on permittees, landowners and users in and near the monument. Additionally, the proclamation specifically does not reserve water rights, however several of the administrative actions seek to do just that.
A listing of those actions of concern to SBM include:
Air Quality
• Work with local businesses that have non-major permits within 6 miles (10 kilometers) of the Ironwood Forest Nation Monument (IFNM) to establish an understanding of the potential impacts their operations may have on the monument.
• Work with permitting authorities to ensure that the IFNM is treated as a pseudo "affected state" for the purposes of major source air quality permitting for facilities within 100 kilometers of the IFNM.
• Work with permitting authorities to ensure BLM has an opportunity to review non-major permits within 10 kilometers of the IFNM to determine their effects on air quality and monument resources.
• Keep informed of the compliance status of minor and major sources near the IFNM and inform the applicable permitting agency of potential violations if necessary.
Response: The administrative actions for air quality would not impose an additional regulatory burden; these actions would provide BLM with an opportunity to be informed of and potentially comment on activities in close proximity to the IFNM that could have an affect on air quality within the monument.

3(467)
Comment: Table 2-18 Summary Comparison of Impacts Table
Air Quality Alternative B - "A lack of utility corridors and allocating the IFNM as an exclusion area for right-of-ways would limit opportunities for surface-disturbing activities that could generate fugitive dust." There is flawed logic in this assessment in that it assumes additional utilities would not be constructed if no corridors are allowed. Instead, utilities would be constructed around the monument in a longer, less direct route thereby creating more fugitive dust from a greater amount of surface-disturbing activities.
Response: BLM has modified the text of Table 2-18 and Section 4.3.1.3 to indicate that the impacts on air quality (generation of fugitive dust) would be reduced within the IFNM as a result of not designating corridors or allowing rights-of-way, unless required by law. If corridors are not designated through the IFNM, there may or may not be additional utilities routed around the IFNM, depending on the need for the utility and potential alternatives (e.g., transmission lines versus development of additional generation facilities). This could result in an increase in fugitive dust emissions only if these utilities are developed. The potential for increased fugitive dust emissions has been added to Section 4.3.1.3.

3(472)
Comment: Page S-8 under Impacts on Air Quality:
"... surface disturbing activities, including ..., livestock grazing, ... would result in localized degradation of air quality. No scientific study is referenced. No relevant studies we are aware of have been performed. No conditions of precipitation or stocking levels are mentioned. No degree of this impact is estimated. The BLM appears to be guessing this is true, and we perceive the comment reflects more imaginative speculation than science.
Response: The Summary provides a synopsis of the Draft RMP/EIS. The existing condition (or affected environment) is described in Section 3.1.1 and cites the Arizona Department of Environmental Quality, Western Regional Climate Center, and other sources for baseline and regulatory data. A full discussion of impacts is included in Section 4.3.1. Without detailed information on emission sources it is not possible to quantitatively assess changes in air quality using dispersion models or similar tools, so a qualitative comparison of the proposed management decisions based on air quality conditions as discussed in Section 3.1.1 is offered. Using Environmental Protection Agency guidance, a quantitative analysis for PM10 emissions associated with estimated motorized travel on open motorized routes has been added to Section 4.3.1.

3(SR468)
Summary Comment: The increased risk of wildfire as a result of the buildup of fine fuels in the absence of grazing could impact air quality.
Summary Response: In the Draft RMP/EIS Chapter 2 Alternatives, see Table 2-7 Resource Management Alternatives for Fire Ecology and Management, decision 4 regarding management in areas where fuel loading is high, use biological, mechanical or chemical treatments to maintain levels of fuels. The risk of wildfire is the same for all alternatives.

Category 4: Geology and Cave Resources

4(99)
Comment: 2-8 GEOLOGY AND CAVES
First and primary goal should be to protect and preserve the geologic resources, and ensure there is no degradation of the resource under BLM's management, not to make sure they are available for public enjoyment.
What does identify appropriate management actions mean? Isn't that what this document is for, to outline and describe in detail those proposed actions?
Again, it's about providing access? There is nothing about prioritizing access to the resources identified in the proclamation.
Response: The management goal for geologic resources has been revised to emphasize protection of these resources' natural characteristics and processes. Because geologic resources within the IFNM are a primary scenic focus (scenery being a monument object), public enjoyment is an appropriate measure by which to ensure their preservation. The RMP/EIS provides management guidance for the known geologic resources by way of the Visual Resource Management (VRM) classes, recreation management zones (RMZs), areas managed to protect wilderness characteristics, route designations, and decisions for other resources and uses. However, BLM recognizes that additional information may be gathered that warrants management adjustments if and when additional, unique geologic features are identified. At that time, BLM will determine how they will be managed, in a manner consistent with the Proclamation and RMP, as well as for educational and interpretive objectives established for the visiting public.

4(132)
Comment: 3-7 3.1.2.1 The geology here is completely inadequate. BLM has failed to inventory the area or provide a clear understanding of the geological history and resources of the area. BLM failed to note the presence of numerous small stone arches in the Sawtooth Mountain Unit. If BLM doesn't know what's out there, if it has no baseline data, how can it manage and/or monitor the resources it is charged with protecting? How can it perform an adequate environmental analysis of something it doesn't really know much about? At the very least, management begins with that inventory. Hire a geologist with the US or AZ Geological Survey and do it right.
Response: The information provided in your comment about arches within the Sawtooth Mountains has been verified and included in the Proposed RMP. Per NEPA and CEQ, BLM need not provide an encyclopedic review of each resource found on IFNM within this Draft RMP/EIS. The Arizona Geological Survey (Richard et al. 2000) has prepared a geologic map of Arizona that includes the surficial geologic resources of the IFNM. See Scarborough (2003) for further detailed discussion of the geology of IFNM. BLM looks forward to working with USGS, Arizona Geological Survey, universities, and other interested groups to conduct needed research and data collection that could be used in the adaptive management of the IFNM.

Category 5: Soil Resources

5(101)
Comment: In Chapter 3 it is acknowledged that biological soil crusts are a significant ecological feature, but that they have not been "comprehensively inventoried, nor mapped, within the IFNM." Further, Appendix D indicates an action to "determine the current existence, location, and condition of desert pavement and biological soil crusts." This proposed activity is ecologically important as biological soil crusts function to improve soil stability and integrity as well as enhance soil-vegetation nutrient cycling (Harper and Belnap, 2001; Belnap et al., 2003); mapping the current distribution and condition could provide baseline information (Darby et al., 2007) about these important soil communities.
The USGS recommends, however, that the proposed mapping activity is expanded to include monitoring of these biological assemblages. The National Monument might provide ideal conserved conditions to study the trend dynamics of this type of bioindicator of change (Belnap et al., 1994), especially for natural and anthropogenic activities which could affect the ecology within the Monument. These activities include internal stressors, such as grazing (Bowker et al., 2006), fire (Bowker et al., 2004), or vehicular use (Belnap, 2002), or external, including wind (Belnap and Gillette, 1998; Belnap, 2003), air pollution (Belnap, 1991), climatic variability over time (Evans et al., 2003; Belnap et al., 2004; Belnap and Lange, 2005, Belnap, 2006), or invasive plant species (Belnap et al., 2006).
This information might not only help explain changing ecological conditions at the Monument, but contribute to understanding a larger issue of desertification (Belnap and Lange, 2005). Further information about biological soil crusts can be accessed from the USGS website for the Southwest Biological Science Center, http://sbsc.wr.usgs.gov/.
Response: BLM agrees with the USGS' recommendation that the proposed mapping activity be expanded to include monitoring of these biological assemblages. BLM looks forward to working with USGS and other organizations to conduct needed soil resources monitoring to aid in RMP implementation.

5(107)
Comment: [Page] 2-9 Soil and Water Resources
Construction, reconstruction, or maintenance of what facilities?
Response: Facilities include structures for recreation, livestock grazing, transportation and access points, and structures associated with roads and trails. Within the IFNM facilities include, but are not limited to, fences, stock tanks, pipelines, and catchment ponds. Language has been added to this management action to clarify its intent.

5(202)
Comment: The amount of surface disturbance due to recreational shooting is less per hour than motorized vehicle travel (even on existing dirt roads), less than mountain biking or horseback riding and in a few cases less than foot travel if the foot travel is in sensitive/sandy soil. With that said, the prohibition doesn't make sense logically and will likely have a completely unmeasurable benefit on surface disturbance in view of other uses. I strongly recommend that Alternatives B or C not be implemented.
Response: The disturbance of soil resources from all types of resource uses has been evaluated in the Draft RMP/EIS. While some uses cause more disturbance than others, surface disturbance from target-shooting activity can be significant due to the concentration of this use in many places throughout the monument, and management actions are analyzed to minimize or eliminate those impacts.

5(217)
Comment: Page 4-14 under impacts on Soil and Water Resources
In addition, areas where livestock or wildlife concentrate such as near water sources, would also compact soils in localized areas. These areas would experience the most soil compaction and loss or reduction of vegetation cover, as well as destruction of biological crusts and increased wind erosion.

The quoted statement contradicts itself. The author indicts cattle of both soil compaction and increased wind erosion within one sentence. Which is it? And why so consistently is no ecological benefit from cattle grazing mentioned in the DRMP? As usual, no scientific study is cited so we can assume the stated conclusion absent any data amounts to amateur guesswork.
Response: BLM used the information in the National Range and Pasture Handbook to determine potential effects of livestock grazing on soils. In addition, heavy hoof action causes trampling that results in soil compaction by decreasing the soil macropore space and reducing infiltration that can increase runoff and sediment yield (Bohn and Buckhouse 1985). Soil compaction inhibits root growth and subsequently plant growth (Bohn and Buckhouse 1985). This can result in areas where the loss of understory vegetation increases potential for wind erosion. Section 4.3.3 discusses how soil compaction, particularly in areas with sensitive or fragile soils, can result in erosion.

5(218)
Comment: A section of the EIS apparently authored by a geologist attempts to discuss the impacts of livestock reductions, without a single scientific citation supporting any of the claims made:[on] page 4-15. The author cited no scientific authority, so it appears he cited whatever positive results his untrained and inexperienced imagination came up with, and never considered any possible negative impacts of mandating new livestock restrictions, e.g., increased fire hazard, the need this creates to erect fences along land ownership boundaries, the consequences of installing fences without regard to impacts on grazing patterns, vegetation structure, carrying capacity, etc.
Response: We have interpreted this comment as referring to Alternative B because page 4-15 refers to Alternative A where there are no proposed changes to livestock grazing. As part of the interdisciplinary process for preparing the Draft RMP/EIS, the BLM Interdisciplinary Team reviewed all of the sections of the document and evaluated how a decision could affect soil and water resources.
The document has been revised to include localized impacts on soil and vegetation resources under Alternative B to indicate that, in areas where additional fencing could be required to implement livestock grazing decisions there could be localized, short-term surface disturbance. Refer also to summary comments and responses 5(217) and 10(468) for additional information regarding the source of information for determining impacts of grazing on soils and potential changes in fuel loading.

5(219)
Comment: Page 4-6-Alternative B (which terminates all grazing) states,
The retirement of grazing leases, and subsequently making allotments unavailable to grazing, would allow revegetation of areas presently denuded of grasses;
The BLM failed to recognize these soils are predominantly covered with vegetation, according to the NRCS inventories. The grazing allotments within the monument have been managed by the District Cooperators and the NRCS for years to improve soil cover and productivity there by reducing erosion by wind and water.
Response: The establishment of vegetation in arid areas depends on site-specific conditions, including historical uses such as livestock grazing and recreation. The Proposed RMP/EIS has been edited to clarify that in highly localized areas that have no or sparse understory vegetation, removal of livestock grazing and reducing the areas where overnight camping is allowed could result in revegetation particularly of grasses and annual plants.

5(220)
Comment: Page 4-7 (Alternative C)
Provision of additional stock waters for livestock would have the same impacts as those under Alternative A; it could increase dust in localized areas because stock-water areas generally become denuded of vegetation, creating conditions for the generation of wind-driven dust. We disagree.
Provision of additional waters would reduce the utilization of forage surrounding each water source and would allow greater and quicker recovery.

Response: BLM used the information in the National Range and Pasture Handbook to determine potential effects of livestock grazing on soils and vegetation. The Proposed RMP/EIS has been revised to clarify that the congregation of cattle in localized areas near water sources could result in the removal of understory vegetation, which could indirectly increase dust in localized areas. The Draft RMP/EIS also indicates in Section 4.4.2.2 that the decisions regarding the provision of additional stock waters in the Twin Tanks and Cocoraque Butte pastures could improve forage utilization.

5(221)
Comment: Page 4-3 states,
The following types of data are unavailable for the entire planning area:
• Field inventory of soils and water conditions
Not true. The NRCS inventoried and mapped all soils and water prior to 1990.
Response: BLM used the information from three Natural Resource Conservation Service Soil Surveys: Pinal County – Western Part (NRCS 1991), Pima County - Eastern Part (NRCS 2003), Tohono O'odham Nation – Parts of Maricopa, Pima, and Pinal Counties (NRCS 1999). Most of the NRCS surveys were completed via aircraft. The intent of the statement in the Draft RMP/EIS is to inform the reader that detailed information on the condition of the resources was not always verified by an "on the ground" field survey. However, the BLM did utilize the best available data to perform the analysis.

5(SR201)
Summary Comment: The term "fragile and sensitive soils" and areas mapped as such should indicate if these include highly erodible soils as evaluated and mapped by the Natural Resource Conservation Service's Tucson Field Office
Summary Response: BLM developed the term "sensitive and fragile soils" to describe soils that are located on steep slopes, are highly susceptible to erosion, have high potential for mass failure, or have a shallow depth to bedrock. These soils can be extremely difficult to reclaim. BLM used information from Natural Resource Conservation Service's Tucson Field Office, including data on highly erodible soils, to map areas with sensitive and fragile soils. The glossary has been revised to include a definition of sensitive and fragile soils.

Category 6: Water Resources

6(102)
Comment: S-4 Soil and Water Resources. "However, groundwater within and around the IFNM provides a variety of beneficial uses, including domestic, commercial, agricultural, and industrial uses." Please add "wildlife" to the list of beneficial uses of groundwater.
Response: Under State law, BLM can and does own water rights for beneficial purposes other than administrative sites. Wildlife has been added to the text in the Draft RMP/EIS discussing that BLM can and does show beneficial uses for wildlife, recreation, and in some cases livestock, for various water sources in the IFNM.

6(109)
Comment: Have watersheds been identified, delineated?
Response: Watersheds affecting the IFNM were delineated by USGS and considered during development of the Draft EIS analysis.

6(110)
Comment: Section 3.1.3.2 is incomplete and most of the information that is mentioned seems almost entirely irrelevant. This section should focus on existing water sources within IFNM. No mention is made of how many active wells, gallons of water storage, number of manmade above-ground drinking tanks, stock ponds or water catchments exist and are in use currently in IFNM, or who owns and maintains

them. No mention is made of how many miles of water lines exist in IFNM or who installed and maintains them.
In absence of any mention of how many wells are in use in the IFNM, the last paragraph of Section 3.1.3.2.1 sounds very misleading. It makes it sound as if there are no wells in IFNM.
Response: Total numbers of livestock waters and wildlife waters have been included in Section 3.1.3.2.2 of the PRMP. Involvement of groundwater wells and groundwater impacts would be addressed on a project-by-project basis under a NEPA analysis tiered to the RMP. The same is true of surface water sources.

6(111)
Comment: Page 2-17 Table 2-5. Resource Management Alternatives for Wildlife and Wildlife Habitat Objective 3: "Manage for wildlife water availability to sustain optimal wildlife population sizes as determined by the AGFD. Evaluate and minimize impacts where necessary of current and potential waters on all wildlife species." The word "negative" belongs between "minimize" and "impacts."
Response: The addition of the word "negative" in the objective regarding the evaluation of impacts imposes a value judgment that we would prefer to leave to the reader; the objective is to minimize impacts where necessary.

6(112)
Comment: The Department of Water Resources is the appropriate state authority for the Bureau to work with regarding water resources needed for monument purposes. As described in the subject Draft RMP/EIS, all action alternatives include under "Desired Outcome: Management Goals and Objectives": "Prohibit surface water diversions and groundwater pumping that removes water from the monument or adversely affects the monument's values." The Department suggests that the Bureau maintain close coordination with the Department as it develops strategies to implement water use related measures.
Response: The water policy of the BLM is that the states have the primary authority and responsibility for the allocation and management of water resources within their own boundaries, except as otherwise specified by Congress. BLM cooperates with State governments under the umbrella of State law to protect all water uses identified for public land management purposes. We will work closely with the Arizona Department of Water Resources concerning water use and water rights within the monument.

6(244)
Comment: Section 3.1.3.2.1 Groundwater, page 3-12, first paragraph, second sentence The document states that the USGS projects that subsidence in affected areas of central Arizona "could reach 2 to 14 feet by 2025." The source of this statement should be provided as a reference. The statement is not from Carpenter (1999), the only USGS publication referenced in this section. Other USGS publications that discuss subsidence in Arizona that may be relevant include Hanson and Benedict (1994) and Hanson (1996). Information concerning the findings from USGS water-resource investigations in Arizona can be obtained by contacting the Arizona Water Science Center at (520) 670-6671.
Response: The correct reference for this section is Arizona Department of Water Resources 1998. The full reference information is Regional Recharge Plan, Tucson Active Management Area Institutional and Policy Advisory Group, Arizona Department of Water Resources, Tucson Active Management Area, August 1998. This document is based on USGS publications that discuss subsidence in Arizona by Hanson and Benedict (1994) and Hanson (1996). Information concerning the findings from USGS water resource investigations in Arizona. The text of the Draft RMP/EIS has been revised to say "Based on computer models used by USGS subsidence from groundwater pumping in portions central Arizona could reach 12 feet by 2025 (ADWR 1998).

6(245)
Comment: The BLM has no legal jurisdiction to regulate water uses by anyone with valid existing water rights within the IFNM. Any attempt to do so violates Arizona water law.

Valid existing rights must be respected, per Presidential Proclamation 7320, and this includes water and all other property rights.
Response: BLM is not proposing to regulate water rights within the monument. BLM conforms to applicable State water laws and administrative claims procedures in managing and administering all BLM programs and projects, except as otherwise specifically mandated by Congress.

6(246)
Comment: 2-10 Soil and Water 4. "Prohibit surface- water diversions and groundwater pumping that removes water from the monument or adversely affects the monument's values." This could prohibit wildlife management projects such as wildlife water catchments, vegetation improvement projects, etc. Please clarify within the document under this decision to allow wildlife management and habitat improvement projects.
Response: Surface water diversions and groundwater pumping projects for wildlife management or other habitat improvement projects would be allowed provided the water resource itself was not removed from the IFNM boundary. The language has been revised to clarify its intent:
"Prohibit surface water diversions and groundwater pumping that removes water from within the monument boundary to outside its boundary, or that adversely affects the monument's values."

6(248)
Comment: Draft Goals, Objectives and Alternatives - Soil and Water Resources
"Objective 2: Manage land use to protect and maintain water quality in accordance with all applicable water quality standards."
This is an objective that incorporates a water quality goal that may or may not be attainable. The assumption here is that water quality would naturally meet a certain "standard" without consideration for site-specific standards. This may or may not prove true so the appropriate inclusion for this Objective would be a term to keep water quality from being degraded from what would naturally be there.
Response: In the Proposed RMP/EIS, Chapter 2 Alternatives, Table 2-3 Resource Management Alternatives for Soil and Water, Goal 2 and Objective 2, which both pertain to water quality, have been deleted.

6(249)
Comment: WE OBJECT to Page D-3, Fifth bullet, as written:
"Ensure that land management practices and policies protect the water supply by exercising existing land management authorities under the National Environmental Policy Act (NEPA) to protect and maintain all available water and natural flows within the monument."
This proposed regulation violates Arizona water law. Some flows have diversions to stock ponds, and those waters are legally appropriated.
Response: BLM agrees that the State has the primary authority and responsibility for the allocation and management of water resources within Arizona, including flow diversions for stock ponds and other legally appropriated uses. BLM is responsible for ensuring that its land management practices and policies applied within the monument protect the water supply by exercising existing management authorities under NEPA to protect and maintain all available water and natural flows within the monument.

6(251)
Comment: Draft Goals, Objectives and Alternatives - Soil and Water Resources
"Goal 5: Manage watersheds to maintain, where healthy, or restore, where degraded, upland, aquatic, riparian and xeriscopic ecosystems, water quality, and water quantity."
SBM objects to the use of the term "restore." By including the term "water quantity" along with the term "restore" the implication is that there will be an increase in water quantity. Because water quantity is a function of rainfall, this does not make sense...The inclusion of the "water quantity" term is troubling and

SBM is concerned that acquisition of water rights may become an objective through the use of administrative action for which no public input is gathered, even though water rights were not reserved as part of the monument proclamation.
Response: The glossary has been updated to include the term "restore." BLM would restore watersheds to improve conditions for the protection of monument objects or to provide improved habitat for special status species or priority vegetation species in the future. The term "restore" is used to return an area to a baseline condition that is considered suitable for sustaining the health and viability of an ecosystem. Actions intended to restore water quantity would primarily be focused on soil and vegetation treatments in upland and xeriscopic ecosystems that could return water movement to normally functioning conditions. BLM could pursue a Federal reserved water right if deemed necessary in the future, and would comply with all legal process requirements if such an actions was taken; however there are no current plans to do this. Refer also to comments and responses 6(276) and 7(229) for additional information regarding restoration in the monument and water rights.

6(276)
Comment: No mention is made of existing unmet water needs for the monument. This is one of many reasons to object to the proposed regulation in Chapter 2 where the BLM says it will attempt to acquire as much water as it can get. If there is no identified need, what justifies the waste of taxpayer dollars doing it?
Response: There is no reference to regulations designed to obtain waters from outside the boundaries of IFNM in Chapter 2. Table 2-3, Soil and Water Resources, states that BLM would prohibit diversions of surface-water and groundwater pumping that would take waters away from the IFNM or adversely impact the monument. The water policy of the BLM is to acquire and perfect the water rights necessary to carry out public land management purposes through State law and administrative claims procedures unless a Federal reserved water right is otherwise available, and a determination is made that the primary purpose of the reservation can be served more effectively through assertion of the available Federal reserved water right. BLM's policy recognizes the primacy of State control of water resources by stating that two of the objectives of the program are to cooperate with State governments and conform to applicable State water rights laws. This would include the evaluation of unmet needs in the monument.

6(507)
Comment: Additionally, the proclamation specifically does not reserve water rights, however several of the administrative actions seek to do just that.
Response: While no Federal law has been established to reserve water, the BLM has been provided guidance to work with State authorities to ensure adequate supplies of water resources are available for monument purposes.

6(766)
Comment: Section 3.1.3.2.2 states, Surface water flows within the IFNM are entirely ephemeral. This asserts that aquatic ecosystems do not exist within the IFNM. Map 3-4 shows only xeroriparian plant communities and the text in section 3.1.4.1.2 states, The term "xeroriparian" (dry wash) is used to describe this plant community within the IFNM because both riparian scrublands and riparian woodlands lack surface water most of the year. Because no riparian systems or aquatic systems exist in the IFNM, these terms should be deleted.
Response: Desert ecologists include the vegetation in washes (arroyos) as "dry riparian" habitats, which generally are classified into two types, xeroriparian and mesoriparian. Xeroriparian watercourses are small washes or streams. They are distinguished from the adjacent plant communities of the Colorado River Valley or Arizona Upland areas in that they have a higher density of plants and more foliage, though they often have similar species. Though they may carry water only a few hours a year or even less, they share most of their defining characteristics with traditional wet riparian habitats. They are chronically disturbed, unstable sites where water and nutrients are harvested and concentrated from larger

areas (watersheds). Like wet rivers, washes are corridors for dispersal of plants and animals that need more water than the surrounding habitat.

6(767)
Comment: Our cooperators know this from the being present on the ground 24/7/365 in the IFNM year in and year out, and repeatedly observe the obvious. We strongly encourage the BLM partner with and habitually utilize this privately funded, willing and cooperative human resource. Literally millions of dollars worth of private investment in the IFNM water infrastructure are entirely ignored in the DRMP/EIS. No mention is made in the EIS about what would happen to the wildlife if these human-developed livestock waters or the continuous privately financed maintenance of those sources would cease to exist, and no estimate is made of the approximate dollar value of that annual maintenance. The EIS should address these issues or the BLM could eventually face severe budget shortfalls as a result of the inadequate analysis.
Response: We appreciate the efforts of ranchers and special interest groups in maintaining water development projects. The BLM will continue to seek partnerships with ranchers, universities, State and Federal agencies, and other science-based organizations in designing and implementing the RMP and monitoring conditions in the IFNM. BLM looks forward to working with groups to manage, maintain, and monitor resources within the monument.

6(SR98)
Summary Comment: The DRMP does not address impacts to valid existing rights to groundwater and surface water as a result of management action 4 under alternatives B, C and D.
Summary Response: The Proclamation does not supersede or preempt other applicable statutory guidance; the Proclamation states that "nothing in this reservation shall" be construed as a relinquishment or reduction of any water use or rights reserved or appropriated by the United States on or before the date of this proclamation." Therefore, no decisions made by BLM in the RMP are anticipated to impact rights to groundwater or surface water. The water policy of the BLM is to acquire and perfect the water rights necessary to carry out public land management purposes through State law and administrative claims procedures unless a Federal reserved water right is otherwise available, and a determination is made that the primary purpose of the reservation can be served more effectively through assertion of the available Federal reserved water right. BLM's policy recognizes the primacy of State control of water resources by stating that two of the objectives of the program are to cooperate with State governments and conform to applicable State water rights laws. This would include the evaluation of unmet needs in the monument.

6(SR243)
Summary Comment: Section 3.1.2.2 fails to describe the complex and convoluted history of surface water and its historic management, including surface water manipulations in the immediate area in the early 1900s. The entire surface hydrological history of the region is ignored. This information is vital to create a local and regional context for understanding surface water in the IFNM.
Summary Response: After considering the comment, the cumulative impacts analysis has been adjusted to include additional information about past surface water manipulations within the cumulative impact area. The discussion regarding past water development related to agricultural practices has been revised to "Associated with changes in agricultural practices and land use, the Santa Cruz River underwent a period of pronounced arroyo entrenchment during the late 1800s. Streamflows in the region have been diverted by Tribes in the area in the late 1800s. Modifications to streamflow included dams and diversions of the Santa Cruz river to irrigate crops and the pumping of river water from wells located near the banks (Minckley 1999)."

6(SR247)
Summary Comment: The goal to "ensure that all waters on public land meet or exceed Federal and State water quality standards" violates the multiple use mandates of FLPMA and NEPA because the waters on

public land reside in ephemeral streams, tanks, ponds, and catchments. Forcing the rightful owners of this water to bring all these sources up to drinking water standards could mandate that all water uses on these lands be closed.
Summary Response: The goal of ensuring that all waters on public land meet or exceed Federal and State water quality standards has been deleted.

6(SR250)
Summary Comment: Section 3.1.3.2.2 is incomplete and inaccurate. Livestock and wildlife do not depend heavily on ephemeral pools because these water sources are available a maximum of only about two or three weeks out of a good rain year. Amphibians, reptiles, some mammals and a large variety of spiders and insects survive drought and high temperatures by hibernating underground. Millions of Sonoran Desert toads (Bufo alvarius) survive long dry seasons in the IFNM uplands without any standing surface water available to them.
Summary Response: While ephemeral pools within the monument do dry up within a short time period, BLM agrees with the comment that these ephemeral pools provide an important resource that is part of the adaptations made by desert wildlife and plants. The Proposed RMP/EIS has been revised to clarify that livestock may not depend on ephemeral pools as watering sites.

6(SR252)
Summary Comment: The concern is that the administrative actions will place more regulatory burden on landowners, permittees, and users of the monument. It is recommended that BLM communicate with State authorities regarding the monument's need for water resources and to identify existing and future water resources on public lands and develop a cooperative agreement on the protection of water resources within the monument.
Summary Response: Under State law, BLM can and does own water rights for beneficial purposes other than administrative sites. BLM can and does show beneficial uses for wildlife, recreation, and in some cases livestock, for various water sources. The administrative actions in the Draft RMP/EIS are consistent with State laws regarding water rights. BLM will work closely with the Arizona Department of Water Resources concerning water use and water rights within the monument.

6(SR253)
Summary Comment: The draft goals, objectives, and alternatives do not appear to recognize valid existing water rights. In addition, Management Action 4 indicates the possibility of taking surface water and groundwater rights within the IFNM.
Summary Response: Management of the monument recognizes all valid existing rights, and these are specifically included in the Proclamation and recognized as part of management common to all alternatives (see Section 2.3.1). Section 4.2.2, Assumptions for Analysis, has been revised to include existing rights as part of the following assumption: "The alternatives would be implemented in accordance with laws, regulations, standard operating procedures, and existing rights. The opportunity to expand mining operations could restrict the location of roadways or utilities to lands not managed by BLM."
The water policy of the BLM is to acquire and perfect the water rights necessary to carry out public land management purposes through State law and administrative claims procedures unless a Federal reserved water right is otherwise available, and a determination is made that the primary purpose of the reservation can be served more effectively through assertion of the available Federal reserved water right. BLM's policy recognizes the primacy of State control of water resources by stating that two of the objectives of the program are to cooperate with State governments and conform to applicable State water rights laws. This would include the evaluation of unmet needs in the monument.

6(SR497)
Summary Comment: Commenters request information regarding a drought plan for IFNM.
Summary Response: BLM and the State of Arizona developed an operational drought plan that was finalized in October 2004. The operational drought plan identifies a process for communication and coordination among Arizona State agencies, Federal agencies, tribal governments, State lawmakers, water users, resource managers, and scientists. BLM, as a member of the Interagency Coordinating Group, will provide policy guidance for plan implementation, agency emergency response options, and plan review and modification. The BLM is also a member of Arizona's Monitoring Technical Committee and will continue providing an essential role in tracking changes in climate and physical conditions and providing forecasts of likely future conditions. The Monitoring Technical Committee monitors and identifies conditions throughout the state on an ongoing basis and detects and requests that the drought status be changed as data and conditions warrant.
BLM has the ability to modify management actions in this plan if changing environmental conditions, such as a major drought event, warrant such modifications. This can occur through adaptive management procedures or through more extensive efforts such as plan amendments and revisions. Numerous processes already in place, such as activities associated with BLM's standards and guidelines process, also address drought conditions.

Category 7: Vegetation

7(187)
Comment: In that context, the Plan should commit to a biannual monitoring protocol that assesses ecological and biotic health using the current best management practices under each of the alternatives. The monitoring should result in trend analyses, done in ways that can be peer reviewed and verified; and when downward trends become evident, the agency should be compelled to produce mitigation strategies, resource that mitigation, and implement actions in a timely fashion that minimize harm or loss of proper ecological functioning. To the extent that monitoring identifies human use or impacts that contribute to the downward trend, the agency should move immediately to limit or eliminate the adverse impact by halting deleterious uses until full recovery has occurred.
Response: Section 2.3.5 has been revised to include additional discussion on monitoring and adaptive management. A more detailed monitoring plan will be included in the approved RMP that includes indicators, protocol, frequency, and information that would trigger agency action to correct undesirable trends. Information gathered on resources in the IFNM is not comprehensive and will continue to be adjusted as new information is obtained and conditions change on the IFNM. As additional information is collected, it will be used to adapt management approaches and provide additional protection, if necessary. BLM will continue to seek partnerships with universities, State and Federal agencies, ranchers, and science-based organizations in designing and implementing inventory and monitoring of the IFNM so that protection of biological resources within the IFNM is ensured.

7(222)
Comment: Vegetation 4.3.4.1 Impacts to All Alternatives
"However, mining activities at valid existing claims (approximately 4590 acres) could cause localized surface disturbance and remove existing vegetation resources. This could locally increase opportunities for establishment of noxious weeds and invasive species."
Mining activity in and of itself does not increase opportunities for establishment of noxious weeds. Noxious weeds would already have to have been established in the area to spread to disturbed areas. If this is true for mined areas, it would also be true for every other surface disturbing activity. Impacts should be analyzed across all surface disturbing activities and not just mining activity.
Response: The Draft RMP/EIS analyzed in Sections 4.3.4.1 through 4.3.4.4 the effects of other potential surface-disturbing activities such as recreation use and utility and right-of-way corridors. The possibility

of increased or decreased opportunities for noxious weed establishment is stated with regard to all of these surface-disturbing activities, not just mining.

7(228)
Comment: Draft Goals, Objectives and Alternatives - Vegetation
"Goal 2: Manage each vegetation community to maintain its natural range of variation in plant composition, structure, and function. Communities within the monument include: (1) paloverde-cacti mixed scrub; (2) jojoba chaparral; (3) creosotebush - white bursage; (4) curlymesquite grass-scrub; and xeroriparian."
This goal should end after function, as identifying the communities in the goal could severely restrict future refinement of delineating plant communities.
Response: The refinement and potential future categorization of vegetation communities would not be restricted by the RMP-level plant communities as described in Goal 2.

7(230)
Comment: Draft Goals, Objectives and Alternatives - Vegetation
Management Actions, Allowable Uses, and Use Allocations
Numbers 3 and 4 should be combined into one management action on controlling invasive species. Numbers 5, 6 and 8 include the term "restoration." SBM objects to the term and requests that restoration be changed to reclamation. Based on the issues presented, the natural changes in vegetation over time would be halted by restoration.
Response: The two management actions focus different aspects of noxious weed and invasive species management. Management Action 3 in Table 2-4 Resource Management Alternatives for Vegetation discusses the overall approach and methods used to eradicate or control noxious weeds and invasive species. Management Action 4 in Table 2-4 discusses establishing priorities to control noxious weeds and invasive species with a substantial impact on native plant communities and wildlife such as buffelgrass, Sahara mustard, or other species that may become established. The vegetation administrative action giving "priority treatment to priority species and habitats." has been deleted because this was analyzed through similar language under vegetation decision 10. Also see summary comment and response 7(SR229) for additional information regarding restoration.

7(232)
Comment: Map 3-4 shows areas of priority vegetative habitat located on state land and private land. The maps should be revised to show only the areas of priority vegetative habitat on BLM land.
Response: Vegetation resources are shown across all land ownerships on Map 3-4 to best illustrate the ecological relationships throughout the monument. However, acreages presented in the Draft RMP/EIS are limited to public land administered by BLM.

7(233)
Comment: Draft Goals, Objectives and Alternatives - Vegetation
Management Actions, Allowable Uses, and Use Allocations
There are no real alternatives presented. At a minimum, SBM suggests the following alternatives be added to each management action:
Alternative C: Same as Alternative B, while allowing for mitigation efforts associated with legal activities in areas with valid existing rights.
Alternative D: Same as Alternative B, while allowing natural processes for mitigation efforts associated with legal activities in areas with valid existing rights.
Response: The range of alternatives presented considered existing legal rights for all management actions. The suggested changes to the alternatives are of no consequence because they are tied directly to legal activities carried out under valid existing rights, which are already provided for under each alternative.

7(234)
Comment: Draft Goals, Objectives and Alternatives - Vegetation
Implementation-Level Decisions
1. Fence along designated routes, as necessary, to prevent damage to sensitive and unique vegetation and minimize the spread of invasive species and noxious weeds.
Fencing will not prevent the drift of seeds from invasive species or their propagation in other areas. SBM suggests deleting the reference to invasive species for this decision.
Response: Fencing along designated routes reduces potential disturbance to existing plants caused by vehicle tires or other surface-disturbing activities. The removal of existing vegetation can provide areas where noxious weeds and invasive species could become established by seeds drifting in from other areas.

7(237)
Comment: 2-13 Vegetation 2. "Removal and/or use of living or dead and down native plant material is prohibited, with the following exceptions, when specifically authorized:" The Department supports Alternative D as the preferred alternative to allow the "collection of dead and down wood for firewood use while camping within the IFNM." Second paragraph starts off with an incomplete sentence.
Response: The Draft RMP/EIS alternatives considered allowing the removal of dead and down wood for firewood use while camping within the IFNM. The proposed alternative prohibits this use largely because the removal of dead and down wood can greatly affect wildlife habitat, especially in the IFNM because of the slow decay rate of ironwood trees. The biological survey for the IFNM found that the production rate of downed woody material is very slow (Dimmitt 2000). Furthermore, a study in both the east and west units of Saguaro National Park found that there is a positive correlation between percent cover and rodent populations (Duncan 1990). The dead and down wood of the IFNM provides habitat for a number of small mammals and reptiles, which are important to the ecosystem as prey items for larger predators such as the cactus ferruginous Pygmy-owl.

7(240)
Comment: Buffelgrass and other exotic weeds put the entire Sonoran Desert ecosystem at risk. Effective control must be a top priority.
Alternative 1. No action is simply not acceptable.
Alternative 2. Manual Removal Only is inadequate and impractical.
Alternative 3. Careful and judicious use of herbicide taking every precaution to avoid collateral damage (as outlined in comments submitted by Sierra Club) with supplemental hand removal in areas where it can be effective looks like the best option.
Response: BLM agrees that effective control of invasive species such as buffelgrass is a top priority, and that Alternative C, the proposed alternative, provides the best management tools to deal with this priority work. The Draft RMP/EIS evaluated a range of alternatives for the eradication and control of noxious weeds and invasive species. All alternatives pursue an integrated weed management approach and include administrative actions to monitor and evaluate the effectiveness of noxious weed treatments.

7(241)
Comment: Horseback riding is mentioned. This is a terrific vector for the introduction of invasive species. With the existing threats to the Sonoran Desert, why would this be allowed? How will BLM insure that invasive species are not introduced this way?
Response: Invasive species can potentially be introduced by a variety of methods, including horses, recreation use, wind, livestock, and adjacent land use activities. Through implementation of the Arizona Standards for Rangeland Health and Guidelines for Grazing Administration and other monitoring, BLM can detect weed vectors and change management if necessary. BLM will also pursue an integrated management approach under all alternatives and include administrative actions to monitor and evaluate the effectiveness of noxious weed treatments.

7(511)
Comment: Specifically, the following activities should not occur within the 8 areas identified as possessing wilderness characteristics:
• Permanent or temporary roads;
• Use of motorized equipment or motorized vehicles;
• Landing of aircraft (except in emergencies);
• Mechanical transport;
• Structures, developments, or installations; and
• Commercial enterprises.(8) Forest/Vegetation Health. Insects, disease, and invasive species may be controlled if it is determined that it is necessary to meet the minimum requirements to administer and protect these lands.
Insect and disease outbreaks must not be artificially controlled, except to protect timber or other valuable resources outside the land with wilderness characteristics, or in special instances when the loss to resources may cause adverse impacts to wilderness characteristics.
Vegetative manipulation to control noxious, exotic, or invasive species is allowed when there is no effective alternative and when the control is necessary to maintain the natural ecological balances within the area. Control may include manual, chemical, and biological treatment provided it will not cause adverse impacts to the wilderness characteristics.
Response: BLM will manage areas allocated for protecting wilderness characteristics in the Proposed Plan to maintain naturalness, solitude, and opportunities for primitive recreation. The activities mentioned in the comment would be inconsistent with this management except during emergencies. Likewise, the control of insects, disease, or invasive species would be implemented in a manner consistent with protecting wilderness characteristics. Prohibition or restriction of many of the activities listed above would result from management actions under other programs, such as visual resource management, recreation, and travel management. In the Proposed Plan, for example, use of motorized equipment or vehicles would be prohibited in areas managed to protect wilderness characteristics based on travel management designations. However, in compliance with current policy, BLM cannot apply the non-impairment standard from the interim management policy formerly applied to wilderness study areas.

7(512)
Comment: Draft Goals, Objectives and Alternatives – Vegetation
Management Actions, Allowable Uses, and Use Allocations
Number 1 requires minimal surface disturbance in all cases, SBM suggests the addition of the following alternatives:
Alternative C: Same as alternative B excepting disturbances that are legally allowed due to valid existing rights or those listed disturbances that are allowed for the implementation of one of the other goals.
Alternative D: No specific restriction on surface disturbance.
Response: The language of the alternatives is specific to minimize and/or restrict surface disturbance; surface-disturbing activities are not prohibited. Surface disturbance from existing rights for mineral development is included under all alternatives. To include an alternative that would not have any restriction on surface disturbance would not be consistent with the intent of the Proclamation, nor would it provide for protection of objects in the IFNM. It would also not be consistent with the mineral regulations that prohibit undue and unnecessary degradation.

7(514)
Comment: The preferred Alternative (C) should be amended through an ecosystem composition and functioning analysis. It should be amended to commit to a monitoring and mitigation discipline that protects natural values.
Response: See Section 2.3.5 for information on BLM's commitment to monitoring the IFNM RMP and monument resources. As discussed in this section, BLM will initiate the opportunity for the public to be involved in the development of the IFNM monitoring plan within six months of the final approval of the

RMP. An ecosystem functioning and composition analysis would serve as a useful component of a monitoring strategy for the IFNM, and will be considered in its development.

7(515)

Comment: The Ironwood Forest National Monument is a component of the Sonoran Biotic Province and includes the Shrevos Arizona Upland Subdivision of the Sonoran Desert including some warm Desert Shrub and Lower Colorado Subdivision. It is a landscape in transition experiencing rapid fragmentation, diminution of soil crust, loss of vegetative cover, soil loss and erosions, and significant infestation of non-native species. Non-natives include red brome (Bromus rubens), buffelgrass (Pennisetum ciliare), Arabian and Mediterranean grass (Schismus spp.), Sahara mustard (Brassica tournefortii), and wild barley (Hordeurn murinum), among others. It should be noted that up to 50% of the vegetative cover in this landscape may be ephemerals, which are diminished during drought. This transformation is occurring in the context of rapid urbanization, grossly expanding human corridors, and significant drought and aridification of climate.

The DRMP/DEIS lacks a longitudinal evaluation of this transition and proposes no alternative specifically designed to reduce habitat fragmentation sufficiently, stop loss of crust, soil and recover bare ground, or reduce non-native invasion. Alternatives A, C and D will further aggravate the degradation of the vegetation, soils and resultant biotic community, by exposing the system to additional use and the resultant disturbances.

Response: BLM used the best information available to evaluate the conditions of the Sonoran Desert within the IFNM and considered the potential effects of fragmentation, disturbance to soil, and spread of non-natives. Because the area is managed as a national monument, BLM's proposed management is to protect monument objects including vegetation while also providing for multiple use. Though BLM does not disagree with your assessment, a "longitudinal evaluation" as you suggest could quickly become speculative. Since NEPA does not require, in fact discourages speculative analysis, we have chosen not to take such an approach. Instead, since BLM in general, and the national monument specifically, manage only a small portion of the ecoregions you describe, we have chosen to monitor changing conditions and respond to changing management demands through adaptive management. Please see section 2.3.5 for a description of the adaptive management approach we are undertaking. Refer also to summary comment and response 7(808) for additional information regarding a revised management decision on the use of non-native species for reclamation.

7(516)

Comment: In terms of the vegetation complex, there is evidence that it is stressed by current use patterns and further frustrated by variations in climate. The plant community is one of the valued objects and the foundation for other objects of value. The BLM must design an alternative plan of action that conserves and restores as a priority.

Response: BLM considered several alternative management decisions related to the management of vegetation as part of the Draft RMP/EIS. Because the area is managed as a national monument, BLM's proposed management is to protect monument objects including vegetation while providing for multiple use. Refer also to summary comment and response 7(808) for additional information regarding a revised management decision on the use of non-native species for reclamation.

7(518)

Comment: Desired plant community objectives will be developed to assure that soil conditions and ecosystem function described in Standards 1 and 2 are met. " Developing an objective alone will not assure a condition will be met. Well-designed scientific studies and management of range vegetation under the guidance of a person formally trained and sufficiently experienced in range management sciences is also required. Under each of the current four draft alternatives, this vital part of the management of IFNM is conspicuously missing.

Response: The statement referred to in the comment is an excerpt from Land Health Standard 3: Desired Resource Conditions, of the Arizona Standards for Rangeland Health. This statement directs BLM to develop objectives for vegetation management in RMPs that comply with Standards 1 and 2. The IFNM RMP includes objectives that meet this direction. BLM used an interdisciplinary team to develop the RMP objectives, including those for vegetation and rangeland management.

7(519)
Comment: Limit fugitive-dust pollution by reducing disturbance to soils. Most seeds require disturbances to the soil in order to germinate. Holechek, Baker and Boren (2005)2 have concluded in an extensive scientific literature review,
Response: Limiting fugitive dust pollution by reducing soil-disturbing human activities or livestock grazing activities would not reduce the ability of seeds to germinate, as this would not reduce naturally occurring changes to the soil surface such as erosion, storm-water runoff, or wind-blow dust.

7(568)
Comment: There appears to be no list of invasive plant species. How will these be managed? What is the plan? The strategy?
Response: Section 3.1.4.4 discusses the noxious weeds and invasive species that are considered to be of the greatest concern in the IFNM. BLM pursues an integrated management approach under all alternatives and includes decisions to monitor and evaluate the effectiveness of noxious weed treatments.

7(569)
Comment: Recommendation: The BLM must modify Alternative B to incorporate extensive scientific analysis that will model trend among the various land uses being proposed in the DRMP/DEIS. The BLM must choose Alternative B for management of vegetation resources on the Ironwood Forest National Monument and disallow the use of any non-native species in Monument projects. We offer to work with the BLM and to help organize and resource the strategy for moving forward that is suggested here, including development of the science necessary to inform this strategy. Attachments: Appendix E 1. Bowers, J.E. T.M. Bean, and R.M. Turner. 2006. Two decades of change in distribution of exotic plants at the Desert Laboratory, Tucson, Arizona. Madrono 53(3): 252-263.
Response: Information from Bowers et al. 2006 has been added to Section 3.1.4.4. to address non-native vegetation trends, as suggested. The Proposed RMP includes management actions and implementation-level decisions in Table 2-4 to allow BLM to do the type of analysis and monitoring suggested.

7(SR223)
Summary Comment: The Draft RMP/EIS does not include a definition of the word “enhance.” This could leave the interpretation of the word “enhance,” necessary management actions, and measurement of enhancement up to the courts. Also because conservation incorporates reversal and elimination of threats, the terms “enhance” and “restore” are not necessary in the Draft RMP/EIS.
Summary Response: Throughout the document, the words “enhance” or “enhanced” are used in various places to indicate a desire to improve the productivity, value, or quality of resources or resource uses within the IFNM while meeting the intent of the Proclamation, which is to protect objects within the IFNM. The word “enhance” has been added to the glossary in the Proposed RMP/Final EIS. Although some benchmark or baseline data are available, monitoring and adaptive management will be conducted as part of implementation planning that will occur on a site-specific basis to ensure conditions of monument objects and resources are maintained and/or improved as part of the overall monument conservation and management strategy.

7(SR224)
Summary Comment: Explain appropriate cover and mix of natural plant species with good vigor. This does not seem to be a clear goal related to desired vegetation conditions.

Summary Response: Goal 1 has been revised to read "Assure adequate vegetative cover with an appropriate mix of natural plant species that meet acceptable range health standards based on current ecological conditions."

7(SR225)
Summary Comment: The impacts of mining, motorized travel, recreation, livestock grazing, lands and realty, water developments, and recreational shooting must be considered in the context of protecting and preserving the vegetation of the IFNM. Broad-scale surface disturbance fails to meet the objective of protecting vegetation, and the Draft RMP/EIS fails to adequately consider the cumulative impacts of all the proposed uses on the desert landscape.
Summary Response: The Draft RMP/EIS analyzes a range of alternatives that allow for varying levels of surface disturbance; however, none of the alternatives propose or authorize broad-scale surface disturbance. All alternatives are consistent with the Proclamation designating the IFNM and its intent of protecting objects within the IFNM. Cumulative impacts are addressed based on the incremental affects of BLM management in addition to the other past, present, and reasonably foreseeable actions on the IFNM. The cumulative impacts on vegetation have been revised to indicate the affect of surface disturbance from recreation, development, and other surface-disturbing activities and their potential effects on the IFNM.

7(SR227)
Summary Comment: Several items listed in the administrative actions seem to go beyond a simple administrative action and seek to impose additional regulatory burden on permittees, landowners, and users in and near the IFNM, including the action to "give priority treatment to priority species and habitats when potentially incompatible uses or actions are entertained; aim at totally offsetting or avoiding impacts to the priority species or habitats."
Summary Response: The vegetation administrative action giving "priority treatment to priority species and habitats" has been deleted in the Proposed RMP/EIS because this was analyzed through similar language under Table 2-4 Resource Management Alternatives for Vegetation Management, Decision 10.

7(SR229)
Summary Comment: We object to the term "restore" because there is no measure that can be associated with this term, as it pertains to some condition in the past. Restoration can be an unattainable objective because of practical and economical constraints. Any reclamation effort should be on a case-by-case basis reflecting what is practically achievable and cost effective.
Summary Response: The glossary has been updated to include a term for "restore" as it applies to habitat. BLM would restore areas to improve conditions for the protection of monument objects or to provide improved habitat for special status species or priority vegetation species in the future. The term "restore" is used to return an area to naturally occurring conditions. All reclamation efforts are undertaken on a case-by-case basis reflecting what is practically achievable and cost effective.

7(SR231)
Summary Comment: Management should protect sensitive and unique vegetation type 1 assemblages, including the paloverde-cacti-mixed scrub community, jojoba chaparral community, creosotebush-white bursage community, curly-mesquite-grass scrub community, and the xeroriparian community. There is no clear definition of "sensitive and unique vegetation," nor is there a protocol for determining how certain species achieve this status. There is no clear documentation of how the list of vegetation types was arrived at or what criteria were used for their designation. There are no alternatives in the management plan for priority vegetative habitats, which contain sensitive and unique vegetation. Alternatives B, C, and D should include differences in how these areas are managed. Objectives 2, 4, and 5 can be combined to one objective: "Sensitive and unique vegetation assemblages, species, and habitats will be managed to

maintain the vegetative community complex while recognizing valid existing rights and appropriate catastrophic wildfire dangers."
Summary Response: Sensitive and unique vegetation assemblages were determined using information from the Arizona-Sonora Desert Museum. These vegetation assemblages differentiate the Sonoran Desert vegetation and areas that provide important wildlife habitat. The goals and objectives for these priority vegetation communities reflect the intent of the Proclamation to protect monument objects. BLM vegetation management decisions are consistent with these goals and objectives. Management actions for resource uses vary by alternative, and the affects of these decisions on priority vegetation communities are considered in Chapter 4.

7(SR235)
Summary Comment: Within the IFNM only native species should be used to prevent the spread of non-native species and provide opportunities to educate the public about plants that are native to the Sonoran Desert.
Summary Response: In the Proposed RMP/EIS, Table 2-4 Resource Management Alternatives for Vegetation, Alternative C (preferred alternative in the Draft RMP/EIS) has been changed to "Use native plants for all restoration projects." This is the same as Alternative B.

7(SR236)
Summary Comment: The highly diverse and rich vegetation warrants the most stringent management and habitat restoration with an emphasis on monitoring and combating invasive species such as buffelgrass. I support the goals outlined in the draft to have the appropriate cover and mix of natural native plant species so that each vegetation community is maintained within its natural range of variation in plant composition, structure and function and that the diversity and distribution of natural native plant communities that presently exist are protected, enhanced, and restored.
Summary Response: Under all alternatives BLM would manage the IFNM to retain the natural range of variation in plant composition, structure and function. BLM will restore areas as necessary to maintain vegetation resources within the IFNM.

7(SR238)
Summary Comment: BLM did not incorporate vegetation inventory information collected by NRCS on grazing allotments.
Summary Response: While BLM did use information from NRCS with regard to some resources on the IFNM, information from the Arizona Sonora Desert Museum was used to characterize vegetation resources in the monument. Information from NRCS regarding allotments is used during the assessment of an allotment.

7(SR242)
Summary Comment: Section 3.1.4.4 is misleading regarding the number and presence of invasive species within the IFNM. This section implies that all 54 non-native species are invasive. The study was performed by the Arizona Sonora Desert Museum and provides a well-documented discussion.
Summary Response: BLM used the information from the Arizona Sonora Desert Museum studies and information from BLM monitoring to analyze noxious weeds and invasive species in the IFNM. The text in Section 3.1.4.4 has been revised to indicate that there are 54 non-native species that occur within the monument, but many of them are rare to uncommon.

7(SR338)
Summary Comment: Changes in livestock grazing place a burden on livestock operators, taxpayers, and could harm resources in the monument.
Summary Response: Under all alternatives, livestock grazing would be adjusted when necessary to comply with the Arizona Standards for Rangeland Health and Guidelines for Grazing Administration,

which establish measurable indicators of rangeland health. Inventory and monitoring data will be collected on a regular basis to determine achievement of land health standards, or progress toward achieving standards. The IFNM Draft EIS considers an alternative (Alternative B) that would remove livestock grazing from the IFNM as existing leases expire. Adjustments in stocking rates, seasons of use, etc. could be made under any of the alternatives but would be addressed under an implementation-level NEPA analysis.

7(SR510)
Summary Comment: Due to population pressures and climate change management pressures to the lanscape, subsidies for browse, artifical water sources and non-native plant species should be precluded from expanding. Subsidies should be removed when it's documented that it's changing species composition, behavior, and biotic relationships.
Summary Response: BLM manages the IFNM consistent with Arizona's Standards for Rangeland Health and Guidelines for Grazing Administration, which includes consideration of vegetation composition. BLM continues to monitor all land uses to meet the needs of biological resources while maintaining lands as available for multiple use to the extent allowable based on the Proclamation establishing IFNM. As additional information about wildlife resources (including the impact of management activities) is collected from monitoring efforts, management actions would be adjusted to protect resources consistent with goals and objectives of the IFNM. As noted in Section 2.3.5, adaptive management will be used to address the uncertainties of natural resource management, including population pressures and climate change, to further protect the objects of the monument.

7(SR768)
Summary Comment: In areas near livestock grazing water sources and areas disturbed by cattle, there are 24 native plant species not found elsewhere in the IFNM. These plant species are part of the monument objects and BLM is required to protect them.
Summary Response: Vegetation species may be influenced by numerous factors, including livestock grazing. The distribution of native species in areas grazed by livestock and near livestock water sources are objects of the monument and are protected through the alternatives presented in the plan. Further monitoring would be required to determine if these 24 species are dependent on livestock grazing to maintain populations.

7(SR808)
Summary Comment: Non-native plants should be removed from IFNM and only native plants used in revegetation efforts.
Summary Response: In the Proposed RMP/EIS, Table 2-4 Resource Management Alternatives for Vegetation, Alternative C (preferred alternative in the Draft RMP/EIS) has been changed to "Use native plants for all restoration projects." This is the same as Alternative B.

Category 8: Wildlife and Wildlife Habitat

8(255)
Comment: . The ash throated flycatcher is listed as a migratory species. It may be migratory elsewhere but resides year-round in the Silverbell Mountains.
Response: BLM considers migratory birds to include those listed in Title 50 Wildlife and Fisheries of the Code of Federal Regulations, Section 10.13, which includes the ash-throated flycatcher.

8(262)
Comment: Wildlife waters should be analyzed relative to their overall impact to the system and the multitude of wildlife and not just a single species.

Response: BLM would analyze wildlife waters and their potential impacts on ecological systems and other wildlife during site-specific NEPA analysis.

8(576)
Comment: Page 3-18, under the heading, Migratory Birds, states,
"The most characteristic species include ... purple martin, Bell's vireo, Lucy's warbler, and sage sparrow." I have yet to observe a purple martin, a Bell's vireo, a Lucy's warbler or a sage sparrow in the Silverbell Mountains. I have hunted and hunted for a Lucy's warbler and not found one, despite finding six other warbler species. The aforementioned species may be characteristic of Sonoran desert-scrub habitat according to a college textbook, but they are not characteristic of birds found in the Silverbell Mountains.
These errors are repeated on page 3-39 in section 3.1.6.3.
Response: BLM has modified language in the Proposed RMP/EIS in Section 3.1.5 to acknowledge that bird and wildlife species, in addition to those referenced, also may occur within the IFNM. Additional research and studies may also discover species as indicated in the Proclamation. Species in the Draft RMP/EIS that are listed as migratory is based on the Migratory Bird Treaty Act.

8(593)
Comment: The BLM should modify Alternative B to incorporate a mandatory trend analysis by qualified scientists over the last three decades to documents changes in the biotic community that allow accurate and useful modeling of future potentialities. This analysis should consider density and intensity of human use, including transportation, agriculture, recreation and climate as influences. This analysis should document the status of the existing vegetative community including diversity of both native and non-native plants. It should quantify the condition of soil crust as the principal foundation for decomposition and aridification, which is essential for the food chain for all the rest of the life in the Monument. It should assess adequacy of connected habitat sufficient to host a self-sustaining genetic community. It should also assess the status of all vertebrate and invertebrate pollinators.
Response: As required by NEPA, BLM has used the information available to provide protection of resources and evaluate the affect of decisions. As required by the Proclamation, the management actions and strategies defined in the RMP were developed to protect wildlife species and their habitats so that "proper care and management of the objects" is ensured. However, as noted above, information gathered on wildlife in the IFNM is not comprehensive and will continue to be adjusted as new information is obtained and conditions change on the IFNM. As additional information is collected, it will be used to adapt management approaches and provide additional protection, if necessary. BLM will continue to seek partnerships with universities, State and Federal agencies, ranchers, and science-based organizations in designing and implementing inventory and monitoring the IFNM so that protection of biological resources within the IFNM is ensured.

8(599)
Comment: The effective functioning of the ecology is wholly dependent upon the complex of relationships in a special context that assures population and genetic viability over extended time. See Sanderson 2006. The microbiotic community is ignored, as are the relationships between species including pollinators; invertebrate and reptile populations are conspicuously absent from the DRMP/DEIS.
Response: Invertebrates and microbiotic species have not been listed in the RMP; however, ongoing and future wildlife studies would refine the list of species occurring within the IFNM, which would be updated to include invertebrates and microbiotic species, providing BLM a better understanding of the relationships of environmental components for applying appropriate management. Management of the IFNM and the biological communities within it as proposed in the RMP is based on the best information available to us now, and BLM is committed to explore opportunities to learn more through studies and research and will use adaptive management to adjust management as new information emerges. In

addition, BLM is mandated to protect and manage threatened, endangered, candidate, proposed, and BLM sensitive wildlife species and their habitat. BLM is also required to protect and manage sensitive species jointly identified with the appropriate State agency. The species listed in RMP are based on county-level information and existing survey data and do not contain all species that could be in the IFNM.

8(600)
Comment: Draft Goals, Objectives and Alternatives - Wildlife and Wildlife Habitat
Implementation-Level Decisions
Numbers 2 and 3, alternatives should be added to these actions that recognize the rights of ranchers to maintain and protect fencing for safety and segregation of livestock.
Response: BLM will continue to manage livestock grazing within the monument in accordance with the Taylor Grazing Act, which provides for "the orderly use, improvement, and development of the range." BLM recognizes the need for livestock operators to maintain fencing for the safety and management of livestock. All alternatives would be implemented in accordance with laws, regulations, and standard operating procedures and existing rights, as noted in section 4.2.2 of the PRMP.

8(601)
Comment: 2-17 Wildlife and Wildlife Habitat. Objective 6: "Manage activities and uses to protect the following priority species..." Suggest adding 'game species' to the list of priority species for consistency on RMPs statewide.
Response: "Game species" has been added to the list of priority species.

8(602)
Comment: All livestock grazing should be phased out of the Monument and unsightly and unsafe fencelines should be removed.
Response: Alternative B analyzes a phased approach of grazing cessation in the monument. Under all alternatives, livestock grazing practices would be adjusted when necessary to comply with the Arizona Standards for Rangeland Health and Guidelines for Grazing Administration, which establish measurable indicators of rangeland health.

8(SR226)
Summary Comment: Impacts of mechanical, chemical, and biological treatments and the use of non-native species has not been analyzed or discussed in depth.
Summary Response: The analysis of mechanical, chemical, and biological treatments is at a level appropriate for a landscape-level RMP. Additional information and effects of mechanical, chemical, and biological treatments would be considered during site-specific analysis.

8(SR256)
Summary Comment: BLM should protect biological resources, status of vertebrate and invertebrate pollinators, and use trend analysis that address changes to the biotic community and protect the monument until we understand existing conditions before developing a final management plan. The final RMP should include Pans for careful monitoring and trend analysis.
Summary Response: As required by NEPA, BLM has used the information available to provide protection of resources and evaluate the effect of decisions. As required by the Proclamation, the management actions and strategies defined in the RMP were developed to protect wildlife species and their habitats so that "proper care and management of the objects" is ensured. However, information gathered on wildlife in the IFNM is not comprehensive and will continue to be adjusted as new information is obtained and conditions change on the IFNM. As additional information is collected, it will be used to adapt management approaches and provide additional protection, if necessary. BLM will continue to seek partnerships with universities, State and Federal agencies, ranchers, and science-based organizations in designing and implementing inventory and monitoring the IFNM so that protection of

biological resources within the IFNM is ensured. See Section 2.3.5 for additional information on the development of a monitoring plan in the IFNM.

8(SR257)
Summary Comment: We are concerned about the proposal in the draft to rescind the Silver Bell Bighorn Sheep Management Area and replace it with a "wildlife habitat management area" of only 29,920 acres. We want more protection for the bighorn sheep habitat, not less.
Summary Response: Under the proposed alternative (Alternative C), BLM would continue to manage and protect desert bighorn sheep habitat within the IFNM. The change in the acreage for the area managed is a result of studies and topographic analysis performed by researchers at the University of Arizona and AGFD (Bristow et al 1996, Jansen 2006, Jansen 2007), which indicates what areas would be suitable habitat for desert bighorn sheep. In addition, BLM would close localized areas (lambing areas) within the WHA to human entry between January 1 and April 30 (in coordination with AGFD) for protection of the desert bighorn sheep. Therefore, BLM believes the proposed alternative would provide additional protection for the desert bighorn sheep, despite a smaller area being specifically managed for them.

8(SR258)
Summary Comment: It is unclear how BLM proposed to manage habitat and population dynamics for large mammals such as the bighorn sheep. The boundary of the monument is an artificial boundary, and BLM should partner with other landowners such as the Tohono O'odham Nation for habitat connectivity.
Summary Response: Arizona's Wildlife Linkages Workgroup, of which BLM is a member, has been established to identify regional and statewide habitat corridors. These corridors will aid in developing a landscape level, multijurisdictional approach to wildlife corridor conservation and management in the IFNM. Management of these corridors will require close coordination and partnership with adjacent landowners, such as the Tohono O'odham Nation, ASLD, and others.

8(SR259)
Summary Comment: AGFD should manage any and all hunting activities in the IFNM. In addition, the use of lead shot should be banned within the IFNM to better protect migratory birds.
Summary Response: As the Proclamation states, nothing shall be deemed to enlarge or diminish the jurisdiction of the State of Arizona in respect to fish and wildlife management. It is the responsibility of the AGFD to determine game species, enforce hunting regulations, and set standards for ammunition use on the IFNM.

8(SR260)
Summary Comment: Manmade watering sources (for livestock or other reasons) are a source of non-native and feral species spread and can negatively impact wildlife. It is inappropriate to create new wildlife waters until it has been scientifically proven beyond a reasonable doubt that they do not cause harm to wildlife populations, such as serving as centers for the transmission of disease.
Summary Response: These concerns were addressed in a study AGFD conducted from 1999 through 2003 to determine direct and indirect effects of wildlife water developments in southwestern Arizona (Rosenstock et al. 2004). A summary of results include the following:
Water developments were used by an array of wildlife including game and non-game species.
Few observed successful predation event.
No significant evidence of water quality problems associated with water chemistry.
No detection of toxins produced by blue-green algae.
No evidence of a significant role of the protozoan parasite that causes trichomoniasis.
No evidence the wildlife waters provide larval habitat for biting midges (genus Culicoides) that transmit hemorrhagic disease viruses.
Few documented cases of animals drowning.

Based on these results, BLM continues the operation and maintenance of wildlife waters for the benefit of species found on the IFNM. BLM will continue to monitor wildlife waters on the monument to detect specific impacts, including those cited in the comment.

8(SR261)
Summary Comment: BLM has proposed several alternatives that may affect access to current livestock waters, possibly limiting the amount of water available in the IFNM. BLM should provide further information in the impact analysis on how the proposed loss of livestock waters may affect wildlife populations.
Summary Response: The impact analysis in the Proposed RMP/EIS has been revised regarding the potential loss of livestock waters and the affect this could have on wildlife. The revised analysis is "As existing leases expire and are made unavailable to grazing, existing livestock waters would cease to be maintained. Loss of livestock waters would reduce the availability of water for wildlife and could result in degradation of wildlife habitat, altered wildlife movement patterns, increased utilization of remaining wildlife waters, and reduction in wildlife populations. Adverse effects on wildlife directly or indirectly resulting from changes to water developments would be addressed during the Rangeland Health Evaluations conducted at individual allotments."

8(SR263)
Summary Comment: The Draft RMP/EIS did not properly cite Averill-Murray 2002 regarding the number of animal species.
Summary Response: The text in this section has been revised to include the correct reference. The text has been changed to "The ironwood-bursage habitat in the Silver Bell Mountains is associated with more than 674 species, including 64 mammalian and 57 bird species (BLM 2001)."

8(SR264)
Summary Comment: The Averill-Murray and Averill-Murray report, which is the only reference on birds cited in the EIS, is not a credible inventory of birds in the IFNM. The credibility of the Averill-Murray and Averill-Murray 2002 study includes a reference to Phillips and others 1964 regarding Bell's vireos that has not be substantiated by others.
Summary Response: BLM has revised the text in Section 3.1.5.3 to cite Phillips 1964. The text has been revised to "The most characteristic species include turkey vulture (Cathartes aura), northern harrier (Circus cyaneus), Cooper's hawk (Accipiter cooperii), white-winged dove (Zenaida asiatica), elf owl (Micrathene whitneyi), lesser nighthawk (Chordeiles acutipennis), blackchinned hummingbird (Archilochus alexandri), ash-throated flycatcher (Myiarchus cinerascens), purple martin (Progne subis), Bell's vireo (Vireo atricapillus), Lucy's warbler (Vermivora luciae), and sage sparrow (Amphispiza belli). Species such as killdeer (Charadrius vociferous), great blue heron (Ardea herodias), mallard (Anas platyrhynchos), and black-necked stilt (Himantopus mexicanus) may be found where suitable habitat exists (Phillips 1964)."

8(SR265)
Summary Comment: The Draft RMP/ EIS contains significant errors that require attention before an analysis can be done that predicts the level of protection for wildlife. The complexity of wildlife ecology is not sufficiently addressed, and the single-species approach to management is insufficient. Only by managing for the health of the entire interrelated ecosystem can the health of individual species and individuals of a species be ensured.
Summary Response: As required by NEPA, BLM has used the information available to provide protection of resources and evaluate the affect of decisions. The information gathered on wildlife in the IFNM is not comprehensive and will continue to be adjusted as new information is obtained and conditions change on the IFNM. As additional information about wildlife resources, including ecosystem function, is collected from monitoring efforts and other sources, this information will be used to adapt

management approaches, if necessary. Management of wildlife and habitat is part of the comprehensive management of all resource values in the IFNM and is not tied solely to management actions identified in the Wildlife and Wildlife Habitat sections of the RMP. Protection of species and habitat would also be achieved through management of other specific resource values (cultural resources, recreation, vegetation, travel management, visual, etc.).

8(SR267)
Summary Comment: There is evidence of disease transmission between livestock and wildlife, with a notable recent case on the IFNM. The Draft RMP/EIS must consider this impact on monument objects such as desert bighorn sheep. The Draft RMP/EIS admits that bighorn sometimes cross the valley floor between mountain ranges; therefore, all livestock grazing within the IFNM is subject to this adverse effect. Refer to Draft RMP/EIS at page 3-17.
Summary Response: Livestock can transmit disease to wildlife populations, including desert bighorn sheep. However, most disease transmissions occur within a specific family of animals (e.g., goats to bighorn sheep), not between families of animals (e.g., cattle to bighorn sheep). Therefore, not all livestock is subject to that impact. Existing BLM policy stipulates allowable distances between domestic sheep and goats and bighorn sheep (9 miles). Evidence of disease transmission from livestock to desert bighorn sheep on the IFNM suggests the disease transmission was from livestock outside the monument. To mitigate for potential disease transmission from livestock sources outside the monument, existing fences that were constructed prior to the adoption of BLM Handbook H-1741-1 (Fencing) and its supplement (2003) will be modified as wildlife concerns are identified or when fences are reconstructed. New fence construction will be analyzed on a case-by-case basis, and impacts on wildlife movement will be analyzed. Furthermore, The Arizona Standards for Rangeland Health are used in assessing whether grazing is causing habitat degradation for wildlife and other resource values.

8(SR268)
Summary Comment: Section 3.1.5.1 discusses the categories of bighorn sheep habitat and their abilities to support herds. The areas designated under these categories should be displayed on Maps 2-1 and 2-2 to demonstrate what areas are in critical need of closure to human entry.
Summary Response: BLM, in coordination with AGFD, has determined that only lambing areas would need closure to human entry. The location of lambing areas will vary over time. These areas are not based on the desert bighorn sheep habitat categories.

8(SR270)
Summary Comment: Wildlife and Wildlife Habitat Decisions for Management Actions, Allowable Uses, and Use Allocations Number 4 discusses supplemental stockings. This was confusing. As stocking is usually a term applied to fish, and there are no aquatic areas within the monument, SBM suggests removing this term.
Summary Response: Supplemental stocking is a term commonly used to describe the act of introducing individuals of a species to an area from a source outside the existing population in the area. The term is used for both wildlife and fish species.

8(SR271)
Summary Comment: Wildlife and Wildlife Habitat Decisions for Management Actions, Allowable Uses, and Use Allocations In all cases, SBM requests that an Alternative C and D be added that states: “Same as Alternative B but recognizing valid existing rights and operations allowed therein.”
Summary Response: As stated in the Proclamation, BLM recognizes all valid existing rights in the monument. This includes mining claims and other operations.

8(SR273)
Summary Comment: An attempt should have been made to document biotic relationships to include strongly interactive species. See Soule et al, 2003, 2005. The Draft RMP/EIS did not consider population dynamics or ecological relationships, and population mapping and ecosystem dynamics should have been evaluated against a matrix that looks at those dynamics in or with gradients of change. These changes include but are not limited to climate variability, aridity/drought, and non-native and invasive species, among others. Disturbances within the monument and along its boundaries--such as mining, roads, drilling, as well as density and intensity of human recreation and agricultural uses--should be included in such a matrix.
Summary Response: Section 4.3.5 of the Draft RMP/EIS analyzed impacts on wildlife and wildlife habitat for a range of sources including air quality, soil and water, vegetation, fire ecology, visual resources, wilderness characteristics, mining, livestock grazing, recreations, lands and realty, and transportation. The impacts analyzed in the document are appropriate for a programmatic planning document. Additional analysis will be completed when site-specific projects or actions are proposed.

8(SR274)
Summary Comment: The current condition or state of habitats must be assessed by scientific research by qualified specialists who have verified the presence and condition of wildlife habitats and populations in the IFNM. These qualified specialists could then determine if and how such areas should be enhanced or restored.
The BLM should coordinate these efforts through partnership with AGFD, USFWS if appropriate, NRCS and Pima NRCD, as well as the affected grazing permittees, to determine what levels of artificial wildlife introductions are appropriate for each desired plant community.
Summary Response: We agree and have changed the Draft RMP/EIS to reflect this comment. The text in Table 2-5 (Resource Management Alternatives for Wildlife and Wildlife Habitat Alternative B4) was changed to read: “As appropriate, BLM would coordinate the evaluation and implementation of proposals to enhance wildlife populations through partnerships with the AGFD, USFWS, NRCS, Pima County NRCD, and affected grazing permittees, to determine what levels of wildlife introductions or habitat enhancements are appropriate for each desired plant community.”

8(SR275)
Summary Comment: Page 2-19, Table 2-5, Management Alternatives for Wildlife, Item 4: “Avoid projects or activities that could disturb priority species or habitats (highlighting added).” The statement means, “Avoid all projects and activities.” Any project or activity could disturb priority species or habitats. The statement should be changed to read, “Avoid projects or activities that have been determined likely to harm priority species or habitats.”
Summary Response: We agree and have changed the Draft RMP/EIS to reflect this comment. The text in Table 2-5 (Resource Management Alternatives for Wildlife and Wildlife Habitat -Implementation Level Decisions: Alternative B4) was changed to read: “Avoid projects or activities that have been determined likely to harm priority species or habitats.”

8(SR280)
Summary Comment: I am concerned that allowing motor vehicles to travel on a network of roads through the Sawtooth Mountains would tend to fragment habitat for animals such as the desert tortoise.
Summary Response: Habitat connectivity for wildlife species was one of many considerations in the route designation process. Studies of the effects of routes on various wildlife species have been conducted, but most focused on paved roads with high traffic volume at high speed. Few studies of this type are applicable to the IFNM. However, not all routes have equal effects on wildlife. The location and availability of food and shelter play greater roles in determining the distribution and preferred use areas of most wildlife species than do route density and abundance. BLM used a route designation process, closing those routes that were redundant, had no specific use or destination, or that were causing

documented impacts to wildlife or other resources. Modifications of travel management in the Sawtooth Mountains area, based on new information and consideration of the effects on wildlife, have been made in the Proposed RMP/EIS and should decrease the threat of habitat fragmentation. BLM believes that essential wildlife habitats and travel corridors would continue to be maintained under the Proposed RMP/EIS.

8(SR281)
Summary Comment: Wildlife within the monument suffers equally from the disturbance both the cumulative and additive types of effects. Past, present, and foreseeable future actions all include impacts from the U.S.-Mexico border situation, and the BLM has a legal and statutory obligation to assess these honestly.
Summary Response: BLM has addressed cumulative impacts from U.S. Border Patrol activities, past disturbance, and reasonably foreseeable actions in Section 4.7.

8(SR282)
Summary Comment: The document should include a reference to Arizona's Linkages Workgroup and subsequent reports to promote consistency, cooperation, and coordination in regard to wildlife corridors and to provide current and future land managers a conduit to valuable information.
Summary Response: We agree and have changed the Proposed RMP/EIS to reflect this comment as follows. "Regional and statewide habitat corridors that connect to the IFNM have been identified by Arizona's Linkages Workgroup (Arizona Wildlife Linkages Workgroup 2006). This includes potential habitat corridors between the IFNM and the Tortolita Mountains (Arizona Wildlife Linkages Workgroup 2006). Future efforts and reports from Arizona's Wildlife Linkages Workgroup could aid in a landscape-level, multijurisdictional approach to wildlife corridor conservation and management in the IFNM."

8(SR288)
Summary Comment: The Draft RMP/EIS improperly cites Averill-Murray 2002 regarding bird species preferring habitat with relatively dense grass cover and washes thick with grass and shrubby vegetation. To begin with, Averill-Murray and Averill-Murray have not even identified all the resident birds of the Silver Bell Mountains (much less the entire IFNM monument) and second, they do not appear to have made that statement in their report.
Summary Response: . BLM has revised Section 3.1.3.2 of the Proposed RMP/EIS to remove this citation from Averill-Murray and Averill-Murray 2002. This section has been revised to "Bird species within the monument use xeroriparian habitat and other areas with dense shrubby vegetation for breeding, foraging, and nesting."

8(SR290)
Summary Comment: The wildlife species referenced in the Draft RMP/EIS in Chapter 3 is not a complete list. There are other bird and wildlife species that have been identified in the monument that should be included. Also, some of the species that are listed as migratory are year-round residents of the IFNM. BLM should protect biological resources, status of vertebrate and invertebrate pollinators, and use trend analyses that address changes to the biotic community and protect the monument until we understand existing conditions before developing a final management plan. The Final RMP should include plans for careful monitoring and trend analysis.
Summary Response: BLM has modified the language in the Proposed RMP/EIS in Section 3.1.5 to acknowledge that bird and wildlife species, in addition to those referenced, also may occur within the IFNM. Additional research and studies may also discover species other than those that were enumerated in the Proclamation to indicate the high diversity of species. Species listed as migratory in the Draft RMP/EIS were based on those species protected by the Migratory Bird Treaty Act.
As required by NEPA, BLM has used the information available to provide protection of resources and evaluate the effects of decisions. As required by the Proclamation, the management actions and strategies

defined in the RMP were developed to protect wildlife species and their habitats so that "proper care and management of the objects" is ensured. However, as noted above, information gathered on wildlife in the IFNM is not comprehensive and will continue to be adjusted as new information is obtained and conditions change on the IFNM. As additional information is collected, it will be used to adapt management approaches and provide additional protection, if necessary. BLM will continue to seek partnerships with universities, State and Federal agencies, ranchers, and science-based organizations in designing and implementing inventory and monitoring of the IFNM so that protection of biological resources within the IFNM is ensured. See Section 2.3.5 for additional information on the development of a monitoring plan in the IFNM.

8(SR291)

Summary Comment: The objective to protect blocks of wildlife habitat and movement corridors is overly broad and there is not enough information provided in the Draft RMP/EIS to evaluate this objective. The word "protect" is not well defined, particularly as there are many small blocks of habitat and potential movement corridors that are already fragmented.

Summary Response: This objective has been omitted, but was merged with Objective 2 to state "Manage and/or conserve areas identified as important for the viability of priority species and bighorn sheep populations, including, but not limited to lambing areas and movement corridors. Within 10 years, enhance habitat conditions in movement corridors so they are conducive to wildlife movement."

The protection of contiguous habitat and movement corridors would be achieved through the management decisions adopted in the RMP, such as the allocation of the Desert Bighorn Sheep WHA.

BLM would review proposed projects on a site-specific basis to evaluate potential impacts on wildlife habitat or movement corridors. Refer also to summary comment and response 8(258) for additional information regarding wildlife habitat linkages.

8(SR292)

Summary Comment: BLM has proposed several alternatives that may affect access to current livestock waters, possibly limiting the amount of water available in the IFNM. BLM should provide further information in the impact analysis on how the proposed loss of livestock waters may affect wildlife populations

Summary Response: The impact analysis in section 4.3.5.3 of the Proposed RMP/Final EIS has been revised regarding the potential loss of livestock waters and the effect this could have on wildlife.

8(SR293)

Summary Comment: The loss of operating cattle ranches poses the threat of habitat fragmentation due to the potential for State and private lands to be sold and converted to uses incompatible with and harmful to the purposes and goals of the IFNM.

Summary Response: Under the proposed alternative (Alternative C), all public lands within 11 allotments are available for livestock grazing. The cumulative affects of habitat fragmentation from the possible development of State and private lands is addressed in Section 4.7.

8(SR294)

Summary Comment: The Draft RMP/EIS should clarify how restrictions on surface-disturbing activities could impact AGFD wildlife administrative activities and projects. These restrictions could be open to interpretation by BLM.

Summary Response: BLM will review on a site-specific basis all proposed actions that could result in surface disturbance and the potential effect it may have on objects of the monument. This review would not alter the management authority of AGFD; however, it could result in modifications of projects if there are potential impacts on monument objects.

8(SR295)
Summary Comment: BLM has agreed to meetings to allow AGFD to use motorized and mechanized equipment off designated routes in suitable locations for purposes including, but not limited to, the following: management law enforcement activities, wildlife water supplementation, collar retrieval, capture and release of wildlife, telemetry, surveys, habitat evaluation, and research activities.
Summary Response: The statement has been added to clarify AGFD's allowable administrative uses with respect to management of wildlife within the IFNM.

8(SR298)
Summary Comment: Competition between livestock and wildlife for resources can stress native species populations in average years, but especially during drought years, when the limited resources are already stretched thinly across the needs of many taxa. The negative impacts of livestock grazing on imperiled (threatened or endangered) species are particularly severe. Livestock grazing is a primary cause of endangerment for at least 667 federally listed species (see Flather 1994, 1998). BLM has a responsibility to help protect imperiled species by removing livestock from important habitat on the monument, and an opportunity to provide quality habitat that may preclude additional species from nearing extinction.
Summary Response: Refer also to summary comment and response 9(359) for additional information regarding habitat management.

8(SR299)
Summary Comment: Appendix F of the Draft RMP states that the reclassification of the two fully ephemeral allotments to perennial status was based on those allotments no longer meeting the criteria for an ephemeral classification. This conclusion, however, is not corroborated by scientific data, and it is unclear whether the BLM considered the impacts of year-round grazing on monument resources, such as wildlife habitat and vegetation.
Summary Response: The range of alternatives in the Draft RMP/EIS for livestock grazing in the IFNM included this possibility in Alternatives C and D. However, in the Proposed Plan, both allotments continue to be classified as ephemeral to allow BLM to collect the necessary data to properly analyze the effects of reclassifying these two allotments as perennial. While the allotments do not meet the criteria for an ephemeral allotment (see Appendix F), reclassification requires that forage capacity be identified, which was not done or analyzed in the Draft RMP/EIS. BLM is conducting additional monitoring to determine what appropriate forage capacity would be if reclassification to perennial were to occur; therefore, the decision to reclassify these allotments is being deferred until BLM can collect the data necessary to support and identify an appropriate forage capacity level and conduct an associated environmental analysis. BLM also is looking into the process by which these allotments were initially classified as ephemeral.

8(SR300)
Summary Comment: In the Draft RMP/EIS, BLM did not analyze the need to maintain waters yearlong or the amount of water withdrawn or evaporated. Wildlife waters should be analyzed relative to their overall impact on the system and the multitude of wildlife and not just a single species.
Summary Response: The Proposed RMP implementation-level Decision 1 in Table 2-5 Resource Management Alternatives for Wildlife and Wildlife Habitat regarding wildlife waters would evaluate and implement proposals in coordination with AGFD. Any new or modified waters would be designed consistent with current standards for wildlife and public safety. Adverse effects on wildlife directly or indirectly resulting in changes in water developments would be addressed during the Rangeland Health Evaluations conducted for individual allotments.

8(SR301)
Summary Comment: The effects of grazing on the cactus ferruginous pygmy-owl are not adequately addressed or managed according to the documented threats listed in the 1997 recovery plan for the species.
Summary Response: Refer also to summary comment and response 9(358) for additional information regarding cactus ferruginous pygmy-owl habitat management.

8(SR302)
Summary Comment: The preservation of habitat for the Sonoran desert tortoise is specifically mentioned in the Presidential Proclamation. Distribution of Sonoran desert tortoise in the IFNM is not limited to rocky outcroppings, and tortoises in the monument have been observed crossing the valley floor and burrowing in washes. This makes them vulnerable to trampling by livestock and increases the need for monitoring forage competition. The Draft RMP/EIS fails to analyze these impacts. On the IFNM, the habitat classifications for the Sonoran desert tortoise reveal that nearly 81,000 acres of monument land contain suitable desert tortoise habitat, some of it very high quality and essential to the maintenance of large, viable populations. (See Draft RMP/EIS page 3-26.) However, no analysis is provided to accurately describe the impacts of livestock operations on habitat nor to compare the various alternatives for authorizing grazing on these habitat classes. The Draft RMP/EIS fails to attribute the appropriate level of significance to the preservation of habitat to prevent the Federal listing of this species.
Summary Response: Desert tortoise habitat and populations within the IFNM are managed in cooperation with the AGFD and the Arizona Interagency Desert Tortoise Team. This includes setting management goals for livestock grazing and route management that are compatible with desert tortoise habitat requirements. By policy, the BLM is directed to ensure planning is consistent with recovery plans and/or management plans for listed species. While there is no recovery plan for the Sonoran desert tortoise, the rangewide management plan outlines a number of threats but does not rank these threats or provide an indication of which threats might be more important in the decline of desert tortoise. The rangewide management plan also indicates that threats from grazing occur where livestock use is excessive. The BLM continues to document use levels and habitat conditions using rangeland health evaluations. Impacts on special status species, include the Sonoran desert tortoise, from livestock grazing are addressed in Section 4.3.6.

8(SR303)
Summary Comment: Livestock grazing has other more direct impacts on wildlife as well. Mortality of owls which have become entangled or impaled on fence lines has been documented. See Avery et al 1978, Anderson 1977, Fitzner 1975.
Summary Response: Most fences that exist on BLM lands are necessary to manage livestock use. Fences would be modified to meet BLM standards where there is an identified problem with wildlife. Prioritization of needed modifications would be in coordination with AGFD. Fences not necessary for the control of livestock could be removed under the provisions in the Draft RMP/EIS . While the BLM would like to see such fence modifications implemented as soon as possible, there are no specific timeframes for compliance discussed in the Draft RMP/EIS.

8(SR304)
Summary Comment: The Draft RMP/EIS states that yearlong water sources will be maintained in all pastures, but that these waters will be located where impacts on priority plant species and habitats will be minimized (see Draft RMP/EIS at page 2 51). The Draft RMP/EIS states that priority plant communities occur on 39,647 acres within the planning area (page 3 15) and yet, the BLM does not analyze a specific withdrawal of these lands from livestock grazing or range developments. The Draft RMP/EIS does not provide a timeline for moving these waters.

Summary Response: Moving livestock waters located in priority plant communities would be analyzed during an allotment evaluation or other implementation-level plans. The RMP is not proposing to exclude priority plant communities from livestock grazing.

8(SR510)
Summary Comment: Due to population pressures and climate change management pressures to the lanscape, subsidies for browse, artifical water sources and non-native plant species should be precluded from expanding. Subsidies should be removed when it's documented that it's changing species composition, behavior, and biotic relationships.
Summary Response: BLM manages the IFNM consistent with Arizona's Standards for Rangeland Health and Guidelines for Grazing Administration, which includes consideration of vegetation composition. BLM continues to monitor all land uses to meet the needs of biological resources while maintaining lands as available for multiple use to the extent allowable based on the Proclamation establishing IFNM. As additional information about wildlife resources (including the impact of management activities) is collected from monitoring efforts, management actions would be adjusted to protect resources consistent with goals and objectives of the IFNM. As noted in Section 2.3.5, adaptive management will be used to address the uncertainties of natural resource management, including population pressures and climate change, to further protect the objects of the monument.

Category 9: Special Status Species

9(575)
Comment: Under the wildlife habitat, there was a statement in there about the original Silverbell Desert Bighorn Sheep Management Area, high acreage.
What's not clear is, is that Alternative A, or is that something else? Because you have one region for the bighorn in Alternative A. You've got another for all three.
Response: Under Alternative A, the Silver Bell Desert Bighorn Sheep Management Area includes 56,000 acres of land designated as Federal, State trust, or private land for desert bighorn sheep habitat; 47,000 acres of this area is BLM-administered land. Under Alternatives B, C, and D, the area managed for desert bighorn sheep would be reduced based on more recent information about the sheep and their use of the IFNM, and only approximately 29,820 acres of BLM-administered land would be managed as the Desert Bighorn Sheep WHA.

9(577)
Comment: 2.3.3 BLM Policy
Interesting that a herd of domestic goats has already been allowed to impact the existing bighorn sheep herd, potentially setting up conditions for their eventual extinction. BLM has until now failed to police the border of the Monument against this sort of trespass. How do they anticipate doing it in the future? There is no discussion of the recent disease outbreak in the bighorn sheep in the Monument caused by an incursion of domesticated goats and the impact on the sheep population and current outlook! Why? This is supposed be a description of existing conditions. BLM does a disservice to the public by not being forthcoming with the facts of this incident. BLM's failure to control the borders of the Monument have demonstrated negligence on the part of the agency in taking care of one of the objects of scientific interest the Monument was established to protect.
Response: Past interactions of domestic livestock with bighorn sheep have affected populations. Current public land regulations limit contact between domestic sheep and goats and existing bighorn populations. The BLM uses the following criteria to prevent interactions between domestic goats and sheep and the desert bighorn sheep: 1) grazing and trailing should be discouraged near native wild sheep ranges; 2) natives and domestics should be spatially separated by buffer strips of 8.4 miles except where topographic features or other barriers minimize contact between the two; 3) domestics should be closely managed and carefully herded where necessary to prevent them from straying into native wild sheep

areas; 4) trailing near or through occupied native wild sheep ranges may be permitted when safeguards can be implemented to prevent physical contact between the two; 5) BLM must conduct on-site use compliance during trailing to ensure safeguards are observed; 6) cooperative efforts should be undertaken to quickly notify the permittee and appropriate agency to remove any stray domestic sheep or goats or wild sheep in areas that would allow contact between domestic and wild sheep; and 7) native wild sheep should only be reintroduced into areas where domestic sheep or goat grazing is not permitted. Specifically, Appendix D Administrative Actions by Resource addresses in the Livestock Grazing section the general issues of enforcement and management actions regarding domestic livestock. Information about specific incidents that are part of ongoing litigation is not discussed in the RMP.

9(578)

Comment: 4.3.6 Impact on Special Status Species 4.3.6.1 Impacts Common to All Alternatives "Extractive resource uses such as mining development can influence ecosystem function, resilience, and sustainability. Extractive resource uses may result in habitat fragmentation and loss though associated land clearing, road building, and disturbance from traffic, hauling, and maintenance activities. Associated point-source pollution causes heavy-metal and highly acidic water pollution, air pollution, noise, and habitat conversion."

The mining industry is subject to pollution control regulations at the federal, state and local levels. All mining development is restricted in terms of the amount of emissions to both air and water. Heavy-metal and highly acidic water pollution would be considered a violation of federal or state permits and would not occur under normal operating conditions. In is incorrect to surmise that air and water pollution are a foregone conclusion of mining operations.

Response: Federal, State, and local regulations permit a minimum standard of emissions and wastes discharged into the environment. However, this is not zero emissions or zero pollution, and over time there could be environmental impacts associated with mining activities that may include any or all of the impacts regarding pollution of the environment mentioned in Section 4.3.6 of the Draft RMP/EIS. The Proposed RMP/EIS has been amended to read: "Associated point-source pollution may cause over time heavy metal and highly acidic water pollution, air pollution, noise, and habitat conversion."

9(581)

Comment: The lesser long-nosed bat (Leptonycteris curasoae) is a migratory species which forages on the Monument. This species depends upon agave and saguaro for flowers and fruits for food, and the decline of the Sonoran Desert ecosystem may irreparably cause population declines. See US Fish and Wildlife Service 1997. Each of the management actions in the plan should have been analyzed in context of how is would affect and contribute to the recovery of this species.

Response: Section 4.3.6 discusses the impacts as they relate collectively to all special status species and their associated habitats for each action alternative, rather than analyzing the impacts on each individual species. BLM believes this summary format is appropriate because the decisions in the RMP that contribute to habitat preservation or impacts to habitat generally are applicable to all special status species rather than just a specific species; furthermore, the objects of the monument are not limited to the just the listed species, but also the habitats, environments, and conditions that support them. The decisions for management actions associated with special status species in Table 2-6 address the broader context of managing for the recovery of these species. Conservation measures related to special status species are detailed in Appendix E.

9(582)

Comment: The cactus ferruginous pygmy owl (Glaucidium brasilianum cactorum) is specifically mentioned in the Proclamation as wildlife to be protected within the Ironwood Forest National Monument. The BLM failed to show how the management actions would contribute to the recovery of this species. Specifically analyze the management implications of the alternatives to the survival and recovery of this species.

Response: Section 4.3.6 discusses the impacts as they relate collectively to all special status species and their associated habitats for each action alternative, rather than analyzing the impacts on each individual species. BLM believes this summary format is appropriate because the decisions in the RMP that contribute to habitat preservation or impacts to habitat generally are applicable to all special status species rather than just a specific species; furthermore, the objects of the monument are not limited to the just the listed species, but also the habitats, environments, and conditions that support them. The decisions for management actions associated with special status species in Table 2-6 address the broader context of managing for the recovery of these species.

9(583)
Comment: We need to be able to open and maintain more water holes, and manage and curtail varmints and predators...anything that may prey on the bighorn. We need to be able to fly freely and land in all areas of the monument to help manage - tag - remove - and transplant sheep into other areas.
Response: The RMP states that BLM will work in conjunction with AGFD to manage wildlife populations, which would include desert bighorn sheep. The implementation of activities is performed by agency professionals and cross-agency partnerships, and often with the help of qualified volunteers recruited to assist the agencies with these projects.

9(584)
Comment: Biological Monitoring and Adaptive Management Plan
Surface disturbance and disruptive activities, such as OHV use and grazing, can cause loss of habitat, habitat fragmentation, and wildlife displacement. In order to evaluate the impacts on threatened and endangered species, baseline conditions must be determined initially. BA will be dated 2009, not 2007.
Response: Baseline conditions of threatened and endangered species were assessed in the biological survey of the IFNM, which was conducted by the Arizona-Sonora Desert Museum (Dimmitt and Van Devender 2003). A Biological Assessment also was conducted that analyzed these baseline conditions and proposed outcomes in response to the preferred alternative, which is now the proposed alternative (BLM 2009). Regardless of the alternative selected, BLM will establish ongoing monitoring of federally listed (threatened or endangered) species, and adapt management to support protection of those species and their habitats. See Section 2.3.5 for additional information on the development of a monitoring plan in the IFNM.

9(585)
Comment: While there are few rigorous studies of grazing impacts within the Sonoran Desert, documented changes following to the cessation of grazing at Tumamoc Hill, just outside of Tucson, Arizona., indicated that after fifty years of livestock exclusion from this area, composition and density of perennial grasses and shrubs increased. See 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.
One of the "objects" recognized by the Proclamation for its importance and impressiveness within the Monument is the saguaro (Carnegiea gigantia). Because of this emphasis, the Bureau should be carefully considering the many documented adverse effects of livestock grazing on this species, which is a listed as one of Arizona's Protected Native Plants.
Response: BLM follows Arizona's Standards for Rangeland Health and Guidelines for Grazing Administration, which minimizes potential damages to saguaro cacti. In addition, baseline biological surveys conducted for the IFNM indicated there was no current adverse effect on saguaro recruitment as a consequence of grazing by cattle (Dimmitt and Van Devender 2003).

9(586)
Comment: We are concerned with items listed in the administrative actions as many go well beyond a simple administrative action and seek to impose additional regulatory burden on permittees, landowners and users in and near the monument. A listing of those actions of concern to SBM include:
Special Status Species
• Continue support of conservation efforts (including monitoring) of species occurring within the monument and designated by other agencies (Pima County, Arizona Department of Agriculture) as rare, sensitive, protected, vulnerable, or other special status, and consider each for addition to the BLM Sensitive Species List.
Response: Administrative actions included in Appendix D Administrative Actions for Resources for Special Status Species do not increase regulatory requirements. BLM will consider protective measures for species that have been designated for protection by another jurisdiction or agency.

9(587)
Comment: The Pygmy Owl should be removed as a special status species as the species information has not been issued in final and the species is being delisted.
Response: The cactus ferruginous pygmy-owl is included in the Draft RMP/EIS as a sensitive species because it is listed by the State of Arizona through AGFD as a wildlife species of special concern in Arizona. It also is included because it is listed as a BLM sensitive species. The BLM, in its administration of the IFNM, is acting in accordance with Arizona regulations and laws and with its own directives.

9(603)
Comment: Nichols turk's head cactus (Echinocactus horizonthalonius var. nicholii), a federally listed species singled out by the Proclamation, occurs in the Waterman Mountains of the IFNM, one of only four places it is known to occur and one of two places it occurs in Arizona. The species is not known to be directly affected by livestock grazing, but may be indirectly impacted by the spread of non-native species and the subsequent changes to the fire regime. The limited discussion of this species in the DRMP/DEIS is insufficient. DRMP/DEIS at 3-25.
Response: According to the Biological Opinion on the BLM Arizona Statewide Land Use Plan Amendment for Fire, Fuels, and Air Quality Management, the likelihood of wildfire occurring within Nichol's Turk's head cactus habitat is very small (with a fire return interval of 112 years). However, invasive plants such as buffelgrass have encroached upon Nichol's Turk's head cactus habitat in the IFNM and do currently pose a threat to the cactus through increased likelihood of fire. Additional information has been included in the Proposed RMP regarding the effects of fire and non-native species on Nichol's Turk's head cactus in Section 4.3.6.1.

9(706)
Comment: Draft Goals, Objectives, and Alternatives - Special Status Species
"Goal 1: Conserve special status species (including Federally listed species, Arizona's Wildlife of Special Concern, Pima County, BLM Sensitive Species, Arizona Department of Agriculture); where necessary, enhance or restore their habitats."
SBM objects to the inclusion of Pima County on this list. Pima County has no regulatory authority to list species and the species listed in their habitat conservation plans are a compilation of species from the other listings. Further, the Pima County habitat conservation plan, still in draft format, includes species that no longer exist in Pima County. Depending upon which section of the plan is being reviewed, the number and the names of the species are not consistent. SBM also objects to the use of the term "restore" in the objective that indicates conservation of special status species is promoted by the maintenance or restoration of their habitats. "Reclaim" would be better in this sense.
Response: State and local governing entities are granted by the U.S. Constitution the ability to enact and enforce laws not specifically proscribed by the Federal Government, if the given law does not contradict or weaken an existing Federal law. Therefore, Pima County is fully within its rights to grant equal or

greater protective status to the species on its list. This includes those species presently or historically documented in the county. Per regulation, BLM's management of the IFNM will be consistent with Pima County's plans and policies, as well as other relevant jurisdictions, so long as they are consistent with Federal policy and law.
The RMP incorrectly lists the common name for Peromyscus merriami, which is referred to in this comment. The Proposed RMP/Final EIS changed to Merriam's mouse or mesquite mouse to Perognathus merriami.
"Reclaim" is a word typically associated with restoration efforts on areas impacted by mining. "Restore" is a word typically associated with ecological efforts to bring back habitats or ecosystems to near-native condition and function. The glossary has been updated to include a term for "restore." BLM would restore areas to improve conditions for the protection of monument objects or to provide improved habitat for special status species, or priority vegetation species in the future. The term "restore" is used to return an area to baseline conditions. All reclamation efforts are undertaken on a case-by-case basis reflecting what is practically achievable and cost effective.

9(SR10)
Summary Comment: BLM should limit activities that disturb or harm bighorn sheep or the habitat of the species, such as hiking, recreational shooting, and OHV use.
Summary Response: The alternatives provide for multiple uses that would incorporate a specific area, such as the Desert Bighorn Sheep WHA, where management of this species would be the priority over other uses. Lambing areas within the Desert Bighorn Sheep WHA would be closed to human entry from January 1 through April 30 (with limited exceptions), and overnight dispersed non-motorized camping would be restricted to protect resources for the species. In addition, OHV use would be restricted to designated routes, and target shooting would be prohibited within the IFNM. Examples of exceptions to the closure could include ranching operations and access to inholdings, though lambing tends to occur in steep, remote cliff areas, which would not likely be conducive for ranching operations and/or access to inholdings. All new proposed actions would be analyzed for consistency with the WHA. Any action that would be deemed as detrimental to the purpose of preserving the habitat areas would be modified to eliminate the negative effects or denied through the NEPA process.

9(SR350)
Summary Comment: None of the alternatives contemplate mining as an allowable use, nor do they allow for the evaluation of mining within the monument.
Summary Response: Mineral resources are covered in all alternatives in the Draft RMP/EIS in that all valid existing claims are to be administered on a case-by-case basis. The comment is addressed in Table 2-12, which includes the alternatives for energy and mineral resources.

9(SR351)
Summary Comment: In the Draft RMP/EIS, Map 2-4 and 2-5 shows the Ragged Top Vegetation Habitat Management Area (VHA) directly in contact with the mining property. Map 2-5 in Alternative D should be adjusted to provide a buffer zone between active mining and the VHA. Areas with valid existing rights should be excluded from all areas of the VHA. Additionally, the acreages should be adjusted to accurately reflect the land ownership and the actual area being managed under this scenario.
Summary Response: BLM defined the VHA based on vegetation assemblages identified within the IFNM. No buffers are necessary for the management of this area as a result of mining operations adjacent to the VHA. BLM also considered excluding the existing mining claims from the VHA; however, if those claims lapse or are not proven valid, this area could be subject to additional management actions, as noted in Table 2-6. The acreages calculated for the RMP are specific to public land administered by BLM. Any actions pertaining to valid existing rights would have precedence over conflicting management actions associated with the VHAs.

9(SR352)
Summary Comment: The maps of desert tortoise habitat in the Draft RMP/EIS should exclude all but BLM-managed lands and should only include Category I and II tortoise habitat.
Summary Response: Map 3-5 in the Draft RMP/EIS shows the habitat in relation to all land within the IFNM boundaries. The establishment of these habitat categories is according to the habitat needs of the desert tortoise and is independent of ownership; however, areas of private land within the monument are administered by the private owner, not the BLM. For the Proposed RMP, Map 3-5 has been revised to show desert tortoise habitat only for public lands administered by BLM to be consistent with other maps. Category III habitat is included to fully inform readers of the desert tortoise inventory and habitat classes present within IFNM. Criteria for Category III are clearly described in Table 3-5. There are no specific management actions tied to Category III habitat in the RMP.

9(SR353)
Summary Comment: In the Draft RMP/EIS, the acres of desert tortoise habitats in Table 3-5 should be revised to remove mining claims, because mining does not support desert tortoise habitat.
Summary Response: The existing mining claims do contain desert tortoise habitat and maps showing it are appropriate. Existence of desert tortoise habitat would not preclude extraction of minerals on valid mineral deposits, but the assessment of "unnecessary and undue degradation" of surface activities would need to account for sensitive species on the surface of the claim.

9(SR354)
Summary Comment: At the present time, there are no herds of wild horses or burros on the IFNM. Unless the BLM has plans to introduce herds into the IFNM the management objective (Objective 11) in Appendix E is unnecessary and confusing.
Summary Response: Appendix E contains the full list of conservation measures from the Desert Tortoise Rangewide Plan. There are no wild horse or burro ranges within the IFNM; therefore, Objective 11 does not apply to the IFNM. There is no statement in the RMP that burros or horses will be imported into the IFNM. Because the IFNM in not located within a Herd Management Area, any wild horses or burros that wander in would be considered a nuisance and could be immediately removed. A statement has been added to Objective 11 in the Proposed RMP/EIS to clarify that wild horses and burros do not exist within the IFNM.

9(SR355)
Summary Comment: Analysis of special status species in the Draft RMP/EIS is inadequate and biased in Alternative B and fails to mention the effects of habitat improvement.
Summary Response: The analysis of the alternatives is presented in Section 4.3.6 in summary format and includes the expected beneficial and adverse impacts. The benefits mentioned are associated with eliminating or severely reducing the impacts caused by human uses or activities. In most cases, habitat improvement would occur by eliminating or curtailing the human activity that is affecting the habitat.

9(SR356)
Summary Comment: Nichol's Turk's head cactus (Echinocactus horizonthalonius var. nicholii), a federally listed species singled out by the Proclamation, occurs in the Waterman Mountains of the IFNM, one of only four places it is known to occur and one of two places it occurs in Arizona. The species is not known to be directly affected by livestock grazing, but may be indirectly impacted by the spread of non-native species and the subsequent changes to the fire regime. The limited discussion of this species on page 3-25 in the Draft RMP/EIS is insufficient.
Summary Response: Section 3.1.6.1.1 presents information on the Nichol's Turk's head cactus within the IFNM. This section is not meant to provide comprehensive information on the Nichol Turk's head cactus, but instead to provide enough information to understand where and to what extent it exists within the IFNM in order to analyze the potential impacts from management decisions and actions on the cactus.

Impacts on the Nichol's Turk's head cactus are summarized in Section 4.3.6, along with potential impacts on other special status species

9(SR357)
Summary Comment: The lesser-long nosed bat depends upon saguaro flowers and fruits. The recovery of this species depends on the protection of food plants, and the impacts of livestock grazing on the habitat of this species must be specifically evaluated. The Draft RMP/EIS does not adequately analyze impacts from grazing on the lesser long-nosed bat and other special status species.
Summary Response: The biological surveys of IFNM that support the Draft RMP/EIS determined that the density of agave in the IFNM is extremely low, and there was no observed impact from livestock on the limited number of agave (Dimmit and Van Devender 2003). Also, botanical surveys did not find adverse effects on the recruitment of young saguaro into the population in areas where cattle graze (Dimmit and Van Devender 2003). Though cattle grazing remains a potential threat to the welfare of habitat for the lesser long-nosed bat throughout its range where excessive browsing on the flower stalks occurs (by wildlife or livestock), this was not a documented threat in the IFNM.

9(SR358)
Summary Comment: The effects of livestock grazing on the cactus ferruginous pygmy-owl habitat are not adequately addressed in the Draft RMP/EIS according to the documented threats listed in the 1997 recovery plan for the species. Draft recovery plan was 2003, not 1997
Summary Response: In the 2003 recovery plan, grazing is documented as one of the many threats to the habitat of this species, which includes riparian woodlands, desert scrub, and xeroriparian washes. Biological surveys conducted by the Arizona-Sonora Desert Museum documented the baseline biological conditions in the IFNM and did not conclude that there were adverse effects on xeroriparian areas or to saguaro recruitment as a consequence of cattle grazing in the IFNM.
The cactus ferruginous pygmy-owl remains a State-protected species and a BLM sensitive species, making it one of the key special status species within the IFNM. However, it is not presently listed as threatened or endangered under the Endangered Species Act; therefore, BLM would not manage it to the same standard as other federally listed threatened or endangered species.

9(SR359)
Summary Comment: Grazing should be stopped to better protect threatened and endangered species.
Summary Response: Habitat management for the priority species, wildlife, threatened and endangered species, or special status species is specifically considered in the Draft RMP/EIS. BLM complies with the Arizona Standards for Rangeland Land Health and Guidelines for Grazing Administration to effectively manage native habitats so that grazing does not degrade the natural ecosystem. Biological surveys conducted by the Arizona-Sonora Desert Museum that served as a biological baseline for the IFNM did not conclude that there were any significant impacts from grazing on any federally listed threatened or endangered species.

9(SR360)
Summary Comment: The Sonoran desert tortoise was not adequately addressed in impacts among the alternatives of the Draft RMP/EIS.
Summary Response: Section 4.3.6 in the Proposed RMP/EIS has been revised to include potential impacts on the Sonoran desert tortoise and other priority special status species. The impacts on desert tortoise habitat are extensively and specifically analyzed for all alternatives in Sections 4.3.5 (Impacts on Wildlife and Wildlife Habitat) and 4.3.6 (Impacts on Special Status Species).

9(SR361)
Summary Comment: The Draft RMP/EIS does not provide for the preservation of desert tortoise habitat to prevent future possible Federal listing of the species.

Summary Response: Appendix E in the Draft RMP/EIS provides specific conservation measures that would be implemented to protect the population and habitat. These measures follow the Conservation Measures from Desert Tortoise Habitat Management on the Public Lands: A Rangewide Plan.

9(SR362)

Summary Comment: The Draft RMP/EIS should analyze impacts on the Tucson shovel-nosed snake, which is currently in the Endangered Species Act petitioning process and is undergoing serious population and habitat declines. The Draft RMP/EIS should analyze impacts from declines of vegetation communities under various management schemes as impacting the prey base of this species.

Summary Response: Although a listing petition was filed in 2004, the Tucson shovel-nosed snake (Chionactis occipitalis klauberi) does not currently appear on the list of petitioned species or candidate species with the USFWS. However, it is listed as a priority vulnerable species on the Pima County list of species. This species is included in the special status species of this Draft RMP/EIS based on this status, and its management is included within the plan.

Section 4.3.6 discusses the impacts as they relate collectively to all special status species and their associated habitats for each action alternative rather than analyzing the impacts on each individual species. BLM believes this summary format is appropriate because the decisions in the RMP that contribute to habitat preservation or impacts to habitat generally are applicable to the health of all wildlife species and the conditions that support their presence within the monument. Section 3.6 does not present any inconsistencies regarding prey or impacts on habitat for the different alternatives that would be unique to the Tucson shovel-nosed snake that would require a specific focus on the snake itself in the analysis.

Table 2-6 lists the goals and objectives for special status species preservation on the IFNM, which includes the Tucson shovel-nosed snake. One goal of the IFNM is to conserve special status species and, where necessary, enhance or restore their habitats. Objective 1 is to manage land uses to achieve desired conditions within the monument to provide adequate habitat for special status species. Objective 2 is to prevent the avoidable loss of habitat for special status species. Furthermore, Appendix D describes administrative actions that would apply to conservation of all special status species, including the Tucson shovel-nosed snake.

9(SR363)

Summary Comment: In the Draft RMP/EIS, BLM must consider the needs of species on the brink of extinction and recognize its obligation to act towards the recovery of populations, pursuant to the Endangered Species Act, not simply maintain the precarious balance of imperilment.

Summary Response: Protection and recovery measures and procedures are specifically addressed throughout the RMP. The main measure to achieve population recovery is to preserve the habitat of threatened or endangered species and limit unnatural disturbances to that habitat. The habitat of the Nichol's Turk's head cactus is proposed to be set aside in a VHA designation, which would put that species at the forefront of management decisions in that area. The entire IFNM would be designated by the BLM as habitat for the lesser long-nosed bat, which places the needs of preserving habitat for this species as a priority throughout the IFNM (refer to Appendix E for specific conservation measures). Furthermore, Appendix D lists specific administrative actions that would be implemented to protect, preserve, and work toward recovery of local populations of species listed as threatened or endangered.

9(SR364)

Summary Comment: The Draft RMP/EIS does not analyze or admit that Alternative B provides better protection for the valuable habitat in the Sawtooth Mountains for the sensitive desert tortoise than BLM's preferred alternative. It is widely accepted that habitat values are greater in large, unroaded areas or areas with low route densities, yet the BLM did not consider this in its analysis.

Summary Response: Although the Draft RMP/EIS does not address impacts on the Sawtooth Mountains specifically, BLM has revised tables in the Proposed RMP/Final EIS to clarify the difference between

alternatives regarding the miles of motorized routes designated in desert tortoise Category 1, 2, and 3 habitat. Refer also to summary comment and response 9(360) for additional information regarding desert tortoise habitat.

9(SR365)
Summary Comment: The EPA recommends that BLM establish a monitoring and adaptive management plan for threatened and endangered species. Baseline conditions should be determined initially, and a monitoring and adaptive management plan should be established to evaluate and respond to the impacts on resources in the IFNM. A description of the monitoring and adaptive management plan, and funding necessary to implement this plan, should be included in the Final EIS.
Summary Response: Specifics of the implementation would be part of ongoing planning and daily operation procedures based on adaptive management. A description of this is included in Section 2.3.5 of the Proposed RMP/EIS. The Draft RMP/EIS does include monitoring in Appendix D (Administrative Actions by Resource) in the special status species section. Appendix E provides conservation measures for some specific special status species. Refer also to summary comment and response 9(584) for additional information regarding habitat assessments.

9(SR366)
Summary Comment: The current condition or state of habitats must be assessed by scientific research by qualified specialists who have verified the presence and condition of such habitats in the IFNM. These qualified specialists could then determine if and how such areas should be enhanced or restored. Qualified specialists, including grazing permittees, NRCS, and Pima NRCD should be involved in meeting Special Status Species Objective 1.
Summary Response: Qualified specialists from the Arizona Sonora Desert Museum conducted baseline biological surveys for the IFNM in support of this RMP.
Threatened and endangered species recovery efforts, including habitat restoration, require the use of biologists and restoration ecologists who are permitted by the USFWS to perform these tasks. BLM will work with Pima County NRCD, NRCS, and others to enhance or restore habitats to meet this objective.

9(SR367)
Summary Comment: The Draft RMP/EIS includes the management action "Avoid projects or activities that could disturb priority species or habitats. Require mitigation when avoidance is not possible." While addition of new livestock waters, for example, may potentially and temporarily disturb a priority species habitat, it may also enhance the same habitat in the long run through improved distribution and timing of grazing effects, improvement of plant community structure or greater accessibility of priority species to water and other specific necessities. The BLM should take care not to regulate its conservation partners off the land. As we face issues ranging from drought and urbanization to funding cuts, we should keep as many people at the table as possible to preserve the land against future problems.
Summary Response: Although the regulation of Federal endangered and threatened species is determined by the USFWS, BLM intends to establish priority species and habitats through the RMP. BLM analyzes both long and short term impacts of all proposed actions in a site specific NEPA document and decisions regarding where, how and if the project will go forward are based on all the merits of the action. The NEPA process also includes requirements and opportunities for public participation and coordination with all partners concerned with the action. BLM policy emphasizes coordination and cooperation with partners to leverage limited funds, include the perspective of various users, and generate public support, among other reasons.

9(SR368)
Summary Comment: In the Draft RMP/EIS, the last sentence in Table 3-4 is misleading regarding habitat of the crested caracara.

Summary Response: In the Proposed RMP/Final EIS, the last sentence in Table 3-4 regarding the crested caracara has been removed.

9(SR369)
Summary Comment: The last statement in Section 3.1.6.1 regarding the impact of grazing by cattle and wildlife on agave misleads the reader into believing the IFNM is full of agaves, misleads the reader into believing cattle grazing within the IFNM (or anywhere else) is causing the lesser long-nosed bat to go extinct, misleads the reader into believing the lesser long-nose bat is not abundant by the hundreds of thousands within the United States, and fails to inform the reader that the original scientific justification underlying the listing of the species was disputed by more recent studies by Petryzyn.
Summary Response: The biological surveys of IFNM that support the Draft RMP/EIS determined that the density of agave in the IFNM is extremely low, and there was no observed impact from livestock on the limited number of agave (Dimmit and Van Devender 2003). Also, botanical surveys did not find adverse effects on the recruitment of young saguaro into the population in areas where cattle graze (Dimmit and Van Devender 2003). Though cattle grazing remains a potential threat to the welfare of habitat for the lesser long-nosed bat throughout its range where excessive browsing on the flower stalks occurs (by wildlife or livestock), this was not a documented threat in the IFNM.
Cockrum and Petryzyn's 1991 paper is the exception to the overall scientific research findings on the rarity of the species (USFWS 1994). Most recently, the Lesser Long-Nosed Bat 5-Year Review: Summary and Evaluation (USFWS 2007) found the bat population is increasing and recommended the species for downlisting from endangered to threatened.

9(SR370)
Summary Comment: The only confirmed threat to Sonoran desert tortoises at Ragged Top is an upper respiratory disease apparently unrelated to cattle grazing. A University of Arizona study of the disease included the following statement in its abstract: "More recently, a preliminary disease study was conducted during 2001-2002 at desert tortoise study sites in Arizona. While no M. agassizii antibodies were detected in tortoises at three remote sites (Sugarloaf, Florence, and Silver Bell Mountains), 23 out of 43 tortoises in two sites adjacent to Tucson (Saguaro National Park East (SNPE) and Ragged Top Mountain) tested positive for M. agassizii antibodies (Riedle and Averill-Murray 2003)."
Summary Response: The study referenced in the comment looked at the presence and absence of the disease antibodies; there is no assumption from the study that mentions cattle grazing. However, cattle grazing and upper respiratory disease are two of the threats that have jeopardized the existence of this species, as described in the management plan for the Mojave subpopulation of the desert tortoise (Murray and Dickinson 1996). Therefore, the threats should be left in the text as they are mentioned.
In the Proposed RMP/EIS Section 3.1.6.2.1 has been amended to include upper respiratory disease as a threat to the species. Desert tortoises have been exposed to the disease on Ragged Top Mountain as evidenced by the presence of antibodies toward M. agassizii in some of the individuals (Riedle and Averill-Murray 2003).

9(SR371)
Summary Comment: Livestock grazing has profound negative impacts: the intrusion of roads into native habitat, the spread of non-native species, and subsequent effects on the habitat of the desert tortoise. In the Draft RMP/EIS, the preferred alternative keeps many roads open for administrative use, including the maintenance of range developments and ranching activities. Therefore, the indirect effects of livestock grazing on roads and invasive species and on desert tortoise are cumulatively substantial and must be analyzed.
Summary Response: The impacts of the proposed alternative on the desert tortoise, including livestock grazing, designation of routes for motorized use, and the potential for spread of non-native species, are addressed generally under Section 4.3.6. The analysis of the proposed alternative considers the impacts from all decisions on the desert tortoise in aggregate. In contrast, the cumulative impacts section (Section

4.7.2) addresses the incremental affects of BLM management in addition to the other past, present, and reasonably foreseeable actions on the IFNM. Though not specifically mentioned, the impacts described under Section 4.7.2.5 would apply to the desert tortoise.

9(SR372)
Summary Comment: The appropriate partnerships need to be established to monitor habitat health and the effects of grazing, to include professional range managers. Such partnerships should include AGFD, USFWS (if applicable), grazing permittees, NRCS, and Pima NRCD. The long-term impacts of any significant management change--such as changes in livestock AUMs or installation or removal of ranch infrastructure (water and fencing)--should be monitored in a professional manner to determine impacts on vegetation, soils, and wildlife.
Summary Response: The BLM states in the Draft RMP/EIS that partnerships would be pursued for monitoring activities in the IFNM. Depending upon the specific monitoring project, AGFD, USFWS, NRCS, Pima NRCD, and grazing permittees would all be valuable partners in monitoring efforts, and BLM intends to use their expertise for this purpose. See Section 2.3.5 for additional information on the development of a monitoring plan in the IFNM.

9(SR373)
Summary Comment: The Draft RMP/EIS states: "Management of livestock grazing to protect desert tortoise habitat also would provide incidental protection of soil and water resources by providing adequate native forage and cover throughout the year for desert tortoise in grazing allotments that include desert tortoise; this could increase vegetation species diversity, structure, and cover." No study has been performed that indicates desert tortoise forage is currently adequate or inadequate. No scientific evidence indicates the desert tortoise is threatened by lack of forage or any other factor related to livestock grazing. Protection of the desert tortoise habitat may only provide incidental protection of soil and water resources.
Summary Response: BLM has revised the statement referenced in section 4.3.3.2 in the Proposed RMP/ EIS to read, "Management of livestock grazing to protect desert tortoise habitat also would provide incidental protection of soil and water resources by allowing only new range improvements that would not conflict with tortoise populations."

9(SR377)
Summary Comment: The Draft RMP/EIS in Section 3.1.6.2 indicates that lesser long-nosed bats "occupy elevations between 3,500 and 5,500 feet," which serve as habitat for the bat, and that these elevations are not grazed by livestock. However, only one bat has been documented one time feeding on one saguaro blossom in IFNM.
Summary Response: Documented evidence supports that the local lesser long-nosed bat population actively uses the IFNM for foraging and for temporary night roosts, although the documented use of the IFNM by the lesser long-nosed bat needs more scientific investigation. The mandates of the Endangered Species Act stipulate that the population and the associated habitat has to be protected and managed to ensure perpetuation of the local population of the species. A population and its associated habitat are not managed based on the results of a single survey. Rather, a comprehensive analysis of habitat, data from current surveys, current and historic records, and other methods are used in determining the suitability of an area to support a protected species listed in the Endangered Species Act. The entire IFNM provides adequate to excellent habitat for the species, and the entire IFNM is managed with the needs of the lesser long-nosed bat in all alternatives.

9(SR378)
Summary Comment: The protection efforts for special status species outlined in Implementation Decision 6 are too stringent because they apply to any of the 61 species, which could hinder management of the IFNM.

Summary Response: BLM identified three priority species habitats in Chapter 2 Table 2-6 Resource Management Alternatives for Special Status Species Habitat Decision 1 in the Draft RMP/EIS. This should not be confused with the 61 species listed in Chapter 3. The alternatives, as written, provide BLM with discretion in evaluating projects and requiring avoidance of special status species and/or special status species habitat. The language of the decision does not prohibit projects nor require that BLM authorize projects; the decision is to guide future on-the-ground decisions in a way to minimize potential impacts on special status species.
The BLM is required under the mandates of the Endangered Species Act to protect and ensure perpetuation of local populations and associated habitats of species that are federally listed as threatened or endangered. These presently include the lesser long-nosed bat and Nichol's Turk's head cactus. BLM is required to consider how activities could affect all special status species and uses the best available information to determine the potential effects. Scientific inquiries on the presence/absence, distribution, and abundance of these species within the IFNM were conducted by experienced biologists from the Arizona Sonora Desert Museum in a supporting biological survey of the monument.

Category 10: Fire Ecology and Management

10(203)
Comment: 2-28 Fire Ecology and Mgmt
Fuels treatment actions should prioritize resource protection per the proclamation and the Antiquities Act. Should fuels become an issue, it means that BLM has failed to control invasive species such as buffel grass.
Response: Under all alternatives, hazardous fuels treatments would meet resource objectives. The first priority of all fire and fuels management related activities is safety.

10(206)
Comment: 4.3.7 Impacts on Fire Ecology and Management 4.3.7.1 Impacts Common to All Alternatives
The following impact should be added to this section: Acquisition of non-Federal mineral estate underlying Federal surface holdings throughout the IFNM for entry under the mining laws could contribute to potential fire impacts by minimizing the acreage that would be cleared of all fuels that could contribute to fire danger.
Response: The acquisition of non-Federal mineral estate in areas underlying Federal surface holdings would be possible only in one localized area within the IFNM (refer to Map 3-7 of the Draft RMP/EIS). Therefore, no measurable change in fire danger would be expected as a result of the changing mineral ownership and subsequent reduced potential for vegetation clearing (because minerals would be withdrawn from entry upon acquisition).

10(209)
Comment: BLM's analysis of Alternative B's impact of Fire Ecology and Management is utterly irrelevant and self-referential, and we assume, a typographical error. Draft RMP/EIS at 4-53.
Response: There are typographical errors in paragraph six of page 4-53. The comparisons should be with Alternative A, not B. These were revised in the Proposed RMP/EIS.

10(211)
Comment: (7) Fire Management. Fire management will be consistent with BLM policy. It may be appropriate to allow natural fires to burn in conformity with a fire management plan, and Wildland Fire Use is to be encouraged in areas where a fire-adapted system exists. Prescribed fires are allowed in conformity with a fire management plan so long as it is consistent with improving or maintaining the area's wilderness character. Considering that little if any of the Ironwood Forest National Monument is adapted to fire, the focus should be on limiting the impacts of unnatural fires that are fueled by non-native species. Minimum impact suppression techniques will be applied.

Response: Neither prescribed fire nor wildland fire use would apply anywhere in the IFNM under any alternative in the Draft RMP/EIS. All fires will be suppressed in the shortest practical time using minimum impact suppression techniques. This is common to all alternatives.

10(212)
Comment: 4.3.7 Impacts on Fire Ecology and Management 4.3.7.3 Alternative B
The following impact should be added to this section: Managing the IFNM as an exclusion are with no utility corridors identified which limits the potential for new rights-of-way to be authorized would contribute to potential fire impacts by not providing fire breaks that could help prevent the spread of wildland fires and limiting accessibility of fire fighting equipment and vehicles.
Response: The impact statement cannot be added since none of the alternatives limit BLM's ability to create fire breaks (fuel treatments) should they become necessary.

10(213)
Comment: What are fire management activities and what is their impact? Are there ways to reduce the impact without requiring roads?
Response: The fire management activities for each alternative are presented in Table 2-8. The impacts of fire management activities are described in Chapter 4. Refer to the subsection of interest in that chapter to find impacts from fire management. If no impact statement regarding fire management activities is found, then no impacts would be anticipated. Minimum impact suppression techniques (included in the wildland fire suppression section of Appendix E of the Draft RMP/EIS) would be employed to suppress fire under all alternatives. Road construction is not necessary or practical in nearly every case of fire suppression for fuel types of the IFNM.

10(214)
Comment: Comment on Page 2-92 Summary comparison of impacts, Fire Ecology, last sentence:
"In addition, managing 11 allotments as perennial livestock grazing could decrease the amount of fine fuels available for ignition."
The plan proposes to decrease the grazing allowed from perennial ephemeral to straight perennial grazing. This would directly allow fine fire fuels to build up unchecked during wet ephemeral seasons. Therefore we disagree with the BLM's statement as quoted above and suspect it is actually a typographical error.
Response: The text has been revised in this section to state: "In comparison with Alternative B, managing nine allotments as perennial livestock grazing could decrease the amount of fine fuels available for ignition." In addition, BLM can authorize temporary nonrenewable livestock grazing permits to utilize ephemeral forage increases.

10(SR468)
Summary Comment: The increased risk of wildfire as a result of the buildup of fine fuels in the absence of grazing could impact air quality.
Summary Response: In the Draft RMP/EIS Chapter 2 Alternatives, see Table 2-7 Resource Management Alternatives for Fire Ecology and Management, decision 4 regarding management in areas where fuel loading is high, use biological, mechanical or chemical treatments to maintain levels of fuels. The risk of wildfire is the same for all alternatives.

Category 11: Cultural Resources

11(196)
Comment: 2-3 Cultural Resources
Objective 1 allocating the Monument's cultural resources to 'use categories' is not appropriate and violates the Antiquities Act. 'Using' cultural resources is not part of Federal cultural resource protection law.

Response: The Archaeological Resources Protection Act (ARPA) of 1979 is another law (besides the Antiquities Act) that allows for scientific research to be conducted on Federal lands that requires the researcher/excavator to obtain a permit for conducting research. BLM's Land Use Planning Handbook allows cultural properties in the planning area to be allocated to one of six uses listed. BLM Manual Section 8110 describes the use categories in greater detail. The BLM policy of allocating cultural resources to use categories does not violate the Antiquities Act, and it facilitates compliance with the National Historic Preservation Act. Uses of sites, including excavation, examination, and even gathering of objects are authorized under the Antiquities Act as long as they meet requirements in the Act.

11(460)
Comment: 2-34 Sites are not "allocated" to tribal use. Traditional tribal uses should be respected, and management of those areas should be consulted on and coordinated with tribes on a government to government level, respecting tribal sovereignty.
Response: BLM will continue to consult with American Indian tribes with respect to cultural sites and traditional uses, as described in the alternatives. Allocation of cultural resource sites to various uses is addressed in Chapter 2 Table 2-8 Resource Management Alternatives for Cultural Resources in Decision 1. Refer also to summary comment and response 11(656) for additional information cultural resource site allocation.

11(653)
Comment: In reviewing the posters I do not see any posters that display the objects of the IFNM, or where they are concentrated within the IFNM. The location of these objects if most important in your consideration of a management plan.
Response: According to Presidential Proclamation 7320, the monument contains "objects of scientific interest throughout its desert environment." Where practical, BLM has mapped these objects, and many of these maps were published with the Draft RMP/EIS (such as desert bighorn sheep habitat, desert tortoise habitat, sensitive and unique vegetation communities, etc.). The locations of some objects, such as archeological resources are not shared with the public due to the sensitivity of these resources. To avoid vandalism, information about the location of archaeological resources is restricted pursuant to Section 304 of the National Historic Preservation Act, Section 9(a) of the Archaeological Resources Protection Act, and Section 39-125 of the Arizona Revised Statutes.

11(654)
Comment: There should be a separate Cultural Resources Management Plan fully funded and developed for Ironwood Forest NM. There should be several staff archaeologists solely devoted to managing the cultural resources of IFNM.
Response: After the RMP is approved, and as funding becomes available, BLM will prepare a cultural resource management plan for IFNM. This administrative action would provide guidance on standard procedures, such as how cultural resource inventories are conducted and how sites are nominated to the National Register of Historic Places, as well as site-specific guidance and strategies for managing cultural resources within the IFNM, in conformance with the decisions made in the approved RMP. The number of archeological staff devoted to the IFNM also depends on available funding. The BLM Tucson Field Office, which oversees management of the IFNM, currently retains two archaeologist positions.

11(655)
Comment: 2-3 to 2-5 Land/Rangeland Health Standards do not address impacts to cultural resources.
Response: The Arizona Standards for Rangeland Health are measurable goals that dictate the desired condition of the biological and physical components and characteristics of rangelands and do not directly address impacts on any resources or resource uses. Where specific objectives must be developed as directed by the Arizona Standards for Rangeland Health, full consideration is given to potential impacts on all resources, including cultural resources, in the development of those objectives. The Arizona

Guidelines for Grazing Administration, which are management practices used to ensure that grazing activities meet standards for rangeland health, ensure that all management actions "consider protection and conservation of known cultural resources, including historical sites, and prehistoric sites and plants of significance to Native American peoples" (Appendix C). As discussed in Section 4.3.8.1, impacts would also be identified and mitigated through the grazing lease process.

11(656)
Comment: 2-32 Allocation of sites, determining that certain sites are most important, violates the proclamation. Who decides what is important BLM Archaeologists The tribes Some Phoenix or D.C. bureaucrat?
Response: Use allocations do not make any determination of relative importance of cultural sites; rather, they are allocated based on their nature and relative preservation value. Also refer to comment and response 11(196).

11(657)
Comment: The document mentions two National Register sites that have been severely damaged since the Monument was established. Where is the discussion of those current conditions and what is the plan for restoration and future protection of those sites?
Response: The comment refers to the Santa Ana de Cuiquiburitac Mission site and the Los Robles Archeological District. Additional information on the damage and condition of these sites has been included in Section 3.1.8.2.

11(659)
Comment: Are there prehistoric trails in the Monument? What is their integrity? If they exist, they could be heavily impacted or even destroyed by inappropriate management decisions. How will this be taken into account? Prehistoric trails are historic properties of great significance and are common across Arizona.
Response: To date, prehistoric trails have been found at four sites in the IFNM. BLM considers potential impacts on these trails as various uses of public land are proposed and authorized. These resources were also taken into account throughout the route designation process and in the development of other management actions and allowable uses proposed in the RMP, such as minimizing disturbance of cultural resources during implementation of land use authorizations.

11(678)
Comment: Wilderness designation will best protect cultural artifacts from our pre-history.
Response: Although there is no designated wilderness within the IFNM, and only Congress can designate wilderness, BLM is committed to protecting cultural resources in all areas regardless of special designations. BLM has no mechanism for recommending areas for wilderness designation to Congress at this time.

11(682)
Comment: The National Trust for Historic Preservation ("National Trust") appreciates the opportunity to comment on the Ironwood Forest National Monument Draft Resource Management Plan and Environmental Impact Statement ("Draft RMP"). ... we believe that the preferred alternative, which the Bureau of Land Management ("BLM") developed to strike a balance between the preservation and use of resources within the National Monument, does not fulfill BLM's obligation to identify and protect historic properties under the National Historic Preservation Act ("NHPA"), 16 U.S.C. §§ 470-470w-6, and the Federal Land Policy and Management Act ("FLPMA"), 43 U.S.C. §§ 1701-1784.
Response: BLM has taken into account the effects of the RMP on cultural resources in compliance with the National Historic Preservation Act and considered ways to protect the quality of historical and

archaeological values pursuant to the mandate to manage the public land for sustainable multiple uses defined by FLPMA. Your opinion about the preferred alternative has been noted.
BLM recently sponsored an intensive survey to inventory cultural resources along approximately 80 linear miles of routes where traffic could increase as a result of closing other routes. The survey results were considered in designating routes in IFNM. As part of RMP implementation, and as funding becomes available, BLM will prepare a cultural resource management plan for IFNM, which will define a strategy for additional cultural resource survey, including survey of remaining motorized routes. BLM is consulting with the SHPO and other interested parties about road designations.
An administrative action has been added to Appendix D, cultural resources, indicating that BLM will prepare a cultural resources management plan for the IFNM.

11(684)
Comment: Draft Goals, Objectives, and Alternatives - Cultural Resources
Decisions for Management Actions, Allowable Uses, and Use Allocations Public Use
Number 4 Alternative C includes Historic Sites associated with Silver Bell Mine. Because no maps were included on cultural sites, SBM requests that BLM ensure that the sites involved are all on public lands. A provision should be made to ensure that this does not include the townsite within the mining property.
Response: BLM management of cultural sites associated with Silver Bell Mine would be limited to those sites under the purview of BLM authority and responsibility. The Silver Bell townsite is not located on public land and therefore is not under the purview of BLM.

11(685)
Comment: 3.1.8.2 Extent of and Responses to Threats
"The only approved project that has resulted in an adverse effect on cultural resources in the vicinity of IFNM was a land exchange with ASARCO for expansion of the Silver Bell Mine."
SBM takes strong exception to this statement since land was exchanged for other lands that were deemed of greater significance and value for BLM. The referenced land exchange had an overall net beneficial impact to public lands.
Response: The transfer of cultural resources eligible for the National Register of Historic Places is, by regulatory definition, an "adverse effect." BLM approval of the land exchange implies that overall it resulted in public benefits.

11(691)
Comment: It is generally accepted that in water-stressed environments livestock will congregate in those areas with predictable and consistent source of water. Archaeological research throughout the arid West has repeatedly demonstrated that prehistoric humans were also tethered to predictable water sources. It can therefore be postulated that those water sources conducive to livestock needs are the same water sources utilized by prehistoric populations, and that copious evidence of human activities through all periods of time will be located in direct proximity to areas disturbed by modern livestock activities. Consequently, livestock activities have a much greater potential to adversely affect historic properties than most other ground-disturbing activities.
Response: Concentration of livestock, such as around water sources or feeding stations, does have the potential to damage cultural resources. However, the only predictable water resources within the IFNM were built in modern times by ranchers or government agencies, and they were not present in prehistoric times. Therefore, within the IFNM there is little if any correlation between livestock gathering areas and the presence of high concentrations of cultural resources.

11(692)
Comment: 5 The Draft RMP does state that "[t]here are only meager data regarding the extent to which erosion is threatening the historic integrity of cultural resources within the IFNM" (Draft RMP 3-33). The effect of erosion on cultural resources from grazing is not discussed or considered.

Response: As stated in the Draft RMP/EIS, erosion does threaten cultural resources on the IFNM, but little site-specific data have been gathered to evaluate erosion related impacts. When erosion of cultural resources from livestock grazing (or any other activity) occurs, actions are taken to stop the impacts. Impacts on cultural resources are considered during the standards and guidelines process of evaluating each livestock grazing allotment, and areas where cattle congregate and thus cause increased erosion are specifically evaluated for cultural resources.

11(693)
Comment: In addition to impacts on monument cultural resources in general, there are also grazing impacts that have not been properly addressed under Section 106 of the National Historic Preservation Act (NHPA).6 Section 106 applies to each federal undertaking which may cause effects on properties eligible for or listed in the National Register of Historic Places (National Register).7 The Los Robles Archaeological District, Cocoraque Butte Archaeological District, and Santa Ana Mission Site are all listed on the National Register (Draft RMP 3-32). There are an additional 175 sites that have been recommended as eligible for the National Register (Draft RMP 3-33). Due to the impacts of grazing on cultural resources, Section 106 mandates that the BLM adequately evaluate the effect of livestock grazing within the monument sites that are eligible for or listed in the National Register.
Response: The National Historic Preservation Act is a procedural law requiring Federal agencies to examine their actions. This RMP uses the best available information in assessing impacts on cultural resources, including sites listed or eligible for listing in the National Register of Historic Places. Effects to cultural resource sites brought on by grazing livestock are addressed through the Standards and Guides process. Within each grazing allotment that comes up for renewal (every 10 years) effects to cultural resources are addressed and sometimes depending on the situation mitigative recommendations are added into the allotment evaluation to protect cultural resources from degradation. Impacts from grazing on cultural resources are addressed in Section 4.3.8.

11(728)
Comment: 2-3 Cultural Resources
Per Section 110 of the Nat'l Hist. Preservation Act, BLM must inventory the Monument for historic properties. How does BLM propose to 'manage' the resource if it doesn't even know what's out there? (This last comment pretty much applies to all resources within the Monument.) How can they measure change without a baseline? How do you know if anything has been lost without an inventory?
Response: This RMP complies with the National Historic Preservation Act by using the best available information in assessing impacts on cultural resources. Complete inventories of cultural resources and other resources are not required in order to establish management direction. This plan establishes management actions and strategies for the known cultural resources, and BLM will monitor these resources to measure change and determine whether management should be adapted to provide better protection.

11(729)
Comment: What is 'acceptable change' for a historic property? That there is no adverse effect? Objective 4 suggests that there may well be 'unacceptable changes' to cultural resources, and also that areas accessible by roads and trails are especially at risk. This would seem to violate the Antiquities Act. If the BLM knows this is going to happen now, then it must prevent these problems now. If designating and opening roads and trails will lead to adverse effects to cultural resources as BLM suggests here, then BLM may not designate or open those trails or routes. BLM must clearly demonstrate that any road or trail designated for use will protect or enhance protection for cultural resources, or BLM may not designate or open those roads or trails. BLM will be at serious risk for legal action if it takes any action, such as designating and opening a road or trail that brings harm to any cultural resources or historic properties. By the language in Objective C4 of this document, BLM acknowledges it is aware and cognizant of this problem.

Response: "Limits of acceptable change" represent a planning and management framework used to identify management actions that would prevent unacceptable resource impacts from occurring. An acceptable change for a historic property would either be "no effect," or "no adverse effect." Changes that affect the historical qualities that make cultural resources eligible for the National Register of Historic Places would be unacceptable. Route designation is not a RMP decision, but an implementation-level decision, so BLM can change designations if and when new information becomes available, without needing to complete a plan amendment.
BLM recently conducted an intensive survey to inventory cultural resources along approximately 80 linear miles of routes where traffic could increase as a result of closing other routes. The survey results were considered in designating routes in IFNM. BLM is planning to conduct intensive surveys for cultural resources along the remaining routes designated for motorized use.

11(730)
Comment: This current document is short on specific details and does little to nothing to protect the cultural resources of IFNM. And if you don't protect them, there's nothing left to use or interpret. So identification and protection are the first order of business. Oh, and is the BLM going to fulfill their Section 110 responsibilities and nominate properties to the National Register? This document doesn't even discuss the legislative framework for managing cultural resources (the list in the Appendix doesn't count). What about discoveries? How will those be handled? What about a plan to work and partner with Native American tribes?
Response: The RMP prescribes several different management actions to protect the IFNM's fragile cultural resources, including placing restrictions on visitor access, educating visitors to cultural sites, and requiring Arizona Site Steward training for tour guides, among other prescriptions. Management actions related to other resources (wilderness characteristics, visual, travel management, etc.) also will provide protection to cultural resources. Please also refer to Appendix D, which lists administrative actions that BLM takes with regard to protection and use of cultural resources. In addition, the Proclamation itself provides significant protection to cultural resources. Some of the greatest threats to cultural resources on federally administered lands are land tenure changes and mining-related activities. Land tenure changes allow lands to become private. Federal lands transferred into private ownership lose the protection of Federal historic preservation laws. Mining-related activities can damage cultural resources by surface disturbance at mine locations and from road construction necessary for exploration and development. Neither land tenure changes (except through exchange that furthers the purposes of the IFNM) nor mining (except where claims are determined t be valid) will occur on the monument. Monument designation also provides more opportunities to develop partnerships with private, State, and Federal entities to inventory, conduct research, and protect cultural resources.
Sites eligible for listing in the National Register of Historic Places could be nominated, depending on future budget and staff constraints. Sites eligible for protection under National Historic Preservation Act do not need to be listed in the National Register to receive full protection under the law.
As funding becomes available, BLM will prepare a cultural resource management plan for IFNM, which would define a strategy for future inventory and protection of cultural resources, dealing with discoveries, and working with Indian communities. BLM is already working in partnership with NA Tribes and often and regularly solicits their input.

11(731)
Comment: 4-138 4.7.2.7 Cultural Resources (Cumulative Impacts)
The BLM notes here that disturbance and degradation of cultural resources would be expected to occur over time. If this is true, BLM will be in violation of the Antiquities Act, the National Historic Preservation Act, the presidential proclamation, and a whole host of other statutes, laws, regulations, etc. It means that if this analysis is correct and is based upon the management plan at hand, BLM already anticipates failure and is trying to cover its collective rear end for an anticipated negative outcome that involves adverse effects to historic properties that the BLM is responsible for protecting. This means the

current proposed management plan is inadequate according to BLM's own analysis. BLM must therefore immediately halt this process, go back to the drawing board, and come up with a new management plan that adequately protects the resources that the IFNM was established to protect. Cumulative impacts discussions objective is focused specifically on disclosing to the public (in this document) what some of the detrimental effects COULD be to cultural resources (not necessarily what will be) Also, C. I. takes into account lands that adjoin BLM such as private and state that the BLM has no legal control over nor does the BLM have any control as to what goes on these lands.
Response: The discussion of cumulative effects addresses cultural resources, not only on public land within the IFNM, but also on nonpublic lands inside and in the vicinity of the IFNM. The Proposed RMP/Final EIS disclosed potential impacts to resources that could occur and does protect resources consistent with the Proclamation.

11(735)
Comment: 4.3.8 Impacts on Cultural Resources
"Any actions proposed on public land administered by BLM land would include an evaluation of (1) the potential for the presence of important cultural resources, (2) potential impacts on resources due to the type of project action that may allow for surface disturbance or easier access to the resource, and (3) appropriate mitigating actions to protect those cultural resources, including project avoidance, redesign, and if necessary, data recovery." AND would be reviewed using Federal acts and laws already in place that govern the protection, identification and preservation of all archaeological sites found on Federal lands. Examples of these laws include NHPA particularly section 106, American Religious Freedom Act, etc.
This statement should be amended to add: "except in areas of valid existing rights."
Response: BLM only manages land and resources for which it has authority and responsibility in accordance with applicable laws and regulations. Any valid and existing rights would be recognized as proposed actions and would be reviewed using Federal acts and laws already in place that govern the protection, identification and preservation of all archaeological sites found on Federal lands. Examples of these laws include NHPA (particularly Section 106), American Religious Freedom Act, etc.

11(736)
Comment: 4.3.8 Impacts on Cultural Resources
4.3.8.3 Alternative B
"Acquisition of non-Federal mineral estate underlying Federal surface holding throughout the IFNM could coincidentally protect cultural resources by eliminating ground-disturbing activities associated with exploitation of minerals since Federal minerals in the IFNM are withdrawn from entry under the mining laws."
Ground disturbing activities will not be eliminated in areas of valid existing claims. This sentence should be amended to add: except in areas of valid existing claims.
Response: The discussion applies only to potential benefits of acquisition of rights to the non-Federal mineral estate and not to privately held mineral rights.

11(SR30)
Summary Comment: Sensitive habitat areas need to be posted as "no shooting areas" with regular patrols to enforce the restriction.
Summary Response: The Proposed RMP would prohibit recreational shooting throughout the IFNM, including the Waterman Mountains VHA and the Desert Bighorn Sheep WHA. Implementation-level actions such as posting signage and patrolling the monument would occur, as necessary, upon approval of the Final RMP.

11(SR727)
Summary Comment: Develop a plan for the management of historic properties as part of the RMP process for Ironwood Forest. This plan should establish how and when BLM will identify and evaluate the estimated thousands of unrecorded historic properties within the National Monument and should also establish standards and guidelines to ensure their long-term preservation in light of the expansive growth predicted for the area surrounding Ironwood Forest.
Summary Response: The extent of cultural resource survey within IFNM is comparable to that available for other public lands managed by BLM, and BLM routinely considers potential impacts on cultural resources as various uses of public land are proposed and authorized. As part of RMP implementation, and as funding becomes available, BLM will prepare a cultural resource management plan for IFNM, which will define a strategy for additional cultural resource survey. An administrative action has been added to Appendix D, cultural resources, indicating that BLM will prepare a cultural resources management plan for the IFNM. Refer also to summary comment and response 11(730) for additional information regarding proposed management of cultural resources within the IFNM.

11(SR734)
Summary Comment: The Draft RMPEIS lacks information about prehistoric and historic resources because only an estimated 12 percent of the area has been surveyed. This information may constrain BLM's ability to provide optimal resource preservation except under Alternative B. Perhaps it would be better to make any acreage decisions that could result in surface disturbance provisional until surveys and integrated assessments concerning wildlife protection, land fragmentation issues, and considerations regarding critical but intangible assets such as views and quality of visitor experiences are completed.
Summary Response: There is a limitless amount of information about the resources in the IFNM that could be gathered into the future; thus, BLM must prescribe management for the monument based on what we know now, and adjust that management if new information warrants adjustment. There are a number of ways that BLM can consider and use new information as it moves forward with management of the IFNM. First, the IFNM will be managed based on the principles of adaptive management, which allow BLM to adjust future management actions according to monitoring results, discoveries, or other types of new information that may become available. BLM can also amend the RMP if significant new information comes forward that would warrant a change in management as currently proposed. BLM also considers potential impacts on cultural resources as various uses of public land are proposed and authorized. Cultural inventories would be required for any proposed projects that have the potential to affect cultural resources, which would yield additional information. For example, BLM recently conducted additional surveys to inventory cultural resources along approximately 125 miles of routes in the IFNM. The survey results were considered in reexamining routes in IFNM, and some changes have been made to the route designations as a result. All routes designated for motorized use under the proposed alternative have been surveyed. Cultural resource protection was considered under each alternative where traffic could increase on motorized routes as a result of designating other routes for non-motorized use. After the RMP is approved, and as funding becomes available, BLM will also prepare a cultural resource management plan for IFNM, which will define a strategy for additional cultural resource surveys.

11(SR737)
Summary Comment: The BLM must complete the National Historic Preservation Act Section 106 process for proposed road designations prior to issuing a record of decision for the Ironwood Forest RMP. Designating roads in a land use plan is not the type of "broad, plan-level decision" for which BLM may defer the requirements of Section 106. To minimize the risk to historic properties associated with motorized use, BLM must recognize road designation as an undertaking that falls under the jurisdiction of the National Historic Preservation Act and comply with Section 106 prior to designation.
Summary Response: In compliance with IM 2007-030, BLM recently conducted additional surveys to inventory cultural resources along approximately 125 miles of routes that would be designated for

motorized use under the Proposed RMP. The surveys were considered in designating routes in IFNM, and several designations changed as a result of the information in the surveys. Special consideration was given to routes where it was determined that traffic may increase as a result of other route closures. Section 3.1.8.1 of the Draft RMP/EIS has been revised to include the results of these surveys. BLM is consulting with the SHPO and other interested parties about road designations.

11(SR738)
Summary Comment: Develop a plan for the management of historic properties as part of the RMP process for Ironwood Forest. This plan should establish how and when BLM will identify and evaluate the estimated thousands of unrecorded historic properties within the national monument and also should establish standards and guidelines to ensure their long-term preservation in light of the expansive growth predicted for the area surrounding the IFNM
Summary Response: As funding becomes available, BLM will prepare a cultural resource management plan for IFNM that will define a strategy for additional cultural resource survey. An administrative action has been added to Appendix D, cultural resources, indicating that BLM will prepare a cultural resources management plan for the IFNM.

11(SR739)
Summary Comment: Operating ranches are a cultural resource and keeping ranches operating in IFNM is the only way to truly preserve this vanishing cultural resource. The term cultural resource and what constitutes a cultural resource has a very specific definition. A person can look up the definition by going to the BLM Cultural Resources manual series 8100 for the State of Arizona.
Summary Response: The social values of ranching are acknowledged in Section 3.5.2.2.3. No traditional cultural resources related to ranchers and their unique subculture of American society have been inventoried, but future cultural resource inventory could investigate such resources and evaluate their eligibility for the National Register of Historic Places. The ranching subculture would be considered as part of the historical context of any resources related to ranching that may be evaluated in the future.

11(SR809)
Summary Comment: There is a sparse amount of data on the subject of grazing impacts on cultural resources in general; however, there have been documented impacts specifically within arid regions of the United States.
Summary Response: Many factors can influence the extent of grazing impacts on cultural resources, but in general, impacts from dispersed grazing are not well documented and seem to be relatively benign. Concentration of livestock, such as around water sources or feeding stations, has the most potential to damage cultural resources. As discussed in Section 4.3.8.1, impacts would be identified and mitigated through the grazing lease process on a case-by-case basis. When livestock grazing (or any other activity) is determined to impact cultural resources, actions are taken to stop the impacts. Impacts on cultural resources also are considered during the standards and guidelines process of evaluating each livestock grazing allotment.

Category 12: Paleontological Resources

12(133)
Comment: 4.3.9 Impacts on Paleontological Resources 4.3.9.3 Alternative B
In addition, managing 125,110 acres as VRM Class I and 60,000 acres for semi-primitive non-motorized recreation and 36,990 acres for wilderness characteristics would provide coincidental protection to paleontological resources by restricting surface-disturbing activities in those areas.
This statement should be amended to add: “excepting in areas of valid existing rights.”
Response: The text of Section 4.3.9.3 has been revised to mention valid existing rights.

Category 13: Visual Resources

13(198)
Comment: Draft Goals, Objectives, and Alternatives - Scenic and Visual Resources
"Objective 1: Maintain or enhance opportunities to view those landscapes of the monument that may be valued for scenic, cultural, biological, recreation, -or other reasons. Preserve the visual quality of those landscapes visible from important viewing areas, which may include:
• Specific scenic road corridors
• Recreational sites and areas (perhaps as characterized by Recreational Management Zones [RMZ's])
• Designated motorized and non-motorized trails
• Cultural and historic areas
• Residences in and near the monument
• Other sites/areas with identified place-based values
• Primitive areas/wilderness characteristic zones"
SBM requests the inclusion of the phrase "while preserving and protecting historic and ongoing cultural, biological or recreational uses and uses allowed under valid existing rights." The objective should expressly recognize that disturbances are, in many cases, a major component of the archeological and cultural resources protected by the monument and certain activities are ongoing (e.g., ranching, mining, certain tribal uses). These activities cannot be considered "inconsistent" with the purposes of the monument and hence cannot be considered to detract from the "visual quality" of the landscape, which must be read to include the archeological and cultural resources underlying the monument's designation.
Response: Though mining and ranching have occurred since the 1800s, these uses are not considered historic or cultural resources that warrant protective management within the IFNM. These uses are not inconsistent with the management of the IFNM, where valid existing rights occur for mining and where grazing is conducted consistent with Arizona Standards for Rangeland Health and Grazing Administration.

13(199)
Comment: I believe more acreage should be included in the VRM III and IV classes with the caveat that such designations could be upgraded based on proposed projects. Such designation would allow for a more detailed site review when a project is proposed thus offering a truer estimate of project impact on visuals.
Response: As described in BLM Handbook H-1601-1, BLM uses the land use planning process to designate VRM classes for public lands based on an inventory of the visual resources present (scenic quality, viewing distance, visual sensitivity, and related factors) A visual resource inventory was conducted for the IFNM in 2004 related to this RMP planning effort. VRM classes establish visual quality objectives for public lands, and future land use proposals are evaluated to make sure their visual impacts are within those objectives. The visual quality objectives establish thresholds for visual contrast that must be met by proposed management activities, as well as the threshold changes according to VRM class. If a proposed activity does not meet the visual quality objectives, then redesign or mitigation requirements are applied to bring the project within visual quality objectives; the VRM class is not changed. After the Record of Decision is signed for the RMP, VRM designations cannot be changed (upgraded or downgraded) as a result of a detailed site review for a proposed project, unless a RMP amendment process has been completed. Typically the VRM classes III and IV are applied to areas where the changes to the landscape are expected overtime.

13(200)
Comment: 2-38 Scenic and Visual Resources
What is an important viewing area or key observation point? Who decides?
Response: Important viewing areas, or key observation points, are selected from one or a series of points on a travel route or at a use area or a potential use area, where the view of a management activity would

be most revealing. It is BLM's responsibility to manage the scenic resources of the public lands as directed in FLPMA: "...public lands will be managed in a manner which will protect the quality of the scenic (visual) values of these lands."

13(204)
Comment: There is no discussion/analysis of night sky/light pollution issues.
Response: Dark sky values were identified during public information meetings following establishment of the monument. However, BLM has not provided an analysis of night sky or light pollution issues in the EIS because no developed facilities with lighting are proposed for the IFNM as part of the RMP, and based on management actions, no impacts on the night sky are anticipated. The darkness of night skies in the planning area is influenced by light emissions reflected or refracted by the atmosphere originating in population centers in the surrounding landscape, primarily Tucson.

13(205)
Comment: ARPA feels Visual Resource Management restrictions are onerous and subjective and clearly convey implications that mining activities will be severely limited both inside and outside the IFNM. If "viewshed," with its breadth of possible interpretation, is allowed to determine legitimate use inside the management area ARPA would stand squarely against that proposition. But, it is even more egregious to contemplate the visibility of projects on the outside or the management area as tolerable based on what the IFNM dictates. The Monument was not created to serve as the viewing platform for additional expanses of land. Likewise, these restrictions do not represent a realistic approach to managing resource development nor do they reflect current mining practices.
Response: As described in BLM Handbook H-1601-1, BLM uses the land use planning process to designate VRM classes for public lands based on an inventory of the visual resources present and management considerations for other uses. Those management considerations have been reflected in the alternatives in certain areas where BLM has proposed to designate VRM classes that could be more or less restrictive. The purpose of the VRM classes is to manage the visual quality of the public lands and to preserve their character by controlling the visual contrast of on those lands, including BLM management activities. The VRM class for lands with existing mining claims, if determined to be valid, will be modified to VRM Class IV under the monument's adaptive management strategy to allow alteration of the landscape in those areas. The VRM class for adjacent lands will remain unchanged. If claims are not found to be valid, no change in the boundaries would be made.
The landscape surrounding the monument is important to the views from the monument because it is part of the overall scenery. The visual impact of management activities on BLM lands will be a factor when future projects on BLM lands are proposed, and it may be reason for mitigation of impacts. This would not be the case relative to the visual impacts of projects on non-BLM lands, simply because VRM designations apply only to public land administered by the BLM and do not affect non-Federal lands within or near the monument boundary.

13(207)
Comment: SBM has several concerns with items listed in the administrative actions as many go well beyond a simple administrative action and seek to impose additional regulatory burden on permittees, landowners and users in and near the monument. Additionally, the proclamation specifically does not reserve water rights, however several of the administrative actions seek to do just that.
A listing of those actions of concern to SBM include:
Scenic and Visual Resources
• Coordinate with adjacent jurisdictions and planning authorities to manage visual resources consistently on lands adjacent to the monument lands.
Response: The administrative action to coordinate with adjacent planning authorities to manage visual resources consistently on lands adjacent to the IFNM does not impose additional regulatory requirements

on landowners and users near the monument. The intent of this action by BLM is to reduce conflicts among the various users of the IFNM and nearby lands.

13(208)
Comment: Draft Goals, Objectives, and Alternatives - Scenic and Visual Resources
"Goal 1: Preserve the monument's natural scenic and visual values, and where appropriate, rehabilitate disturbed areas that impact important views."
Views of the monument may be protected and preserved by other management goals in the RMP. Views from the monument onto private land are outside the jurisdiction of the monument. Rehabilitation of disturbed areas outside the monument but within a certain viewshed in the monument is beyond the reach of the proclamation.
Response: The goals and objectives in the RMP apply only to the management of public lands administered by the BLM within the IFNM boundary. The only instance with a monument nexus involving lands outside the monument are where management activities on BLM lands outside the monument may have an impact on views from the monument. Those potential visual impacts will be a factor considered in the NEPA review of those proposed activities and may result in appropriate mitigation requirements.

13(210)
Comment: Fence along designated routes, as necessary, to prevent damage to sensitive and unique vegetation and minimize the spread of invasive species and noxious weeds. Fencing creates a non-natural visual impairment.
Response: Though fencing may be noticeable in foreground views, BLM will install fencing compliant with BLM Handbook H-1741 (Fencing), and site-specific analyses will be completed for specific projects, as appropriate, to ensure visual impacts are consistent with VRM objectives.

13(SR35)
Summary Comment: Current mining operations and future operations on valid existing claims will have an effect on viewsheds from many areas of the IFNM. As mining continues to alter the landscape, a VRM Class I or II designation in these areas is inappropriate. Alternatives B, C, and D should be revised to include Class III or IV management areas where there are views of mines.
Summary Response: BLM's management of public lands, including those in the IFNM, is guided by FLPMA, which requires that "management be on the basis of multiple use and sustained yield." FLPMA also requires that "public lands be managed in a manner that will protect the quality of scientific, scenic, historical, ecological, environmental, air and atmospheric, water resource, and archeological values... and that will provide for outdoor recreation and human occupancy and use." BLM's management of the IFNM is also guided by Presidential Proclamation 7320, "pursuant to applicable legal authorities, to implement the purposes of this proclamation." The Proclamation refers to the monument's "quintessential view of the Sonoran Desert," alluding to vegetation, geological, topographical, and biological characteristics of the area. A "quintessential view" by definition means a perfect example of the object viewed, in this case the natural landscape of the IFNM. The language in the Proclamation specifically refers to the monument's landscape and characteristics, which by definition are visual resources. Under these authorities and in coordination with the public, BLM developed the objectives for management of visual resources.
The RMP does not authorize any ground-disturbing activities or actions; subsequent decisions that are consistent with the goals, objectives, and decisions in the RMP would typically require site-specific analyses on a case-by-case basis to determine their impacts on natural and/or cultural resources.

13(SR104)
Summary Comment: The RMP should clarify how VRM classes were determined and to which lands they apply. VRM classes appropriate for the existing impacts on scenic and visual resources should be used in

areas where visual resources are outside of BLM jurisdiction as is the case with private inholdings and lands outside the monument boundary.
Summary Response: BLM conducted a detailed inventory of the visual resources within the IFNM in 2004 in support of the RMP planning effort. Based on that inventory, much of the public land was identified as Inventory Class II or III, based on existing conditions (refer to Map 3-6). However, as described in BLM Handbook H-1601-1, BLM uses the land use planning process to designate VRM classes for public lands based on an inventory of the visual resources present and management considerations for other uses. Those management considerations have been reflected in the alternatives where in certain areas BLM has proposed to designate VRM classes that would be more or less restrictive based on what future activities would be allowable. VRM designations apply only to public land administered by the BLM (Draft RMP/EIS see Section 1.2, all Chapter 2 maps, including the VRM maps, and in the VRM acreages under each alternative) and would not affect non-Federal lands within or near the monument boundary.

13(SR216)
Summary Comment: What authority does BLM have to manage for scenic vistas and visual resources and to what extent will providing these opportunities affect other resource values?
Summary Response: BLM's management of public lands, including those in the IFNM, is guided by FLPMA, which requires that "management be on the basis of multiple use and sustained yield." FLPMA also requires that "public lands be managed in a manner that will protect the quality of scientific, scenic, historical, ecological, environmental, air and atmospheric, water resource, and archeological values... and that will provide for outdoor recreation and human occupancy and use." BLM's management of the IFNM is also guided by Presidential Proclamation 7320, "pursuant to applicable legal authorities, to implement the purposes of this proclamation." The Proclamation refers to the monument's "quintessential view of the Sonoran Desert," alluding to vegetation, geological, topographical and biological characteristics of the area. A "quintessential view" by definition means a perfect example of the object viewed, in this case the natural landscape of the IFNM. The language in the Proclamation specifically refers to the monument's landscape and characteristics, which by definition are visual resources. Under these authorities and in coordination with the public, BLM developed the objectives for management of visual resources.
The RMP does not authorize any ground-disturbing activities or actions; subsequent decisions that are consistent with the goals, objectives, and decisions in the RMP would typically require site-specific analyses on a case-by-case basis to determine their impacts on natural and/or cultural resources and if needed project design practices to ensure visual impacts are within VRM class objectives.

Category 14: Wilderness Characteristics

14(114)
Comment: 2.2.1 Wilderness
"BLM has the authority under FLPMA Section 201 to inventory public land resources and other values, including characteristics associated with the concept of wilderness identified as naturalness, solitude, and primitive, unconfined recreation. Wilderness characteristics may be considered in land use planning when the BLM determines that those characteristics are reasonably present, of sufficient value (condition, uniqueness, relevance, importance) and need (trend, risk), and are practical to manage (USDI, BLM 2003c)."
SBM does not contest the fact that BLM has authority to inventory public lands for wilderness characteristics, however managing the land for wilderness characteristics appears to overstep the authority BLM has been given. In addition, the subjective values of condition, uniqueness, relevance and importance can clearly be called into question given the areas that have been given the designation include valid mining claims and back right up to an active mining site. The practicality of management of the land for this designation is also questionable due to the proximity to Silver Bell mine.

Response: Section 302 of FLPMA states that BLM "shall manage the public lands under principles of multiple use." Section 201 of FLPMA directs the Secretary of the Interior to "maintain on a continuing basis an inventory of all public lands and their resource and other values." These passages clearly give BLM the authority to inventory and manage for wilderness characteristics. Handbook H-1601-1 (Land Use Planning Handbook) provides the guidance for the consideration of wilderness characteristics in the land use planning process, and specifically directs BLM to "identify decisions to protect or preserve wilderness characteristics." In the IFNM, BLM is proposing to manage 9,510 acres that exhibit the highest quality wilderness characteristics. It should be noted that wilderness areas can abut industrial, commercial, or residential areas.

14(115)

Comment: Resource Management Alternatives for Lands Managed to Maintain Wilderness Characteristics

In general SBM objects to the addition of Wilderness as a management element. This element is based on one presentation by the Wilderness Coalition. Nowhere in Federal regulations is there a provision to manage as wilderness, areas that do not meet the criteria for wilderness nor is there any reference in the proclamation. More debate is needed before a new management plan is proposed for certain areas.

Response: As discussed in section 3.1.11 of the PRMP, BLM conducted its own inventory of lands with wilderness characteristics in the IFNM, which confirmed wilderness characteristics in the areas identified by the Arizona Wilderness Coalition and identified additional areas that were not identified by the Coalition. BLM is proposing to manage 9,510 acres that exhibit the highest quality wilderness characteristics. Please see the response to comment 14(114) above for discussion regarding the authority of BLM to manage lands for wilderness characteristics.

14(617)

Comment: The BLM should actively pursue wilderness designation for those areas [listed] in Alternative B.

Response: Pursuing wilderness designation is beyond the scope of this RMP effort. Only Congress can designate wilderness areas under the Wilderness Act of 1964. At this time, BLM has no intent or legal mechanism for recommending to Congress areas where wilderness characteristics would be maintained for preservation as wilderness. BLM has submitted wilderness suitability recommendations to Congress pursuant to Section 603 of FLPMA by October 21, 1993. BLM provides information to Congress when designation is considered.

14(622)

Comment: Recommendation: The BLM should reassess its decisions to not protect all of the areas identified as possessing wilderness characteristics. Wilderness is a disappearing resource and the agencies should strive to preserve all that remains on public lands. A reassessment and protection of more lands with wilderness characteristics would also be consistent with current law and guidance, as discussed above.

Response: As noted in Section 3.1.11 of the Final EIS, BLM completed a wilderness characteristics assessment to determine if wilderness characteristics are present within the IFNM. The assessment utilized data gathered for the Draft RMP/EIS in the visual, recreation, vegetation, ecological site, and wildlife habitat resource inventories.

The wilderness characteristics assessment confirmed the presence of lands with wilderness characteristics on approximately 36,990 acres of BLM-administered land, including areas of the Sawtooth, West Silver Bell, Silver Bell, and Roskruge Mountains.

Section 4.3.11 of the Proposed RMP/EIS describes that BLM considers a full range of alternatives from managing no acres to all 36,900 acres of the land to protect wilderness characteristics. Alternative C falls between these acreages, with a plan to manage 9,510 acres to protect wilderness characteristics.

The comment that BLM should reassess its decision to not protect all 36,990 acres identified as possessing wilderness characteristics is noted. The decision must be weighed against the tradeoff with other uses and resource effects. As noted in Section 4.3.11.5, even for the lands not specifically managed for wilderness characteristics, the values of naturalness, opportunities for solitude, and opportunities for primitive and unconfined recreation would be present, and other management actions in the RMP would allow these values to be maintained.

14(646)

Comment: Specific Guidance on lands with wilderness characteristics:
(1) Land Disposals, Rights-of-Ways (ROWs), and Use Authorizations. Lands managed for wilderness characteristics will be retained in public ownership (also required as per the Monument Proclamation). They will not be disposed through any means, including public sales, exchanges, patents under the Recreation and Public Purposes Act, State selections or other actions (except where a vested right was established prior to October 21, 1976).
Prior existing rights, such as leases under the Recreation and Public Purposes Act, leases/permits under 43 CFR 2920, and rights-of-ways (ROWs) may continue. These also could be renewed if they are still being used for their authorized purpose. The BLM will acquire State and private inholdings when practicable. In unique situations and subject to public review, exchanges may be made involving Federal and non-Federal lands when such action would significantly benefit that area's wilderness characteristics. New authorizations, leases, permits, and ROWs will not be authorized.
(2) Locatable Minerals. Existing and new mining operations will be regulated using the 43 CFR 3809 regulations to prevent unnecessary and undue degradation of the lands. No new claims as per the Monument Proclamation.
(3) Leasable Minerals. Existing mineral leases represent a valid existing right. These rights are dependent upon the specific terms and conditions of each lease. Existing leases will be regulated to prevent unnecessary or undue degradation. No new leases will be issued as per the Monument Proclamation.
(4) Grazing. Adjustments in the numbers and kind of livestock permitted to graze would be made as a result of revisions in the land use plan. Consideration is given to range condition and the protection of the range resource from deterioration. The construction of new grazing facilities would be permitted if they are primarily for the purpose of protecting wilderness characteristics and more effective management of resources, rather than to accommodate increased numbers of livestock.
(5) Fire Management. Fire management will be consistent with BLM policy. It may be appropriate to allow natural fires to burn in conformity with a fire management plan, and Wildland Fire Use is to be encouraged in areas where a fire-adapted system exists. Prescribed fires are allowed in conformity with a fire management plan so long as it is consistent with improving or maintaining the area's wilderness character. Considering that little if any of the Ironwood Forest National Monument is adapted to fire, the focus should be on limiting the impacts of unnatural fires that are fueled by non-native species. Minimum impact suppression techniques will be applied.
(6) Forest/Vegetation Health. Insects, disease, and invasive species may be controlled if it is determined that it is necessary to meet the minimum requirements to administer and protect these lands. Insect and disease outbreaks must not be artificially controlled, except to protect timber or other valuable resources outside the land with wilderness characteristics, or in special instances when the loss to resources may cause adverse impacts to wilderness characteristics. Vegetative manipulation to control noxious, exotic, or invasive species is allowed when there is no effective alternative and when the control is necessary to maintain the natural ecological balances within the area. Control may include manual, chemical, and biological treatment provided it will not cause adverse impacts to the wilderness characteristics.
(7) Recreation. Primitive and unconfined recreational uses such as hiking, camping, rock climbing, caving, fishing, hunting, rafting, canoeing, and trapping are allowed on these lands. Recreational uses will not be allowed if they require:
o Motor vehicles or mechanical transport (e.g., mountain bikes) off roads designated as open or limited through the route designation process; and

o Permanent structures or installations (other than tents, tarpaulins, temporary corrals, and similar devices for overnight camping).
New commercial services will not be allowed unless they are necessary for realizing the primitive and unconfined recreational values. An example of an allowed commercial service would be an outfitting and guide service. Existing commercial recreational authorizations may be allowed to continue under its terms and conditions to their expiration date.
(8) Cultural and Paleontological Resources. Cultural and paleontological resources are recognized as unique and valuable. They are also important supplemental values to an area's wilderness characteristics. Resource inventories, studies, and research involving surface examination may be permitted if it benefits wilderness values. This same standard applies for the salvage of archeological and paleontological sites. Rehabilitation, stabilization, reconstruction, and restoration work on historic structures; excavations; and extensive surface collection may also be permitted if they maintain the area's wilderness character. Permanent physical protection, such as fences, will be limited to those measures needed to protect resources eligible for the National Register of Historic Places and will be constructed so as to minimize impacts on apparent naturalness.
(9) Wildlife Management. Fish and wildlife resources are a special feature that contributes to an area's wilderness character. Whenever possible, these resources should be managed to maintain that character. As per the Monument Proclamation, nothing will be construed as affecting the jurisdiction or responsibilities of the State agencies with respect to fish and wildlife management on these lands. Fishing, hunting and trapping are allowable activities on these lands. The State establishes regulations and enforcement for these uses. Stocking of wildlife and fish species native to the area may be permitted. Introduction of threatened, endangered, or other special-status species native to North America may be allowed. Management activities on these lands will emphasize the protection of natural processes. Management activities will be guided by the principle of doing the minimum necessary to manage the area to preserve its natural character.
Response: The Draft RMP/EIS identified direct as well as indirect but complementary management actions for lands managed to protect wilderness characteristics (see management decisions for Lands Managed to Maintain Wilderness Characteristics, Recreation, Travel Management, and Visual Resource Management) that would have a very similar, if not identical, effect on wilderness characteristics as the prescriptions recommended. For example, motorized vehicles are not permitted in these areas per management prescriptions found in the Travel Management section (Table 2-16), and no facilities would be allowed within areas managed to protect wilderness characteristics according to the management objectives for Primitive RMZs found in the Recreation section (Table 2-14). Other sections also contain management actions that complement the objective of protecting wilderness characteristics.

14(773)
Comment: Thus the Ironwood Forest National Monument RMP should acknowledge the wilderness characteristics of the areas included in this proposal and manage these areas to protect their wilderness characteristics.
Response: The goals and objectives, and related allocations in the RMP are consistent with the commenter's suggestions. The allocations in the RMP will effectively protect those values where they exist.

14(SR51)
Summary Comment: There is no explanation in the Draft RMP/EIS about why BLM would choose to manage only about 9,500 acres to maintain wilderness characteristics, when BLM confirmed wilderness characteristics are present on 36,990 acres. The entire 36,990 acres should be managed to maintain wilderness characteristics, which would help ensure protection of monument resources.
Summary Response: BLM identified 36,990 acres on IFNM as having one or more of the wilderness characteristics of naturalness, opportunities for solitude, and opportunities for primitive and unconfined recreation. IFNM is proposing to manage 9,510 acres that have characteristics of the highest quality.

Due to the size and configuration of the lands identified with wilderness characteristics, some of these values are found but are of marginal quality in certain areas. Section 3.1.11 in the Proposed RMP/EIS has been revised to provide further details on the results of BLM's assessment of lands with wilderness characteristics in the IFNM.
Management of lands to protect wilderness characteristics is part of the comprehensive management of all resource values in the IFNM, and is not the only strategy for protecting monument resources. Protection of resources in areas not identified for maintaining wilderness characteristics under the proposed alternative would be achieved through management of other specific resources (cultural resources, wildlife habitat, vegetation, recreation, visual, etc.). In the Proposed Plan, for example, 124,900 acres of the IFNM are managed in VRM Class II to protect their natural appearance and thus would have the effect of preserving the naturalness of these lands. This includes all lands that were identified as having the characteristic of naturalness in the BLM wilderness characteristics inventory.

14(SR116)
Summary Comment: It seems inconsistent to manage areas for wilderness characteristics in close proximity to routes designated for motorized travel, active mining operations, or other developed uses. How can someone experience opportunities for solitude where "the sights, sounds and evidence of human activities are rare or infrequent and where visitors can be isolated, alone, or secluded from others," in such close proximity to such noise-generating activities.
Summary Response: Although 36,990 acres have been identified as having some level of wilderness characteristics to meet wilderness management criteria, BLM is proposing to manage 9,510 acres that exhibit the highest quality wilderness characteristics. While managing for wilderness characteristics is different than managing for wilderness, it should be noted that wilderness designations can and do occur in direct proximity to commercial, industrial, and residential areas. Please see Section 3.1.11 of the PRMP for a full discussion of BLM's wilderness characteristics inventory and how specific areas were rated with regard to the wilderness characteristics they exhibit.

14(SR279)
Summary Comment: The RMP should not manage any lands for wilderness characteristics because the IFNM designation provides enough protection already, similar to BLM's rationale for not continuing the ACEC designation under the preferred alternative.
Summary Response: The rationale for ACEC designation is not necessarily the same as that for management of lands to protect wilderness characteristics. While ACEC designation may be redundant in the IFNM because the cultural and natural resources are protected by the designation, and therefore do not require "special management," the goals and objectives of managing areas to protect wilderness characteristics (i.e., naturalness, outstanding opportunities for solitude, primitive and unconfined recreation, etc.) are not explicitly addressed. Therefore, establishing some areas to be managed to protect wilderness characteristics attempts to address the public's desire for a diversity of recreational experiences in the IFNM. The allocation of an area to be managed for its wilderness characteristics does not redundantly or inherently "overlap" with other allocations; each allocation is based upon the presence of a distinct resource and is tied to management prescriptions aimed at managing that specific resource. This does not preclude some management actions from indirectly benefiting other resources; BLM does not consider indirect benefits to be redundant management.

14(SR286)
Summary Comment: BLM does not have the authority under the Proclamation, FLPMA, 1964 Wilderness Act or other regulations to manage lands for wilderness characteristics.
Summary Response: The allocations proposed or established in the RMP neither establish a wilderness area pursuant to the Wilderness Act of 1964 nor a wilderness study area. Please see the response to comment 14(114) above for discussion regarding the authority of BLM to manage lands for wilderness

characteristics. The proposed alternative would protect wilderness characteristics in those areas where wilderness characteristics are reasonably found and are of relatively high quality.

14(SR287)
Summary Comment: Motorized travel and recreation is regulated via the Presidential Proclamation, the travel management plan, and recreation management zones. Allocating an additional management layer is unnecessary and may interfere with AGFD's ability to fulfill wildlife management objectives. BLM should reconsider the decision to allow for public use along already established roadways.
Summary Response: By definition, areas that were considered for management of wilderness characteristics did not include existing routes; therefore, BLM's identification of wilderness characteristic areas would not change AGFD's ability to fulfill wildlife management objectives. The designation of specific routes for motorized or non-motorized travel considered the need for each route, as described in Appendix G of the Draft RMP/EIS. Many of the motorized routes bordering the areas identified with wilderness characteristics would remain open for motorized travel and available for use by the public. Any routes with travel restrictions within the areas managed to protect wilderness characteristics would remain available for public use by non-motorized means. Those routes also would be available for the AGFD and BLM to fulfill wildlife management objectives. BLM considered AGFD management objectives and responsibilities during the route designation process and in defining related allocations.

14(SR306)
Summary Comment: BLM should not have goals related to wilderness characteristics (naturalness and outstanding opportunities for solitude and primitive and unconfined recreation) because Alternative D would not include areas managed for wilderness characteristics.
Summary Response: Goal 1 in Table 2-11 has been revised to focus on opportunities for naturalness, solitude, and unconfined recreation; the language "within identified areas" has been removed because Alternative D does not include identified areas to manage specifically for the protection of wilderness characteristics. BLM would use other land use plan decisions to provide the opportunities identified within the goal (e.g., recreation management zones).

14(SR308)
Summary Comment: Objective 1 should be explicitly tied to public lands and recognize valid existing rights.
Summary Response: The objective applies only to public land and is subject to valid existing rights, as are all the goals, objectives, and management decisions considered by BLM. It is not necessary to restate this for every goal, objective, and decision within the document, because it qualifies as management common to all alternatives under the provisions of the Proclamation (see Section 2.3.1). However, the objective has been rephrased to clarify that it applies only to lands identified for management to protect wilderness characteristics.

14(SR309)
Summary Comment: Map 3-10 pertaining to ROS [Recreation Opportunity Spectrum] shows a portion of the monument identified for wilderness characteristics under Alternative B as an industrial area for recreation. These classifications are not compatible on the same piece of property.
Summary Response: Map 3-10 characterizes the ROS inventory classes. The areas shown with the "industrial" legend indicate that the setting is influenced by land use activities on or adjacent to those lands, including mining operations west of the Silver Bell Mountains. This characterization is not a management prescription. Some of the effects of the adjacent mine on the recreational setting on public land in the IFNM are largely buffered by the mountain ridge. The Recreation Opportunity Spectrum has been modified slightly to account for this influence.

14(SR310)
Summary Comment: The classification of lands to maintain wilderness characteristics is very misleading to the general public in that it gives the impression that the BLM has the lawful ability to designate wilderness areas.
Summary Response: In accordance with BLM's 2005 Land Use Planning Handbook, BLM is obligated to review areas that may contain wilderness characteristics. BLM does not designate wilderness or propose new wilderness study areas. Refer also to summary comment and response 14(636) for additional information regarding wilderness designations.

14(SR311)
Summary Comment: Only very basic direction exists (from [BLM's] Washington and the State Office) pertaining to the allocation of areas to be managed for their wilderness characteristics. Based on the lack of clear and specific direction on management of areas with wilderness characteristics, there will be a variety of interpretations of how these allocations should be applied, based on personnel and turnover in agency officials.
Summary Response: The approved RMP will establish the specific direction for managing resources and uses within the IFNM based on local conditions consistent with national policy and direction. The guidance established in the RMP will ensure that future managers respond to needs in the appropriate manner.

14(SR312)
Summary Comment: Routes should allow for public use along already established roadways.
Summary Response: With minimal exception, all travel routes identified in the route inventory would be available for public use, subject to travel restrictions. Public use of some routes would be allowed by motorized vehicle, while other routes would require non-motorized means of travel. The Proclamation directs that all off-road motorized and mechanized vehicle use be prohibited, except for emergency or authorized administrative purposes. Under Alternative C (the proposed alternative), areas managed to protect wilderness characteristics include 9,510 acres of public land administered by BLM in the West Silver Bell and Roskruge mountains. Though no new roads have been proposed to provide motorized access in the IFNM, and several roads within or near the areas managed to protect wilderness characteristics would be designated for non-motorized travel, motorized access would be provided to and around these areas as shown on Map 2-13. Within areas managed to protect wilderness characteristics, approximately 4 miles of routes would be designated as a non-motorized trail.

14(SR313)
Summary Comment: The information submitted regarding citizen-proposed wilderness constitutes significant new information that must be addressed in this RMP. NEPA requires an analysis of the potential environmental direct, indirect, and cumulative effects of oil and gas development on these areas and consideration of protection for them.
Summary Response: BLM considered the information submitted during scoping by the Arizona Wilderness Coalition and conducted a subsequent inventory and analysis of the IFNM for areas with wilderness characteristics. That information was used to develop alternatives for lands managed to protect wilderness characteristics. No oil and gas development is proposed within the IFNM, there are no existing oil and gas leases, and there is no potential for this resource to occur in the planning area; therefore, the issue was not addressed in the Draft RMP/EIS.

14(SR315)
Summary Comment: Include guidelines for anticipated uses and activities in areas possessing wilderness characteristics.
Summary Response: Anticipated uses and activities on lands managed to protect wilderness characteristics are identified in Table 2-14 under Primitive RMZ objectives. The Draft RMP/EIS also

identified direct as well as indirect but complementary management actions for lands managed to protect wilderness characteristics (see management decisions for Lands Managed to Maintain Wilderness Characteristics, Recreation, Travel Management, and Visual Resource Management). Other sections also contain management actions that complement the objective of protecting wilderness characteristics.

Category 15: Energy and Minerals

15(103)
Comment: The Silverbell Mine is a major threat with their mountains of tailings and I wonder what poisons they are seeping into the groundwater. They dominate the drive around the mountain and one can see dying vegetation near these tailings. Why don't they have to have an environmental impact study?
Response: Silver Bell Mine is required to comply with Federal, State, and local laws, regulations, and policies governing mining activities and environmental protection, including water quality. Only undertakings located on Federal lands (including Federal mineral estate) or funded by the Federal Government are required to conduct an EIS. A small tailings pile (approximately 9 acres) from the mine is located on BLM land, but this predated NEPA and is therefore exempt from analysis under NEPA so long as additional activities are not proposed for this site.

15(381)
Comment: The mining company Asarco should be required to restore fully the land it illegally disturbed within the monument [because] restoration of the land will help in protection of wildlife, vegetation, and reducing the impact on scenic and visual resources.
Response: Asarco has reclaimed the areas of trespass within the IFNM and vegetative monitoring in this area has indicated that sufficient recovery of the vegetation has occurred based on criteria outlined in the reclamation plan for the area.

15(382)
Comment: Monument should be managed to allow total access to all "salable minerals" on all non-BLM lands. ARPA is concerned with proper mineral and aggregate valuation of State land and private lands that could be ultimately affected by disallowing future exploration and access to vital materials.
Response: The Proclamation that established the IFNM withdrew all Federal lands and interests in lands (including minerals) "from all forms of entry, location, selection, sale, and leasing or other disposition under the public land laws, including but not limited to withdrawal from location, entry, and patent under the mining laws, and from disposition under all laws relating to mineral and geothermal leasing, other than by exchange that furthers the protective purposes of the monument." As shown on Map 3-7, a majority of the minerals within the IFNM are Federal minerals, and are withdrawn. Where minerals are State or privately owned, BLM would consider the development of new routes to provide access across BLM land to non-Federal lands or non-Federal resources (i.e., inholdings) if and when such legal public access is required (refer to Table 2-16). BLM would follow this approach under all alternatives.

15(383)
Comment: the Association requests that the BLM continue to consider multi-use, future needs and growth trends, required infrastructure, proper resource characterization to avoid sterilization and limited resources in proximity to the market to meet those demands. In so much as an ore body is an economic term driven by demand and the technological ability to extract materials. Further, the proximity of the materials to future markets should along with the demands of a vibrant population and economy require more accessible materials and time frames. ARPA requests that contingencies be in place to avoid limiting access to vital natural resources as such dynamics arise.
Response: It is outside BLM's authority to include contingencies in the RMP to allow for minerals or mineral materials to be extracted from the IFNM as future demand for such resources increases in proximity to the monument. The Proclamation establishing the IFNM states that "all Federal lands and

interests in lands within the boundaries of this monument are hereby appropriated and withdrawn from all forms of entry, location, selection, sale, or leasing or other disposition under the public land laws, including but not limited to withdrawal from location, entry, and patent under the mining laws, and from disposition under all laws relating to mineral and geothermal leasing, other than by exchange that furthers the protective purposes of the monument." BLM does not have the authority to reverse the requirements imposed by the Proclamation.

15(385)
Comment: Resource Management Alternatives for Energy and Mineral Resources
"Objective 1: Prevent unnecessary and undue degradation from mining activity on grandfathered mining claims that have established valid existing rights."
SBM supports the inclusion of valid existing rights in the objective however this objective is duplicative of existing environmental laws and regulations as they would be applied to new mining activity. Mining on the monument by its very nature will cause degradation of the undisturbed landscape. The objective of preventing unnecessary and undue degradation is already in place under existing law. The objective should be re-written so that it states, "Prevent unnecessary and undue degradation from mining activity outside of the mining operations on grandfathered claims that have valid existing rights."
Response: The objective applies specifically to the areas of grandfathered mining claims, as this is where disturbance would be anticipated, rather than in areas outside the mining claims. Despite the potential for existing laws and regulations to limit unnecessary degradation, the suggested text would imply that there would not be any limitations in areas of existing mining claims, which would not be the case. BLM would require a plan of operation to minimize potential adverse effects on other resources or uses as a result of mining activities. BLM would require compliance with 43 CFR 3809 regulations which require a plan of operations, compliance with NEPA, compliance with all applicable State and Federal laws.

15(386)
Comment: 3.2.1.2 Mineral Resources
Thus, no new mining claims or mineral development can occur on the Federal mineral estate within IFNM.
This statement should be corrected by adding:
...with the exception of areas with valid existing claims.
Response: The text has been modified to read: "Thus, no new mining claims can be located on the Federal mineral estate within the IFNM. Mineral development could occur only in areas of valid existing claims."

15(387)
Comment: Summary - Cumulative Impacts
"Cumulative impacts from surface disturbing activities could include habitat fragmentation, including some important movement corridors. State, county, and city comprehensive management plans would restrict surface disturbing activities, resulting in some mitigation of habitat degradation."
Restriction of surface disturbing activities should be limited to BLM initiated activities. Any surface disturbing activity on valid existing mining claims should be subject only to the regulations in 43 CFR Subpart 3809, and not to restrictions imposed by overlapping management plans.
Response: Surface-disturbing activity on valid existing claims would be subject to Federal, State, and local laws, regulations, and policies, not just the regulations in 43 CFR 3809. BLM does not have the authority to exempt mining activities from other regulatory requirements through the RMP.
It also should be noted that the cumulative impacts of surface disturbance described in the summary refer to surface disturbance from any activity from community development to recreational uses, not just mining activities. The cumulative analysis indicates that throughout the broader region, surface-disturbing activities are going to occur, but that State, county, and city management plans could influence the magnitude of disturbance. The Draft RMP/EIS does not imply that these local regulations or policies would necessarily restrict mining activities. To limit the restriction on surface-disturbing activities to

solely BLM-initiated activities would omit a large number of activities that occur on BLM lands from any type of restriction, resulting in the potential for surface disturbance throughout the IFNM.

15(389)
Comment: Resource Management Alternatives for Energy and Mineral Resources
Implementation-Level Decisions
Number 2 discusses the prioritization of reclaiming abandoned mines. Consideration should be given to the historical value of mines when making the decision to reclaim and what form of reclamation will take place.
Response: As mentioned on page 2-5 of the Draft RMP/EIS, all implementation-level decisions will be subject to the appropriate NEPA analysis prior to initiating any action on the ground. BLM would consider the historical value of a mine and what form of reclamation would take place as part of that analysis.

15(474)
Comment: 3.2.1.1 Renewable Energy Resources
"Solar energy resources in the planning area are considered adequate for generating electricity using photovoltaic cells."
SBM supports the development of solar energy resources within the IFNM and recommends inclusion of a management alternative for the development of solar energy production in specific areas of the IFNM.
Response: Solar energy production was not identified as a planning issue during scoping and is not addressed in the management alternatives. However, future authorization of development of solar resources within the IFNM is highly unlikely because solar developments have been identified as an intensive land use by BLM and BLM may consider them incompatible with the purposes of the IFNM. Moreover, the land use authorization required for development of solar energy would be a right-of-way, per 43 CFR 2800, and under the Proposed RMP the entire IFNM would be designated an avoidance area for future rights-of-way.

15(SR70)
Summary Comment: The RMP for IFNM must recognize and acknowledge the validity of existing mining rights in all aspects of the proposed alternatives.
Summary Response: The Proclamation that established the IFNM recognized all valid rights in existence at the time of the monument designation. This is noted and discussed under Section 2.3, Management Common to All Alternatives. There are no alternatives in Table 2-12 under Energy and Mineral Resources that discuss allowing or prohibiting mining in the IFNM because that use is subject to valid existing rights according to the Proclamation that established the IFNM. BLM does not have the discretion to change that through a decision in the RMP.

15(SR439)
Summary Comment: The Final EIS should clarify the location of the Silver Bell Mine and the other 33 active or abandoned mine sites in the IFNM because the text on pages 3-43, 3-63, and 3-71, and Map 3-8 of the Draft RMP/EIS seems inconsistent.
Summary Response: The Silver Bell Mine is outside the planning area boundary; however, Asarco (Silver Bell Mine) has claims within the IFNM in the vicinity of the existing mine (as shown on Map 3-8). The language on page 3-43 has been modified to read: "The only active mine near the IFNM (adjacent to the IFNM boundary) is the Silver Bell Mine, a copper mine." The language on page 3-63 has been modified to read: "The Silver Bell Mine, located outside, but immediately adjacent to the planning area boundary, is currently operating." The language in the Proposed RMP/EIS Section 3.6.1 has been modified to read: "Currently available data show 33 mine sites and 225 existing mining claims in the IFNM (USDI, BLM 2004b)."

15(SR477)
Summary Comment: The Mining and Minerals Policy Act of 1970 and the National Materials and Minerals Policy, Research and Development Act of 1980 have been omitted from the list of legislative requirements. The valid existing mineral rights in the IFNM should be managed consistently with the policy of promoting an orderly and economic development of domestic mineral resources.
Summary Response: The legislative requirements described in Section 1.4 are the primary requirements that influence BLM's development of an RMP; the information presented is not an exhaustive list of the laws, regulations, and policies applicable to public land administered by BLM. The language of the introduction of this section has been modified to read "These and other laws, regulations, and policies provide the framework for management of the IFNM." In accordance with the Proclamation, management of the IFNM will be subject to valid existing rights, which include valid existing mining claims.

Category 16: Livestock Grazing

16(316)
Comment: And how do you come to think that grazing causes air pollution on the national monument? I just don't know. And also, if you had air particulate studies done, near corrals even or areas that cattle might be in, how might I get a copy of that?
Response: The impact analysis in Section 4.3.1.2 has been revised to more clearly indicate how wind erosion could result in localized, temporary reductions in air quality. There were no air particulate studies completed specifically for this RMP. The analysis of impacts on air quality included a qualitative comparison of the proposed management decisions based on air quality conditions as discussed in Chapter 3. Refer also to comment and response 16(SR54) for additional information regarding wind erosion and livestock grazing.

16(317)
Comment: I have seen nothing in Ironwood that approaches the requirement of Taylor Grazing Act language for 'chiefly suitable for grazing." The low total AUMs are a joke -- the numbers prove there is not one family job out there with all of it put together. Any economic analysis, when done right, proves the permittees far better off if they were simply cashed out and given bank CD's.
Response: The Taylor Grazing Act of 1934 provides authorization to the Secretary of the Interior to regulate and administer grazing use of all public lands. Lands within the IFNM are outside a grazing district and are not required by the Taylor Grazing Act to meet the "chiefly suitable for livestock grazing" determination. Current Federal regulations prevent agency buyouts of grazing permits and leases.

16(318)
Comment: There just isn't the forage out there in the Sonoran Desert given drought 7 years out of 10 to run an authentic ranching operation -- and the vegetation trend is downward based on my observations. If it meets BLM Rangeland Standards and annual utilization, then the standards need to be raised to reflect reality.
Response: Under all alternatives, livestock grazing would be adjusted when necessary to comply with the Arizona Standards for Rangeland Health and Guidelines for Grazing Administration, which were developed in coordination with local input from resource advisory councils and under the NEPA process, which included public involvement. Changes to those standards are beyond the scope of this planning effort.

16(319)
Comment: The BLM should not attempt to regulate grazing under the Clean Air Act. The allegations incorporated into the DRMP that cattle grazing causes air pollution are scientifically unfounded and violate FLPMA multiple use mandates and also violate the Soil and Water Conservation Act of 1977.

Response: The BLM does not intend to use the Clean Air Act as a tool to regulate grazing in the IFNM. Rather, the BLM intends to abide by all provisions of the Act, regardless of the selected alternative. This includes managing all aspects of the IFNM in accordance with the Act. The levels of livestock grazing/ trailing that occur in the IFNM under any of the alternatives are not likely to generate dust at levels that would require action under the Clean Air Act. However, the Draft RMP/EIS must disclose the potential direct and indirect impacts from livestock management activities, including dust.

16(320)
Comment: The Morningstar and Tejon Pass allotments should be restored to Perennial/Ephemeral status. The arbitrary and capricious downgrade to straight ephemeral in 1991 was conducted outside BLM range management policies and may have been illegal.
Response: The range of alternatives in the Draft RMP/EIS for livestock grazing in the IFNM included this possibility in Alternatives C and D. However, in the Proposed Plan, both allotments continue to be classified as ephemeral to allow BLM to collect the necessary data to properly analyze the effects of reclassifying these two allotments as perennial. While the allotments do not meet the criteria for an ephemeral allotment (see Appendix F), reclassification requires that forage capacity be identified, which was not done or analyzed in the Draft RMP/EIS. BLM is conducting additional monitoring to determine what appropriate forage capacity would be if reclassification to perennial were to occur; therefore, the decision to reclassify these allotments is being deferred until BLM can collect the data necessary to support and identify an appropriate forage capacity level and conduct an associated environmental analysis. BLM also is looking into the process by which these allotments were initially classified as ephemeral.

16(321)
Comment: We object to any permissions granted by the BLM to the Tohono O'odham Nation or any other owner of stray livestock, to enter the IFNM grazing allotments to search for their stray livestock, unless the affected IFNM grazing permittee or the permittee's representative, along with an Arizona Department of Agriculture brand inspector, are notified in a timely manner and are both present at all times during the search and gather process.
Response: The collection of stray livestock is governed by the State of Arizona and is administered by Arizona's Department of Agriculture. Collection of stray livestock within the IFNM would be consistent with the applicable laws and regulations.

16(322)
Comment: Alternative B, which terminates cattle grazing, would increase the amount of fine, dry fuels and significantly increase the probability of air quality degradation due to wildfire. Alternatives C and D, which downgrade the allotments from perennial/ephemeral to straight perennial status, will increase the amount of fine dry fuels that grow in the winter rainy season, and contribute to a higher probability of wildfire.
Response: The comment is addressed under Section 4.3.7.3 and 4.3.7.4 of the Draft RMP/EIS.

16(324)
Comment: Page 2-92 Summary comparison of impacts, Fire Ecology, last sentence. "In addition, managing 11 allotments as perennial livestock grazing could decrease the amount of fine fuels available for ignition."
NOT TRUE. Downgrading nine of the eleven allotments from perennial/Ephemeral to perennial would INCREASE the amount of fine fuels for ignition.
Response: The rationale for the impact statement is derived from a comparison with Alternative B, which reduces livestock grazing over time. The comment that altering the grazing authorization status of certain (nine) allotments to perennial would result in an increase of fine fuels assumes that the lessee would

request (and be granted) authorization to graze above the preference. Text in this section of the document has been revised to provide clarity.

16(325)
Comment: The NMSU literature review examined studies of grazing effects on soil compaction, across the Western United States, and in the abstract stated, "Although more than 30 studies consistently show that controlled grazing adversely impacts soils through increased compaction, reduced infiltration and increased erosion, these impacts are minor and are ameliorated by natural processes that cause soil formation, soil deposition and soil loosening." But the DRMP/EIS assumes all grazing destroys the soil.
Response: The Draft RMP/EIS makes no reference to soil destruction through livestock grazing. The Draft RMP/EIS reports on page 3-8 that "soils of this region support … livestock grazing" and, as an impact common to all alternatives, states that "managing areas to meet Standard 1 of the Arizona Standards for Rangeland Health could improve soil and watershed conditions by reducing erosion and sediment loads."

16(326)
Comment: The DRMP/DEIS references allotment evaluations for the Arizona Standards and Guidelines for Grazing Administration, and Table 3-10 states that all of the allotments were evaluated between 1999 and 2003. All are reported to be meeting standards, though the finer points of rangeland health are not disclosed. DRMP/DEIS at 3-44. The riparian standard was not evaluated for any of the allotments. This is a critical oversight, given the wildlife and plant species that depend upon and occur in riparian and xeroriparian washes, and the fact that livestock are not excluded from these areas under the preferred alternative.
Response: Arizona Land Health Standard 2 applies to riparian-wetland areas only. This standard does not apply to any allotments in the IFNM because none of the dry washes support riparian vegetation. The xeroriparian areas identified in Section 3.1.4.1.2 and on Map 3-4 of the Draft RMP/EIS would not qualify as riparian areas because they do not support riparian plant communities. Revisions in the text clarify that the criteria for riparian areas are from Technical Reference 1737 15, Riparian Area Management. Xeroriparian areas are a subset of the uplands that exist where water that runs off collects. Arizona Land Health Standard 1 covers soil conditions that support proper functioning of hydrologic, energy, and nutrient cycles, which is the function of xeroriparian areas in the uplands.

16(327)
Comment: The preferred alternative would make all eleven grazing allotments perennial instead of ephemeral, a distinction that shifts the authorizations on two allotments (Tejon Pass and Morning Star) from being available to livestock where "precipitation patterns generate seasonal production of forage available for livestock," to grazing being authorized, "yearlong at the grazing preference level." Since no grazing preference level is yet assigned for these two allotments, it is impossible to know the impacts of this proposed action on these 28,021 acres.
Response: Identification of forage capacity levels (which leads to establishment of grazing preference levels) for Tejon Pass and Morning Star allotments was inadvertently omitted in the Draft RMP, and thus was not analyzed in detail. The Proposed RMP continues the ephemeral classification of these two allotments until data can be gathered that will allow proper analysis of potential reclassification. See also response to comment 16(320), and Appendix F for more information.

16(328)
Comment: Livestock grazing has other more direct impacts on wildlife as well. Mortality of owls which have become entangled or impaled on fencelines has been documented. See Avery et al 1978, Anderson 1977, Fitzner 1975. Fences, unless properly constructed, can also impede wildlife movement across the landscape. All livestock grazing should be phased out of the Monument and unsightly and unsafe fencelines should be removed.

Response: When an action would result in similar impacts on several species, a general impact statement is included. Therefore, mortality of avifauna as a result of fence lines would fall under the general impact of species mobility which is addressed in Sections 4.3.5 of the Draft RMP/EIS. The alternative that would phase out livestock grazing may actually increase the potential for fence lines in the IFNM (see Section 4.3.5.3).

16(329)
Comment: Fully 62 percent of BLM lands within the Monument are classified as custodial. Thereby, we formally request reclassification of all allotments for active management, be that "improve," or "maintain."
Response: Classification of allotment categories is not an RMP decision and thus is outside of the scope of this plan. However, BLM has recently reclassified several allotments within the IFNM based on new guidance in BLM Instruction Memorandum 2009-018 that further clarifies criteria for allotment classifications. As a result, all allotments on the IFNM have been classified as "Maintain." See response to comment 16(489) for more information.

16(330)
Comment: The preferred alternative classifies all eleven grazing allotments perennial. This decision disregards the recommendation of the TNC Study that "[t]he BLM's use of ephemeral allotments could be an appropriate stating point for a Sonoran Desert-specific livestock grazing management strategy."
Response: As the quotation taken from the TNC study indicates, the use of an ephemeral grazing strategy could be an appropriate strategy for livestock grazing in the Sonoran Desert, but this largely depends on various factors including weather patterns for specific regions of the Sonoran Desert and management factors related to land ownership and allotment management. In the IFNM, both of these factors are at play. Situated in the eastern portion of the Sonoran Desert, the IFNM receives more rainfall than other, drier areas that the TNC study focused on. In addition, because of mixed ownership in the IFNM (i.e. Arizona State Trust lands), BLM has limited control in setting flexible stocking rates such as those associated with ephemeral use.

16(331)
Comment: We support the BLM in allowing for voluntary relinquishment of grazing leases in the preferred alternative. However, BLM should provide a provision whereby upon voluntary relinquishment, the agency recommend to the Secretary of Interior that the monument lands be removed from the grazing district under Section I of the Taylor Grazing Act. This is in accordance with the May 13, 2003, Solicitor's Memorandum to the Assistant Secretaries for Policy, Management and Budget, Land and Minerals Management and the Director, Bureau of Land Management clarifying the Solicitor's Memorandum M 37008 (issued October 4, 2002).
Response: Allotments within the IFNM are leased under Section 15 of the Taylor Grazing Act, which applies to grazing leases on public lands outside grazing district boundaries.

16(332)
Comment: Given the lack of monitoring and actual use documentation on the IFNM, enforcement of livestock trespass must be an ongoing problem. The DRMP/DEIS does not address this.
Response: Enforcement of livestock trespass is an administrative action addressed in the Draft RMP/EIS (Appendix D).

16(337)
Comment: In coordination with AGFD, implement closures to human entry from January 1 thru April 30... Closures to human entry will impose economic hardship on the affected cattle ranchers whose allotments would then be inaccessible to them.
Response: The impacts are addressed in Sections 4.4.2.3 and 4.5.3 of the Draft RMP/EIS.

16(339)
Comment: the decision to remove the "unnecessary" [grazing] infrastructure assumes that the infrastructure does harm. This has not yet been proven via the scientific method, but appears to implement a conclusion reached absent sufficient relevant data collection.
Response: Grazing infrastructure is considered unnecessary when it is no longer needed for the purpose for which it was originally intended, and no longer serves a purpose. No "harm" is implied, only purpose. If any facility, including grazing infrastructure, serves no further purpose, it can be removed, regardless of whether it does any harm. However, removal of unnecessary infrastructure would be analyzed as part of a site-specific NEPA process.

16(340)
Comment: In addition to analyzing management on the national monument, the DRMP/DEIS should have assessed the cumulative impacts of livestock grazing on the adjacent BLM, state trust, and private lands in context of its impacts on monument objects. For example, some species of wildlife or plants that are protected in the IFNM may be affected by off-Monument grazing management (i.e., impacts may include delayed recovery, reduced dispersal potential, or invasive species competition resulting from grazing disturbances). NEPA requires this kind of assessment; the DRMP/DEIS failed to provide it.
Response: The analysis of cumulative impacts, as defined by CEQ regulations 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 actions" (40 CFR 1508.7). Since any grazing outside the national monument is an action outside the scope of this plan, the cumulative effects of that action are only addressed in so far as the actions within the monument are additive to it. Affects of grazing outside the monument on monument objects is outside the scope of the plan and analysis because it is outside the scope of the current analyzed action.

16(341)
Comment: There are many studies which demonstrate that, with management, grazing will encourage not only biodiversity of plants, but wildlife as well.
Response: The Draft RMP/EIS does not mean to imply that all grazing creates adverse impacts on vegetation or wildlife. The Arizona Standards for Land Health and Guidelines for Grazing Administration would apply to all alternatives and provide a basis from which grazing could be administered and monitored to promote desired future conditions objectives.

16(343)
Comment: Congress finds that a substantial amount of the Federal range lands is deteriorating in quality, and that installation of additional range improvements could arrest much of the continuing deterioration and could lead to substantial betterment of forage conditions with resulting benefits to wildlife, watershed protection, and livestock production."
Response: The Draft RMP/EIS would allow for additional range improvement projects under Alternatives A, C, and D. These types of projects would be evaluated with an implementation-level NEPA document such as an Environmental Assessment, Categorical Exclusion, or EIS.

16(344)
Comment: Appendix F of the Draft RMP states that the reclassification of the two fully-ephemeral allotments to perennial status was based on these allotments no longer meeting the criteria for an ephemeral classification. This conclusion, however, is not corroborated by scientific data, and it is unclear whether the BLM considered the impacts of year-round grazing on monument resources, such as wildlife habitat and vegetation.
Response: Appendix F of the Draft RMP/EIS states that there are several reasons why these two allotments no longer meet the criteria for ephemeral classification. The allotments produce more than

25 pounds per acre of desirable grass species. The community is composed of more than 5 percent desirable forage species. Most of the rangelands in the allotments are in a high or better ecological status. There are very few areas that do not have the potential to improve and produce a dependable supply of forage. However, the comment is correct in that the Draft RMP/EIS did not fully analyze the potential impacts of a perennial grazing system for two allotments because no forage capacity level has been identified for them. The Proposed Plan continues the ephemeral classification of these two allotments until data can be gathered that will allow proper analysis of potential reclassification. See also response to comment 16(320) for more information.

16(345)
Comment: Under the current preferred alternative, BLM is not making a determination as to whether livestock grazing is adversely affected monument objects until leases are cancelled or voluntarily relinquished (Draft RMP 2-50). This alternative does not provide protection of monument objects from grazing impacts prior to cancellation or voluntary relinquishment. Thus, BLM should determine whether livestock grazing is adversely affecting monument objects before cancellation or voluntary relinquishment of leases.
Response: BLM evaluates and monitors livestock grazing leases for consistency with the Arizona Standards for Rangeland Health and Guidelines for Grazing Administration. BLM also identifies management concerns during other types of monitoring and management activities such as removing trash and patrolling recreational activities. In the course of actively managing monument activities, BLM makes observations of activities, including livestock grazing, which potentially may result in damage to monument objects and takes action to rectify situations when damage is observed or likely to occur.

16(480)
Comment: As a NRCD advisor, I sat in on meetings where the NRCD is very concerned that there was no comments in this document that credited these ranches with putting out monitoring devices, monitoring their allotments, so that they can see the quality of the forage that is out there, the plants, and see how their ranch management plans are working out.
Response: The monitoring information collected on allotments is used during the assessment of an allotment and in determining whether an allotment is managed in accordance with Arizona Standards for Rangeland Health and Guidelines for Grazing Administration; all allotments within the IFNM are meeting the standards (refer to Table 3-10). The RMP does not specifically include the information collected by permittees and NRCS because decisions made by BLM based on these data would be made at the implementation level, not as decisions within the RMP.

16(483)
Comment: Wildlife ecologists not authors with agriculture or economics credentials authored the section discussing agricultural economics. Only one scientific paper discussing impacts of livestock grazing on range ecology is referenced in the bibliography, despite the numerous peer-reviewed scientific reports and literature reviews on grazing that were delivered to the BLM by our cooperators during the six-year planning process. The single study BLM referenced in the DRMP/EIS, lumps any and every type of grazing and grazing management together and draws generalized conclusions with little if any relevance to grazing in the IFNM. In fact the entire report devoted only three paragraphs to grazing in the Sonoran desert, and those paragraphs lumped impacts of burro and cattle grazing together as if there is no difference. We therefore consider the DRMP/EIS non-representative of an “interdisciplinary approach.”
Response: The social and economic sections of the RMP include references from USDA, BLM, Mayro, and Interorganizational Committee on Principles and Guidelines; an additional reference was added in Section 3.5.1.2 of the Proposed RMP/EIS for the indirect and value-added impact of livestock grazing, citing Economic Impacts from Agricultural Production in Arizona, Jorgen R. Mortensen, University of Arizona, July 2004.

The analysis of the impacts of livestock operations were conducted based on the information compiled from these references together with BLM's specific knowledge of the conditions within the IFNM (including the best available data on livestock operations and AUMs on BLM allotments, which are closely tracked). The preparers of the RMP include individuals with diverse backgrounds in natural and cultural resource management, as well as social sciences, including economics, which provided BLM with an interdisciplinary team. See the list of preparers in Section 5.9 of the PRMP.

16(486)
Comment: Page 2-51 Table 2-13. Resource Management Alternatives for LIVESTOCK GRAZING, Implementation Decisions
Item 2. "Increase the number and variety of wildlife and livestock exclosures to represent various ecosystems, and monitor these regularly."
This is stated without any indication of a reason, or any limitations. We wonder who would be expected to pay for this.
Response: The decision (now Decision 6) has been modified to add "as necessary" to the beginning of the decision, to indicate that where such exclosures would provide beneficial impacts on wildlife, livestock, and/or ecosystems, such projects would be pursued. The site-specific actions would be identified on a case-by-case basis, with funding determined at that time.

16(487)
Comment: More importantly, being a retired USFS employee, I am well aware of the damage grazing cows inflict on riparian resources.
Response: None of the dry washes within IFNM support riparian vegetation. The xeroriparian areas identified in Section 3.1.4.1.2 and on Map 3-4 would not qualify as riparian areas because they do not support riparian plant communities. Revisions in the text clarify that the criteria for riparian areas are from Technical Reference 1737-15, Riparian Area Management.

16(489)
Comment: We disagree with the classification of six allotments within the IFNM as "custodial." The RMP/EIS states, that custodial classifications are merited "when there is a low potential biological response to any change in management, the allotment contains only a small amount or public lands, or there is a lack of any identified resource conflicts." On the IFNM, there is no evidence that the exclusion of livestock would not have significant long-term effects and we hereby, with these comments, enumerate and identify the resource conflicts.
Response: Classification of allotment categories is not an RMP decision and thus is outside of the scope of this plan. However, BLM has recently reclassified several allotments within the IFNM based on new guidance in BLM Instruction Memorandum 2009-018 that further clarifies criteria for allotment classifications. As a result, all allotments on the IFNM have been classified as "Maintain." BLM classifies allotments as Improve, Maintain, or Custodial based on information and evaluations of resource conditions. Allotments are classified as Maintain where land health standards are met or where livestock grazing is not a significant causal factor for not meeting the standards and current livestock management is in conformance with guidelines; or where an evaluation of land health standards has not been completed, but existing monitoring data indicate that resource conditions are satisfactory.

16(490)
Comment: We support the provisions in the preferred alternative of the DRMP/DEIS that would allow voluntary relinquishment of grazing leases. We offer (in Appendix A of these comments [Appendix A. Matrix for assessing grazing allotment closure. From the Upper Deschutes RMP (Prineville District, Oregon BLM). BLM. 2004. Proposed Upper Deschutes Resource Management Plan/Final Environmental Impact Statement. BLM, Prineville District, Deschutes Resource Area. (September 2004). Vol. l: 170. Alternative 7(Preferred Alternative)] the language and matrix adopted in another BLM RMP to determine

the relative values of public lands grazing allotments in context of other attributes. We note that the relative value of Monument objects and resources is increased by the very designation of IFNM and ask that the BLM incorporate this increased valuation to the matrix parameters.
Response: BLM's decisions and the analysis are consistent with IM 2007-067, which resulted from the information presented in Appendix A of the Proposed Upper Deschutes RMP. However, consistent with the relative value of monument objects, continued use of the allotments managed by BLM in the IFNM is compatible with achieving land use plan management goals and objectives.

16(491)
Comment: Livestock have long been recognized as destructive to young saguaros and the nurse plants on which they depend. See Steenbergh and Lowe 1977. Grazing of the surrounding vegetation leads to increased surface temperatures in the summer, greater risk of freezing in the winter, and exposes young saguaros to herbivores. See Steenbergh and Lowe 1983. At Saguaro National Park, another study found cattle grazing "largely suppressed" germination and survival of saguaros, leading to a population of aging plants with little or no recruitment. See Abouhaidar 1992. Subsequent studies there confirmed that grazing had severely affected the demographic composition of the saguaro forest, with very little reproduction while livestock were present followed by a sudden population boom when grazing was eliminated. See Helbsing and Fisher 1992, Turner and Funicelli 2004.
Response: The 1977 Steenbergh and Lowe study cited in your comment states, in conclusion, that "the 'problem' that we have observed – the 'decline' of specific saguaro populations . . . is neither in biology nor management, but in a limited perspective." This conclusion applies well to other studies cited above; while these studies suggest that livestock could have impacts to saguaro recruitment, they were not conducted at the time livestock grazing was occurring. The majority of these studies measured the effects of historical livestock grazing that occurred in regions that had uncontrolled or unmanaged livestock grazing dating back to the 19th century. Livestock grazing was occurring in these areas as early as the 1700s. By comparison, livestock grazing within the IFNM is a more recent event with significantly lower livestock numbers and has been managed, nearly since it began, in accordance with the Taylor Grazing Act of 1934 and other BLM policy intended to prevent overgrazing and soil deterioration on public lands and preserve the health of the land. The Taylor Grazing Act was enacted shortly after ranchers first began to graze areas within the Monument.
In addition, a number of other studies have shown that saguaro recruitment surges and declines are not necessarily significantly affected by the presence of livestock grazing, but may be more likely tied to climatic factors such as wet versus dry conditions that produce episodic surges of regeneration (see Pierson and Turner, 1998). Pierson and Turner state that "peak regeneration episodes have been observed from 1916 through 1936 in southeastern California (Brum 1973), 1907 through 1959 in the Sierra del Pinacate Reserve in northern Sonora, Mexico (Turner 1990), and 1915 through 1940 at Organ Pipe Cactus National Monument in southwestern Arizona (Parker 1993). In all of those studies, the regeneration surge was attributed to favorably moist climate."
Biological studies and surveys completed in the IFNM indicate the area has extensive forests of saguaros, and they are common throughout most of the monument except on steep north slopes and some valley floors. The densest populations are on bajadas, particularly on the south and east-facing bajadas of the Roskruge, Sawtooth, and Silver Bell mountains. In six IFNM plots saguaro density exceeded 250 total plants per hectare (101 per acre). Of the twenty-two census plots all except one had a substantial percentage of plants in each of the size-age categories. While we have no data to suggest that livestock grazing at permitted levels on the IFNM causes increased surface temperatures, increased risk of saguaro freeze, or increased saguaro mortality due to herbivore exposure, future monitoring of saguaro recruitment and overall health could yield new information about the effects of livestock grazing on saguaros. Activities shown to compromise the protection of monument objects, including the saguaro cactus, can and would be modified to ensure that any impact would be undetectable or measurable only in small and localized areas, and that the integrity of the objects would be conserved for future generations.

16(503)
Comment: The BLM has failed to identify many significant management relationships currently affecting the IFNM. The result of this error of omission is the DRMP/EIS implies that the grazing allotments within IFNM are currently unmanaged and the ranchers are all just in it for money.
For example, we saw no mention of any current ongoing range management procedures, or the Range Resource Management Team's periodic assessments of the grazing allotments. Further, no mention is made of the Memorandum of Understanding for Coordinated Resource Management in Arizona, in which BLM is a partner with 19 other government agencies including the Arizona Association of Conservation Districts for the specific purpose of environmental conservation.
Response: The Draft RMP/EIS explains the ongoing management for rangeland health in Section 2.3 and Appendix F, and the condition of the each allotment is described in Section 3.2.2. Appendix C discloses the Arizona Guidelines for Grazing Administration, which are common to all alternatives as discussed in Section 2.3.2 The RMP makes no implication that grazing allotments within the IFNM are unmanaged. Many of BLM's day-to-day actions with regard to livestock grazing are disclosed in Appendix D.

16(746)
Comment: There are only four AGFD wildlife water catchments on the Morningstar and Tejon Pass allotments (about 75,000 acres of land). On these same allotments, the ranchers built and continuously maintain 22 water sources (a 5.5:1 ratio of private waters to tax-maintained waters.) If the wildlife are to survive, the BLM must not hinder the maintenance of livestock waters.
Response: Maintenance and operation of livestock waters are provided for in the RMP to meet grazing objectives, along with provisions for wildlife access. Motorized access to many of the livestock waters and the AGFD-developed wildlife waters would be retained, or the waters would be accessible by a non-motorized route within a reasonably short distance from a motorized route. Fences, if required to protect resources, would be established in consideration of wildlife movement patterns and would be wildlife friendly in design.

16(SR52)
Summary Comment: Phasing out or relinquishing and/or buying out livestock grazing permits or leases in the IFNM will greatly enhance the area's natural vegetation and help erosion control. It is well known the detrimental impacts that livestock grazing has on desert landscapes and cultural resources, as it severely impacts plant community composition and destroys cryptobiotic soil communities, artifacts, and prehistoric features. Managing these lands as they have been is incompatible with their designation as the IFNM.
Summary Response: The Arizona Standards for Rangeland Health and Guidelines for Grazing Administration are common to all alternatives, and apply to all resources and resource uses. The guidelines state that livestock management practices to achieve desired plant communities will 1) maintain or promote ground cover that will provide for infiltration, permeability, soil moisture storage, and soil stability appropriate for the ecological sites within management units; 2) provide for growth and reproduction of those plant species needed to reach desired plant community objectives; and 3) consider protection and conservation of known cultural resources, including historical sites, and prehistoric sites and plants of significance to Native American peoples. Phasing out livestock grazing permits and leases is considered under Alternative B, and the possible affects of this decision are considered in the Draft RMP/EIS. The potential for the voluntary relinquishment of livestock grazing permits in the IFNM is considered and analyzed under Alternatives C and D. Current Federal regulations prevent agency buyouts of grazing permits and leases. Refer also to summary comments and responses 16(52) and 16(56) for additional information regarding livestock grazing within the monument.

16(SR53)
Summary Comment: Livestock grazing on the IFNM should be limited in order to protect the IFNM. Livestock grazing is very detrimental to the ecological integrity of this Sonoran Desert landscape. There simply is not enough natural forage to support bighorn sheep, pronghorn antelope, and non-native cattle.
Summary Response: Under all alternatives, livestock grazing practices would be adjusted when necessary to comply with the Arizona Standards for Rangeland Health and Guidelines for Grazing Administration, which establish measurable indicators of rangeland health. Guideline 3-2 states that "Conservation of Federal threatened or endangered, proposed, candidate, and other special status species is promoted by the maintenance or restoration of their habitats." Inventory and monitoring data will be collected on a regular basis to determine achievement of land health standards or progress toward achieving standards.

16(SR54)
Summary Comment: The analysis implies that livestock grazing has denuded or will denude public land. This is misleading and has no scientific evidence to support it. Within the Final EIS, the BLM should list the size and locations of those areas that are denuded in a scientific manner.
Summary Response: The text in Sections 4.3 and 4.4 of the Draft RMP/EIS is not meant to imply that livestock grazing is the reason why some areas are more vulnerable to wind erosion than others. It only means to illustrate that livestock grazing activities in these areas could prevent revegetation of those areas. Therefore, the Draft RMP/EIS makes no assumptions regarding the cause of some areas being "denuded." Throughout the Proposed RMP/Final EIS, the use of the term "denuded" has been changed to "sparsely vegetated" or "areas vulnerable to wind erosion" to better reflect conditions within the IFNM. In the Proposed RMP/EIS Section 4.3.1.2, has been revised to state: "This could limit revegetation in areas that are sparsely vegetated, disturbed or vulnerable to wind erosion which could increase particulate matter emission in very localized areas."
The observation that areas in the immediate vicinity of water or shade can sometimes be disproportionately grazed by domestic livestock comes from interdisciplinary team knowledge of resources in the IFNM, review of existing literature, and information provided by BLM resource specialists.

16(SR55)
Summary Comment: Corrals and cattle movement do not generate significant amounts of PM10 (dust). The soil composition in corrals is completely different than the surrounding desert, and the ground is continuously moistened with feces and urine, which inhibit dust.
Summary Response: The analysis of livestock grazing impacts does not imply that significant dust would be generated from areas with corrals or livestock waters. However, the RMP/EIS must disclose the potential direct and indirect impacts from livestock management activities, including those that may be highly localized. Ground and/or surface-disturbing activities are defined in the glossary as "the physical disturbance, which alters the structure and composition of vegetation and topsoil/subsoil." Livestock grazing activities could alter the structure and composition of topsoil, and indirectly subsoil, in areas where compaction occurs.

16(SR56)
Summary Comment: The Draft RMP/EIS should set firm ecological parameters that, only when met, could provide for the reauthorization of grazing on these allotments. Any grazing reauthorization on the IFNM should be subjected to an intensive suitability/capability analysis similar to that which is used by the Forest Service. In the absence of such an alternative, BLM must select Alternative B, as it is currently the only alternative that meets this standard and is within the BLM's legal discretion under the Proclamation establishing IFNM.
Summary Response: The Arizona Standards for Rangeland Health and Guidelines for Grazing Administration establish measurable indicators of rangeland health. The standards and guidelines apply to each alternative. As an administrative action, inventory and monitoring data will be collected on a regular

basis to determine achievement of land health standards or progress toward achieving standards (refer to Appendix D of the RMP/EIS).

16(SR57)
Summary Comment: Ranching in the area has a legitimate foundation and people have built their lives around it. The social value of ranching conveys value to local communities through the conservation of open spaces, ecological values, and the connection to historic ranching in Arizona or a "western" quality of life.
Summary Response: The range of alternatives in the Draft RMP/EIS attempts to present a reasonable range of management options while meeting the requirements of both the FLPMA and Presidential Proclamation 7320. FLMPA established that public land be managed according to the principles of multiple use and sustained yield and in a manner that affords protection to the natural environment. In accordance to these goals, BLM manages public lands so that they are used in a combination that will best meet the present and future needs of the American people for renewable and nonrenewable natural resources. In 2000, the Proclamation established the IFNM to protect sensitive biological, cultural, geological, and other resource values bound up in the land of that area. The action alternatives strive for the goal of acknowledging the cultural, historical, ecological, and economic values of ranching through interpretive efforts.

16(SR58)
Summary Comment: The range of alternatives does not provide BLM flexibility to alter livestock grazing management on an allotment–by-allotment basis.
Summary Response: The RMP-level decisions are meant to provide a broad framework for long-term land use planning.
Under all alternatives, livestock grazing practices would be adjusted when necessary to comply with the Arizona Standards for Rangeland Health and Guidelines for Grazing Administration, which establish measurable indicators of rangeland health. Inventory and monitoring data will be collected on a regular basis to determine achievement of land health standards or progress toward achieving standards. The Draft RMP/EIS considers an alternative (Alternative B) that would remove livestock grazing from the IFNM as existing leases expire.
Adjustments in stocking rates, seasons of use, etc., could be made under any of the alternatives but would be addressed under a subsequent implementation-level NEPA analysis (e.g., environmental assessment, FONSI, etc.)

16(SR60)
Summary Comment: Closing public lands within the IFNM to livestock grazing, by the BLM's own admission, will have the greatest beneficial impacts on recovering formerly denuded landscapes and thereby would improve air quality, would be the best for vegetation communities, and would also retain wilderness characteristics. We note that the Draft RMP/EIS explicitly fails to analyze the removal of livestock pursuant to Alternative B within the cumulative effects sections of the soil and water quality, wildlife and wildlife habitat, cultural and paleontological resources, scenic and visual resources, recreation, lands and realty, travel management, and public safety.
Summary Response: Environmental impacts on the resources mentioned that would result from Alternative B are stated in Chapter 4. These impacts would not be restated under the cumulative impacts section unless there are other past, present, and/or reasonably foreseeable future actions (Table 4-19) that would add incrementally to those impacts already described.

16(SR335)
Summary Comment: The citations used in the analysis of livestock grazing impacts are inadequate. The information used does not include fence-line comparisons such as the Irma Park Pasture. The only reference to a livestock grazing study is Milchunas, which compares grazed areas to ungrazed areas, but

does little to distinguish between the varying types of grazing management, such as which herbivore does the grazing.
Summary Response: Impact analysis for livestock grazing is based on interdisciplinary team knowledge of resources and the IFNM and review of existing information from allotment assessments and scientific literature. Effects on livestock grazing activities and operations were quantified where possible. In the absence of quantitative data, best professional judgment was used. The analysis performed in the livestock grazing section is in compliance with BLM's obligations under NEPA and FLPMA, and as specified in BLM and CEQ regulations.
Milchunas 2006 was not used to identify differences between grazed or ungrazed areas. Milchunas was used to collect information regarding livestock numbers in southern Arizona in the late 1800s to inform the cumulative impact analysis.

16(SR338)
Summary Comment: Changes in livestock grazing place a burden on livestock operators, taxpayers, and could harm resources in the monument.
Summary Response: Under all alternatives, livestock grazing would be adjusted when necessary to comply with the Arizona Standards for Rangeland Health and Guidelines for Grazing Administration, which establish measurable indicators of rangeland health. Inventory and monitoring data will be collected on a regular basis to determine achievement of land health standards, or progress toward achieving standards. The IFNM Draft EIS considers an alternative (Alternative B) that would remove livestock grazing from the IFNM as existing leases expire. Adjustments in stocking rates, seasons of use, etc. could be made under any of the alternatives but would be addressed under an implementation-level NEPA analysis.

16(SR342)
Summary Comment: Early in 2005, we submitted to the BLM an authoritative literature review by New Mexico State University indicating the opposite of the analysis BLM included in the Draft RMP/EIS, but it was discarded by the BLM with the verbal explanation that this literature review of grazing vs. grazing exclusion studies conducted across the western United States does not apply to the IFNM because "Those studies were done in the Chihuahuan Desert. " However, these studies were performed across the western United States.
Summary Response: The comment correctly identifies these studies as being conducted in the Chihuahuan Desert where the response by vegetation to livestock grazing could be different than in the Sonoran Desert. Livestock grazing does contribute to biodiversity as indicated in the studies conducted by Arizona Sonora Desert Museum. BLM has used these studies during the development of the Draft RMP/EIS.

16(SR482)
Summary Comment: The conclusions in the Draft RMP/EIS incorrectly attribute impacts to livestock grazing that are more likely caused by unrelated human activities such as mining, hunting, recreational motorized tourism, or camping near cattle infrastructures.
Summary Response: Impact analysis for livestock grazing is based on interdisciplinary team knowledge of resources and the IFNM and review of existing information from allotment assessments and scientific literature. Effects on livestock grazing activities and operations were quantified where possible. In the absence of quantitative data, qualitative reference information and best professional judgment were used. The analysis performed in the livestock grazing section is in compliance with BLM's obligations under NEPA and FLPMA, and as specified in BLM and CEQ regulations.

16(SR485)
Summary Comment: BLM should coordinate with partnering agencies (including NRCS, Pima NRCD, AGFD, and ASLD) before making any significant changes in vegetation management in response to the cancellation or voluntary relinquishment of a grazing lease.
Summary Response: In determining whether to continue or discontinue grazing following the cancellation or relinquishment of a lease, BLM would consult with other agencies, if appropriate. The Arizona Standards for Rangeland Health and Guidelines for Grazing Administration establish measurable indicators of rangeland health, which would be the primary criteria for BLM's decision making if this situation were to arise.

16(SR488)
Summary Comment: Changing allotments that contain both State School Trust lands and BLM lands to ephemeral/perennial grazing management could conflict with Arizona State Land Department grazing management. If additional fencing was required, under Arizona law, BLM would be required to install new fencing.
Summary Response: In the Proposed Plan, the classification of 9 of the 11 allotments on the IFNM would change from perennial/ephemeral to perennial. Changing the classification of these allotments is consistent with the amount of forage produced on the allotments. This change is also consistent with how the intermingled State Trust lands administered by ASLD are managed. The state Trust lands allotments have a perennial authorization in AUM's and a temporary non-renewable authorization mechanism. Resulting management of the allotments on BLM-managed lands (requiring the need to obtain a temporary, nonrenewable license for additional AUMs on an annual basis) therefore would be consistent with the management of State Trust lands. The social and economic impacts of Alternative C are disclosed in Section 4.5.4 in the Draft RMP/EIS.

16(SR492)
Summary Comment: The change of nine allotments to perennial status sends a message that the BLM believes that livestock grazing only harms the environment, although no scientific studies in the monument have proven this assumption. Therefore, financial harm may come to those nine allotment holders if Alternative C becomes finalized as written.
Summary Response: The allotments within the IFNM do not meet the definition of ephemeral use. The allotments produce more than 25 pounds per acre of desirable grass species, and the community is composed of more than five percent desirable forage species (see Appendix F for criteria that determines allotment classifications). Reclassifying the allotments to perennial from perennial/ephemeral would not eliminate the opportunity to obtain a temporary, nonrenewable license from BLM for additional AUMs on an annual basis when forage conditions warrant and when seasonal use would not result in significant environmental impacts. This change provides BLM with additional discretion in reviewing the seasonal use and protection of monument resources. The social and economic impacts of Alternative C are disclosed in Section 4.5.4.

16(SR493)
Summary Comment: Ranchers should find other pastures for their livestock. Visitors to a national monument should not have to contend with conflicts created by livestock grazing use.
Summary Response: Potential visitor contact with cattle was one of many factors considered during the route evaluation process. The travel system does generally route visitors away from areas where cattle tend to congregate, such as corrals and available waters. Because of the relatively small number of cows spread over a large acreage within the IFNM, visitor-cow conflicts should be kept at a minimum. In addition, visitation is not protected by the monument proclamation, but the proclamation does say that "Laws, regulations, and policies followed by the Bureau of Land Management in issuing and administering grazing permits or leases on all lands under its jurisdiction shall continue to apply with regard to the lands in the monument." Despite the feelings of some visitors about contact with cows,

BLM must follow the laws and the proclamation pertaining to livestock grazing on the public lands within the monument. Making the IFNM unavailable for continued livestock use is analyzed in Alternative B of the Draft RMP/EIS.

16(SR502)
Summary Comment: The management decisions and associated impacts of livestock grazing described in the Draft RMP/EIS were not authored by qualified professionals and do not have a scientific basis and need to be backed up by appropriate citations.
Summary Response: Impact analysis for livestock grazing is based on interdisciplinary team knowledge of resources and the IFNM and review of existing information from allotment assessments and scientific literature. Effects on livestock grazing activities and operations were quantified where possible. In the absence of quantitative data, qualitative reference information and best professional judgment were used. The analysis performed in the livestock grazing section is in compliance with BLM's obligations under NEPA and FLPMA, and as specified in BLM and CEQ regulations.

Category 17: Recreation

17(158)
Comment: The recreation study conducted by the University of Arizona in 2004 and visitor use monitoring data were used to identify use volume and patterns, and estimate the frequency of visitor encounters. The UA Recreation study was founded on surveys wherein the participants chose themselves to participate. This type of survey is popular for entertainment purposes but yields meaningless results statistically.
Response: The information in the University of Arizona (2004) study, conducted in cooperation with the BLM, was gathered by resource professionals using accepted protocols and provides both qualitative and quantitative baseline information valuable in the development of visitor use and travel management planning. No other recreation visitor use information was available for planning purposes.

17(190)
Comment: Allow[ing] overnight vehicle based camping (including RV) at approximately 100 sites." We need to ensure the BLM prohibits people from dumping their septic tanks in the Monument. We need to demand that no RV camp is allowed within two miles of any residence just to be sure.
Response: Current BLM regulations prohibit dumping of septic/sewage tanks on public lands (43 CFR 8365.1-1), and this will continue to be prohibited. The location of sensitive areas, including residences, is and will be a factor in designating the campsites for public use. By restricting camping to specific locations, certain impacts may become concentrated, as noted in the Draft RMP/EIS, but BLM will be able to better enforce restrictions on camping in an effort to minimize the potential impacts camping could have on monument objects (e.g., enforce group size and/or campfire restrictions). The potential sites where BLM would allow vehicle-based camping have been included on Map 2-13.

17(193)
Comment: Pima NRDC –
Page 2-62 Table 2-14, Management Alternatives for RECREATION
Decisions for Management Actions, allowable uses and Use Allocations.
Item 10. CAMPING
"Allow overnight vehicle based camping (including RV) " at approximately 100 sites."
We recommend the BLM avoid selecting site locations arbitrarily but instead plan in cooperation and coordination with the residents and landowners, the grazing permittees, the NRCS, the Pima NRCD, the Arizona State Land Department, and the Arizona Game and Fish Department. A poor site selection could destroy or disrupt the management a well-functioning plant community.

Response: BLM appreciates the concerns of the Pima NRDC. BLM will consider vegetation and other resource values and exercise careful interdisciplinary review and management judgment when selecting camping sites within IFNM.

17(194)
Comment: Recommendation: BLM should prohibit camping and campfires from the Waterman Mountains VHA in order to protect the Nichols Turk's Head Cactus, a Monument Object.
Response: BLM has considered and analyzed in Alternative B prohibiting camping and campfires (except charcoal and camp stoves) in the Waterman Mountains VHA. The proposed alternative, Alternative C, would allow vehicle-based camping in the Waterman Mountains VHA at identified sites that would be located to avoid impacts on resource values, and vegetation. In the Proposed RMP/EIS the potential sites where BLM would allow vehicle-based camping have been included on Map 2-13. Under Alternative C, dispersed non-motorized camping (i.e., backpacking) would be allowed throughout the IFNM, including within the VHA. However, BLM would post signs and include advisories in visitor information materials to manage camping and discourage it in localized areas for resource management purposes, as necessary. If problems arise, additional action may be taken to address camping use by adaptive management response based on future conditions including restriction on camping.

17(408)
Comment: I would ask that this proposal choose the option that is most restrictive to motorized traffic and the least restrictive on shooting. This limits the areas where most recreational shooting will take place by limiting access. The reduced motorized access eliminates the other issues the come along with vehicles namely noise, trash, and overcrowding.
Response: Restrictions on motorized travel are based on access needs, resource protection needs, and resource values present in the monument as well as potential conflicts with other uses and/or users. The most restrictive alternative with respect to motorized vehicle travel is Alternative B, while the least restrictive alternatives for shooting are Alternatives A and D, providing a range of alternatives for access and recreational opportunities. To limit motorized vehicle access, but not restrict shooting, could result in the increased concentration of uses (both motorized and non-motorized) in the areas accessible by motorized vehicles. BLM has not proposed this in the alternatives because there could be increased user conflicts and resource damage associated with this approach.

17(409)
Comment: staging areas [for equestrian use] need to be within 1/4 mile of water (stock tank).
Response: The specific siting of recreation facilities such as staging areas is an implementation-level action and would be undertaken in a subsequent planning effort. Site planning for the equestrian staging areas will consider the functional needs and requirements for staging area activities, including water, possible use of existing facilities, water rights, and new water development or filings if consistent with recreation and other management objectives. BLM owns a number of wells developed for livestock water use, and some of these wells are not presently in operation. BLM also holds water rights pursuant to State law on approximately 210 filings on impoundments, washes, and unspecified sources for livestock, wildlife, and recreation use.

17(410)
Comment: These are fragile public lands that belong to everyone. It is just not possible to let small loud local interest groups monopolize huge acreage of the Monument for selfish high impact purposes that preclude anyone else from enjoying it. Hobby ranching and offroad mayhem are two of those selfish activities.
Response: The Proclamation establishing the IFNM directs that all off-road motorized and mechanized vehicle use be prohibited, except for emergency or authorized administrative purposes. Therefore, off-road uses would not occur within the IFNM, limiting the potential impacts from such uses. Motor vehicle

use will be limited to designated routes (roads and primitive roads) where potential impacts will be manageable. The Proclamation also indicates that the laws, regulations, and policies followed by BLM in issuing grazing permits on public land shall continue to apply within the IFNM. Rather than canceling existing grazing permits, the Draft RMP/EIS considers an alternative (Alternative B) that would remove livestock grazing from the IFNM as existing permits expire. Under all alternatives, livestock grazing practices would be adjusted when necessary to comply with the Arizona Standards for Rangeland Health.

17(411)

Comment: The Department continues to be concerned with the lack of specific national or state guidance and/or policy from the Department of Interior regarding how the new market-based recreation program or Recreation Opportunity Spectrum (including Recreation Management Areas and Zones) and other allocations (i.e., areas managed for wilderness characteristics) will affect public recreational opportunities and Department wildlife management activities. These resource allocations are being used either separately or concurrently within the same plan and across planning areas without clear guidance or policy that outlines how decisions will be made after allocations are in place, and/or how those decisions would be implemented on the ground. Thus, we are unable to adequately assess the impacts to fish and wildlife, their habitats, and the Department's ability to manage wildlife and wildlife-dependent recreation. We believe these uncertainties will lead to situations where individual managers may interpret decisions differently, creating inconsistencies in administration and coordination, ultimately impacting the Department's mission and authority across the state. The Department advises against applying allocations where overarching direction is not available. Additionally, we recommend that specific language be included within the plan to clarify how decisions should be implemented and how these decisions may affect other resources or uses. The Department further urges that the impact analysis consider the full range of possible implementation decisions in the absence of specific guidance and policy.

Response: The recreation management strategy for the monument is explained in the RMP. Management strategies are identified to meet the needs of the local planning area, based on applicable national and State-level guidance. National and State guidance does currently exist, for example, in the recreation and visitor services section of Appendix C in the Land Use Planning Handbook; IM No. 2006-060; IM No. AZ 2005-007; BLM's Experience and Benefit Checklist; and other documents. In addition, the BLM has provided training for specialists at course "Recreation Planning: Effective Engagement in BLM's Land Use Planning Process," which focuses on how to develop the recreation and visitor services component of a land use plan, primarily SRMA/RMZs. Supplemental guidance (a unified strategy, a handbook, a national visitor survey) is in the development stages. Given the guidance and training currently available, the inclusion of the recreation-market-based format and ROS in land use plans under development is realistic and timely. ROS is not new to the BLM (see BLM Manual Section 8310).

With respect to the RMZs and areas managed for wilderness characteristics, BLM has described in the alternatives how these areas would be managed by VRM and route designations, as well as management prescriptions for soil and water, vegetation, wildlife and wildlife habitat, special status species, fire ecology and management, and cultural resources. These designations and management guidelines are described in the RMZ objectives and prescriptions generally would apply throughout the IFNM.

The lack of more national guidance does not negate the management scenarios portrayed in the plan. Each RMZ has a focused, measurable objective; a clearly stated set of experience and benefits that are targeted; and prescribed settings in which the recreation activities would occur. The BLM produce recreational opportunities primarily by managing the activities and the settings. Garnering experiences and benefits is up to the visitor.

Agency effectiveness in producing recreational opportunities will, by the objective date listed, be measured by asking users via survey, the degree to which they realized the targeted benefits. Typically, as stated, agency success would be accomplished if the experience provided "no less than 75 percent of responding visitors and affected community residents at least a 'moderate' realization" of the benefits. The sections on recreation management, recreation marketing, recreation monitoring, and recreation administration provide a basic set of parameters (an implementation framework) that portray the types of

actions that would be needed to achieve the objectives. Other resource uses and project proposals would be evaluated through NEPA in light of RMZ settings and the ability to produce recreational opportunities.

17(413)
Comment: In addition, BLM should change the description of the Roaded Natural ROS (3.2.3.1, page 3 47) to eliminate "wood gathering" from the list of activities associated with this ROS, as this activity is prohibited in other sections of the plan (Table 2-14).
Response: The description of "roaded natural" on page 3-47 describes the inventory of existing conditions on BLM land; it is not a designation denoting what is allowed and/or prohibited. Although wood gathering was omitted from the list of activities allowed within a roaded natural RMZ, within Section 3.2.3.1 of the Final EIS, the following note was added: "Wood gathering for campfire use while camping on public lands is generally allowed on BLM land unless specifically prohibited." The RMP is the basis for restricting this activity as deemed necessary to protect monument objects.

17(414)
Comment: I also strongly oppose limiting of group sizes relating to camping on the IFNM that is proposed on Page 2-53 through 2-59 including Table 2-14: Resource Management Alternative for Recreation. Limitations like this will greatly hinder volunteer activities that are conducted in conjunction with the conservation organizations, fellow public land agencies, as well the AZGFD with projects such as wildlife water catchments, habitat improvement projects, etc. It would be more productive to wildlife and habitat conservation as well those that chose to recreate on the IFNM to not impose restrictions on conservation or recreations activates.
Response: The proposed recreational group size limitations apply to recreational activities, and do not automatically apply to volunteer group project activities, which are considered administrative use. The group size limitations are intended to minimize the potential for adverse impacts on resources and other users of the IFNM from large group recreational activities including camping. Existing recreation sites/activity areas are small, with limited capacity for one time use, and opportunities for large group gatherings is limited, and potential expansion of their foot print over time from large group use could cause damage to Monument resources. Volunteer projects involving groups will be conducted according to project plans and service agreements that will be designed to minimize new disturbance or damage to resources. Projects such as cleanup of trash or removal of invasive vegetation can be considered administrative actions and could be accommodated, as necessary and appropriate for the monument. Volunteer service projects will need to be designed with consideration for the purposes of the monument and its plan. Additional information has been provided in Appendix D.

17(415)
Comment: In addition, BLM should locate designated campsites away from areas infested with buffelgrass and other flammable vegetation to reduce the risk of unintended fire.
Response: Though BLM has identified potential sites where overnight vehicle-based camping would be allowed based on where campsites were established by users over time (i.e., existing locations) (Map 2 13), dispersed non-motorized camping (i.e., backpacking) would be allowed throughout the IFNM under Alternative C, requiring low-impact camping methods. However, BLM would post signs in sensitive areas to restrict camping in localized areas, as necessary. Sites with high fire hazard may be closed, or seasonal fire restrictions imposed.

17(416)
Comment: Firewood Gathering
Table 2-14 (page 2-61) allows wood campfires only when firewood is from a non-monument source. Given the high unlikelihood that recreational users would carry firewood, along with their other equipment, into primitive areas, wood campfires should be prohibited in Primitive Areas. This would assist BLM in reducing the potential for illegal firewood collection.

Response: Visitor information will alert visitors to the firewood restriction, and promote use of alternative sources of heat for warmth and cooking among other low-impact camping practices.

17(417)
Comment: In addition, BLM should monitor the vegetation near designated campsites and close campsites if they are unable to manage the collection of firewood in those areas.
Response: BLM will set up a campsite monitoring system to establish baseline conditions for key indicators (including soils, vegetation, and others, at designated sites and those not designated for resource protection reasons. Sites will be checked for change over time, and if unacceptable changes or trends are detected, adaptive management response will be taken to rectify, mitigate, or minimize potential impacts on sensitive natural and cultural resources in the IFNM (as noted in Appendix D). This could include the closure of campsites for rehabilitation if resource damage occurs.

17(418)
Comment: The BLM should also include campfire safety and etiquette materials in their visitor etiquette outreach materials.
Response: Comment noted. BLM has added an administrative action to Appendix D to include distribution of campfire safety and etiquette in its outreach materials, along with other visitor-related concerns.

17(672)
Comment: Draft Goals, Objectives, and Alternatives - Recreation
Decisions for Management Actions, Allowable Uses and Use Allocations
In general a number of the alternatives for recreation require passage across SBM lands. SBM has issued a number of right of ways or easements to various users for commercial or industrial uses. BLM must either revise its plans or secure easements across private property.
Response: BLM has attempted to make clear that all land use allocations, designations, and management prescriptions apply only to public lands administered by the BLM. This note has been included on the maps depicting alternatives. If, during implementation of a particular alternative, it is necessary to acquire an easement or right-of-way from the State or a private landowner, BLM would initiate that process.

17(774)
Comment: We also request hunting be prohibited within ¼ mile of livestock or wildlife water sources so as to protect the physical integrity as well as the intended purpose of infrastructure that was financed through the Arizona Game and Fish Department or the USDA EQIP program.
Response: AGFD is responsible for enforcing hunting laws and regulations. According to the "2008-09 Arizona Hunting and Trapping Regulations" available on the AGFD website, it is illegal to camp within 0.25 mile of livestock and/or wildlife watering sources (A.R.S. 17-308), and sportsman's ethics include "Do not hunt near livestock waters where livestock is nearby; harassment of livestock is illegal." However, tree stands and blinds near wildlife waterholes are legal tools and the regulations do not prohibit hunting within 0.25 mile of a wildlife water source.

17(775)
Comment: When the question was asked, "Why not use the existing area that is currently being used?" The answer was that the use of the area would cause continued erosion and that BLM was mandated to protect the resources of this area. However, on page 2-62 #11, allowing overnight, dispersed, nonmotorized camping throughout the monument unless camping in an area is specifically prohibited for protection of resource values (e.g., signed sensitive closure areas, which could vary over time). This type of camping can produce as much destruction to an area as target shooting.
Response: Any human activity potentially may contribute to resource damage, whether inadvertent or intentional. However, our observations conclude that resource damage associated with recreational

shooting is typically very intensive and tends to result in more resource damage than that observed from camping, particularly dispersed, non-motorized camping which is expected to be of light intensity,

17(SR74)
Summary Comment: Noisy, land-disturbing activities such as target shooting and motorized vehicle use should be restricted in the IFNM. The IFNM was not established to provide recreational opportunities; BLM should demonstrate that any authorized recreational activities will not adversely affect objects of the IFNM. The monument should be reserved for quiet, low-impact activities that support the Proclamation's goal to protect the IFNM.
Summary Response: Although Presidential Proclamation 7320 does not mention recreation, BLM's management of public lands, including those in the IFNM, is guided by the Proclamation, and "pursuant to applicable legal authorities, to implement the purposes of this proclamation." BLM's primary guidance for management of public land comes from FLPMA, which requires that "management be on the basis of multiple use and sustained yield." FLPMA also requires that "public lands be managed in a manner that will protect the quality of scientific, scenic, historical, ecological, environmental, air and atmospheric, water resource, and archeological values... and that will provide for outdoor recreation and human occupancy and use." The Proclamation and FLPMA have guided BLM's development of proposed management for the IFNM to protect monument objects and accommodate multiple uses.
BLM has analyzed the alternatives presented in the Draft RMP/EIS and assessed the impacts that recreation would or could have on objects of the IFNM. Under Alternative C, in the Proposed RMP/EIS motorized vehicle use would be limited to approximately 124 miles of designated routes, and recreational shooting would not be allowed. This would provide opportunities for quiet recreation in the IFNM.

17(SR105)
Summary Comment: Do not limit camping to designated sites only. One hundred sites are not adequate to accommodate the level of hunting opportunity offered to the public and may not allow AGFD to meet management objectives using current hunt structures. Limitations like this will greatly hinder volunteer activities that are conducted in conjunction with the conservation organizations and fellow public land agencies, as well AGFD, for projects such as wildlife water catchments, habitat improvement projects, etc. Dispersed camping should be allowed monumentwide.
Summary Response: Dispersed vehicle camping will continue to be allowed in the monument, but it will be limited to those sites that have been designated for that purpose. Designated sites will be provided throughout the monument to facilitate and manage dispersal of visitors and allow camping near hunting grounds throughout the monument. Camping activity can result in localized impacts from vehicle parking and maneuvering and from persons engaging in ancillary activities. Allowing camping at locations up to the user's discretion could lead to use on sensitive grounds, and result in inadvertent damage and proliferation of related impacts. The designated, dispersed campsite system for the monument will include those campsites that have become established over time by users and have continued to receive use, or that can be reactivated to be used, if they do not present a risk of damage to resource values at the sites (based on site surveys to ensure resource protection). The system will be adjusted over time through adaptive management response as needs change, as long as new sites are suitable and not likely to result in damage to monument resources based on site-specific factors. BLM has determined through interdisciplinary review and analysis of hunting data that the RMP would provide sufficient opportunities for camping (including campsites for hunters). By restricting camping to specific locations, certain impacts may become concentrated, as noted in the Draft RMP/EIS, but BLM will be able to better enforce restrictions on camping in an effort to minimize the potential impacts camping could have on monument objects (e.g., enforce group size and/or campfire restrictions). The potential sites where BLM would allow vehicle based camping vary by alternative and are included on Maps 2-12 through 2-14.

17(SR278)
Summary Comment: There should be additional area in the IFNM allocated for primitive recreation experiences, including the area from the northeastern foothills of the Silver Bell Mountains to the gas pipeline.
Summary Response: The BLM intends to provide for primitive recreation in the more remote and less developed areas that have a greater inherent potential for providing a high quality experience. Certain areas do not have the potential to provide a primitive recreation experience due to existing land uses. The natural gas pipeline, for example, could result in uses that could conflict with the primitive setting and detract from the experience because visitors could view and/or hear equipment, vehicles, and/ or maintenance crews, reducing the potential for a primitive experience. In addition, there is a main access road that further reduces the potential for primitive recreation in that area.

17(SR412)
Summary Comment: Without clear guidance or policy that specifies how decisions will be made or implemented on the ground, conflicts may arise when managing via ROS or market-based strategies. For example, using ROS criteria (especially primitive RMZ objectives) could limit or conflict with wildlife management projects/facilities, volunteer activities, and hunting by exceeding recreation management outcomes in regards to group size, contacts, naturalness, evidence of use, facilities, and remoteness. BLM should identify how such conflicts would be resolved and provide further guidance on how ROS will be implemented on the ground.
Summary Response: The Final RMP is the vehicle providing guidance for implementing the decisions made therein. Any proposed activity will be evaluated according to the RMP management framework, goals and objectives, and proposed activities will be either approved as proposed, modified, or denied depending on their nature and requirements, impacts, or conflicts. It is anticipated that most wildlife management activities will be accommodated, unless they violate provisions of the management plan or other legal requirements. Cooperative wildlife management activities will normally be exempt from some restrictions placed on public use, but adequate safeguards to protect resource values on the monument would need to be implemented. Wildlife management will be required to be in conformance with the plan. With respect to the RMZs (including the primitive RMZ), BLM has described in the alternatives how these areas would be managed by VRM and route designations, as well as by management prescriptions for soil and water, vegetation, wildlife and wildlife habitat, special status species, fire ecology and management, and cultural resources. These designations and prescriptions generally would apply throughout the IFNM. Further, it should be noted that the RMP is intended to be a programmatic document to guide future planning and implementation activities; it cannot address every situation that could arise during the life of the RMP. However, as implementation-level activities are considered, site-specific analyses and documentation (e.g., NEPA compliance) would be completed. Refer also to summary comment and response 17(411) for additional information regarding recreation management.

17(SR425)
Summary Comment: There is not an evident protocol for calculating human carrying capacity and responding in ways that manage that activity so that it conserves into the future natural system values necessary to support future life with quality.
Summary Response: BLM agrees that there is not one evident protocol for determining human carrying capacity. BLM will use adaptive management strategies to adjust management as conditions and demands on resources change within the IFNM; these strategies will help BLM manage in ways to conserve the objects of the IFNM, consistent with the values of the public as expressed in the vision for the monument.

Category 18: Shooting

18(157)
Comment: The environmental section cites firearms as an ignition source. They are not! I saw nothing about banning smoking, matches, road flares, fireworks, flammable liquids, combustion engines ...
Response: The BLM Salt Lake Field Office has spearheaded an interagency fire prevention campaign aimed at decreasing human-caused wildfires started by target shooting (2004). Wildfire statistics report that nearly one-fourth of Salt Lake District's human-caused wildfires occurred when people were target shooting and sighting-in firearms. Target shooting sparked a 1,781-acre wildfire on the northern end of the Stansbury Mountains in Tooele County, Utah [Deseret News (Salt Lake City), June 18, 2007]. Though the risk may be minimal in the IFNM for this to occur, such potential does exist. The prohibition of other potential ignition sources during times of high fire danger is a normal procedure.

18(905)
Comment: Is it not possible that the large number of Illegal Alien traffic may account for one degree or another of the debris found at this particular location (I phrase it like this because I don't know the nature of the debris that is motivating this movement. Obviously, washers and dryers would be the result of our own citizens. However, diapers, water containers, and the like would indicate the likelihood of illegal aliens being the cause.) If it is, in fact, migrating foreign nationals why would you not prompt the appropriate government agency to cooperate with you in your mission of keeping our country clean by providing more resources to stop illegal immigration.
Response: BLM coordinates with various agencies, including, but not limited to, the U.S. Border Patrol, AGFD, Pima County Sheriff's Department, and Tohono O'odham Nation for law enforcement and resource management in the IFNM.

18(906)
Comment: BLM considers no management option for target shooting except prohibiting it unlike other critical management issues, such as land tenure, where a host of affirmative management actions are contemplated. (See 2-67 to 2-69). Similarly, public utility corridors would be actively managed (2-69-70). Remarkably, although target shooting is a higher preference for area users than horseback riding, (3-47), active management is assumed for equine use, in contrast to the proposed bans on target shooting (2-63). Worse, the BLM contemplates active management to remove shooting backstops (4-15), while completely disregarding active management of any actual shooting problems or enhancing opportunities for shooting. I am left with the sense that the analysis is not just flawed, but seriously biased against shooters.
Response: BLM has revised the Draft EIS and completed an analysis of specific areas where recreational shooting could be allowed; a summary of the analysis is included in Appendix I. Two sites (Avra Hill and Cerrito Represo) were identified as moderately suitable as a site-specific area for recreational shooting and were assessed for environmental effects in Chapter 4.

18(907)
Comment: As hunters, we do clean-up on state and private lands, due to the destruction and use by the drug cartels and illegal entrants. You, as a government agency, are undermanned and under-funded to provide this service.
Response: Keeping the IFNM clear of refuse left by users and from illegal activities is a constant challenge, and BLM appreciates those users who voluntarily clean up public lands. In addition to those efforts, BLM conducts volunteer cleanup projects and administers various agreements with the purpose of clearing the land of garbage. While it is difficult to keep up with the amount of garbage that is dumped on the IFNM, BLM will continue to rely upon volunteer and other efforts to address this problem.

18(908)
Comment: There is no reason I could find for banning/restricting target shooting in the Natl. Monument. The Antiquities Act and Clinton's order designating this monument do not ordain or even imply anything of the sort.
Response: While the Proclamation and the Antiquities Act provide specific direction on some uses of public lands, they primarily establish the management purpose of the monument and provide general provisions to meet that purpose. It is the responsibility of the BLM to identify and implement appropriate management actions consistent with the provisions of the Proclamation and the guiding principles of FLPMA. While target shooting has been identified as a legitimate use of public lands in general, it is an activity that can be restricted based on the management goals and objectives for specific BLM lands. The effects of target shooting on monument objects and other resource uses are disclosed in Chapter 4 of the Draft RMP/EIS.

18(SR1)
Summary Comment: IFNM lands are important to our activities; therefore target shooting, bird dog training, and recreational shooting should be allowed.
Summary Response: BLM has proposed restrictions on target shooting in the IFNM due to the effects this activity has on monument objects and resources, and in consideration of the safety of monument visitors. BLM understand that there is a demand for target-shooting areas in the Tucson region, and prohibitions on this activity in the IFNM would displace some shooters. However, the vast majority of BLM lands outside of the IFNM would remain open to shooting. Also see summary comment and response 18(SR20) for information on regional efforts to provide shooting opportunities.
While recreational target shooting would be prohibited under the Proposed RMP, hunting in accordance with AGFD regulations would be allowed, including hunting with dogs.

18(SR2)
Summary Comment: The IFNM should remain open to recreational shooting.
Summary Response: In developing the RMP for IFNM, the BLM is responding to the requirements of the Presidential Proclamation and FLPMA. Both mandate the protection and preservation of resources within the Monument.

18(SR8)
Summary Comment: There are sufficient laws and regulations regarding use of public land (e.g., recreational shooting, OHV use) that make it a crime to harm the land; the RMP should not introduce new law and regulation. People who break the law will continue to break the law. Rather than restricting use of the land, existing laws should be enforced. For example, misuse of firearms, fire hazards, littering, etc. require enforcement and heavy penalties.
Summary Response: Approval and implementation of the RMP will not result in passage of new laws or regulations. The purpose of the RMP is to establish a framework for managing the land, resources, and uses within the monument as established in the Proclamation and in accordance with FLPMA. Under this framework, BLM manages the land and enforces current laws, regulations, and policies. The decisions within the RMP define what types of activities or uses are allowed or prohibited within all or part of the monument. Enforcement activities are a component of BLM's management but cannot be used as a substitute for proactive land management, just as management decisions are not made as a substitute for law enforcement activities. Also note that legal uses of public lands can inadvertently cause resource damage, depending on the intensity of the use and other factors, which is one of the primary reasons why BLM develops allowable use restrictions and other management prescriptions.
Law enforcement within the monument requires and includes coordination with other agencies, and is heavily influenced by current staffing and funding. Employing additional law enforcement personnel is a question of funding appropriated by the U.S. Congress, and congressional funding legislation is beyond the scope of this RMP/EIS. Rather than making assumptions regarding future levels of congressional

funding, the RMP/EIS attempts to address resource needs and identify actions to protect those resources, which can have the effect of making existing law enforcement resources more efficient by simplifying regulations. This strategy is intended to help protect natural and cultural resources and enables BLM rangers to devote more of their time to dealing with illegal dumping and other law enforcement issues.

18(SR12)
Summary Comment: Prohibiting recreational shooting will reduce hunting opportunities and be harmful to land and game management.
Summary Response: None of the alternatives presented restrict the use of firearms to hunt game when conducted in accordance with AGFD hunting regulations.

18(SR19)
Summary Comment: If recreational shooting is banned, then next the use of any/all weapons for protection against wild animals, illegal immigrants, criminals, or terrorists will be banned in the IFNM.
Summary Response: The proposed restriction on recreational shooting sets no precedent for the discharge of firearms related to law enforcement, hunting, and personal protection, and does not prohibit visitors to the IFNM from possessing firearms . These activities and their effects are clearly distinct from recreational target shooting, and the RMP in no way implies that they will be banned in the future. Furthermore, Section 2.3 of the Draft RMP/EIS states that the alternative selected by the BLM for management of the IFNM must heed and be in accordance with all relevant laws, regulations, and policies of other government entities with jurisdiction over the IFNM. These decisions would apply only to BLM-administered land within the boundaries of the IFNM, and not to areas outside the IFNM.

18(SR20)
Summary Comment: Recreational shooters are increasingly losing locations to shoot, and banning recreational shooting in the IFNM would create a hardship on the sportsmen in Arizona. IFNM provides plenty of wide open spaces with lots of available backstops to use for target shooting. Shooters are steadily losing locations where they can train themselves and future generations in proper gun use. Open areas also provide space for shooting activities that ranges cannot accommodate.
Summary Response: BLM understands that there is a public demand for recreational shooting areas in the Tucson Basin. Early recognition of this issue resulted in a basinwide collaborative approach to address it comprehensively. In 2002, the BLM Tucson Field Office asked the U.S. Institute for Environmental Conflict Resolution to conduct a collaborative process addressing recreational shooting issues. Existing opportunities for recreational shooting were identified during this process, and proposed additional facilities were also discussed (see Final Report: Tucson Basin Shooting on Public Lands Workshop Project, June 2006, available online at http://www.ecr.gov/pdf/Tucson_Basin_Final.pdf).
After the IFNM was established in 2000, BLM has been and continues to be engaged in efforts with public and private entities to identify alternative sites where target shooting can take place in dispersed, undeveloped settings. Ongoing efforts include negotiations with the ASLD, AGFD and other non-governmental organizations to identify shooting areas near the IFNM. Also note that this RMP regulates recreational shooting only within the IFNM, and public land administered by BLM outside the IFNM boundary would not be affected by decisions in this RMP. A considerable amount of BLM-managed lands outside of the IFNM in the general region would remain available for shooting. These lands contain a number of sites regularly used for shooting in undeveloped settings. Also see also comment and response 18(SR901) regarding hunting in the monument.

18(SR21)
Summary Comment: There is more than enough land on the 128,000-acre IFNM for all recreation types. There must be a way to incorporate recreational shooting into part of it (for example, by designating certain areas for certain uses). If not, the BLM should provide for an alternative site for the recreational shooting it is displacing.

Summary Response: While target shooting is generally a legitimate use of public land and an activity that has occurred for many years on the land now encompassed by IFNM, the continuation of dispersed target shooting as well as the establishment of designated shooting areas within the IFNM presents some difficult management issues in terms of the compatibility of this use with the provisions of Presidential Proclamation 7320. That Proclamation effectively charged land managers with the proper care, protection, and management of monument objects. While the Proclamation did specifically prohibit some destructive uses, such as off-road driving and mineral extraction, determination of allowable uses was primarily left to be addressed through the land use planning process.
During the land use planning process, the entire IFNM was analyzed to identify the most appropriate locations for continued target shooting. The analysis process and results are described in Appendix I. Based on the criteria that were used in this analysis, which were tailored to IFNM's protected status as a national monument, only 2,965 acres of the 128,000 acres of public land were not eliminated by preliminary screening criteria. The preliminary criteria excluded (1) areas with a significant presence of monument objects or high natural and cultural resource sensitivity, (2) areas in which discharge of firearms is not allowed based on existing laws and regulations, (3) areas with a high sensitivity to shooting noise, and (4) areas without suitable terrain for an existing natural backstop. Based on further field analysis of the 2,965 acres, only two areas, comprising a total of approximately 629 acres, were found to be moderately acceptable for shooting activity. Alternative D includes establishing designated recreation shooting areas in these two locations and the environmental effects are assessed in Chapter 4. Other current and historic recreational activities were found to be more compatible with the care and protection of those objects for which the IFNM was established, or were otherwise resource-dependent activities, such as sightseeing or camping. More compatible recreational opportunities were proposed, with limitations. After the IFNM was established in 2000, BLM has been and continues to be engaged in efforts with public and private entities to identify alternative sites where target shooting can take place in dispersed, undeveloped settings. Ongoing efforts include negotiations with the ASLD, AGFD and other non-governmental organizations to identify shooting areas near the IFNM.

18(SR22)
Summary Comment: Do not ban recreational shooting, because shooting is a traditional activity on the IFNM. It was not causing a problem before, so if recreational shooters just follow commonsense rules, shooting should not be banned now.
Summary Response: Recreational target shooting in the IFNM has caused damage to resources. BLM has recorded extensive damage to saguaro cacti, ironwood trees, petroglyphs, and a variety of other biological, cultural, and geological resources from target shooting. Furthermore, Presidential Proclamation 7320 recognized the natural and cultural resources that exist in the planning area as the dominant reservation of public land in the IFNM. That Proclamation effectively charged land managers with the proper care and management of those objects to be protected. Because of the intensity at which target shooting occurs on the monument, it is causing significant damage to resources and has therefore been shown to be largely incompatible with the purposes of the IFNM. BLM believes that these activities do not serve to protect the objects of scientific interest for which the IFNM was designated. In addition, shooters often use discarded computers, televisions, water heaters, and other items for target practice. Since 2001, the BLM has organized 15 trash cleanup events inside the monument that collected nearly 30,000 pounds of garbage at shooting sites, and this does not include the thousands of additional pounds of shooting debris that have been collected by the Town of Marana per an assistance agreement with BLM. In terms of safety, numerous close calls from indiscriminate and unregulated shooting activity have been reported to BLM by nearby residents and visitors, as well as extensive property damage.

18(SR23)
Summary Comment: Don't punish responsible shooters who clean up after themselves by banning shooting on the entire IFNM because of the irresponsible few who leave their trash and shoot

indiscriminately. Deal with the abusers. Banning the law-abiding won't keep criminals from destructive behavior.
Summary Response: The decision to regulate recreational shooting is not an effort to punish any single user group. Rather, it is an effort to protect the objects of scientific interest that exist within the monument. While unlawful shooting behavior results in significant damage and problems within the IFNM, extensive damage is also caused by the sheer number of shooters who concentrate in certain areas of the monument, and who may be following applicable laws. Therefore, problems associated with target shooting would not be eliminated only by "dealing with" the abusers. BLM rangers will continue to patrol the IFNM and continue to work with local authorities and user groups to enforce applicable laws, regulations, and policies.

18(SR24)
Summary Comment: Do not ban recreational shooting on the IFNM, because taking guns off this land will increase the lawlessness there. Having extra eyes (from the recreational shooters) on IFNM helps catch and prevent lawbreakers and illegal immigrants from using it.
Summary Response: Having recreational shooters present on the IFNM may or may not influence the occurrence of illegal activities. The BLM has no information to suggest that prohibiting recreational shooting in an area would increase illegal activities. In contrast, BLM has responded to numerous reports of suspicious or illegal activities associated with target shooting, including confrontations between users, property damage, and illegal dumping. Also, it should be noted that the BLM does not advocate that any member of the public enforce Federal, State, or local laws, or any provision of the RMP. In addition, the RMP does not vest the public with any law enforcement, management authority, or responsibility, nor does it imply those responsibilities. The BLM rangers and other Federal, State, and local law enforcement agents who patrol the IFNM will enforce laws and provisions of the RMP once approved. Refer also to summary comment and response 18(SR 23) for additional information regarding recreational shooting.

18(SR25)
Summary Comment: Shooting is as legitimate a use of public land as any other recreational activity and should be allowed on the IFNM. It would be discriminatory to shooters not to allow it.
Summary Response: The recreational shooting restriction has been proposed as part of BLM's effort to manage resources and uses of IFNM lands in a way that meets both guidance of the Presidential Proclamation 7320 (Appendix A) and the mandates of FLMPA. BLM developed the alternatives in the RMP, particularly the proposed alternative, to specifically address management of objects of scientific interest within the monument while allowing for certain traditional uses that do not conflict with protection of those objects. Restrictional shooting poses concerns related to resource damage, property damage and public safety, and presents unavoidable conflicts with achieving resource protection in the Monument.

18(SR26)
Summary Comment: Recreational shooting disrupts other recreational activities, such as solitary contemplation, nature viewing, bicycling, horseback riding, hiking, and birding. While some shooters are responsible, others are not, and both damage the monument.
Summary Response: The BLM has considered and analyzed continuing to allow recreational target shooting (under Alternative A) prohibiting recreational target shooting (Alternatives B and C), and allowing recreational target shooting in designated areas within IFNM (Alternative D). Effects of each alternative are addressed in Chapter 4.

18(SR27)
Summary Comment: If recreational shooting is banned on the IFNM, it will move to other, less safe areas that are perhaps close to residential areas or other desert areas used for multiple recreational purposes.

Summary Response: BLM acknowledges that banning recreational shooting within the IFNM could result in displacement of this activity to new areas outside the Monument, and/or creation of new informal shooting sites with potential for impacts on various resources, uses, and safety. These impacts are analyzed in Chapter 4 of the Draft RMP/EIS. However, Presidential Proclamation 7320 recognized the natural and cultural resources that exist in the planning area as the dominant reservation of public land in the IFNM, and effectively charged land managers to protect those objects. The standard for protection on Monument lands is greater than for other BLM lands. The BLM remains willing to work with others on identifying and providing for locations outside Monument lands to provide opportunities for recreational shooting,

18(SR28)
Summary Comment: Do not ban recreational shooting in the IFNM, because it is a traditional use of public land and irresponsible shooting accounts for very little resource damage and few safety issues, which do not justify banning shooting entirely.
Summary Response: Recreational target shooting in the IFNM has caused damage to resources. BLM has recorded extensive damage to and destruction of saguaro cacti, ironwood trees, petroglyphs, and a variety of other biological, cultural, and geological resources from target shooting. Furthermore, Presidential Proclamation 7320 recognized the natural and cultural resources that exist in the planning area as the dominant reservation of public land in the IFNM. That Proclamation effectively charged land managers with the proper care and management of those objects to be protected. Because of the intensity at which target shooting occurs on the monument, it is causing significant damage to resources and has therefore been shown to be largely incompatible with the purposes of the IFNM. BLM believes that these activities do not serve to protect the objects of scientific interest for which the IFNM was designated. In addition, shooters often use discarded computers, televisions, water heaters, and other items for target practice. Since 2001, the BLM has organized numerous trash cleanup events inside the monument that collected more than 30,000 pounds of garbage at shooting sites, and this does not include the thousands of additional pounds of shooting debris that have been collected by the Town of Marana per an assistance agreement with BLM. In terms of safety, numerous close calls from indiscriminate and unregulated shooting activity have been reported to BLM by nearby residents and visitors, as well as extensive property damage. Refer also to summary comment and response 18(SR 19) for additional information on recreational shooting.

18(SR29)
Summary Comment: Recreational shooting should not be banned on the IFNM, because the monument is not currently within or adjacent to an urban setting. Additionally, the area will never be as frequently visited as the other national parks and monuments in Arizona; therefore, banning shooting for the sake of public safety is unreasonable.
Summary Response: While the IFNM is primarily located in a rural setting, development within and adjacent to its boundary increases the likelihood of urban-interface issues, including disturbance from target shooting. In addition to the growing residential development on the eastern boundary of the IFNM, several private inholdings with year-round occupancy are located within the IFNM, including a developed community. Beyond public safety considerations, the restrictions proposed for target shooting under Alternative C in the Draft RMP/EIS also would protect the natural and cultural resources in the planning area. Presidential Proclamation 7320 establishes these resources as the dominant reservation of public land in the IFNM.

18(SR30)
Summary Comment: Sensitive habitat areas need to be posted as “no shooting areas” with regular patrols to enforce the restriction.
Summary Response: The Proposed RMP would prohibit recreational shooting throughout the IFNM, including the Waterman Mountains VHA and the Desert Bighorn Sheep WHA. Implementation-level

actions such as posting signage and patrolling the monument would occur, as necessary, upon approval of the Final RMP.

18(SR36)
Summary Comment: BLM provides no basis beyond subjective statements to support a shooting ban. Specific examples of the negative impacts of shooting on the IFNM are needed if the BLM is to justify its proposed recreational shooting ban.
Summary Response: BLM has conducted additional analysis on the opportunities to offer safe recreational target shooting in specific areas of IFNM that would not conflict with BLM's responsibility to protect the objects for which the monument was established. Based on the analysis, which is summarized in Appendix I, there were only two moderately suitable sites, and it was determined that concentrating all target shooting in the two locations would result in significant resource impacts and public safety would likely be compromised. The effects of target shooting on the IFNM are assessed in Chapter 4 for those resources that would be affected. The conclusions are based upon a consideration of available information using best professional judgment.

18(SR37)
Summary Comment: The most common hazardous material that shooting involves is lead, which needs to be ingested to be harmful. Almost all of the lead created by shooting is in bullet-sized amounts that are not likely to be ingested by the public. There is a very limited hazardous materials risk to the public. Recreational shooting should not be banned on the IFNM for hazardous materials reasons.
Summary Response: The concern regarding lead as a hazardous material lies primarily in the fact that it presents a toxic hazard to birds and other animals that may ingest it. There are two types of lead poisoning, primary and secondary. Primary lead poisoning occurs with the direct ingestion of lead shot either as food or while searching for grit (small stones) for digestion. Many eagles and other predatory or scavenging birds also suffer primary lead poisoning by consuming lead shot and bullets embedded in tissues of game animals killed or wounded with lead ammunition. Secondary lead poisoning occurs when predators such as eagles or other raptors eat the contaminated tissues of birds that have died from lead poisoning.

18(SR38)
Summary Comment: The wording of the Draft RMP/EIS is too vague and can be interpreted as a total ban on any firearm use other than hunting with a license. The BLM should clarify the Final RMP/EIS so that hunting and carrying either an open or concealed weapon as well as the discharge of any firearm in self-defense is specifically allowed to continue.
Summary Response: Table 2-14 states specifically that the use and discharge of firearms would be permitted in accordance with AGFD hunting regulations. Section 2.3 states that the alternative selected by the BLM for management of the IFNM must heed and be in accordance with all relevant laws, regulations, and policies of other government entities within jurisdiction over the IFNM.

18(SR39)
Summary Comment: Ranchers must have the freedom to discharge firearms for humane purposes to dispatch sick or injured livestock they own within the monument. Recreational equestrians must have the same freedom to shoot their own injured horses.
Summary Response: The Proposed RMP would not prohibit the use of firearms by individuals to dispatch their own injured livestock for humane purposes.

18(SR90)
Summary Comment: Closing access to public lands for target shooting has an adverse effect on hunting because the opportunity to hunt safely and enjoyably is restricted.

Summary Response: Under Alternative C, BLM would permit hunting in the IFNM in accordance with AGFD regulations. In addition, Section 2.3 states that BLM management of the monument must heed and be in accordance with all relevant laws, regulations, and policies of other government entities with jurisdiction. Sighting a rifle is a necessary part of hunting and sighting of firearms in the monument would be permitted and would correspond to AGFD seasons. The sighting of inappropriate types firearms outside AGFD seasons would not be permitted in the monument.

18(SR156)
Summary Comment: If recreational shooting were to be prohibited, then next hunting would be prohibited in the IFNM.
Summary Response: All alternatives in the Proposed RMP would allow hunting throughout the IFNM in accordance with AGFD regulations. While both target shooting and hunting involve the use of firearms, these are distinct activities that have very different effects on the ground and on management. Thus, the rationale and criteria used to analyze the effects of target shooting do not generally apply to hunting. Furthermore, managing hunting is a responsibility of AGFD.

18(SR846)
Summary Comment: Limiting recreational shooting in the IFNM will only displace adverse environmental impacts on resources and safety in areas outside the IFNM.
Summary Response: BLM acknowledges that banning recreational shooting within the IFNM could result in increased recreational target shooting in other areas outside the IFNM, with the potential for impacts on various resources, uses, and safety. These impacts are analyzed in Chapter 4 of the Draft RMP/EIS. However, Presidential Proclamation 7320 recognized the natural and cultural resources that exist in the planning area as the dominant reservation of public land in the IFNM, and effectively charged land managers to protect those objects. This same standard of protection does not necessarily apply to all BLM lands, and it may be more appropriate to focus target shooting on non-monument lands in the area.

18(SR847)
Summary Comment: Recreational shooting should be allowed in the IFNM because improved access routes are limited and the area is devoid of scenery, historic sites, or other features that would normally attract hikers, picnickers, photographers, or other recreational users. It also provides a recreational shooting area near Tucson.
Summary Response: The IFNM is visited by an array of users with a variety of purposes for their visits, as has been documented by BLM. Please refer to Appendix A of the Draft RMP/EIS for a summary of the scenic, historic, and natural features for which the IFNM was expressly designated. The BLM believes that prohibiting recreational target shooting would allow for the protection of these resources.

18(SR901)
Summary Comment: Prohibiting target shooting in all 128,000 acres is not reasonable related to the goal of preservation.
Summary Response: The entire IFNM was analyzed to identify the most appropriate locations for continued target shooting (see Appendix I). Based on the criteria that were used in this analysis, which were tailored to IFNM's protected status as a national monument, it was very difficult to identify areas that would qualify as sustainable shooting areas. Many areas that were deemed safe contained sensitive resources that could be damaged or destroyed by target shooting, and many areas with less sensitive resources were not found to have safe shooting conditions. In the end, a small fraction of land in the IFNM was found to be marginally acceptable for shooting activity; Alternative D includes designating these lands (a total of approximately 629 acres in two different areas) for recreational shooting.
While target shooting is generally a legitimate use of public land and an activity that has occurred for many years on the land now encompassed by IFNM, the establishment of the IFNM did present some difficult management issues in terms of the compatibility of certain uses with the provisions of

Presidential Proclamation 7320. That Proclamation effectively charged land managers with the proper care, protection, and management of monument objects. While the Proclamation did specifically prohibit some destructive uses, such as driving off-road and mineral extraction, determination of allowable uses was primarily left to be addressed through the land use planning process. Through this process, some current and historic uses of the area were found to pose significant threats to monument objects, including recreational target shooting, which has high potential to disturb or degrade biological and cultural resources for which the IFNM was established. Some other recreational activities were found to be more compatible with the care and protection of those objects, or were otherwise resource-dependent activities, such as sightseeing or camping, with limitations.

After the IFNM was established in 2000, BLM has been and continues to be engaged in efforts with public and private entities to identify alternative sites where target shooting can take place in dispersed, undeveloped settings. Ongoing efforts include negotiations with ASLD and AGFD to identify shooting areas near the IFNM. Also this RMP regulates recreational shooting only within the IFNM, and public land administered by BLM outside the IFNM boundary would not be affected by decisions in this RMP. Eighty-nine percent of the other 520,300 acres of BLM land administered by the Tucson Field Office is open to recreational target shooting.

18(SR902)

Summary Comment: Recreational shooting should not be banned, because curtailing a popular activity (recreational shooting) at the IFNM will result in difficult situations for BLM law enforcement personnel.

Summary Response: BLM law enforcement personnel encounter a variety of difficult situations on a daily basis in the IFNM, including dealing with illegal shooting behavior, and are trained to work under high-stress conditions. Restricting shooting on the IFNM may present new challenges for law enforcement, just as it is likely that many difficult shooting-related situations that are currently encountered would decrease. Law enforcement considerations are taken into account in all management decisions, and it is unlikely that an increase in difficult situations would occur as a result of restricting target shooting.

18(SR903)

Summary Comment: There are technologies available, such as SACON® backstops, which would reduce the environmental impacts of recreational target shooting in the IFNM

Summary Response: BLM has considered the use of various technologies on the IFNM that have the potential to reduce the environmental impacts of target shooting, including SACON®. However, constructing SACON® backstops on the IFNM would present other management problems related to current BLM policy. By constructing shooting backstops in the IFNM, BLM would in effect be developing shooting areas that would be used for that purpose only. BLM IM 2008-074 outlines BLM's policy for authorizing shooting areas, which is to convey the land to another entity, either through direct sale or through a patent issued under the Recreation and Public Purposes Act. However, the Presidential Proclamation that established the IFNM prohibits disposal of land within the monument, so conveying land for dedicated shooting areas within the IFNM is not an option. For shooting to continue in the monument and be in compliance with BLM policy, it would need to continue to be dispersed in areas with no shooting facilities or developments or in areas where other land uses could also occur. The impacts of recreational shooting are discussed in Chapter 4.

18(SR911)

Summary Comment: Attempts to close any BLM land to recreational shooting should be done at the congressional level and no lower.

Summary Response: BLM can restrict uses under the planning process and, per FLPMA, BLM is authorized to issue closure orders to protect persons, property and public lands and resources.

Category 19: Lands and Realty

19(660)
Comment: An effort needs to be made to acquire state land within the monument boundary before it is sold to developers.
Response: BLM intends to acquire lands within the monument boundaries from willing sellers, including the State of Arizona, as the opportunities arise over time and as funding is available. If land and/or funding are not available, BLM will continue to work cooperatively with inholding landowners on management activities that are consistent with the goals of the IFNM.

19(661)
Comment: Goal 2 should be the removal of all utility corridors and rights of way as those permits come up for renewal. These activities are incompatible with the purposes of the Monument (not to mention the viewshed), and BLM risks legal action should it fail to address this issue appropriately. Congress should be approached to assist utilities financially with the relocation of their facilities. Why was this not even considered? BLM in the EIS process is required to examine a full range of options and it has clearly failed to do so here.
Response: Goal 2 refers to managing utility corridors, if such corridors are designated in the RMP. BLM considered an alternative to remove utility corridors, while allowing existing utilities to remain within the IFNM (Alternative B). It would be outside the scope of the RMP to make decisions about relocating the existing facilities or soliciting funding from Congress for such efforts. At the other end of the range of alternatives, BLM considered maintaining all of the existing corridors (Alternative A) or maintaining the existing corridors with one additional segment, although all corridors would have a reduced width (Alternative D). Rights-of-way for utilities are not inherently incompatible with the purposes of the monument. To mitigate the impacts that could potentially come from this use, the RMP proposes a range of management actions and restrictions with regard to rights-of-way and corridors. BLM does retain discretion to renew right-of-way authorizations, and removal of rights-of-way could be considered if the right-of-way holder has not complied with the terms of the right-of-way agreement.

19(662)
Comment: What is the funding mechanism for BLM to acquire non-Federal inholdings mentioned? What guarantee is there this will happen? What is the long-term strategy to solve the inholding problem in IFNM. How will it be funded?
Response: The BLM's ability to acquire land is based on available funding, staff, and having a willing seller. Thus, there is no guarantee that non-Federal lands within the IFNM will be acquired. The BLM prioritizes land acquisitions on a statewide basis, and lands are further prioritized within the IFNM, largely based on the need to protect monument objects and other criteria that reflect the protective purposes of the monument. Refer also to comment and response 19(660) for additional information on lands and realty actions.

19(663)
Comment: 4-131 Past, Present, Future
Neglects to mention plans for a billion dollar 2000 MW gas-fired power plant (the Toltec Power Station) and associated high voltage transmission lines (connecting Palo Verde Nuclear Generating Station, Toltec, and Sta. Ana, Sonora, Mexico.) These facilities would have been built immediately east of and almost adjacent to the Sawtooth Mountains (and just north of the West Silverbells) and would have affected ground water, land subsidence, air quality, viewshed, and so on. The city of Eloy planned to annex the region and turn it into an industrial area.
Response: The Arizona Corporation Commission denied the application for the Toltec Power Station in January 2002. No information is available at this time to indicate that this project is being reconsidered by the project proponent. At this time, it is unclear if the City of Eloy will annex this area.

19(664)
Comment: The Arizona Corporation Commission ("ACC") Staff ("Staff') has reviewed the Ironwood Forest National Monument ("IFNM") Resource Management Plan and Draft Environmental Impact Statement that was provided to us on disc by the Bureau of Land Management Tucson Field Offices. Staff has serious concerns for electric reliability in southern Arizona whenever the viability of any electric transmission corridors in that portion of the state are compromised. Staff requests that you fully weigh the significant impact to Arizona's electric infrastructure with any decisions you make with regard to existing electric corridors presently passing through the IFNM.
Response: BLM has considered re-designating the existing corridors (Alternative A) and adding another utility corridor segment within the Sawtooth Mountains (Alternative D). For utility corridors, BLM's proposed alternative is Alternative B, which would result in no designated corridors; land use authorizations for rights-of-way would be considered only when required by law. Presidential Proclamation 7320 provides guidance for managing the monument for "the purposes of protecting the objects identified." Additionally, protection of the monument objects is defined as maintaining the objects over time, such that any human-caused change or impact on the known biological, geological, and archaeological monument object(s) would be undetectable or measurable only in small and localized areas and the integrity of the object(s) would be conserved for future generations. Excluding utility corridors from the monument would best protect monument objects. As further documented in Appendix K, the decision that the proposed plan include Alternative B for utility corridors was based on the need to balance the National Energy Policy Act of 2005 (PL 109-58) and Secretarial order 3308: Management of the National Landscape Conservation System, while complying with NEPA (PL 91-190 as amended) to analyze a full range of alternatives and to appropriately consider and respond to input from the public sector.

19(666)
Comment: Page 2-67
Goal 1. "Secure non-Federal land and interests in land to further the natural ...." Objective 1. "Acquire lands and conservation easements from willing sellers."
We have commented on previous drafts with a request to insert the word, "un-coerced" prior to "willing sellers." Our private property is not for sale.
Response: The term "willing seller" implies that the property owner was not coerced. BLM does not intend to coerce property owners into selling their land. The BLM anticipates that acquisition of land within the IFNM would depend on a number of factors, including resource values, the threat of potential development, availability of funding, landowner interest, and the agency with jurisdiction.

19(667)
Comment: Alternative A (Map 2-15) provides for two (2) one-mile-wide corridors for the aforementioned EHV transmission lines. However, the northern portion of the IFNM west of Range 7 East does not contain a corridor for the existing TEP 345 kV transmission line. BLM staff has characterized this as a "mapping mistake" and stated that a one-mile wide corridor should have been represented for the entire length of the line within IFNM.
Response: Under the Phoenix RMP (BLM 1989), utility corridors were designated only within specific areas called "resource conservation areas," or "RCAs," where BLM would more intensively manage uses compared with areas outside the RCAs. Portions of the IFNM overlap with the previously designated Silver Bell RCA, which included only those corridors shown on Map 2-15. Though there is an existing high-voltage transmission line through this area, no corridor was officially designated under the 1989 RMP for the area.

19(670)
Comment: Draft Goals, Objectives, and Alternatives - Lands and Realty
"Goal 1: Secure non-Federal land and interests in land to further the natural and cultural resource and public and administrative access goals for the monument."
The goal, as it is written, appears to advocate active acquisition, something that the proclamation does not address. SBM suggests the inclusion of the phrase, "as such lands become available for purchase from willing sellers."
Response: The goal of securing non-Federal lands and interests in lands to further the natural and cultural resource and public and administrative access goals is clarified by Objective 1, which reads "Acquire lands and conservation easements from willing sellers," and the management actions, which include "Acquire non-Federal land or interests in land within the IFNM from willing sellers by purchase, exchange, or donation, as opportunities arise."

19(673)
Comment: Recommendation: BLM should avoid important BLM lands, including Ironwood Forest National Monument, in its discussions with DOE reference the West-wide Energy Corridor PEIS. Further, BLM should adopt the management prescriptions outlined in Alternative B (reference Energy Corridors and Rights-of-Way) as the Proposed Plan.
Attachments: Appendix H
1. Department of Energy response to Representative Raul Grijalva addressing concerns of the Congressional NLCS Caucus, 1/31/20
Response: With respect to utility corridors, BLM's proposed plan is Alternative B, the designation of no utility corridors, as the analysis has determine this would best protection the objects of the monument (see Appendix K for more details). The West-wide Energy Corridor Final Programmatic EIS does not propose any corridors within or near the IFNM.

19(675)
Comment: Draft Goals, Objectives, and Alternatives - Lands and Realty
Decisions for Management Actions, Allowable Uses and Use Allocations
Number 1 ignores valid existing rights and SBM requests that this caveat be added to all alternatives.
Response: The language of the Proclamation establishing the IFNM states that "all Federal lands and interests in lands within the boundaries of this monument are hereby appropriated and withdrawn from all forms of entry, location, selection, sale, or leasing or other disposition under the public land laws, including but not limited to withdrawal from location, entry, and patent under the mining laws, and from disposition under all laws relating to mineral and geothermal leasing, other than by exchange that furthers the protective purposes of the monument." The Proclamation also states: "The establishment of this monument is subject to valid existing rights." The language of the Proclamation applies to all alternatives, and is discussed in Section 2.3.1. Under this guidance, BLM would allow valid existing claims to be exercised; however, land would remain under BLM's jurisdiction unless land were patented through an exchange process that could further the protective purposes of the monument.

19(677)
Comment: It is important for SWTC to have a provision that the current right-of-way permit be renewed when the appropriate time arises. Due to the rapid growth in Pima County and Southern Arizona, a clause should added to each alternative that would pose no restriction on the possibility of future upgrade of the current transmission line to a higher voltage. Should SWTC require future upgrades, the SWTC existing 50 foot right-of-way, will require an additional approximate 20 feet for a total of a 70 foot right-of-way. At this time, SWTC does not have a timeframe when such upgrades would be necessary.
Response: BLM would review the future upgrade of an existing transmission line to a higher voltage on a case-by-case basis, as site-specific analyses may be required to assess the impacts of such an upgrade on

the resources and objects of the IFNM. Refer also to summary comment and response 19(674) for additional information on lands and realty actions.

19(SR665)
Summary Comment: BLM should provide for utility corridors commensurate with existing and planned electric transmission facilities within the RMP.
Summary Response: BLM has considered existing and planned electric transmission facilities under the range of alternatives. The planned electric transmission facilities of Tucson Electric Power and Southwest Transmission Cooperative could be accommodated through either existing rights-of-way (which could be renewed in accordance with 43 CFR 2800).

19(SR668)
Summary Comment: Designated utility corridors should be 1 mile wide to accommodate route variations such as elevation, resources, and landforms.
Summary Response: BLM has considered maintaining the 1-mile-wide corridors under Alternative A. The narrower corridors of Alternatives C and D were proposed to provide greater protection to monument resources by confining impacts to a smaller area. These narrower corridors would still allow adequate room to accommodate additional utilities. However, the Proposed Plan for utility corridors is Alternative B, which would not provide for utility corridors. As documented in Appendix K, additional analysis since the Draft RMP/EIS has determined that Alternative B, which still retains existing rights-of-way, best protects the objects of the monument.

19(SR669)
Summary Comment: If present and future electric transmission line corridors are not fully provided for in the Final RMP, then a comprehensive discussion and analysis must be included for the impacts upon southern Arizona and the nation of either 1) loss of electrical supply to major cities and industries in the southwestern United States, or 2) the costs of constructing new lines in new locations to replace the existing 345-kilovolt line and the costs of establishing and siting new paths for future lines to replace those planned over the past four decades.
Summary Response: The plans of the area's major utility stakeholders have been considered in development of the alternatives. Refer also to comment and response 19(664) for additional information on lands and realty actions.

19(SR671)
Summary Comment: Tucson Electric Power expresses concern regarding acquisition of right-of-ways.
Summary Response: The alternatives presented would allow for renewal of existing rights-of-way, as described under the avoidance and exclusion areas decision that states, "valid pre-existing authorizations (i.e., rights-of-way) would be recognized." BLM also has added the following clarifying statement to the alternatives (Table 2-15, under "Avoidance and Exclusion Areas"): "Existing rights-of-way may be renewed in accordance with 43 CFR 2800." BLM has considered existing and planned electric transmission facilities under the range of alternatives. Tucson Electric Power's and Southwest Transmission Cooperative's planned electric transmission facilities could be accommodated through existing rights-of-way (which could be renewed in accordance with 43 CFR 2800).

19(SR674)
Summary Comment: SWTC expresses concerns regarding renewal of rights-of way.
Summary Response: The alternatives presented would allow for renewal of existing rights-of-way, as described under the avoidance and exclusion areas decision that states, "valid pre-existing authorizations (i.e., rights-of-way) would be recognized." BLM also has added the following clarifying statement to the alternatives (Table 2-15, under "Avoidance and Exclusion Areas"): "Existing rights-of-way may be renewed in accordance with 43 CFR 2800."

19(SR676)
Summary Comment: Decisions for lands and realty should note that land would only be acquired through proper legal channels, and not through condemnation.
Summary Response: BLM does not have legal condemnation authority unless specifically given by Congress to achieve particular Congressional acts, and BLM does not intend to use the process of condemnation to acquire lands within the IFNM. Refer also to comment and response 19(660) for additional information on lands and realty actions.

Category 20: Travel Management

20(91)
Comment: 4.8 Irreversible and Irretrievable Commitment of Resources
"Implementation of the any of the management plan alternatives would not result in impacts that could be characterized as irreversible and irretrievable commitments as the RMP would provide objective for resource management and guidance for future activity and implementation-level decisions that minimize the potential for irreversible and irretrievable impacts."
To attempt to manage areas with valid existing claims such that access is impossible or ground disturbing activities are prohibited would result in an irreversible loss of mineral resources and an unconstitutional taking of private property.
Response: BLM considered mining claims when developing travel route designations. Lands with existing active claims will continue to be accessible under 43 CFR 3809 regulations. Ground-disturbing activities associated with existing claims could continue, but activities beyond "casual use" as defined in 43 CFR 3809.5 will require an approved plan of operations before work on the ground can proceed. A validity determination will be conducted as part of the plan of operations review process

20(161)
Comment: On Page 2-79, "Motorized use for administrative access is allowed on a case-by-case basis provided route is not subject to improvements," I do not support the language chosen as this limits the AGFD staff from monitoring of wildlife, habitat and water sources located within the IFNM. It also hinders conservation organizations from assisting the AGFD with maintenance, enhancement and redevelopment of the habitat located within the IFNM. There needs to be an inclusion of wording that allows for monitoring by the AGFD personnel without the need of the Department requesting permission especially on a case-by-case basis. As well permission without excessive limitations, like the stated 'case by case' basis, that will make habitat conservation activities easily achievable as well fundamentally possible.
Response: Habitat conservation activities by the BLM, partners, or other parties will be conducted as needed to achieve management objectives in the RMP. Administrative access will be accommodated for these activities as appropriate. Refer also to comment and response 20(530) for additional information on administrative access granted under an agreement between BLM and AGFD.

20(164)
Comment: I would think the percentages of the IFNM defined in Alternative B and Alternative C that would be reserved for primitive use would create a concentration of motorized traffic in the accessible areas which would lead to a greater amount of ground-disturbing activities, degradation of water quality in localized areas and result in a greater degradation of wilderness characteristics in those areas.
Response: BLM considered the distribution of uses, including increased visitor use and impacts in localized areas, when developing alternatives to designate areas as closed to motorized travel and routes for motorized use. These potential impacts are addressed throughout Chapter 4.

20(166)
Comment: Preservation is excellent, but it must be balanced with the needs of current generations to use the resources that this great country has to offer. I feel that recreational vehicle use is a necessity for this area.
Response: Recreational vehicle use is accommodated in the proposed plan on designated roads and primitive roads. BLM has determined through careful interdisciplinary analysis that Alternative C will provide a balance between visitor use and resource protection.

20(168)
Comment: Recommendations: BLM should address travel management on a landscape-wide basis by addressing the impacts of all roads in the planning area and accounting for the landscape-wide impacts of these roads. Comprehensive travel management planning should occur within the context of the RMP.
Response: BLM engaged in an exhaustive, landscapewide analysis of the travel network within IFNM prior to making route designations. See the "Route Evaluation Process for Travel Management Planning" in Appendix G of the Draft RMP/EIS. Further information on the evaluation of each individual route is available at the BLM Tucson Field Office.

20(171)
Comment: The Sonoran desert tortoise (Gopherus agassizii) is specifically mentioned in the Proclamation. Roads and routes in high quality tortoise habitat should be limited to administrative use (unless otherwise duplicative or unnecessary, in which case they should be closed entirely), with travel stipulations limited in the RMP.
Response: The Sonoran desert tortoise and its habitat were considered in developing the proposed travel management designations and alternatives. Motorized routes are minimized in Category 1 and Category 2 habitat.

20(172)
Comment: What is meant by "vehicle types?"
Response: Under 43 CFR 8340, BLM can regulate the type of vehicles that use travel routes on BLM lands. For engineering purposes, the type of vehicle that a route is intended to accommodate dictates the geometry of the route: width, grades, turning radii, side and overhead clearance, and other physical parameters. The vehicle type indicated for each route in the table in Appendix G under the item named "DSTD," defined on page G-13, establishes the typical vehicle the route will be managed to accommodate. Other vehicle types may use the route, but the design and maintenance standards will be established by the typical vehicle type for the route.

20(174)
Comment: The ability to have facilities located at different points through the IFNM area would allow a greater level of access in that there would be places to use the restroom, procure water and essentials [because] I would think the percentages of the IFNM defined in Alt B and Alt C that would be reserved for primitive use would create a concentration of motorized traffic in the accessible area which would lead to a greater amount of ground-disturbing activities, degradation of water quality in localized area and result in a greater degradation of wilderness characteristics in those area.
Response: The IFNM is a unit within BLM's National Landscape Conservation System (NLCS), and is managed, in part, to maintain the character of the existing setting. Part of the overarching strategy and vision for NLCS units is for BLM to work with local communities with regard to amenities and visitor facilities, which would be located in communities adjacent to BLM lands. As such, BLM has not included construction or installation of any significant visitor use facilities in the Draft RMP/EIS (refer to Table 2 14 under "Visitor Services"; additional information also has been included in Section 2.2, "Alternatives Considered But Not Analyzed in Detail"). The proposed RMZs indicate the character of the IFNM that will be preserved to achieve the targeted recreational benefits/outcomes. Generally, visitors will be

expected to be self-sufficient, and no facilities will be provided. However, minimal facilities could be installed in the future if needed to protect public health and safety and resources, particularly in the Roaded Natural RMZ, where the greatest amount of visitation is expected to occur.

20(175)
Comment: In addition, BLM should actively seek partnerships and scientific endeavors in order to better inform itself regarding ongoing and potential negative impacts to Monument Objects, and utilize newly acquired information, such as archaeological surveys, in route decisions.
Response: As indicated in Appendix D, BLM will pursue partnerships and scientific relationships with Federal, State, local, and educational agencies and entities to conduct inventory, monitoring, and research to enhance adaptive management of the transportation system within the IFNM. See Section 2.3.5 for additional information on the development of a monitoring plan in the IFNM, which will include a process for gathering public input.

20(176)
Comment: Routes left open will attract increasing traffic of ATVs and dirt bikes, leading to still more impacts in the years ahead. The final plan should assume increases in traffic on any routes left open, and the impacts of that traffic must be considered.
Response: During the route evaluation process, and in its cumulative analysis, BLM considered the impacts of increased use of designated routes within IFNM. As monitoring identifies changing conditions on the IFNM, BLM can and will adjust management accordingly, including changes to route designations as consistent with the Proclamation and NEPA (refer to Section 2.3.5 for more information on adaptive management).

20(177)
Comment: Since the Sawtooth Mtns. have been degraded by 4x4, will it be reasonable to keep protecting it?
Response: The Presidential Proclamation mandates the protection of resources within the monument, including the Sawtooth Mountains. Modifying the boundaries of the IFNM, or excluding an area from BLM's protection, is beyond the scope of the RMP. Degraded areas in the monument will be targeted for restoration as needed.

20(180)
Comment: The roads should be planned and controlled to allow Border Patrol to do their job.
Response: When routes were evaluated for designation, the criteria that were applied included the need for access to meet management objectives and other administrative requirements (including U.S. Border Patrol use and access needs for fire management activities and vehicle types). Existing travel routes across the monument are currently used in U.S. Border Patrol operations in conjunction with aircraft operations. Traffic associated with illegal border activity moves across the monument, and impacts on natural resources occur along roads, transfer points, range improvements, and foot trails. The transportation system will continue to support border zone operations by law enforcement agencies.

20(526)
Comment: I would like to see more routes designated as Non-Motorized. I am most concerned about the area north and east of the Silverbell Mountains between Ragged Top and Red Hill as well as the area around the Samaniego Hills.
Response: Upon further review of wildlife and vegetation management objectives for these areas, some routes and portions of routes have been adjusted in the Proposed RMP to allow non-motorized access only, which increases the miles of routes designated as non-motorized. While motorized access is limited in these areas, some motorized access is preserved to provide access to high-quality recreational opportunities.

20(527)
Comment: I would also like to see Route 620B near Ragged Top designated as Non-Motorized.
Response: Motorized access within the Ragged Top area is limited by natural features and will be further restricted by specific management actions, including route designations, in the RMP. Route 620B preserves one of the few opportunities to approach Ragged Top by vehicle. The southern end of this route, which further climbs the bajada slopes of Ragged Top, will be designated as non-motorized in the proposed RMP (at the route's junction with 621B1).

20(528)
Comment: G-2 Route Evaluation Criteria
These criteria are arbitrary and reflect no serious basis in fact. There is no discussion or analysis of the criteria and how their choice might impact the Monument and its resources.
Response: The criteria were specifically identified based on the monument resource values, issues, concerns, access needs, and management objectives defined during information gathering and public scoping for the RMP. The criteria were applied to identify route designation alternatives and select the appropriate travel management designation given the location of the route, resource values present, and its access purpose. The database for the route inventory and evaluation, available for public review at the BLM Tucson Field Office, contains the specific factors addressed for each route.

20(532)
Comment: Recreational Management Zones
Maps 2-12, 2-13 and 2-14 show areas that have both motorized and non motorized zones and motorized and no motorized routes. On attachments 1, 2 and 3 you will find places where motorized travel is allowed in a no motorized zone. [Maps unreadable]
Response: The motorized routes shown with non-motorized zone adjacent to the route are excluded from the prescription applicable to the zone; either by setback on one side or both, the road's right-of-way is excluded from the non-motorized zone. The maps were revised to improve readability in the Proposed RMP/Final EIS.

20(534)
Comment: Unidentified and/or undesignated roads: 620 PA, 620 OA, 622L, 627E, 627B, 627M, 629 M, 632A1 A, 632A1 B, 632B, 629 L -- no access designation indicated in the DRMP.
Response: These routes traverse lands that are the sole jurisdiction of ASLD. While all routes within the boundaries of the IFNM were inventoried, and most were evaluated, BLM will not designate those routes that lie entirely on non-Federal lands unless they are essential for providing access to monument lands and need to be managed consistently. Route designations on non-Federal land would only be implemented if BLM acquires non-Federal lands, or acquires easements or rights of way, in which case the route will be managed according to designations and access needs on adjacent federal lands.

20(535)
Comment: Road 625 A-- Road designation on map for Alternative C is inconsistent with overnight camping allowed in Alternative C
Response: Route 625A is designated for motorized use with a day-use only restriction. Under the proposed alternative, motorized camping would not be allowed on this route because there are no motorized camping sites identified there, due to the day-use restriction. BLM could not identify any inconsistencies within the alternative with respect to camping and the designation of route 625A.

20(536)
Comment: Missing roads: 1. A short road central to Section 21 branches east from the railroad grade (625) and terminates at a mine. This is missing from the DRMP maps.

Response: This route accesses active mining claims and a mine adit, posing a public hazard. The route has been added to the transportation inventory and designated to allow non-motorized access only. It is presently closed to motorized travel and will remain closed. Access to existing active mining claims is considered administrative use and will be accommodated by the route designations allowing vehicle use, and for non-motorized routes under an exception for access to claims pursuant to 43 CFR 3809. Access needs beyond casual use will require a plan of operations under all alternatives, including road improvement or reconstruction if needed. This has been clarified in the RMP in Appendix D, "Administrative Actions," under the travel management section.

20(538)

Comment: The Following Roads should be further restricted (beyond Alternative C)as follow:
Township 11 Range 8: Non-Identified Roads
1. The short road central to Section 22, which connects 625 A to a wash, and which serves no purpose other than to facilitate and encourage illegal motorized travel in that wash, is not identified.
2. The short road central to Section 22, which connects 620F3 to a wash, and which serves no purpose other than to facilitate and encourage illegal motorized travel in that wash, is not identified.
2Z--The BLM ought to consider closing this road to all motorized access except the electric company. It is unnecessary for ranching purposes. It ends at a wash, which only encourages OHV recreationists to drive up and down a sensitive xeroriparian wash that is a major corridor for bighorn sheep. When the OHV recreationists travel north in this wash they eventually encounter the fence that runs along road 2J3. This fence is frequently found cut open or mangled at this location. However, the electric company absolutely MUST have unfettered access as needed.
Response: The route described is Route 625C. It is designated for non-motorized use in the proposed alternative. The route described is Route 620F4, and it is designated as non-motorized in the proposed alternative.
Route 2Z has been designated as non-motorized in the Proposed RMP/EIS to reduce conflicts with bighorn sheep as they move through a corridor linking the Silver Bell Mountains with the West Silver Bell Mountains. The route does not service any power line.

20(539)

Comment: ASARCO – Draft Goals, Objectives, and Alternatives – Transportation and Public Access Decisions for Management Actions, Allowable Uses and Use Allocations
Number 1 shows areas closed to motor vehicle use for alternatives B and C in areas designated for management of wilderness characteristics. Valid existing claims in these areas need to be recognized and provisions made for them. This is referred to in the Summary on page S-13 but not addressed in the alternatives.
Response: Access to existing active mining claims is considered administrative use and will be accommodated by the route designations allowing vehicle use, and for non-motorized routes under an exception for access to claims pursuant to 43 CFR 3809. Access needs beyond casual use will require a plan of operations under all alternatives, including road improvement or reconstruction if needed. This has been clarified in the RMP in Appendix D, "Administrative Actions," under the travel management section.

20(540)

Comment: Recommendation: As non-federal lands are acquired, BLM should analyze relevant portions of the motorized and non-motorized transportation network to determine if access to the acquired parcels is still required by existing rights. If it is not, then the BLM must limit those routes to help protect Monument Objects.
Response: As non-Federal lands are acquired, the route designations in the RMP will be reviewed and updated as necessary. Each route will be evaluated based on the criteria used to evaluate all routes in the IFNM, as presented in Appendix G, in addition to any new pertinent information.

20(547)
Comment: AGFD: Catchment 730 is located in the Samaniego Hills. The Route number accessing this catchment is 2A and 2A2 (see Appendix G). Every alternative for Route number 2A and 2A2 shows the Designation Code C08.
AGFD: We request Route Numbers 2A and 2A2 be given Designation Code ML06 UserAdminMtrPermiteeMtr.
Response: Routes 2A and 2A2 cross private land adjacent to the exterior of the monument and do not provide access to wildlife waters. Access to Catchment 730 would be provided by Routes 2E or 2F:

20(548)
Comment: the Department suggests clarifying within the document to provide the level of detail necessary to understand route designation decisions within the planning area.
Response: Route evaluation criteria and factors considered in the designations are described in detail in Appendix G, and the designations are indicated in the table listing the route designations. Further information on each route is contained in the IFNM route evaluation database available at the BLM Tucson Field Office.

20(550)
Comment: NTHP: The Route Evaluation Tree, which BLM adapted to develop the route designations, is flawed and fundamentally inconsistent with the intent of the proclamation. The president made clear in the proclamation his intention to limit motorized travel to designated roads in Ironwood Forest. Accordingly, BLM must make a threshold determination that each route evaluated during the route evaluation process meets the definition of a road. See 43 U.S.C. § 1732(a) (stating that public land dedicated to specific uses by "other provisions of law ... shall be managed in accordance with such law"). The description of the Route Evaluation Tree provided to the public within the Draft RMP does not show that BLM made this determination for each route. See Draft RMP at App. G-1-24. What the Draft RMP reveals is that BLM considered a number of criteria broadly categorized as "resource concerns," "access concerns," and "political concerns" during the route evaluation process, but did not consider what the proclamation intended to be the dominant concern: whether a route qualifies as a "road." Because BLM failed to incorporate this consideration into the route evaluation process, it cannot show that the proposed route designations comply with the proclamation.
BLM should reevaluate the criteria they used in designating the travel system in the Draft RMP and develop a travel system which meets the requirements provided in the Monument Proclamation.
Response: The route evaluation process did consider the requirements in the Proclamation. The Proclamation directs BLM to prepare a transportation plan and to prohibit motorized and mechanized use off road as part of that plan. A critical step in the development of the transportation plan was to evaluate each route within the context of the overall purpose of the IFNM. As part of the evaluation process, BLM assigned an asset type (road, primitive road, or trail) to each route, based on access needs, functional requirements, management objectives and resource values involved. Motorized and mechanized travel are only allowed on roads and primitive roads designated for such use, in accordance with the Proclamation. (See Table G-1.) Appendix C has been modified to clarify the designations of each route.

20(552)
Comment: NTHP: 2. Proposed road designations will not provide protection for archaeological objects in Ironwood Forest.
The Draft RMP contains no evidence that BLM surveyed the proposed travel network for prehistoric and historic objects. Without an informed understanding of the location and condition of prehistoric and historic objects in Ironwood Forest, BLM simply cannot show that the road designations proposed in the Draft RMP will protect the National Monument's archaeological objects as required by the proclamation.
NTHP Recommendation: Reevaluate proposed road designations after conducting a comprehensive survey of the proposed travel networks for prehistoric and historic objects. Disclose and analyze this

information in the Final RMP and provide a new or amended alternative reflecting this new information and provides for the protection of archaeological objects in Ironwood Forest.
Response: Information on cultural resources was considered in developing route designations. Information included previous cultural surveys conducted on IFNM, and a special study conducted in 2005 specifically to gather information for preparing the RMP. Additionally, cultural surveys were conducted in 2007 and 2008 for motorized routes in the monument, as well as some non-motorized routes. Surveys will eventually be completed for all the travel routes in the monument (roads, primitive roads, and trails) and are a priority for available funds. New information from the 2007 and 2008 surveys was considered in the route designations in the Draft RMP, and that resulted in several adjustments to those designations based on the need to protect cultural resources. These adjustments are reflected in the Proposed RMP/EIS. New information revealed by future surveys will be considered to ensure cultural resource values are protected. This review included identification of historic roads and trails. Many of the routes in use today are historical routes dating to the early 1900s, although some have been realigned over time, or their use has shifted due to changing land use needs. No site-specific cultural resource information will generally be included in documents available to the general public. Site information is sensitive data and is not available for public review. Consideration of cultural resource values in the route designation process was consistent with Bureau guidance, including BLM WO IM 2007-030.

20(555)
Comment: It is critical to SWTC that motorized access be limited to administrative purposes only within the utility corridor. Any recreational use along the corridor should be limited to non-motorized activities such as hiking, mountain biking, walking or equestrian traffic.
Response: Route 601BC is the service road for the existing power line within this corridor (Corridor 2). It was designated in the draft plan for non-motorized use, with exceptions for administrative purposes. A route designated for motorized use (Route 602) parallels the power line on the west within the corridor north of Cocoraque Ranch Road. This route does not interfere with the facility and will remain designated for motorized use.

20(557)
Comment: Finally, the Proposed Plan uses the term "non-motorized" to include "mechanized vehicles." Since neither motorized nor mechanized vehicles are permitted off road in the Monument, this term should not be used to describe corridors in the Monument that may be used by mechanized vehicles without clarifying that they must also meet the definition of a "road."
Response: The BLM initially interpreted the term "off road," as used in the Proclamation, as referring to a prohibition of "cross-country" vehicular travel, including mechanized vehicles such as mountain bikes, and developed various travel management decisions based on this interpretation. A more literal reading of the term "off road" produces a conclusion that would prohibit motorized and mechanized vehicle use off a designated road system (including primitive roads). Because the BLM's trail definition found in IM 2006-173 (Implementation of Roads and Trails Terminology Report) could include both motorized and mechanized vehicle use, such vehicular trails, in light of a literal interpretation of "off road," would not be allowed in the IFNM. Thus, we concur with this aspect of your comment. To clarify the BLM's intended management regarding this issue, the Proposed RMP/EIS contains revised language and prescriptions in Table 2-16 and Appendix G.

20(559)
Comment: Specific examples of problematic management designations in the Draft RMP include:
- No BLM surface lands would be closed to vehicular traffic, and motor vehicle use would be limited to designated roads and trails on 128,400 acres pp. 4-8. As noted above, trails are not roads and neither motorized nor should mechanized vehicles be permitted on trails in the Monument.
Response: This line has been revised to delete the reference to "motorized trails," which do not occur within the IFNM.

20(560)
Comment: Specific examples of problematic management designations in the Draft RMP include:
- 4.3.1.4 Alternative C Approximately 10,880 acres of the BLM surface lands would be closed to vehicular traffic: motor vehicle use would be allowed on "designated routes" on the remaining 117,520 acres. Draft RMP, pp.4-6. Since routes may mean transportation corridors other than roads; this term should not be used in describing the transportation system in the Monuments.
Response: This line has been revised to clarify that motorized use is allowed only on routes that have been designated for motorized use.

20(561)
Comment: A number of routes already identified on the travel network for the Monument clearly violate the Proclamation, because they do not meet the definition of a "road." Specific routes, based on the route identifiers used in the Draft RMP include, but are not limited to (this list is not comprehensive; other designated routes most likely also violate the Proclamation):
BLM Route 601A1, BLM Route 601E, BLM Route 604A3, BLM Route 625E, BLM Route 620H1, BLM Route 638C.
Response: Routes do not need to meet the definition of a road to be considered through the RMP process for designation of transportation assets (roads, primitive roads, and trails). Those determinations are made in the transportation planning process developed pursuant to applicable legal authorities for BLM lands as provided for in the Proclamation.

20(562)
Comment: in order to meet the requirement of protecting Monument Objects, BLM must calculate habitat fragmentation and make decisions regarding travel management based on reducing fragmentation of wildlife habitat.
Response: Wildlife habitat was considered under several criteria used during the route evaluation (see criteria listed in Appendix G under "Route Evaluation Criteria"). Because little information exists on the specific effects of roads on wildlife and wildlife habitat in the Sonoran Desert, the BLM Tucson Field Office has partnered with AGFD to conduct a study to determine the effects of road density and intensity of road traffic on Sonoran Desert wildlife in various ecological settings. Field study sites will be located in the IFNM and the White Canyon Resource Conservation Area. The information from this study which was started in 2009 will be used by BLM to enhance management of the Sonoran Desert through better travel management planning, rangeland health evaluations, wildlife habitat management plans, and other relevant planning efforts.

20(563)
Comment: Table 2-16 (Draft RMP, pp. 2-76 - 2-77) describes that as non-federal lands are acquired, lands would be designated for OHV use consistent with the maps presented in the RMP. However, the RMP does not describe the process it will use for designating travel routes on these non-federal lands.
Response: The routes throughout the monument were evaluated and alternatives for their designation were identified based on available information. The designations shown on the travel management maps in the draft plan on non-Federal lands have been removed from the Proposed RMP due to concerns raised by the landowner. Upon acquisition of non-Federal lands, routes would be reevaluated using the same evaluation process described in the RMP.

20(564)
Comment: Designate areas for off-road vehicles and for jeep trails.
Response: The route designations allowing motorized travel will be available for motorized vehicle use subject to the use restrictions established in the RMP and travel management plan. Motorized trails and areas designated for off-road travel are precluded from consideration by the Proclamation.

20(565)
Comment: I would like to see the following routes designated Non-Motorized: 627, 627C, 627F, 626A, 626, 621-1, 621, 621E, 621F1, and 621F2.
Response: These routes are needed for vehicle access for administrative purposes and public use to achieve various management objectives. Further information on each route is contained in the IFNM route evaluation database available at the BLM Tucson Field Office.

20(566)
Comment: None of the terms are defined (what is a management objective or an administrative requirement?
Response: The term "objective" is defined in the glossary as the planned results to be achieved within a stated period. Objectives are subordinate to goals, more narrow in scope, and shorter in range. Objectives must specify times for completion, and products or achievements that are measurable. Administrative requirement, as used in this context, means the day-to-day activities required to serve the public and provide optimum management of the resources within the planning area. These actions are allowable and do not require authorization within an RMP, but may require site-specific analysis under NEPA.

20(572)
Comment: Township 11 Range 9 Township 11 Range 9 S19: 620 AX and 621B1 -- This road should be closed to ALL access and restored to its natural state. It was created illegally within the last two years by off-road OHV travel. This has resulted in significant erosion, litter, major vandalism to a ranch boundary fence, cutting of standing saguaros and other standing wood, and more wildcat tire tracks and roads stemming from it. The BLM Alternative C indicates this road is to remain open fully open to all motorized access.
The DRMP for Alternative C has the road ending abruptly when it runs perpendicular to the Morningstar/Claflin allotment boundary fence. As a result of this illegal road, the ranch boundary fence has already been cut and replaced by a 100' gaping hole, and the wooden fence posts apparently burned in someone's campfire. This is intolerable.
A small campsite could be left open right at Silverbell Road, but the portions of the road beyond the "NOT A ROAD" sign which we ranchers installed on February 3, 2007, (having notified BLM in writing of our plan to do so and having received no objection from BLM) should remain closed to motorized access. we do not even support keeping it open as a hiking trail, because it only invites the public to cut open or otherwise mangle or alter a ranch boundary fence for easy access to the opposite side. There are plenty of alternate hiking trails in the near vicinity. Slicing and dicing Ragged Top with new roads is unacceptable. This road was created by illegal means after the establishment of the National Monument in 2000, it does not appear on the 1989 USGS Silverbell quadrangle map. we would formally protest any BLM authorization of its continued use. The BLM is violating the legal requirements of the Proclamation by proposing wildcat roads be authorized for regular motorized recreational use, especially in an area as biologically rich and as sensitive as Ragged Top.
Response: Route 620AX and part of 621B1 were initially identified in 1980 during the wilderness inventory for the area as a vehicle access "way." It has remained in similar condition since that time, with some natural revegetation occurring, and an increase in use in recent years. It crosses State lands and is currently closed by the grazing lessee and AGFD at its junction with Silverbell Road, on State land. The remainder of the route on BLM land was designated in the Draft RMP to provide vehicle access to high-quality recreational opportunities. This route will be designated for non-motorized use in the Proposed RMP to protect natural resources, with administrative access to meet grazing program objectives. Access to the fence line away from the designated trail will remain by non-motorized means. Route 621B1 is designated for non-motorized use in the Proposed RMP to provide a connection between Routes 620AX and 620B. Route 620B is designated for motorized use in the proposed alternative.

20(606)
Comment: Motorized routes with [which] lead to prehistoric sites should be rehabilitated to non-motorized routes.
Response: Available cultural resource information was considered in developing the designations for the transportation plan. New archaeological surveys have been conducted and additional surveys are planned for the transportation system consistent with current BLM policy (IM AZ-2007-030, Clarification of Cultural Resource Considerations for Off-Highway Vehicle [OHV] Designation and Travel Management). Mitigation measures were considered in the routes evaluation process as necessary to protect cultural resources, which include restricting use and/or reclamation of travel routes. Motorized access is generally preserved to cultural sites identified for public use in the Proposed RMP.

20(608)
Comment: Roads are not necessary in a place with hiking trails. The existing routes are sufficient.
Response: Hiking trails and motorized routes provide different types of access. In addition, motorized routes provide access to hiking trails, which BLM considered when developing the route designation alternatives.

20(609)
Comment: Safety requires that recreational users be able to park completely off the designated roads for hiking, and viewing flora and fauna. Ample provisions should be made for small pullouts and parking areas throughout the Monument.
Response: BLM policy applicable to IFNM states that "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." (IM AZ-2005-07). This allows for pullouts and parking; specific pullout and parking turnouts for recreational activities will be identified and made available by BLM during implementation of the RMP.

20(610)
Comment: Prohibition of road motor vehicle travel is acceptable if exceptions are made for hunters to retrieve large animals and special permission is available for resource management, removal of dangerous wildfire fuel, or other appropriate activity sanctioned by the managing agency.
Response: The Proclamation prohibits cross-country travel by all motorized and mechanized vehicles except for emergency or authorized administrative purposes. Restrictions on public use of motor vehicles will apply to all recreational activities, and hunters will not be allowed to drive a motor vehicle cross country to retrieve game in the monument. The BLM, permittees, and other agencies will generally comply with all travel restrictions, but use of motor vehicles on routes designated for non-motorized travel may be authorized for administrative purposes related to maintenance and operation of the IFNM.

20(611)
Comment: Also, by leaving the roads open to public travel there is more chance of the general public being able to take care of the issues that your agency does not have the money or manpower to do. Such as being your eyes and ears throughout the monument. The general public can travel more areas than your agency because there are more of us and we are the main users of the public lands.
Response: When routes were evaluated for designation, the criteria that were applied included the need for access to meet management objectives and other administrative requirements, including law enforcement, monitoring, maintenance and related activities. . Citizen patrols can assist with some of these activities, and opportunities for engaging users in monitoring, detecting, and reporting condition that need management attention be pursued during implementation of the RMP including activities along roads.

20(618)
Comment: Limit motorized routes further, on areas of wilderness character
Response: Both Alternatives B and C include recreation management zones and transportation networks where areas with wilderness characteristics would be protected in a primitive setting without motorized vehicle routes. Refer to Maps 2 10, 2 11, 2 20, and 2 21.

20(624)
Comment: Necessary and vital access to major ranch infrastructure is completely cut off in Alternative C as written.
A shipping corral along with the entire water supply and distribution systems serving the eastern half of the Tejon allotment are all cut off from all motorized access. We need motorized access to this infrastructure.
Response: Motorized administrative access in this area may be granted to meet grazing program objectives. Administrative access to fence lines, corrals, wells, and water infrastructure for inspection and maintenance will be provided under separate agreement with the grazing permittees.

20(626)
Comment: Recommendation: BLM should use the information provided in Appendix B to measure habitat fragmentation, conduct a thorough fragmentation analysis, and inform decisions regarding road closure and other limitations on use in the Ironwood Forest National Monument when conducting travel management planning.
Response: Wildlife habitat was considered under several criteria used during the route evaluation (see criteria listed in Appendix G under "Route Evaluation Criteria"). Because little information exists on the specific effects of roads on wildlife and wildlife habitat in the Sonoran Desert, the BLM Tucson Field Office has partnered with AGFD to conduct a study to determine the effects of road density and intensity of road traffic on Sonoran Desert wildlife in various ecological settings. Field study sites will be located in the IFNM and the White Canyon Resource Conservation Area. The information from this study will be used by BLM to enhance management of the Sonoran Desert through better travel management planning, rangeland health evaluations, wildlife habitat management plans, and other relevant planning efforts.

20(628)
Comment: Recommendation:
BLM must provide a travel management plan that specifically monitors the conditions, impacts, trends, and emerging threats to Monument Objects in order to achieve its purpose (1.3.1) of protecting Monument Objects.
Response: The basic framework of the IFNM travel management plan (TMP) is contained within the Proposed RMP/EIS in Table 2-16 and Appendix G, and other information, including a TMP monitoring plan will be released with the approved RMP. Monitoring is an administrative action that will be an ongoing part of the management of the IFNM, particularly with regard to the transportation system and its use. As monitoring identifies changing conditions, BLM will adjust management accordingly (refer to Section 2.3.5 for more information on monitoring and adaptive management).

20(630)
Comment: In evaluating the impacts of the travel network on the Monument objects, the DRMP cannot simply dismiss the likely impacts of increased visitation and rapid population growth.
Response: The potential impacts of increased visitation and population growth are included in the analysis as part of the assumptions in Sections 4.3 and 4.4, and the analysis of increased visitation and population growth is addressed under cumulative impacts in Section 4.7. Increased visitation and population growth were also considered in developing the proposed travel management designations.

20(631)
Comment: Recommendations: When valid existing rights, such as grazing permits, change, BLM should also analyze relevant transportation decisions and act to protect Monument Objects,
Response: As conditions change, BLM can and will adjust management accordingly, including changes to route designations as consistent with the Proclamation and NEPA (refer to Section 2.3.5 for more information on adaptive management). If changes to management require additional analyses of impacts on monument objects, such analyses would be conducted at that time.

20(633)
Comment: NEPA's "hard look" statute requires nothing less than for the BLM to evaluate each of the multiple use authorizations in this plan in context of the border situation, i.e., legal roads must be considered cumulative and additive to the impacts of illegal ones.
Response: Existing authorizations were reviewed for their access needs, potential impacts, and potential conflicts with other uses, and were considered in travel management planning. The cumulative impacts described in Section 4.7.2.14, "Travel Management," have been revised to include impacts associated with illegal immigration.

20(634)
Comment: EPA Recommendation:
The locations of inventoried routes need to be clearly illustrated on maps and referenced appropriately in the FEIS. The 18 route inventory maps that contain this information should be included in the FEIS and should be referenced in the table of contents and within the text of the FEIS (table 2-16; maps 2-19, 20, 21, and 22; sections 3.1.1 and 4.3.1; and Appendix G).
Response: The Proposed RMP contains new travel management and inventory maps at larger scales that are more easily read.

20(638)
Comment: I have witnessed recreational ATV and Dirt Bike enthusiasts causing a great deal of damage to the desert areas and causing extremely large dust plumes to develop in their areas of use. This is a problem that needs to be addressed without limiting the use of the existing roadways by hunters and other individuals with legitimate reasons for being in these areas.
Response: It is the intent of the BLM to provide protection of resources while balancing visitor use and administrative needs within the monument. Soils in the IFNM were considered in developing proposed route designations. Travel routes on soils that are highly prone to fugitive dust under traffic were minimized, and mitigation measures will be taken for those routes that cannot avoid crossing dust-prone soils. Restrictions on the use of travel routes will generally apply to all public use, including hunting.

20(639)
Comment: I hope that the BLM will adopt a management plan that really does something about illegal off-roading in IFNM. This activity should not be permitted here because of its destructive effects on what is a very fragile environment. I urge the BLM to invest in frequent patrols to insure that vehicles stay only on designated trails and that all wildcat trails are closed.
Response: The BLM will conduct law enforcement and user education efforts to promote compliance with use restrictions resulting from the RMP, including use of motor vehicles. The Proclamation directs that all off-road motorized and mechanized vehicle use be prohibited, except for emergency or authorized administrative purposes. In addition, the Proclamation requires a transportation plan be prepared to identify road closures and travel restrictions to protect monument objects. Consistent with the Proclamation, no areas are proposed as open for OHV travel off road; motorized travel must remain on designated routes. Alternative C designates approximately 124 miles of existing routes for continued motorized travel. These routes have been identified by an interdisciplinary team to provide continued access for a variety of uses, including recreation, while meeting resource protection and administrative

needs. While the Proclamation does not specifically direct BLM to accommodate OHV use, it does provide for management of monument lands under current regulations, which allow public access and use by motorized vehicles, including OHVs, if this use is not incompatible with the purposes of the IFNM. BLM has determined that OHV use, when restricted to a limited number of designated roads, is not incompatible with the purposes of the IFNM.

20(641)
Comment: Recommendation:
EPA recommends that BLM limit the expansion of OHV use in PM10 non-attainment areas. Under Alternative B, the PM10 non-attainment area overlaps 23,650 acres where motorized vehicle use would be allowed on designated routes (pg. 4-5). Under the Preferred Alternative C, the PM10 non-attainment area overlaps 29;930 acres where motorized vehicle use would be allowed on designated routes (pg. 4-6). EPA recommends that BLM consider additional restrictions on OHV use within the PM10 nonattainment area.
Response: The PM10 nonattainment area was considered in the route evaluation process and motorized vehicle route designations were minimized in this area. Only those routes which provide needed access would be designated to allow vehicle traffic, and mitigation measures will be applied to those routes to minimize PM10 emissions. See Table 2-1 for measures that would be applied to routes within the PM10 nonattainment area.

20(642)
Comment: Recommendation:
EPA recommends that the BLM fully evaluate current OHV usage in regulated and non-regulated areas; estimate PM10 emissions from OHV use; and address permitting and enforcement efforts. BLM can evaluate the consequences of OHV management decisions only if baseline conditions have been established initially, and it is unclear whether this has been done. This information should be included in the Final Environmental Impact Statement (FEIS).
Response: As suggested, BLM has calculated estimated PM10 emissions from OHV use in the planning area, and results have been incorporated into Section 4.3.1, “Impacts on Air Quality.”

20(643)
Comment: Recommendation:
EPA recommends that BLM adopt general mitigation measures to reduce OHV impacts on air quality, especially in areas of non-attainment: 1) motorized competitive races should not occur in PM10 non-attainment areas; 2) BLM should prohibit all OHV use in the PM10 non-attainment areas on high pollution days as forecasted by the Arizona Department of Environmental Quality; 3) use gates, fences, and other barriers to minimize emissions/fugitive dust, as well as erosion; and 4) require permits to manage OHV use.
Response: Motorized competitive races where the element of speed is important would not generally be permitted in the IFNM, since this activity is not considered to be dependent on natural resources and would not be consistent with proposed recreation management zoning. Gates, fences, or other barriers will be used to implement route designations. OHV use will be regulated along with other motorized vehicle use, and all vehicles will be subject to the use restrictions and designations. Air quality impacts were considered in developing the proposed travel management designations and will be considered when implementing emergency actions or responding to land use proposals.

20(650)
Comment: The following roads should be further restricted (beyond Alternative C): The short road central to Section 22 Township 11 Range 8, which connects 620F3 to a wash, and which serves no purpose other than to facilitate and encourage illegal motorized travel in that wash, is not identified.

Response: Route 620F3 is designated as a day use only for motorized vehicles with no overnight camping allowed. Degraded areas in the monument will be targeted for restoration as needed.

20(747)
Comment: We need an agricultural exemption on all equestrian use and non-motorized access restrictions.
Response: Cross-country equestrian and non-motorized, non-mechanized travel are both allowed in the Draft RMP and the Proposed RMP. The only restriction that would apply to equestrian and non-motorized travel is the seasonal closure of desert bighorn sheep lambing areas during lambing season (see Chapter 2, Table 2-5). Where necessary, administrative access for grazing-related purposes will be provided under separate agreement with the grazing permittees. An administrative action has been included in Appendix D under "Livestock Grazing" to clarify this issue.

20(748)
Comment: 4.3.5 Impacts on Wildlife and Wildlife Habitat 4.3.5.3 Alternative B
However, closing lambing areas within the WHA to human entry from January 1 through April 30 would reduce human disturbance during lambing season and potentially improve breeding success."
The impact of closing access to private land needs to be fully addressed or the private land and associated access roads should be removed from the closure area.
Response: Closing access to private land, or any non-Federal lands, is not proposed under any alternative. The closure referenced would only affect BLM land in the desert bighorn sheep lambing habitat during the lambing period.

20(752)
Comment: "Within the roaded RMZ, six areas are identified for access and/or staging locations for equestrian uses." We need to reserve the right for ranchers to enter the Monument by horseback directly from our private lands.
Response: The identified access and staging areas for equestrian use are intended to accommodate public demand for those functions, particularly for those traveling to the IFNM, and do not preclude access by equestrian users from other roads and trails. Access from adjacent private lands will be accommodated where needed for administrative purposes related to grazing permits.

20(754)
Comment: It doesn't appear that access points to the IFNM are discussed. How will they be managed?
Response: Access points were discussed in the Draft RMP on page 2-77 and identified on Maps 2-20 through 2-22. Upon further review, BLM has determined that proposed management of access points should be determined through the travel management planning process and that it does not qualify as a land use plan decision. Access points will be identified in the IFNM travel management plan, along with associated signing plans for each access point, proposed locations for information kiosks, staging areas, and other related information. The access points will be subject to route designations, travel restrictions, and acquisition of legal access, as well as management actions and other use restrictions established in the RMP.

20(755)
Comment: All vehicular use should be discontinued from some roads to protect wildlife (i.e., bighorn sheep) as needed.
Response: Wildlife habitat values were considered in developing the travel route designations and various RMP allocations, and some routes have been designated as non-motorized to protect habitat values. Additionally, seasonal restrictions under Alternatives B, C, and D, would be implemented in specific areas to protect desert bighorn sheep lambing habitat from January 1 through April 30. The closure of these areas could occur through restrictions on vehicle travel on specific routes. Furthermore, the seasonal restriction may be implemented in other areas if monitoring reveals changes in lambing habitat.

20(756)
Comment: Necessary Roads in Township 11 Range 7:
632 A1 is drawn incorrectly. It goes to the northwest corner of section 06.
Response: The location of Route 632A1 was verified by aerial photography and field-gathered data. The corner of the existing fence does not coincide with the section corners.

20(757)
Comment: Roads in Township 11, Range 8
620K2, 620 K2A--The power company must be allowed motorized access to these routes for emergency fence repairs.
Response: Route 620K2 is designated motorized and allows vehicle access. 620K2A provides access to mining claims and mine shafts presently closed to vehicles to protect public safety and habitat values. If needed, administrative access on this route could be granted on a case-by-case basis.

20(758)
Comment: Roads in Township 11, Range 8
620 N, 620 Q, 620P4A, 620P4, 620P3, 620P1-- We do not need these road segments for ranching use. 620 P1 ends at a wash and we recommend it be closed to motorized access.
Response: All these routes are designated as non-motorized in the Proposed RMP.

20(762)
Comment: Necessary Roads in Township 11 Range 7:634--We need continued motorized access along this road to access corrals.
Response: Route 634 is designated as non-motorized for the public and is available for authorized motorized and mechanized use for administrative use and permittees.

20(763)
Comment: Necessary Roads in Township 11 Range 7:
620 O --We need this road for routine ranch maintenance work. It accesses a holding pasture.
Response: Route 620 O is designated as non-motorized for the public and is available for authorized motorized and mechanized use for administrative use and permittees.

20(764)
Comment: Roads in Township 11, Range 8
The unidentified road not shown on the map, which goes down the (former landing strip) fenceline north from the Coping property to the County Line Fence: We need occasional motorized access not only to check this internal fenceline but also to access the north boundary fence of the allotment. The access to this road is private property and we intend to keep it private by denying access to anyone but ourselves. We keep the gate locked with a "No Trespass" sign attached.
Response: This route has been added to the IFNM route inventory and is designated as non-motorized; the route travels along a fence line and only accesses range improvements -- no other public purpose for this route is recognized. Administrative access to fence lines, corrals, wells, and water infrastructure for inspection and maintenance will be provided under separate agreement with the grazing permittees, and no additional special permit will be required. An administrative action has been included in Appendix D under "Livestock Grazing" to clarify this issue.

20(765)
Comment: Roads Needed by grazing allotment holder 629D-extreme eastern road segment along TO reservation boundary is necessary to access and maintain the boundary fence between the Tejon Pass Allotment and the TO reservation.

Response: This route has been added to the IFNM route inventory and is designated as non-motorized. Administrative access to fence lines, corrals, wells, and water infrastructure for inspection and maintenance will be provided under separate agreement with the grazing permittees, and no additional special permit will be required. An administrative action has been included in Appendix D under "Livestock Grazing" to clarify this issue.

20(769)
Comment: Roads Needed by grazing allotment holder
634-- This is a necessary access providing direct access between key corrals on the south end of the Tejon Pass Allotment.
Response: The designation of Route 634 has been changed from non-motorized to motorized to accommodate hunting and recreational access in the area.

20(771)
Comment: Additional efforts could be included to provide maps of established off-highway vehicle trails.
Response: As part of the implementation of the Proposed RMP, BLM will publish maps showing the routes available for public use by motorized vehicle.

20(778)
Comment: Examples of particularly significant sections of the Draft RMP where there needs to be a clear distinction between which routes legally qualify as a "road" include:
- the wildlife sections of the Environmental Consequences chapter Impacts on wildlife and Wildlife Habitat pp. 4-30 through 4 38, Impacts on Special Status Species pp. 4-39 through 4-49
Response: BLM has made the clear distinction of where motorized access is allowed by disclosing in the RMP which routes, and the number of miles of routes, that would be designated for motorized use and which would be designated for non-motorized use. The effects of motorized and non-motorized travel on wildlife habitat and special status species are discussed in Sections 4.3.5 and 4.3.6, respectively. The definitions of various types of "roads" are found in BLM's IM 2006-173 (Implementation of Roads and Trails Terminology Report). The transportation plan required by the Proclamation establishes where motor vehicle use will be allowed and may include roads or primitive roads designated for motorized use.

20(779)
Comment: Also, the Department requests adding language in the RMP to clarify how restrictions to 'surface disturbing activities' will impact AGFD wildlife administrative activities and projects, otherwise many tools the Department utilizes for the management of wildlife would be open to interpretation by various and changing BLM personnel. The Department perceives this to be an impact to management authorities, and recommends clarifying this within the RMP.
Response: The BLM does not anticipate major impacts on AGFD wildlife administrative actions and projects by any restrictions on "surface-disturbing activities" established in the RMP. Surface-disturbing activities are not prohibited in the RMP, and all proposed actions that potentially include surface-disturbing activities would be subject to the appropriate environmental analysis.

20(780)
Comment: NTHP Recommendation:
Make a threshold determination that each route designated for motor vehicle use through the route evaluation process satisfies each of the three criteria for a road(1) A linear route declared a road by the owner, 2) managed for use by low-clearance vehicles having four or more wheels, and 3) maintained for regular and continuous use). Where a route does not meet one or more of the criteria, then do not designate the route for motorized vehicle use in the Final RMP.
Response: Roads are designated by the BLM through inventory, evaluation and designation in the transportation system. The inventory and evaluation process considers the condition and use of existing

physical access routes, and the access needs of existing and allowable land uses. BLM comprehensive travel management plans identify the roads, primitive roads, and trails, necessary to provide access to public lands for administrative purposes and public use, and the designations are made depending on these and other factors. Through the travel management/transportation planning process, the BLM identifies the type of access intended to be provided by the road, primitive road, or trail, and the physical requirements for the route to accommodate its intended use. The maintenance standards or guidelines for the route are also identified to ensure it meets the minimum physical/geometric requirements for the type of vehicles and use level that it is intended for. Transportation systems are dynamic, and subject to change over time as land use changes and access needs change. The route designations for the IFNM take into account these factors, and will establish the allowable uses, type of access, and maintenance levels to adequately support the access needs for allowable uses, protect Monument resources and minimize land use conflicts.

20(781)
Comment: Pima NRDC: We recommend the BLM approve all travel route requests or route designation change requests submitted by the individual grazing permittees so as to protect the integrity both of the existing management plans as well as the financial investments of the US Government and the State of Arizona, a.k.a. the taxpayers, in the IFNM ecosystem.
Response: All requests for changes to route designations presented in the Draft RMP were analyzed and responses are provided in the Proposed RMP/EIS. Every attempt was made to be consistent with existing plans and permittee operations. Note that administrative access to fence lines, corrals, wells, and water infrastructure for inspection and maintenance will be provided under separate agreement with the grazing permittees, and no additional special permit will be required. An administrative action has been included in Appendix D under "Livestock Grazing" to clarify this issue.

20(785)
Comment: Necessary Roads in Township 11 Range 7:
636 E- We need motorized access along this ranch boundary fence line. This road is not shown on the Travel Management Travel Route Inventory Township Plat Index Map for Township 11 Range 8. This road accesses a corral and water storage tank with a livestock watering location.
Response: Route 636 will be open to all motorized and mechanized vehicle use year-round and is designated for motorized use. Access along the ranch boundary fence would be allowed as an administrative use.

20(786)
Comment: The following roads should be further restricted (beyond Alternative C): The short road central to Section 22 Township 11 Range 8, which connects 625 A to a wash, and which serves no purpose other than to facilitate and encourage illegal motorized travel in that wash, is not identified.
Response: -- The area described in the comment contains a number of routes including 625 A1 which is closed and not maintained as a trail. Degraded areas in the monument will be targeted for restoration as needed.

20(794)
Comment: Currently the DRMP makes no mention of law enforcement patrols, so the only other alternative for protecting the rock art is to restrict vehicle access.
Response: One of BLM's administrative responsibilities is law enforcement; administrative actions need not be authorized under the RMP. BLM has coordinated in the past and at present with various other agencies to assist with law enforcement, including, but not limited to, the U.S. Border Patrol, AGFD, Pima County Sheriff's Department, and Tohono O'odham Nation. Because law enforcement personnel cannot be in all places within the monument at all times, sensitive resources may be given additional protection by various methods including restricting vehicle access and erecting fences. However, BLM

also has the responsibility to maintain access for management activities (including the needs of AGFD, U.S. Border Patrol, and other agencies) and to seek a balance of providing for multiple use and resource protection; therefore, not all areas with rock art or other sensitive resources can be guaranteed full protection. BLM also uses public education opportunities to encourage public stewardship and respect for natural and cultural resources.

20(805)
Comment: Non-labeled existing and long-used roads needed in T/11 S R08E:... 2. The road running along the south side of the northern Pima County and Monument boundary is neither identified nor designated. This is a necessary ranch boundary fence. Maintenance is performed on an as-needed-for-ranch-purposes basis.
Response: Routes with non-motorized designations in the area described in the comment are available for administrative use including fence maintenance by permittees.

20(806)
Comment: [The 625A and 625B loop] will significant increase in the number of people accessing a documented archaeological site.
Response: Routes 625 A and 625 B are primitive roads designated open to motorized and mechanized use that is limited to day use only with no overnight camping allowed. BLM managed lands for multiple-use and considered the protection of resources during the route designation process.

20(SR14)
Summary Comment: BLM should maintain motorized recreational access to remote areas throughout the IFNM that may not otherwise be accessible to some individuals, including hunting areas, guzzlers, old mine sites, and other areas of interest.
Summary Response: The proposed alternative designates approximately 142 miles of existing routes for continued motorized travel. These routes access areas of varied remoteness; however, by definition, the most remote areas of the monument are not accessible directly by motor vehicle. Vehicle access for recreational use to areas in a variety of largely natural, undeveloped settings is available under the Proposed RMP. The anticipated visitor experience will vary depending on the recreation management zone (see Maps 2-12 through 2-14). Motorized routes have been identified by an interdisciplinary team to provide continued access for a variety of uses, including recreation and access to areas of interest, while meeting resource protection and administrative needs.
The proposed transportation plan would provide access for hunting throughout the monument, with no piece of ground farther than 1.5 miles from a designated motorized vehicle route (road or primitive road). Nearly all the wildlife water developments will be within this distance and accessible by non-motorized travel on the existing service route. Hunting opportunities for those who participate in road hunting will diminish, while opportunities for hunting away from roads, but in areas reasonably accessible by foot or horse, will increase.

20(SR41)
Summary Comment: BLM should restrict or prohibit use of off-road or off-highway vehicles (OHVs) except in a designated area, and close illegal roads and tracks for the protection of monument objects and resources. The monument Proclamation says nothing about accommodating OHV use.
Summary Response: The Proclamation directs that all off-road motorized and mechanized vehicle use be prohibited, except for emergency or authorized administrative purposes. In addition, the Proclamation requires a transportation plan be prepared to identify road closures and travel restrictions to protect monument objects. Consistent with the Proclamation, no areas are proposed as open for OHV travel off road; motorized travel must remain on designated routes. Alternative C designates approximately 129 miles of existing routes for continued motorized travel. These routes have been identified by an interdisciplinary team to provide continued access for a variety of uses, including recreation, while

meeting resource protection and administrative needs. While the Proclamation does not specifically direct BLM to accommodate OHV use, it does provide for management of monument lands under current regulations, which allow public access and use by motorized vehicles, including OHVs, if this use is not incompatible with the purposes of the IFNM. BLM has determined that OHV use, when restricted to a limited number of designated roads, is not incompatible with the purposes of the IFNM.

20(SR42)
Summary Comment: It is inequitable to have 140 miles of routes for motorized vehicle use and 180 miles available for non-motorized uses.
Summary Response: Restrictions on motorized travel are based on access needs, resource protection needs, and resource values present in the monument. BLM's multiple-use management of resources in the IFNM is consistent with the Proclamation and management to provide a range of recreation experiences and settings.

20(SR44)
Summary Comment: Alternative B does not ensure that all off-road vehicle use shall be prohibited except for emergency or authorized administrative purposes, which is very specifically and clearly stated in the Presidential Proclamation. Map 3 2 shows that large areas of the monument are highly prone to wind erosion and fugitive dust when disturbed, and yet some of these "highly prone" areas are not closed to OHVs even under the "most restrictive" Alternative B.
Summary Response: Cross-country travel by any motorized or non-motorized mechanized vehicle is prohibited under the Proclamation and will not be allowed under any alternatives proposed in the RMP. Soils in the IFNM were considered in developing proposed route designations, and routes on soils that are highly prone to fugitive dust under traffic were minimized. Mitigation measures will be taken for those routes that cannot avoid crossing dust-prone soils. Mitigation measures will be implemented on roads or primitive roads on dust-prone soils to reduce fugitive dust emissions. Refer also to comment and response 20(604) for additional information regarding routes and access.

20(SR45)
Summary Comment: Ragged Top, Sawtooth Mountains, Silver Bell Mountains, and West Silver Bell Mountains should be closed to off-road vehicles.
Summary Response: Under Alternative C, both motorized and non-motorized routes would be designated within the Ragged Top area, Silver Bell Mountains, West Silver Bell Mountains, and Sawtooth Mountains to provide continued access for administrative purposes and public use, while meeting resource protection and administrative needs. Minor developments (fences, trails, and livestock and wildlife waters) exist in those areas, and they will be maintained for their intended purposes as long as they are necessary. Routes into these areas also provide access to some of the monument's prime destinations and recreational opportunities. Routes not needed for motorized or non-motorized travel will be allowed to be naturally reclaimed, or measures will be taken to reclaim them.

20(SR47)
Summary Comment: There should be more signing in general in the monument to let people know what they can and cannot do in designated areas.
Summary Response: BLM will evaluate signage needs at the implementation planning level after the RMP is completed. Signs will be installed to communicate to visitors the various informational, regulatory, and interpretive messages and themes required to implement the RMP.

20(SR77)
Summary Comment: The travel management plan for the monument should protect the core zones as a quiet soundscape without motorized vehicles. Reducing the number of roads and tracks in the IFNM would enhance management, limit the spread of invasive species, reduce illegal dumping, and decrease

damage to archeological resources. It would also prevent damage to sensitive wildlife habitats from OHVs and recreational shooting.
Summary Response: Both Alternatives B and C include recreation management zones and transportation networks where areas with wilderness characteristics would be protected in a primitive setting without motorized vehicle routes. Refer to Maps 2 10, 2-11, 2-20, and 2-21. These areas could provide opportunities for quiet soundscapes.

20(SR79)
Summary Comment: BLM should be more conservative with its approach to managing roads. Roads can always be opened but are much more difficult to close and repair damages associated with roads once they are opened.
Summary Response: Under the Proposed RMP, no additional routes would be developed as a result of the decisions; however, during plan implementation, BLM would identify conditions under which a new route could be designated.

20(SR150)
Summary Comment: Alternative B provides adequate access within the IFNM and is the most compatible alternative for the protection of monument resources or values.
Summary Response: It is the intent of the BLM to provide protection of resources while balancing visitor use and administrative needs within the monument. The purpose of the travel management designations is to provide adequate access for administrative purposes, authorized uses, and allowable public use under applicable laws and regulations. The travel route network under Alternative B provides the greatest protection of monument objects, but it does not accommodate some important access needs in the monument and it makes access less practical for administrative purposes or for authorized users. The approximately 63 miles of roads designated for motorized use under Alternative B are primarily composed of county-maintained roads, which are generally unavailable for OHV use under current state regulations.

20(SR151)
Summary Comment: Off-road vehicles cause too much damage to IFNM resources and should be directed to other Federal lands that have already been degraded by similar activities.
Summary Response: The Proclamation provides for management of monument lands under current regulations, which allow public access and use by motorized vehicles, including OHVs, if this use is not incompatible with the purposes of the IFNM. Given the Proclamation's prohibition of off-road vehicle use, BLM has determined that OHV use, when restricted to a limited number of designated roads, is not incompatible with the purposes of the IFNM. To deliberately direct off-road vehicle travel to other Federal lands outside the IFNM is beyond the scope of this analysis.

20(SR162)
Summary Comment: Regarding the statement "Remove fences, roads, and facilities that are no longer necessary for transportation, wildlife management, monument administration, or other purposes in their present location.", who decides what is or is not necessary? According to whose criteria and what is that criteria? How will the BLM avoid being sued if someone disagrees what is or is not necessary?
Summary Response: BLM land managers will make determinations of the necessity for fences, roads, and facilities within the monument based upon careful evaluation of the original purpose of those facilities or improvements, their present condition, the management objectives they fulfill, how they relate to the objectives established in the RMP, and their specific authorizations. Facilities or improvements no longer needed to meet a management objective will be considered for decommissioning and removal. The decision-making process for decommissioning and removing facilities or improvements will be subject to NEPA review and to public review and comment. BLM will consider the concerns of stakeholders in the decision-making process.

20(SR530)
Summary Comment: Regular administrative motorized access should be maintained to all wildlife water catchments to allow for monitoring, water hauling, maintenance, enhancement, and redevelopment activities where it currently exists. AGFD should have full motorized access to wildlife water catchments where access routes currently exist.
Summary Response: Administrative access for specific routes and activities will be granted under an agreement between the BLM and the AGFD. The agreement will specify the routes that may be used, and minimally maintained, for administrative access to wildlife waters. Not all wildlife waters presently have motorized surface access; those will remain accessible by non-motorized means or by helicopter. Reconstruction, redevelopment, or removal activities will require a project plan, which will address additional access needs that may be required to carry out the project. Administrative access to livestock waters will be provided under separate agreement with the grazing permittees.

20(SR533)
Summary Comment: The maps are difficult to read.
Summary Response: The Proposed RMP contains new travel management and inventory maps at larger scales that are more easily read. Please see Appendix G, Maps G-1 through G-4.

20(SR551)
Summary Comment: The description for roads in the Draft EIS is not clear.
Summary Response: Motorized and mechanized travel in the IFNM can occur not only on roads, but also on routes identified as primitive roads designated for motorized use in the transportation plan. The definitions of roads, primitive roads, and trails are found in BLM's IM 2006-173, "Implementation of Roads and Trails Terminology Report." The transportation plan required by the Proclamation establishes where motor vehicle use will be allowed and may include roads or primitive roads designated for motorized use. Thus, motorized travel on roads and primitive roads is not considered "off road" travel, as explicitly prohibited in the Proclamation. No trails are designated for motorized use in the IFNM transportation plan. It is not necessary for a route to meet the criteria listed in BLM's definition of a road to be considered for designation as a road. The designation is arrived at through the development of the travel plan and is based on access needs and functional requirements, management objectives, and resource values involved. The plan may identify routes that are necessary as roads, others as primitive roads, and others as trails. Use restrictions and route standards are also established in the travel plan.

20(SR605)
Summary Comment: The road network should be the minimum necessary for public access to appreciate the natural landscape and sensitive resources for which the monument was established. The continuing impacts of unneeded routes, whether for motorized or non-motorized traffic, will damage resources and degrade the natural and cultural values of the monument. The RMP must take into account the likely damage to monument objects that will result from the existing travel network, including the direct and indirect impacts of roads.
Summary Response: It is the intent of the BLM to provide maximum protection of resources while balancing visitor use and administrative needs within the monument. Alternative B presents the minimum routes necessary for the management of the IFNM, including administrative access needs. Alternatives C and D provide additional access consistent with FLPMA, which requires that "public lands be managed in a manner that will protect the quality of scientific, scenic, historical, ecological, environmental, air and atmospheric, water resource, and archeological values... and that will provide for outdoor recreation and human occupancy and use." In addition, the routes designated for motorized or non-motorized travel in Alternatives C and D are existing routes; no new routes are proposed at this time, which will limit impacts on localized and already disturbed areas. Potential for resource damage was considered in developing the proposed travel management designations and was analyzed in Chapter 4. Direct and indirect impacts, such as surface disturbance or increased erosion from routes, are included in the analysis. The condition

of the transportation system and ancillary activity areas will be monitored, and route designations could change if management objectives for the IFNM are not being met.

20(SR607)
Summary Comment: Additional routes should be closed and revegetated, not just designated for non-motorized travel.
Summary Response: Under Alternative C, designating many of the existing routes for non-motorized uses will provide access and recreational opportunities within areas of the IFNM, with fewer impacts on IFNM resources compared to continued motorized uses on all those routes. Routes indicated as non-motorized trails in the Proposed RMP will receive little or no maintenance (only as needed to protect resources and ensure usability). These routes are expected to receive varying use levels depending on their location, area or facilities served, and recreational opportunities available. Some routes will receive little use, and natural reclamation will be allowed to take place. Non-motorized routes found to be causing resource damage will be addressed through adaptive management of the transportation system.

20(SR613)
Summary Comment: There are too many miles of roads and routes proposed within Alternative C for BLM to effectively manage.
Summary Response: The quantity of designated routes was not a factor in developing a travel management system for the IFNM. Any route system, no matter how extensive, will present management challenges for the BLM, and regardless of the number of designated routes, BLM acknowledges that there will be some illegal activities within the IFNM that affect monument resources (e.g., illegal immigrant travel, dumping). The travel route designations will facilitate public and administrative travel that allows BLM to meet the management objectives for the IFNM as delineated in this plan.

20(SR616)
Summary Comment: Archaeological resources will not be adequately protected by the proposed transportation plan.
Summary Response: Available cultural resource information was considered in developing the designations for the transportation plan, and mitigation measures were considered in the route evaluation process as necessary to protect cultural resources. New archaeological surveys have been conducted, and additional surveys are planned for the transportation system, which will likely reveal additional resources that were not considered in the RMP. Some changes to the route designations occurred as a result of information obtained during surveys. Route designations are implementation-level decisions, and BLM has the authority to adjust designations after the RMP is completed, which will allow BLM to quickly respond to new information gathered in the cultural resource inventories.

20(SR625)
Summary Comment: BLM may only allow motorized travel on designated roads within Ironwood Forest. The proclamation establishing the Ironwood Forest National Monument expressly prohibited "all motorized and mechanized vehicle use off road" in Ironwood Forest. Each action alternative proposed in the Draft RMP violates this provision by authorizing motorized use on primitive routes. However, the Proposed Plan permits use of motorized and mechanized vehicles off of "roads." The Proposed Plan's overall approach to permitting destructive use of vehicles on routes that cannot possibly be believed to be "roads," within the meaning of the Proclamations stands in flagrant opposition to both the language of the Proclamation and the overall intent of designating this National Monument to preserve its fragile and special values. Only those linear travel routes which meet the legal definition of a "road" and which are not causing damage to Monument Objects should be considered for designation as open to motorized travel.
Summary Response: The comment assumes that the Proclamation for the monument narrowly defines what constitutes a legal road, and fails to recognize BLM's roads and trails terminology. The reference to

"road" found in the Proclamation does not define what constitutes a "road," and does not infer any definition in particular beyond what is officially used by BLM in its management of roads and trails. BLM's IM 2006-173 (Implementation of Roads and Trails Terminology Report) does define "road," as well as "primitive road" and "trail." These definitions are provided in Appendix G on page G-12. In accordance with the Proclamation's prohibition on motorized and mechanized vehicle use, off-road, motorized, and non-motorized mechanized travel will only be allowed on roads and primitive roads designated for motorized use. Motorized and non-motorized mechanized travel may occur off designated roads in the case of an emergency or for authorized administrative purposes. The Proclamation also directs the BLM to manage the monument pursuant to applicable legal authorities and to prepare a transportation plan that addresses the actions necessary to protect monument objects. The many legal authorities applicable to monument lands include FLPMA and transportation planning guidance for public lands, which provide for the BLM to designate transportation assets to accommodate access needs for administrative purposes and public use, subject to use restrictions identified through the land use and transportation planning processes. The transportation plan defines where motorized and mechanized travel are allowed and designates roads, primitive roads and trails, including their maintenance intensities and access vehicle objectives.

20(SR632)
Summary Comment: The plan does not explicitly provide a mechanism for limiting motorized and mechanized access when it is found or reasonably expected to negatively impact Monument Objects.
Summary Response: Travel Management Implementation-Level Decision 2 explains that BLM will develop criteria and a monitoring strategy to identify when motorized and/or mechanized travel is adversely impacting IFNM objects, when a route may no longer serve its intended purpose, or other changes that may occur with regard to the transportation system on the IFNM. The implementation plan will also identify the actions BLM may take to address those situations. The decision has been modified slightly to clarify the scope of BLM's monitoring approach and BLM's authority with regard to modifying the transportation plan after the RMP is completed.

20(SR636)
Summary Comment: All-terrain vehicles make too much noise; BLM should restrict the noise levels from all-terrain vehicles s used in the IFNM to provide for opportunities for quiet recreational activities.
Summary Response: BLM has authority to regulate noise under 43 CFR 8360 to protect public health and safety or to prevent creating conflicts or nuisances. As 43 CFR 8343.1 (b) states, "No off-road vehicle equipped with a muffler cutout, bypass, or similar device, or producing excessive noise exceeding U.S. Environmental Protection Agency standards, when established, may be operated on public lands." There is no regulatory noise emissions standard for BLM lands, but under an industry agreement all all-terrain vehicles manufactured since 1986 for sale in the United States must comply with a noise level of 82 dBA at 50 feet. Additionally, State laws and regulations apply on Monument lands, and current Arizona Off Highway Vehicle (OHV) regulations limit sound emissions to 96dBA, as measured according to current standard of the Society of Automotive Engineers (ARS § 28-1179A.3) Opportunities for solitude and quiet were considered in the RMP, and would be available in primitive or semi-primitive areas and areas closed to public motorized vehicle use.

20(SR637)
Summary Comment: BLM should consider the citizens' proposal of 71 miles of roads within IFNM to provide the greatest level of protection of resources, while providing sufficient access.
Summary Response: The citizens' proposal for designating motorized routes was considered but not analyzed in detail in the Draft RMP because it did not adequately address access needs for administrative purposes, authorized users, and public use. This is explained further in Section 2.2, "Alternatives Considered but not Analyzed in Detail."

20(SR644)
Summary Comment: Who will protect and repair the designated roads?
Summary Response: It is BLM's intent to monitor and enforce the route designations adopted in this RMP and BLM has agreements with other agencies for route maintenance. Refer also to summary comment and response 20(41) for additional information route designations.

20(SR742)
Summary Comment: The road network should be the minimum necessary for public access to appreciate the natural landscape and sensitive resources for which the monument was established. The continuing impacts of unneeded routes, whether for motorized or non-motorized traffic, will damage resources and degrade the natural and cultural values of the monument. The RMP must take into account the likely damage to monument objects that will result from the existing travel network, including the direct and indirect impacts of roads.
Summary Response: It is the intent of the BLM to provide maximum protection of resources while balancing visitor use and administrative needs within the monument. Alternative B presents the minimum routes necessary for the management of the IFNM, including administrative access needs. Alternatives C and D provide additional access consistent with FLPMA, which requires that "public lands be managed in a manner that will protect the quality of scientific, scenic, historical, ecological, environmental, air and atmospheric, water resource, and archeological values... and that will provide for outdoor recreation and human occupancy and use." In addition, the routes designated for motorized or non-motorized travel in Alternatives C and D are existing routes; no new routes are proposed at this time, which will limit impacts on localized and already disturbed areas. Potential for resource damage was considered in developing the proposed travel management designations and was analyzed in Chapter 4. Direct and indirect impacts such as surface disturbance or increased erosion from routes were included in the analysis. The condition of the transportation system and ancillary activity areas will be monitored, and route designations could change if management objectives for the IFNM are not being met.

20(SR743)
Summary Comment: The monument should not reduce the amount of roads, as this would restrict accessibility to recreational opportunities to many.
Summary Response: Under Alternative C (the proposed alternative), areas managed to protect wilderness characteristics include 9,510 acres of public land administered by BLM in the West Silver Bell and Roskruge mountains. Though no new roads have been proposed to provide motorized access in the IFNM, and several roads within or near the areas managed to protect wilderness characteristics would be designated for non-motorized travel, motorized access would be provided to and around these areas as shown on Map 2-21. Accessibility to recreational opportunities by persons with mobility impairments is addressed in the recreation management zone objectives, and varies depending on the zone. Access by motor vehicle will be available to various Sonoran Desert settings available in the monument through the system of designated access roads and primitive roads.

20(SR744)
Summary Comment: The BLM needs to find remedies to management challenges other than restricting the taxpaying public from use of IFNM land.
Summary Response: The monument land will remain available for public use subject to the use restrictions needed to protect monument objects and minimize conflicts with other allowable uses, as determined through the RMP planning process.

20(SR745)
Summary Comment: Who would be responsible for the cost of new fencing for monument management?
Summary Response: Fencing needed to protect resources would be funded by the benefiting program through BLM's normal budget process using appropriated funds, or through partnerships using funds contributed by others, including grants or donations.

20(SR750)
Summary Comment: Seasonal closures to human entry to protect wildlife habitat will impose economic hardship on grazing permittees if the allotment is inaccessible, and the permittees should be compensated for any losses incurred as a result of new restrictions.
Summary Response: The closure to human entry would be implemented to protect desert bighorn sheep lambing activity. The closure would be on the minimum amount of land needed and will typically cover only the rugged mountain slopes and peaks around Ragged Top. These areas are not considered useable by cattle due to terrain conditions, and conflicts with grazing operations are expected to be negligible. If necessary, administrative access into the closed area could be granted for administrative purposes, including grazing-related activities, on a case-by-case basis.

20(SR751)
Summary Comment: New fencing to protect resources may interfere with grazing operations.
Summary Response: Any new fencing will be installed in accordance with an approved project plan, which will be prepared before construction with input from stakeholders, including grazing permittees, to avoid conflicts or undesired impacts on grazing operations and to address other possible concerns. New fencing will be in accordance with BLM Handbook H-1741 (Fencing).

20(SR753)
Summary Comment: The travel plan for the monument did not take into account the needs of ranchers in the area.
Summary Response: Access needs for use, maintenance, and operation of range improvements, including corrals, waters, and trailing routes were considered in developing the travel management designations. Access will be accommodated by the designated roads or primitive roads, or by routes designated for non-motorized use where motorized administrative access is granted to meet grazing program objectives. Administrative access to fence lines, corrals, wells, and water infrastructure for inspection and maintenance will be provided under separate agreement with the grazing permittees.

20(SR759)
Summary Comment: IFNM does not have approval to identify public access through private lands. Maps indicate that certain public access to IFNM is through SBM property. The maps need to be revised to indicate that the access is through private land.
Summary Response: BLM will seek access agreements, easements, or rights-of-ways, or adjudication of existing physical access for routes needed to access monument lands for administrative purposes or public use. An administrative action clarifying this intent has been added to Appendix D under "Travel Management." In addition, all access points have been removed from the referenced maps. BLM has determined that proposed management of access points should be based on the travel management plan and that it does not qualify as a land use plan decision. The management action regarding access points has therefore also been removed from the Proposed RMP. Access points will be identified in the travel management plan and will be modified to portray correct status and location. Access from private land, State Trust land, or other jurisdictions onto IFNM lands will be subject to any landowner restrictions, as well as any travel management and other use restrictions established in the RMP.

20(SR760)
Summary Comment: The following routes are needed for various livestock-management-related activities: 622, 622M1, 630, 628B, 629MIA, 634AX, 62001, 629D, 629B1A, 629M1A, 629L, 632A, 632A1, 639A1, 629F.
Summary Response: Administrative access to fence lines, corrals, wells, and water infrastructure for inspection and maintenance will be provided under separate agreement with the grazing permittees, and no additional special permit will be required. An administrative action has been included in Appendix D under "Livestock Grazing" to clarify this issue.

20(SR761)
Summary Comment: The following routes are needed for allotment holders to conduct ranching activities: 2J, 2J3, 631, 620P, 629, 629M, 632, 632A1A, 629C, 629C1, 633, 633B.
Summary Response: These routes are designated motorized and allow vehicle access.

20(SR858)
Summary Comment: Motorized access along Route 629M1 is necessary because the road runs along an allotment boundary fence.
Summary Response: Administrative access to fence lines, corrals, wells, and water infrastructure for inspection and maintenance will be provided under separate agreement with the grazing permittees. The route described is Route 629M1, and Route 629M farther west. 629M1 is designated as non-motorized in the proposed alternative. 629M is designated for motorized use. Other monument exterior fence lines were not inventoried as access routes. based on their condition at the time of the inventory in 2003.

20(SR859)
Summary Comment: Route 629D should be closed beyond the first 0.56 miles to protect monument objects, desert bighorn, and desert tortoise.
Summary Response: All of Route 629D is limited to non-motorized use. Motorized administrative use for wildlife water maintenance and livestock grazing operations may be permitted.

20(SR860)
Summary Comment: Route 320P4 provides administrative motorized access and is unnecessary unless mining claims are going to be actively worked. This could negatively impact monument objects.
Summary Response: Route 320P4 provides administrative access to active mining claims. Motor vehicle access for claim activity under casual use pursuant to 43 CFR 3809 is excepted. This route is located within both desert bighorn sheep habitat, including movement west of Ragged Top, and Category 1 desert tortoise habitat, and it has the potential to negatively impact these objects due to disturbance by motorized activity.

20(SR861)
Summary Comment: Route 620P3 provides administrative motorized access and is unnecessary unless mining claims are going to be actively worked. This could negatively impact monument objects.
Summary Response: Route 620P3 provides administrative access to active mining claims. Motor vehicle access for claim activity under casual use pursuant 43 CFR 3809 is excepted. This route is located within both desert bighorn sheep habitat, including movement west of Ragged Top, and Category 1 desert tortoise habitat, and it has the potential to negatively impact these objects due to disturbance by motorized activity.

20(SR862)
Summary Comment: Route 625A provides administrative motorized activity which is unnecessary unless mining claims are actively worked. This could negatively impact monument objects.

Summary Response: Route 625A is not needed for mining claim access. Vehicle access is needed to meet recreation objectives.

20(SR863)
Summary Comment: Spur off 625A should be closed.
Summary Response: The spur is closed under the draft transportation management plan.

20(SR864)
Summary Comment: Route 620F appears to provide administrative motorized access, which is unnecessary unless mining claims are actively worked. This could negatively impact monument objects.
Summary Response: Route 620F is not needed for mining claim access. Vehicle access is needed to meet recreation objectives.

20(SR865)
Summary Comment: Spur Route 620F3 should be closed to protect monument objects.
Summary Response: Route 620F3 provides a loop to drive around the range improvement areas.

20(SR866)
Summary Comment: Spur Route 620F2 should be closed to protect monument objects.
Summary Response: Spur Route 620F2 is needed for parking and vehicle maneuvering space.

20(SR867)
Summary Comment: Route 620F1 seems to provide administrative motorized access, which is unnecessary unless mining claims are actively worked. Motorized access could negatively impact monument objects.
Summary Response: The spur is closed to motorized use under the Draft RMP/EIS. Route 620F1 is needed for monitoring and maintenance of a wildlife project at the mine shaft.

20(SR868)
Summary Comment: Route 620F1A seems to provide administrative motorized access, which is unnecessary unless mining claims are actively worked. Motorized access could negatively impacts monument objects.
Summary Response: The spur is closed to motorized use under the Draft RMP/EIS. The route is not needed for active mining claim access; it is needed for monitoring and maintenance of a wildlife project at the mine shaft

20(SR869)
Summary Comment: There is no administrative reason to allow motorized access on Route 620B. Motorized intrusions have occurred past beyond this route, causing erosion and wildlife disturbance.
Summary Response: Motorized access on Route 620B is needed to achieve recreation management and grazing program objectives. The loop at the terminus is unimportant.

20(SR870)
Summary Comment: Route 620AX should be closed to motorized use.
Summary Response: Access to Route 620AX crosses ASLD land and was closed by the grazing permittee, blocking access to a BLM section. It provides access to range fence and to high-quality dispersed camping area. It will be closed to ensure similar camping opportunities preserved in vicinity.

20(SR871)
Summary Comment: Route 623B should remain limited to administrative motorized access.
Summary Response: The upland section of Route 623B is needed for administrative access and to meet non-motorized recreation management objectives.

20(SR872)
Summary Comment: Route 622J should be closed to motorized access. This route bisects significant habitat, and closing the route would lead to less wildlife disturbance and would protect sensitive cultural resources and monument objects.
Summary Response: Route 622J is designated in the draft transportation management plan to provide non-motorized access to achieve recreation management objectives. An exception for range improvement and utility access may be needed.

20(SR873)
Summary Comment: Spur Route 622J1 should be closed to motorized access.
Summary Response: Route 622J1 is designated in the draft transportation management plan to provide non-motorized access to achieve recreation management objectives. An exception for range improvement and utility access may be needed.

20(SR874)
Summary Comment: Route 621F should be limited to administrative access to allow bighorn sheep to water undisturbed.
Summary Response: Vehicle access is needed on Route 621F to access wildlife water and to achieve recreation management objectives. Designation in the draft transportation management plan has been changed to protect cultural values and reduce conflict with wildlife water. An exception has been made for AGFD vehicle access to wildlife water.

20(SR875)
Summary Comment: Close Spur Route 621F1 to motorized access.
Summary Response: Route 621 F1 will be closed and not maintained as a trail.

20(SR876)
Summary Comment: BLM must show how Spur Route 621E protects monument objects or provides legal access.
Summary Response: Route 621E is designated to achieve recreation management objectives.

20(SR877)
Summary Comment: Route 652B should allow administrative motorized access use only to Guzzler 630. This would protect monument objects and cultural resources.
Summary Response: Route 652B provides access to wildlife water and high-quality recreation opportunities. New data from a recent cultural survey show that the route crosses an important site. The access is controlled by State land adjacent to the exterior of the monument. A transportation easement is required to implement the use restriction.

20(SR878)
Summary Comment: Route 652B2 should be closed to motorized access to protect resources including monument objects.
Summary Response: Route 652B2 provides access to meet recreation management objectives.

20(SR880)
Summary Comment: Route 654A1 should be closed to motorized access due to off-road incursion, trash dumping, and its location near sensitive cultural resources.
Summary Response: Route 654A1 provides an essential functional link for access and travel north-south on the western side of the Sawtooth Mountains. It also provides access to dispersed recreational opportunities. No cultural sites are encountered along the route.

20(SR881)
Summary Comment: Route 654A is unnecessary for motorized access. Preventing access would provide better habitat conditions, decrease disturbance, and protect cultural resources.
Summary Response: Route 654A provides access to recreational opportunities. Its initial segment crosses ASLD land adjacent to the exterior of the monument, and a transportation easement is required to implement management.

20(SR882)
Summary Comment: Designating Route 654AB as closed would protect habitat and cultural resources and result in less disturbance.
Summary Response: Route 654AB provides access to recreational opportunities.

20(SR883)
Summary Comment: Route 656C doesn't need to provide motorized access. The area is already experiencing erosion. Preventing access could lead to better habitat conditions, protection of cultural resources, and less disturbance.
Summary Response: Route 656C provides access to high-quality recreational opportunities.

20(SR884)
Summary Comment: Route 660 should only provide access to guzzler 631. The rest of the route should be closed to protect habitat and monument objects.
Summary Response: Route 660 provides access to wildlife water and recreational opportunities. The route crosses ASLD land adjacent to the exterior of the monument, and a transportation easement is required to implement the transportation management plan. Camping is restricted within 0.25 mile of wildlife water.

20(SR885)
Summary Comment: The spur on Route 629C1 should be rehabilitated.
Summary Response: Route 629C1 provides access to meet grazing program objectives and is designated as non-motorized.

20(SR886)
Summary Comment: Route 620K crosses a major wash and attracts off-road users. It should be closed to protect resources.
Summary Response: Part of route 620K provides access to active mining claims, powerline right-of-way and private land adjacent to the exterior of the monument.

20(SR887)
Summary Comment: Route 601E doesn't meet the legal definition of a road and could impact monument objects.
Summary Response: Route 601E provides access to range improvements such as water, corrals, holding pastures, and staging areas needed for recreation under special recreation permit.

20(SR888)
Summary Comment: Spur Route 607 should be closed to motorized use to protect monument objects.
Summary Response: Route 607 is on an ASLD inholding and requires an easement to implement the transportation management plan TMP. The route provides access to recreational opportunities and is needed for range improvement.

20(SR889)
Summary Comment: Route 604A3 doesn't meet the legal definition of a road and could impact monument objects.
Summary Response: Route 604A3 is on an ASLD inholding and requires an easement to implement the transportation management plan. The route provides access to recreational opportunities and is needed for range improvement.

20(SR890)
Summary Comment: Route 625E doesn't meet the legal definition of a road and could impact monument objects.
Summary Response: Route 625E is part of the historic SASCO railroad grade extending to Silver Bell Mine and is designated in the draft transportation management plan for non-motorized use.

20(SR891)
Summary Comment: Route 638C should be limited to motorized administrative access to protect cultural resources from damage.
Summary Response: Route 638C provides access to range water and to a cultural site and an allotment boundary fence. New information from cultural surveys indicates that there is a conflict with resource values. The route also provides a regional link from the Tohono O'odham Nation to the Santa Cruz Valley.

20(SR892)
Summary Comment: Route 631B provides duplicate access to a well, and the route experiences user-created spurs and should be closed.
Summary Response: Route 631B provides access to range improvements, a well, a pipeline, a fence, and recreational opportunities.

20(SR893)
Summary Comment: Route 632A should be limited to motorized administrative access to allow bighorn sheep to water undisturbed and prevent user-created spurs.
Summary Response: 632A provides access to wildlife water and recreation opportunities.

20(SR894)
Summary Comment: Route 600D1 doesn't meet the legal definition of a road and could impact monument objects.
Summary Response: Route 600D1 provides access to a private land inholding with an inactive quarry and to a rangeland fence. The route lies near a cave with bat habitat values.

20(SR895)
Summary Comment: Route 600D2 doesn't meet the legal definition of a road and could impact monument objects.
Summary Response: Route 600D2 provides access to a private land inholding with an inactive quarry. The route lies near a cave with bat habitat values.

20(SR896)
Summary Comment: Route 600D3 doesn't meet the definition of a road and can cause impacts on monument objects.
Summary Response: Route 600D3 provides access to a private land inholding with an inactive quarry. The route lies near a cave with bat habitat values.

20(SR897)
Summary Comment: Route 600M provides access into the Waterman ACEC, which could impact monument objects. This routes should be closed to motorized access.
Summary Response: Route 600M provides access to recreational opportunities.

20(SR898)
Summary Comment: Route 600K provides access into the Waterman ACEC, which could impact monument objects. This route should be closed to motorized access.
Summary Response: Route 600K provides access to recreational opportunities.

20(SR899)
Summary Comment: Route 600J provides access into the Waterman ACEC, which could impact monument objects. This route should be closed to motorized access.
Summary Response: Route 600J provides access to recreational opportunities.

20(SR900)
Summary Comment: Close Route 652B.
Summary Response: Route 652B provides access to wildlife water and high-quality recreation opportunities. New data from a recent cultural survey show that the route crosses an important site. Access is controlled by State land adjacent to the exterior of the monument. A transportation easement is required to implement the use restriction.

20(SR917)
Summary Comment: The following roads should be further restricted (beyond Alternative C) as follows: Township 11, Range 8: Non-Identified Roads. 1.) The short road central to Section 22, which connects 625 A to a wash, and which serves no purpose other than to facilitate and encourage illegal motorized travel in that wash, is not identified. 2.) The short road central to Section 22, which connects 620F3 to a wash, and which serves no purpose other than to facilitate and encourage illegal motorized travel in that wash, is not identified. Route 2Z: The BLM ought to consider closing this road to all motorized access except the electric company. It is unnecessary for ranching purposes. It ends at a wash, which only encourages OHV recreationists to drive up and down a sensitive xeroriparian wash that is a major corridor for bighorn sheep. When the OHV recreationists travel north in this wash, they eventually encounter the fence that runs along Road 2J3. This fence is frequently found cut open or mangled at this location. However, the electric company absolutely must have unfettered access as needed.
Summary Response: The route described is Route 625C. It is designated for non-motorized use in the proposed alternative. The route described is Route 620F4, and it is designated as non-motorized in the proposed alternative. Route 2Z has been designated as non-motorized in the Proposed RMP to reduce conflicts with bighorn sheep as they move through a corridor linking the Silver Bell Mountains with the West Silver Bell Mountains. The route does not service any power line.

20(SR918)
Summary Comment: 620 H1 and 620 J: These two roads should be open for motorized use, but only for use by the electric company.
Summary Response: Routes 620H1 and 620J provide access to an electric service line, but they lie within the east-west desert bighorn sheep movement corridor. To prevent conflicts with bighorn sheep, prevent

erosion, and to deter unauthorized access to private land, 620H1 is designated as non-motorized in the Proposed RMP. The eastern end of 620H (from its junction with 620H1) is also designated as non-motorized in the Proposed RMP. Route 620J provides access to a planned non-motorized trail on the historic Sasco railroad grade and will remain open for motorized use.

20(SR919)
Summary Comment: The two roads intersecting the label for 620 K2 should be closed to motorized access, except for the electric company and except for emergency access by the allotment holder for fence repairs.
Summary Response: Under the proposed alternative, BLM has designated 620K1 as non-motorized to protect wildlife habitat values, but this route can be used for administrative services to access for mining claims and utilities.

20(SR920)
Summary Comment: 625 A and 625 B: These roads are not used for ranching purposes. The BLM ought to consider restricting these roads further than Alternative C, preferably making them non-motorized trails, because due to the loop these roads create in the Ragged Top VHA (combined with road closures in other areas, and considering BLM's apparent noncommitment to providing adequate law enforcement manpower), this loop will become inundated with traffic and predictably will lead to significant resource damage in the proposed Ragged Top VHA (as identified under Alternative C). This could negatively affect special status species, including the Sonoran desert tortoise. Additionally there will be significant increase in the number of people accessing a documented archaeological site. The petroglyphs would be very easy to steal from this site unless BLM provides a significant increase in law enforcement presence. Currently the Draft RMP makes no mention of law enforcement patrols, so the only other alternative for protecting the rock art is to restrict vehicle access. Furthermore, keeping 625 A open will encourage illegal OHV travel on 625 D (the railroad grade), which currently is not a problem. However, 625 D has many sharp drop-offs where bridges once existed, and even a small volume of motorized travel on it would cause significant erosion and encourage off-road traffic in the many washes that cross-cut the railroad grade. Currently most of these washes are in a pristine condition. Furthermore, keeping 625 A open while closing so many other roads in the monument may encourage illegal traffic to access 625 A1, invading private property and endangering the residents. We appreciate the BLM closing 625 A1 to motorized traffic in Alternative C.
Summary Response: In the Proposed RMP, Routes 625A, 625B, and 620F make a loop that provides access to high-quality recreational opportunities. However, to protect desert bighorn sheep, public use of these routes will be limited to day use, and vehicle-based camping would be prohibited along those routes. Because of the sensitive cultural and biological resources found in the vicinity of Ragged Top, this area will be regularly monitored to determine if current management actions, including route designations, are achieving resource goals and objectives. Adaptive management techniques will be implemented and management actions can change if monitoring determines changes are necessary.

20(SR921)
Summary Comment: Other roads that should be closed to motorized access: 2J1 and 2J2. 2J2 is a smuggling pickup route that intersects the illegal immigrant pedestrian trail. There are frequently fresh OHV and other tire tracks coming off this route and paralleling key washes in the area.
Summary Response: Under the Proposed RMP Route 2J1 would be designated for motorized use to provide opportunities for motorized access, including recreation and administrative purposes in the West Silver Bell Mountains area. Under the Proposed RMP, Route 2J2 would be designated for non-motorized use.

20(SR922)

Summary Comment: Please keep the following roads freely accessible year-round for motorized use by the grazing allotment holders and their associates and employees: Unlabeled existing and long-used roads needed in T/11 S R08E: 1. An unidentified road branches southeast off Road 620P, intersects 620O, and then bends due east along the monument/reservation boundary fence line on the southern boundary of T11 E R08E S31 and S32. This road terminates at a water storage tank and metal livestock drinker ("The Bull Tank"). The drinker is located at the intersection of a corner of the reservation where a significant amount of illegal immigrant traffic comes through on a well-established footpath, necessitating regular fence repairs. The aforementioned, unlabeled road must remain freely open to motorized access by the grazing allotment holder, his family members, associates and employees to maintain the water source and maintain the allotment boundary fence to prevent cattle deaths (e.g., if a cow gets on the wrong side and cannot find water), cattle thefts, and cattle trespass across the monument boundary. 2. The road running along the south side of the northern Pima County and monument boundary is neither identified nor designated. This is a necessary ranch boundary fence. Maintenance is performed on an as-needed-for-ranch-purposes basis. 3. The unidentified fence-line road heading due south from Silverbell Road in Section 13 and extending into Section 25, ascending Ragged Top along the western boundary of Section 13, Section 24 and Section 25: Problems: This allotment boundary fence separates the Morning Star and Claflin allotments. This fence absolutely must be maintained. The Draft RMP/EIS in Alternative C proposes this road be closed and revegetated. Closure this particular road, under the conditions about to be explained may be acceptable, but this allotment boundary fence absolutely must not be removed. This fence, unlike all other boundary fences, is regularly checked from horseback rather than a motorized vehicle. Disrespectful recreationists, however, frequently cut this fence for both motorized and pedestrian crossings. In February 2007, more than 100 feet of fence had been removed at the terminus of illegal wildcat road 620AX and along the entire length of illegal wildcat road 621B1 in T1 E R09 S19. (Neither of these two roads existed in 2003 and are likewise absent from the 1989 USGS Silverbell East quadrangle map.) It took two full days and an expensive trip to the hardware store to repair the fence. Ten fence posts had to be replaced with new posts because the original posts apparently had been burned for firewood. This repair required motorized access, and as such, reasonable motorized access can be expected occasionally to be necessary to maintain the fence in a condition that prevents cattle trespass between allotments. Recommendation: The BLM ought to close this fence line as both a motorized and non-motorized trail (heavy use as a hiking or mountain biking trail would without doubt accelerate erosion due to its steep fall-line course) but allow the allotment holders or their associates, family, or employees occasional motorized access to Roads 620B and 621B1 year-round (regardless of lambing season) as needed for emergency repairs. This would reduce the amount and frequency of fence-cutting, yet enable sufficiently close access to haul in necessary barbed wire, tools, T-posts, and the heavy post driver for repairs.

Summary Response: The route described is Route 620O1. It is designated as non-motorized in the proposed alternative. Motorized administrative access on this route may be granted to meet grazing program objectives. Administrative access to fence lines, corrals, wells, and water infrastructure for inspection and maintenance will be provided under separate agreement with the grazing permittees. The route described is Route 629M1, and Route 629M farther west. 629M1 is designated as non-motorized in the proposed alternative. 629M is designated for motorized use. Other monument exterior fence lines were not inventoried as access routes, based on their condition at the time of the inventory in 2003. The route described is Route 621B1. It is designated as closed to all traffic to be rehabilitated under the proposed alternative in the Draft RMP. This route will be designated as a non-motorized trail in the Proposed RMP Motorized administrative access on this route may be granted to meet grazing program objectives. Administrative access to fence lines, corrals, wells, and water infrastructure for inspection and maintenance will be provided under separate agreement with the grazing permittees. The fence will not be removed as part of any rehabilitation that occurs. 620AX and part of 621B1 were initially identified in 1980 during the wilderness inventory for the area as a vehicle access "way." It has remained in similar condition since that time, with some natural revegetation occurring, and an increase in use in recent years.

It crosses State lands and is currently closed by the grazing lessee and AGFD at the junction with Silverbell Road, on State land. The remainder of the route on BLM land was designated in the Draft RMP to provide vehicle access to high-quality recreation opportunities. This route will be designated for non-motorized use in the Proposed RMP to protect natural resources, with administrative access to meet grazing program objectives. Access to the fence line away from the designated trail will remain by non-motorized means. Route 621B1 is designated for non-motorized use in the Proposed RMP to provide a connection between 620AX and 620B. 620B is designated for motorized use in the proposed alternative.

20(SR923)
Summary Comment: 622L: This road must be closed because it was created illegally and crosses through an internal King Ranch fence that was cut open.
Summary Response: Route 622L is a fence line receiving vehicle traffic. It is not identified as a travel route in the Proposed RMP. It would be closed under the Proposed RMP.

20(SR924)
Summary Comment: Township 11, Range 7 629, B1: Please close to motorized access. 629 C2: Please close to motorized access. This road encourages fence cutting.
Summary Response: Under the Proposed RMP, Routes 629B1 and 629C2 are designated as non-motorized.

Category 21: Special Designations

21(141)
Comment: No areas should be considered for Wilderness study areas, we already have to much land locked up that 98% of Americans cant or wont visit.
Response: Only Congress can designate areas as wilderness. At this time, BLM has no authority to report wilderness areas for designation to Congress. Therefore, WSAs cannot be designated, either.

21(277)
Comment: [Choose Alt B except:] Designate Sasco Railroad corridor as a recreational trail as in Alternative D.
Response: BLM did not consider Sasco Railroad as a recreational trail under the National Scenic and Recreational Trails Act or other special designation under any alternative. Portion of the historic railroad grade is presently used for Sasco road, and portion is not in use and reclaiming naturally. The reclaiming portion of the grade is defined as a non-motorized trail under all alternatives, including the proposed plan.

21(SR78)
Summary Comment: The entire IFNM should be treated like an ACEC.
Summary Response: ACEC designations within the IFNM will no longer be necessary because the monument designation and management proposed in the Draft RMP/EIS would provide protection of special status species. Refer also to summary comment and response 21(SR 772) for additional information regarding ACECs.

21(SR81)
Summary Comment: A total of 33,417 acres should be designated as WSAs in the IFNM, including 6,161 acres at Ragged Top, 11,169 acres in the Sawtooth Mountains, 7,489 acres in the Silver Bell Mountains, and 8,598 acres in the West Silver Bell Mountains. Protecting these acres as WSAs will assist the BLM in its responsibility to protect the objects and wildlife of the IFNM.
Summary Response: Only Congress can designate areas as wilderness. Utilizing wilderness characteristic criteria under FLPMA, Section 201, BLM identified 36,990 acres on IFNM as having wilderness characteristics (of varying levels of quality). IFNM is proposing to manage 9,510 acres that received the

highest ratings under wilderness criteria. Although the BLM does not have the authority to designate new WSAs, nor to manage any additional lands under the Section 603 nonimpairment standard, lands with wilderness characteristics can be protected in their natural state using a wide range of designations that offer the same protections.

21(SR772)
Summary Comment: The EPA recommends that the Final EIS describe the difference between the ACEC and VHA designations and why the VHA has been identified as a more appropriate management vehicle for the Waterman Mountains.
Summary Response: By definition, an ACEC is "an area within the public lands where special management attention is required to protect and prevent irreparable damage to important historic, cultural, or scenic values, fish and wildlife resources, or other natural systems or processes, or to protect life and safety from other natural hazards" (43 CFR 1610). BLM feels that the protective measures proposed monument-wide in the RMP, and those that accompany the monument designation by way of the Proclamation, essentially replace the need for an ACEC in the monument. Specifically, the special management prescriptions for Waterman Mountains ACEC, intended to provide special protection to the Nichol's Turk's head cactus, include limiting motorized vehicles to designated roads and trails, initiating mineral withdrawal within the ACEC, and prohibiting surface occupancy for oil/gas development. These provisions are all covered by the Proclamation, thus rendering "special management" unnecessary. BLM does recognize that this area contains a significant resource that warrants protection, and has proposed several actions that would allow BLM to offer increased protection if necessary. The Waterman Mountains VHA was established to delineate the area where these actions would apply.
The impacts of managing Nichol's Turk's head cactus habitat as part of a VHA are described in Section 4.3.6.3 of the Draft RMP/EIS.

Category 22: Social and Economic Conditions

22(140)
Comment: 3-40 Locatable Minerals
Rock collectors have long utilized the Monument area. How will this issue be addressed and managed?
Response: Per the Proclamation, no objects of the monument, including rocks and minerals, will be removed except in the instance of specially permitted specimens to be used for educational or scientific purposes.

22(392)
Comment: 4-97 Impacts on Recreation. Potential historical, economic, and social impacts were not addressed or analyzed in Chapter 4 in regards to the decision to ban recreational shooting (Alternative C: Use and Discharge of Firearms: "Prohibit the use and discharge of firearms within the IFNM, except for permitted or authorized hunting activities conducted in accordance with AGFD hunting regulations.") The Department recommends a more thorough analysis to encompass all impacts associated with this decision.
Response: Section 4.5.3 notes that there could be potential changes in IFNM visitation due to restrictions on recreation, including recreational shooting, and notes the mixed social impacts between those that value and those that oppose recreational shooting on IFNM. As noted therein, recreational activity (and associated social and economic aspects of that activity) could be shifted to other recreation sites, in which case expenditures associated with this recreation use would not change. In accordance with NEPA, best available data were used for this RMP/EIS, and data were not available to support a more detailed analysis. However, some text was added to address the economic impacts on personal property from recreational shooting. This impact analysis is not repeated for Alternative C (Section 4.5.4). As noted in the introduction to Section 4.5.4, the analysis of Alternative C provides distinctions between the alternatives (Alternatives B and C are the same with regard to the use and discharge of firearms).

22(393)
Comment: Many ranchers or their employers or employees have minority ancestry and thus Executive Order 12898 may apply to them.
Response: Per Section 3-302 of the Executive Order, data collection and analysis for environmental justice analysis are to be conducted to the extent permitted by existing law, including the Privacy Act, as amended (5 U.S.C. 552a). Accordingly, impacts on populations rather than individuals are analyzed.

22(394)
Comment: Summary - Social and Economic Conditions
"Conversely, employment in the mining sector has declined in terms of both relative significance and total number of jobs."
SBM takes strong exception to the judgment that the mining industry has declined in significance and total number of jobs. Primarily, it is not the role of BLM to determine whether a certain industry has less significance than others and whether impacts to that industry need to be evaluated. The facts remain that the mining sector is impacted by the IFNM and a requirement of the National Environmental Policy Act is that the impacts be evaluated in the resource management planning process. Moreover it should be recognized in any comparative analysis that jobs provided by mining are high paying jobs
Response: The phrasing has been changed to clarify that the 30-year trend data from 1970 to 2000 shows this decline and to note the resurgence in the copper industry that began in 2004.

22(395)
Comment: We are also aware that the BLM may be overestimating the importance of the livestock operations in IFNM in the social and economic resource section of the DRMP/DEIS. Page 4-188.
Response: The social and economic impacts of livestock operations were analyzed using the best available data on livestock operations and AUMs on BLM allotments, which are closely tracked.

22(396)
Comment: weigh long-term benefits to the public against short-term benefits;
What about the long term benefit of an assured local food supply?
Response: Additional information was added to the text on the indirect and value added impact of livestock grazing, citing Economic Impacts from Agricultural Production in Arizona, Jorgen R. Mortensen, University of Arizona, July 2004. A typographical error on the market value of cattle and calves in Pinal County was corrected.
Your estimate of local food supply is noted (in a food supply crisis where the base herd would be slaughtered for consumption, the 646 cattle in the planning area could produce 306,850 pounds of beef or enough beef to feed 4,339 Arizonans for one year).

22(399)
Comment: Table 2-18 Summary Comparison of Impacts Table
Social and Economic Conditions Alternatives B and C - "Closing the bighorn sheep lambing areas seasonally could limit valued social experiences."
This statement fails to address the economic impacts of closing off private landowners from lands located within) the sheep lambing areas.
Response: Private landholder access would not be impacted by lambing area closures.

22(400)
Comment: AMA is also concerned with assertions that the mining industry has declined in significance and the total number of jobs based on statistics on employment in the service sector and the growth in government jobs. Any comparative economic analysis should note that these jobs pay significantly less than jobs in mining. In 2005, the copper mining industry in Arizona provided 6,900 jobs resulting in personal income of $486 million. When both direct and indirect impacts m the industry accounted for

22,200 jobs accounting for personal income of $ 1.1 billion. The Arizona copper industry had a direct and indirect impact to the Arizona economy of $3. 52 billion, which was comprised of $ 1.1 billion in personal income (equivalent to 22,200 jobs for Arizonans), $2.2 billion in business income and $223 million in state and local government revenues. The direct impact of mining was $1.6 billion, comprising of $486 million in personal income (equivalent to 6,900 jobs), $1.04 billion in income to other Arizona businesses for products and services and over $80 million to local and state governments in taxes and fees.
AMA is concerned that the draft RMP omits from the list of legislative requirements such as the Mining and Minerals Policy Act of 1970 and the National Materials and Minerals Policy, Research and Development Act of 1980. Recognizing that new mineral rights cannot be established in the IFNM, those statutes require that the valid existing mineral rights in the IFNM be managed consistently with the policy of promoting an orderly and economic development of domestic mineral resources.
Response: The list of legislative requirements provided in Section 1.4 of the RMP/EIS is intended to include only the overarching requirements. Appendix B, "Planning Criteria," includes the Mining and Minerals Policy Act of 1970 and National Materials and Minerals Policy Research Development Act of 1980. The phrasing has been changed to clarify that the 30-year trend data from 1970 to 2000 shows this decline and to note the resurgence in the copper industry that began in 2004.

22(401)
Comment: 4.5 Impacts on Social and Economic Resources 4.5.1 Impacts Common to All Alternatives
"According to the reasonably foreseeable development scenarios mineral resource development, it is unlikely that there would be significant pressure to develop the grandfathered mining claims. Regardless of alternative, any proposals to develop valid existing rights would be subject to site-specific, case-by-case review of mine plans, plans of operation, and other development plans to ensure that other resources are protected prior to the issuance of a permit or lease."
SBM does hold mining claims within the IFNM. The editorial opinion of the author of this section of the draft RMP that it is unlikely that these claims will be exercised is inappropriate. The RMP process should give full consideration to all valid existing rights within the monument and not discredit rights based on personal opinion. That and other similar statements suggest an inappropriate bias against mining in the draft RMP.
Response: The statement that "according to the reasonably foreseeable development scenarios mineral resource development, it is unlikely that there would be significant pressure to develop the grandfathered mining claims" has been deleted from the document. This statement was not based on personal opinion; rather it was based on a reasonably foreseeable development analysis that was prepared in support of the RMP/EIS. Since the time that the reasonable foreseeable development was analyzed (2003), there has been a marked change in market conditions for copper, which has directly affected the reasonable foreseeable development potential for copper.

22(403)
Comment: 3.5.2.2.2 Activities/Resources and Land Use Issues
"With regard to use of IFNM lands for development of mineral and energy resources, there are those concerned about potential impact to natural resources and those that support access and opportunities for mineral resource development within the IFNM and/or the surrounding area (e.g., Asarco Silver Bell Mine). No mining currently occurs within the IFNM and mining jobs are decreasing relative to other local employment. However, links to the current and former participation of mining in local communities still exist."
It should be noted here that mineral development can only take place where mineral deposits are present. If mining is not allowed on lands where these deposits exist, the associated reserves are lost. Foregoing domestic mineral development will make the country dependent on foreign sources for strategic mineral resources and impact our national security in much the same way as reliance on foreign sources of oil. Additionally, although no mining currently occurs within the IFNM, it should be noted that valid existing

claims are held within the monument boundaries. Once again, SBM objects to the statement that mining has declined in relative importance to other local employment. As shown previously, direct and indirect impacts of mining must be analyzed to get a full picture of the significance of the mining industry to Arizona and the nation.
Response: The referenced text within the document addresses the baseline social value; this comment is more appropriately addressed in the environmental consequences, and a statement was added to this effect in Section 4.5.1. In addition, the referenced statement about the decrease in mining jobs was revised to indicate its relationship to the 1970 to 2000 data and the recent increase in the market price of copper. Refer also to summary comment and response 22(402) for additional information regarding the recent resurgence in copper pricing.

22(406)
Comment: 3.5.1.2.1 Social Value of Ranching
Ranching conveys value to local communities through the conservation of open spaces and the connection to historic ranching in Arizona or a "western" quality of life.
The same cultural value may be applied to mining and preservation of a "western" way of life and should be included as a subsection of 3.5.1.1 Energy and Minerals.
Response: A statement regarding the social value of mining has been added to Section 3.5.1.1 of the Final RMP/EIS.

22(522)
Comment: The economic analysis of livestock grazing in IFNM is incomplete and almost completely inaccurate.
Response: The social and economic impacts of livestock operations were analyzed using the best available data on livestock operations and AUMs on BLM allotments, which are closely tracked.

22(651)
Comment: Downgrading nine allotments reduces the collateral value and may drive some allotment holders into negative cash flow situations and potential bankruptcy. The loss would not only inflict financial harm in itself, but would also reduce the market value of the base deeded property attached to the allotment.
Response: Section 4.5.4 has been revised to more clearly reflect the effects of changing the classification of allotment to perennial from perennial/ephemeral. Changing the classification of an allotment does not reduce the area of the allotment or the number of permitted AUMs, nor does it prevent BLM from issuing temporary non-renewable licenses during periods when there is additional forage available.

22(652)
Comment: The agency acknowledges that most of the permittees pay for full use of the allotment, even if the actual use is much lower. Id. Therefore, Table 3-17 on page 3-56 of the DRMP/DEIS is meaningless in terms of actual use, but does serve to demonstrate that revenues from livestock grazing on the IFNM would hardly cover the cost of administering the program. This is par for the course on BLM lands, and should be figured into the economic analysis. See GAO 2005.
Response: Table 3-17 is not intended to be used for extrapolating the cost of BLM's livestock grazing administration for allotments within the IFNM. The information in Table 3-17 provides context regarding the amount of livestock grazing that has occurred on IFNM allotments over the past 10 years.

22(SR66)
Summary Comment: We have paid for the right to shoot in IFNM because of taxes on ammunition and monies spent on weapons, camping gear, and other related items that bring income to the State of Arizona. Loss of this activity would be a hardship on tourism and the economy of Arizona and is liable to have a negative impact on the availability of funds used to protect the land and the wildlife on IFNM.

Summary Response: Alternatives B and C would prohibit the use and discharge of firearms within the IFNM, except for permitted or authorized hunting activities conducted in accordance with AGFD hunting regulations. The current economic impacts of recreation in Arizona are summarized in Section 3.5.1.3.2. This includes the analysis of economic impact from the National Survey of Hunting, Fishing, and Wildlife-Associated Recreation, which includes fishing, hunting, or watchable wildlife forms of recreation. The economic impact of recreational shooting is not tracked individually, but prohibiting shooting in the IFNM would be expected to have a negligible effect on the statewide and local economy. This is because recreational shooting and associated expenditures (e.g., ammunition) would likely still occur in the local area as this activity shifts to other locations in the local area or state. Furthermore, expenditures related to recreational shooting (e.g., firearms, licenses, outdoor gear, travel) are intertwined with expenditures for hunting, and there would be no change in policy related to shooting associated with hunting.

22(SR69)
Summary Comment: I'd like to see restrictions on mining and development within the IFNM.
Summary Response: As per the Proclamation … Valid existing mining claims will be allowed to continue. However, no new claims will be permitted.

22(SR397)
Summary Comment: The real economic and social value of IFNM is flawed. To consider the value of the monument only in terms of the multiple human uses belies a perspective that is extractive and (nominally) revenue-based. The Draft RMP/DEIS does neither a true cost benefit analysis for the near term, nor a life-cycle cost/benefit for the long term. The analyses also ignore the commodity values associated with natural processes. For this analysis to be complete, or truly enable the decision maker and public to understand it, both the real investment in a healthy landscape (as opposed to underfunded programs) and the true cost of enabling uses, the obligation to communications, planning, law enforcement, road and other improvement installation and maintenance, budgetary shortfalls of use programs (i.e., livestock grazing) mitigation for degradation and restoration would have to be factored in and accounted for in the analysis. With that data in hand, the unit value of use could be calculated and compared to revenue sources. The public could then join with the agency in determining public benefit, as opposed to privilege benefit. In addition, where cost exceeds revenue, use could be constrained until cost/revenue/benefit coincides. In the absence of a revised economic model, it is likely that natural values, including wildlife's interests, will diminish in deference to subsidized human use.
Summary Response: The analysis of social and economic values considered nonmarket values in addition to human use values of the monument (refer to Section 4.5 of the Draft RMP/EIS). This analysis was conducted using the best available data. A detailed cost-benefit analysis or model was not conducted, as such an analysis is not required as part of this planning process, nor are data available for such a detailed analysis.

22(SR402)
Summary Comment: BLM should address importance of copper mining industry in Arizona; note how jobs in the services sector pay less than jobs in mining.
Summary Response: BLM has rephrased the statements about the decline in the mining industry and tied those statements to the trends from 1970 to 2000. In addition, to capture the recent resurgence in the copper industry, 2007 data on the baseline economic value and employment of the copper industry have been added to Sections 3.5.1.1 and 3.5.1.5, respectively.

22(SR404)
Summary Comment: Access to valid existing rights for minerals should not be precluded because of route designations made in the RMP.

Summary Response: The Draft RMP/EIS has been revised to eliminate misleading statements about the effects of management decisions on development of valid existing mining claims. The alternatives would not preclude mineral resource development, but case-by-case review of mineral development actions would be subject to the terms of the management decisions under the various alternatives, and mitigation and/or minimization of impacts would potentially vary by alternative. Route designations would not preclude access to valid existing rights for minerals.

22(SR405)
Summary Comment: BLM should update the employment data for Silver Bell Mine to reflect increased employment.
Summary Response: The text has been updated with the most recent (second quarter 2007) employment data (153 employees) for Silver Bell Mine on record with the Mine Safety and Health Administration.

22(SR499)
Summary Comment: Grazing fees collected by the BLM were inaccurately assumed in the Draft RMP/EIS as the sole economic return to the taxpayers from livestock grazing in the IFNM. Ranches in the IFNM employ a workforce of about 18 people that live and work out on the IFNM rangeland 24 hours a day, 7 days a week.
Summary Response: Section 4.5.3, regarding social and economic effects of Alternative B, has been revised to acknowledge the potential loss of jobs among ranch employees and the potential for additional BLM management responsibilities once the grazing allotments have expired.

22(SR500)
Summary Comment: The social and economic value of ranching would be completely lost in IFNM if grazing was terminated.
Summary Response: Social values of ranching are acknowledged in Section 4.5.3, regarding the effects of Alternative B, which would make allotments within the IFNM unavailable for grazing upon expiration of existing leases. Allotments could also be made unavailable for grazing under Alternative C if a lease were cancelled or voluntarily relinquished, but grazing could also be reinstated at a later date.

22(SR501)
Summary Comment: Wildlife foraging patterns and wildlife habitat would be impacted through habitat fragmentation and loss of privately maintained water sources in the IFNM.
Summary Response: Revisions have been made to various sections of the plan to better acknowledge the effects from the potential loss of livestock waters that would be abandoned if grazing allotment leases were retired. For example, Section 4.3.5.3 notes the effects on wildlife and Section 4.5.3 notes that changes in wildlife patterns and/or population could influence hunting and its related economic benefits.

Category 23: Public Safety

23(431)
Comment: Who should actually be blamed for “resource destruction caused by unregulated shooting” as Mr. Madigan characterized the situation? “Unregulated” shooting can also be called “unmanaged” shooting and this “unmanagement” is the fault of BLM. Responsible shooters, like any other recreational user of BLM lands, cannot be expected to take on the management responsibilities of the agency.
Response: The Draft RMP/EIS does not place blame on any user group, agency, or individual, but strives to protect the natural and cultural resources for which the monument is designated. The Draft RMP/EIS does not vest the public with any enforcement or management authority or responsibility, nor does it imply those responsibilities. The BLM rangers who patrol the monument would enforce the provisions of the RMP, once approved, in addition to the existing laws and regulations they enforce.

23(432)
Comment: Regarding the banning of recreational shooting on our public lands.
1. How many people have been injured by getting shot on public lands?
2. Is this mostly happening closer to populated areas?
Response: To BLM's knowledge, no one has reported a serious injury or death from recreational target shooting on the IFNM. We do not have statistics for other public lands, but injuries related to target shooting do occur on occasion on public lands within the immediate Tucson area. On the IFNM, there have been numerous close calls and private property, including livestock, has been shot. This is happening close to populated areas and in more remote areas of the monument as well. In addition to those neighborhoods and communities that are located adjacent to the IFNM, residential areas occur on some of the private lands within the monument boundary.

23(433)
Comment: The debris left behind from such target shooting not only destroys the esthetics of this beautiful area, but also creates problems for native flora and fauna.
Response: The impacts of target shooting are analyzed in Chapter 4 of the RMP/EIS. Where necessary, additional information related to target shooting has been included throughout the chapter to more specifically address the impacts associated with this activity.

23(436)
Comment: Pages 2-31, 2-32 Table 2-8. Resource Management of CULTURAL RESOURCES
Last bullet on page 2-32
"trash dumps"
The BLM needs to address the fact that the historic trash dumps contain a lot of rusty metal objects, many of which contain lead, and can be harmfully consumed by wildlife, migratory birds and livestock. These items tend to migrate into xeroriparian washes and travel great distances from their original sources. These items can and will eventually find their way into major waterways. Additionally, old rusty containers can breed mosquitoes carrying deadly diseases such as West Nile virus or avian flu. The BLM needs to outline a plan to manage all that old junk.
Response: BLM would manage historic trash dumps for scientific use under the proposed alternative (Alternative C), which would include data recovery (i.e., removal of the materials) of the objects. Historic objects deemed hazardous to human health or the environment can be removed, destroyed, or disposed of. If a historic feature such as a trash dump, mine working, or structure is deemed a threat to human health or the environment either as a physical hazard or chemical exposure hazard, the hazard may be mitigated through stabilization, restoration, modification, or removal of the feature from the monument. The IFNM cultural resource management plan will contain further details on the management of these trash dumps. Any actions affecting them will be conducted in a coordinated effort with the BLM Safety Officer and the BLM Archeologist, in consultation with the Arizona State Historic Preservation Officer, as required.

23(437)
Comment: However, no environment can be safe for any visitor unless BLM becomes pro-active in the management of the public's lands entrusted to it.
Response: BLM makes every effort to effectively manage the responsibilities entrusted to the agency, including providing a safe visitor experience. Certain hazards accompany any venture onto public lands, but the RMP is one tool BLM uses to manage use so that safety can be achieved.

23(438)
Comment: 3.6.1 Active and Abandoned Mines and Prospects
"Mine tailings located at both active and closed mine sites are potentially hazardous because chemicals in the tailing piles can potentially leach into soils and/or groundwater or become airborne hazardous wastes."

If there are no active mines as previously mentioned, this statement should be corrected to remove "active." Tailings dams are designed, constructed and started up in a manner that precludes the leaching of any residual metals. Tailings dams constructed within the last 50 years should not be considered a hazard to groundwater. The words "hazardous waste" after airborne should be deleted, as it does not make sense.
Response: The term "active" has been removed from Section 3.6.1.
Despite sound engineering controls, there is always the possibility of leakage that could migrate to soils and/or groundwater. Also, airborne particles that consist of hazardous waste materials could potentially be ingested if not properly contained.

23(440)
Comment: Page 2-97 Summary comparison of Impacts for Public Safety
Missing from this section:
The loss of ranching which would occur under either Alternative B or Alternative C as written, would harmfully impact public safety. The DRMP makes no indication that BLM has any intention to increase its law enforcement staff, so if the ranchers disappear, public safety will decline.
Response: BLM employs two rangers who routinely patrol the IFNM. BLM agrees that it would be beneficial to have additional staff to assist in this area. However, budgetary issues dictate the hiring decisions at the monument, and these issues are outside the scope of the RMP.

23(441)
Comment: Illegal aliens should not be allowed to trespass onto the monument, and those that do should be required to clean the desert of refuse.
Response: Undocumented immigrants are not allowed to trespass on the IFNM; however, that does not stop such use from occurring. Law enforcement within the monument requires and includes coordination with other agencies, and is heavily influenced by current staffing and funding; BLM identifies staffing needs on an annual basis and requests funding based on the staff needed. Also note that littering is not allowed.

23(442)
Comment: Not once, but twice, the BLM states that "[d]ispersed recreational shooting throughout the IFNM would continue to create a public health and safety risk from accidental shootings and could increase the risk of lead contamination to soil from the increased presence of spent shell casings." (4-126, 127(emphasis added).) Guys, I hate to tell you this, but there ain't no lead in them thar' shell casings, casings are either brass, steel, or aluminum alloy (rifle and pistol ammunition) or paper or plastic (shot shells). A very few rifle rounds also use plastic/brass cases. Lead, however, comes in bullets (the little pointy things what fly out of the casing and down the barrel when the trigger is pulled).
Response: Text regarding lead contamination was revised to refer to spent bullets and bullet fragments rather than shell casings.

23(443)
Comment: Because of all the bandits running loose, I really don't feel safe visiting the monument any more.
Response: BLM has analyzed the potential for impacts on public safety from illegal activities within the cumulative impacts section of the RMP/EIS. Additional information regarding these impacts has been included in the Proposed RMP/ EIS in Section 4.7.2.16.

23(457)
Comment: Rather than punish the majority for the irresponsible actions of a few, why not do whatever it takes to apprehend these slobs [who are littering] and not only make them clean up the area but fine them a substantial amount?

Response: The Code of Federal Regulations already provides BLM with regulations prohibiting littering. 43 CFR 8360 Sec. 8365.1-1, "Sanitation," states: (a) Whenever practicable, visitors shall pack their trash for disposal at home. (b) On all public lands, no person shall, unless otherwise authorized: (1) Dispose of any cans, bottles and other nonflammable trash and garbage except in designated places or receptacles; (2) Dispose of flammable trash or garbage except by burning in authorized fires, or disposal in designated places or receptacles; (3) Drain sewage or petroleum products or dump refuse or waste other than wash water from any trailer or other vehicle except in places or receptacles provided for that purpose; (4) Dispose of any household, commercial or industrial refuse or waste brought as such from private or municipal property; (5) Pollute or contaminate water supplies or water used for human consumption; or (6) Use a refuse container or disposal facility for any purpose other than for which it is supplied. BLM only employs two law enforcement personnel to patrol all of IFNM and looks forward to cooperation with the public to assist in litter control and pickup.

23(476)

Comment: The FEIS should also categorize which sites contain tailing piles or open pits which may be potentially hazardous. As appropriate, the FEIS should also identify steps BLM will take to ensure public safety with regard to mine hazards.

Response: Comprehensive information, including the various hazards present at each mine site, is not readily available and it would be cost prohibitive to determine the status. In accordance with 40 CFR 1502.22 regarding incomplete or unavailable information, all mine sites within IFNM should be considered hazardous, and it is assumed that one or more of the hazards identified in Section 3.6.1 of the Draft RMP/EIS) could be present at each site.

23(SR8)

Summary Comment: There are sufficient laws and regulations regarding use of public land (e.g., recreational shooting, OHV use) that make it a crime to harm the land; the RMP should not introduce new law and regulation. People who break the law will continue to break the law. Rather than restricting use of the land, existing laws should be enforced. For example, misuse of firearms, fire hazards, littering, etc. require enforcement and heavy penalties.

Summary Response: Approval and implementation of the RMP will not result in passage of new laws or regulations. The purpose of the RMP is to establish a framework for managing the land, resources, and uses within the monument as established in the Proclamation and in accordance with FLPMA. Under this framework, BLM manages the land and enforces current laws, regulations, and policies. The decisions within the RMP define what types of activities or uses are allowed or prohibited within all or part of the monument. Enforcement activities are a component of BLM's management but cannot be used as a substitute for proactive land management, just as management decisions are not made as a substitute for law enforcement activities. Also note that legal uses of public lands can inadvertently cause resource damage, depending on the intensity of the use and other factors, which is one of the primary reasons why BLM develops allowable use restrictions and other management prescriptions.

Law enforcement within the monument requires and includes coordination with other agencies, and is heavily influenced by current staffing and funding. Employing additional law enforcement personnel is a question of funding appropriated by the U.S. Congress, and congressional funding legislation is beyond the scope of this RMP/EIS. Rather than making assumptions regarding future levels of congressional funding, the RMP/EIS attempts to address resource needs and identify actions to protect those resources, which can have the effect of making existing law enforcement resources more efficient by simplifying regulations. This strategy is intended to help protect natural and cultural resources and enables BLM rangers to devote more of their time to dealing with illegal dumping and other law enforcement issues.

23(SR59)
Summary Comment: It is not safe to travel in the IFNM without a firearm. Prohibiting them removes the right to self-defense.
Summary Response: Under BLM's proposed alternative, recreational target shooting would be prohibited within the monument. This would not preclude individuals and public safety officers from carrying a firearm or from using it for purposes of self-defense.

23(SR61)
Summary Comment: Recreational shooters are not to blame for the trash at the IFNM. Instead of imposing regulations on them, the BLM should create and enforce strict littering laws.
Summary Response: BLM enforces regulations regarding litter on public lands and coordinates with volunteer groups to remove litter from the monument and other public lands. BLM works with law enforcement personnel in the enforcement of regulations associated with public lands and looks forward to cooperation with the public to assist in litter control and pickup. Also see summary comment and response 18(SR8) for additional information regarding management of the monument.

23(SR62)
Summary Comment: Illegal immigration, drug running, and law enforcement activities cause damage and destruction to IFNM resources. BLM should address the topic of illegal immigration and enforcement activities.
Summary Response: BLM is required to analyze the impacts of BLM's management decisions on the IFNM. No management decisions are made in the RMP related to illegal activities (including immigration) and associated law enforcement activities. Apprehension of undocumented immigrants is the responsibility of the U.S. Border Patrol. However, BLM has analyzed the potential for impacts from those activities within the cumulative impacts section of the Draft RMP/EIS in Section 4.7.2. Additional information regarding these impacts has been included in the Proposed RMP/FEIS in Section 4.7.2. BLM continues to work with appropriate authorities to deal with illegal smuggling activities on the IFNM and the resource impacts that directly and indirectly result from these activities.

23(SR64)
Summary Comment: The BLM must coordinate between the various affected agencies and the Tohono O'odham Nation to address illegal immigration, smuggling, and drug running on the IFNM if there is to be any hope of mitigating the problem.
Summary Response: BLM coordinates with various agencies, including, but not limited to, the U.S. Border Patrol, AGFD, Pima County Sheriff's Department, and Tohono O'odham Nation for law enforcement and resource management in the IFNM.

23(SR131)
Summary Comment: Anyone involved in the activity of target shooting shall be responsible for the cleanup of the targets. Any debris left behind shall be considered litter and the persons in question shall be liable for and may be cited for the act of littering within the forest. The law should be written to punish the act of littering, not the act of target shooting
Summary Response: The Code of Federal Regulations already provides BLM with regulations prohibiting littering. According to 43 CFR 8360 Sec. 8365.1-1, "Sanitation": (a) Whenever practicable, visitors shall pack their trash for disposal at home. (b) On all public lands, no person shall, unless otherwise authorized: (1) Dispose of any cans, bottles and other nonflammable trash and garbage except in designated places or receptacles; (2) Dispose of flammable trash or garbage except by burning in authorized fires, or disposal in designated places or receptacles; (3) Drain sewage or petroleum products or dump refuse or waste other than wash water from any trailer or other vehicle except in places or receptacles provided for that purpose; (4) Dispose of any household, commercial or industrial refuse or waste brought as such from private or municipal property; (5) Pollute or contaminate water supplies or water used for human

consumption; or (6) Use a refuse container or disposal facility for any purpose other than for which it is supplied. BLM only employs two law enforcement personnel to patrol all of IFNM and looks forward to cooperation with the public to assist in litter control and pickup.

23(SR427)
Summary Comment: Recreational shooting in the monument makes it unsafe for other people in the monument and should be discontinued.
Summary Response: Under the current conditions (No Action Alternative A), recreational shooting is allowed within the monument outside developed areas in accordance with 43 CFR 8365. However, under Alternatives B and C, the use and discharge of firearms would be prohibited, except for permitted or authorized hunting activities conducted in accordance with AGFD hunting regulations. Alternative D would provide for recreational shooting in two designated areas.

23(SR428)
Summary Comment: The trash left in the IFNM is used as targets by recreational shooters; dumping is the problem.
Summary Response: BLM acknowledges that not all recreational shooters contribute to the litter problem in the IFNM, but that the issues of trash and shooting are often interrelated. BLM has rules prohibiting littering (43 CFR 8360 Sec. 8365.1-1, "Sanitation"). Furthermore, under 43 CFR 8365.1-4(a)(2), "No person shall ... create a risk to other persons on public lands by engaging in activities which include ... creating a hazard or nuisance." Shooting items that are not intended to be used as targets, including glass bottles, paint containers, appliances, vehicles, computer monitors and TVs, propane tanks, gas cans, aerosol cans, and furniture creates several hazards, including potential bullet ricochet, broken glass, and release of hazardous substances into the ground and air. Jagged metal, splintered wood, and broken glass are dangerous hazards to BLM employees and volunteers engaged in cleaning up these dumping and shooting sites. Shooting these items turns one large piece of trash into many smaller pieces of trash that are more easily spread over a larger area, making cleanup a considerably more difficult task and increasing the risk to wildlife and permitted livestock. Shooting natural objects and vegetation is a violation of 43 CFR 8365.1-5(a)(1) and (2).

23(SR429)
Summary Comment: BLM should focus on adding signs and developing brochures to encourage IFNM users to pick up after themselves. They also should consider public involvement programs to encourage volunteers to participate in trash pickup.
Summary Response: Regardless of the alternative selected, BLM will conduct certain administrative actions, including education of IFNM visitors and users for the protection of public lands and resources. As part of the implementation phase of the RMP, BLM will identify signing and other public outreach needs, and develop educational materials such as access guides and regulatory pamphlets. In addition, BLM can enlist volunteers to assist in monitoring, maintenance, and education. Volunteer help has been critical in maintaining the resources of the monument, and BLM will continue to use volunteers, where appropriate.

23(SR430)
Summary Comment: There should be a greater emphasis on law enforcement in the IFNM rather than more regulations. Please consider the findings of the Tucson Basin Shooting on Public Lands Workshop Project.
Summary Response: As a participating agency in the Tucson Basin Shooting on Public Lands Workshop Project, the BLM considered the final report when selecting the proposed alternative. The final report makes no substantial recommendation for law enforcement. The only enforcement-related result was the creation of a wallet-sized card containing law enforcement contact numbers that public land visitors could carry to allow them to observe and report illegal shooting, dumping or other activities to the proper law

enforcement units without putting themselves in jeopardy. BLM will continue to enforce Federal and State laws, as well as the regulations of the selected management plan to the best of its ability.

23(SR455)
Summary Comment: IFNM resources are under pressure as a result of undocumented immigrant travel, which should be addressed in the RMP; additional roads will exacerbate this issue.
Summary Response: BLM acknowledges the impacts of undocumented immigrants and others on IFNM resources and has considered undocumented immigrant traffic and the associated law enforcement activities during the route evaluation process. The effects from undocumented immigrants also is acknowledged in the cumulative effects analysis. Under Alternative C, more than half of the exiting routes in the IFNM would not be available for motorized travel. Refer also to summary comment and response 2(62) for additional information regarding the analysis of management decisions.

23(SR456)
Summary Comment: In the summary of impacts and impact analysis, BLM assumes that if shooting is prohibited, then no shooting will take place, but that is not true. There potentially could be more risk by not providing a designated area for shooting.
Summary Response: BLM would make every effort to enforce the decision to prohibit recreational target shooting within the IFNM, and would encourage recreational shooters to make use of target shooting locations outside the monument.

Category 24: Consultation and Coordination

24(118)
Comment: How will the BLM ensure that the interested public is kept informed of future issues affecting the Monument once this management plan is in place?
Response: The BLM Tucson Field Office uses a variety of communication and outreach methods to keep the public informed of major issues and actions affecting BLM lands. As the plan is implemented, news releases, letters, and pertinent announcements will be sent to the media and interested parties to inform them of specific milestones and events associated with implementation. The BLM maintains an updated list of interested groups, individuals, and media for this purpose. Regular updates will also be placed on the BLM website for public viewing. The BLM also encourages interactive communication with the public, so please contact the Tucson Field Office with any questions you might have.

24(119)
Comment: How long is this management plan good for? When would it be revisited/redone? What's the plan for the future? What if this management plan is inadequate or doesn't work? How can you turn this into a living management document that can respond to changes in conditions? How will you involve the public in this process? What are your measurement tools for monitoring success or failure of the management plan? How will that information be communicated effectively to the interested public?
Response: The planning timeframe for most RMPs is around 20 years. The RMP will undergo a plan evaluation at least every five years to determine if the decisions in the plan are meeting goals and objectives and whether the overall plan is still valid. RMPs typically undergo a comprehensive revision approximately 18 to 20 years after they are approved, unless some significant change in policy, resource conditions, or management occurs in the interim. If major changes need to be made in the interim, BLM can amend the plan to address and resolve inadequacies in the RMP. Public involvement is always a key part of a plan amendment. The public is also welcome to provide input to any NEPA-based management action proposed for the IFNM.
BLM uses various tools to monitor the RMP and its decisions for their effectiveness (i.e., whether or not desired condition are being achieved). Implementation monitoring (tracking implementation of the RMP) is documented at least annually and will be available for public review. Effectiveness monitoring

(determining whether desired outcomes are being met) will occur throughout the life of the RMP. Further discussion on monitoring and evaluation of the RMP and plan decisions has been included in Section 2.3.5.

24(120)

Comment: It is my opinion that the combination of the Draft Management Plan and the EIS in the current document is confusing and unclear. A review of the contents of the current document doesn't even seem to call out the Draft Management Plan. The contents appear to have the format of an EIS. There should be one document that is the draft management plan, and there should be a separate document containing an environmental analysis of that plan. It is unclear in this document where one begins and the other ends. The draft management plan should contain the transportation plan and the cultural resource management plan, and any other plans deemed appropriate.

Response: The document cover letter describes the basic format of the Draft RMP/EIS. The four alternative management plans are outlined in Chapter 2. The analysis of environmental impacts is presented in Chapter 4. The RMP and EIS are combined because the EIS process parallels the development of the RMP, with the environmental analysis guiding the direction of the RMP alternatives. Within the process of analyzing the impacts the various alternatives have on the affected resources, the proposed alternative is identified and the outline of the RMP is developed. An implementation plan will then be developed based on the Proposed RMP. The relationship between the Draft RMP, adoption of a Proposed RMP, and implementation of the selected alternative is described further in Section 2.4. While the travel management plan is viewed as integral to the development of the RMP because of its wide-ranging effects on other resources, other plans, such as a cultural resource management plan, are more feasibly developed after a final plan alternative has been selected and approved.

24(122)

Comment: BLM has had about seven years to prepare this document, and yet basic inventories of resources (i.e., plants, geology, cultural resources, etc.) have apparently not occurred. The entire document suffers from a lack of comprehensive reviews of the scientific and historical literature of the IFNM and surrounding region. What literature is cited reflects only a cursory review of the existing information available. There is not enough basic background information presented upon which to make sound management decisions. A significant pillar of this plan should be to immediately complete inventories of all those resources the monument was established to protect.

Response: BLM has been gathering the best available information on the IFNM and surrounding region since the IFNM was established. That information was incorporated into the analysis that led to the Draft RMP. While many baseline data needs have not been met, sufficient information to develop a broad-scale management framework for the IFNM was available for the development of this plan. Recognizing the lack of data in some areas, the RMP incorporates strategies that allow BLM to modify management if needed based on new information, changing conditions, and monitoring of plan decisions. BLM will continue to work with Federal, State, and local agencies, as well as universities and special-interest organizations to conduct the needed inventories, surveys, monitoring and data collection to provide the best information for management of IFNM. Additional information and discussion of BLM's adaptive management strategy has been included in Section 2.3.5.

24(123)

Comment: The AZGFD should be included in all planning stages with land management operations as a peer agency and not be treated as the general public is in this process as I have witnessed.

Response: As a cooperating agency on the RMP project, AGFD has been actively engaged in the development and review of the RMP. With cooperating agency status comes various responsibilities that are outlined in an Memorandum of Understanding (AZ-910-0306) between BLM and AGFD. AGFD has diligently carried out its duties and has worked closely with BLM to address issues and concerns. Future

coordination with AGFD is a basic component of several management decisions in the RMP. More information on the role of AGFD and cooperating agencies is found in Section 1.6.1.

24(124)
Comment: This begs the question, exactly what safeguards are in place to prevent special interest groups from having concessions written into such a document.
Response: NEPA requires a fair and unbiased approach to public input. Comments are solicited and reviewed, regardless of source, for relevance to the analysis at hand. Where comments are found to be substantive, those comments are considered for incorporation into the analysis. Special interest groups do not receive any more weight in consideration of their comments than any other individual or organization.

24(126)
Comment: Although there is no formal requirement for this, after a long process of collecting public input to develop the RMP it is disappointing to see that the draft plan has included essentially no provisions to encourage citizens to aid future management efforts by devising mechanisms for stakeholders to offer information on conditions and problems they observe.
Response: Mechanisms or programs to facilitate stakeholder input are more appropriately considered in an RMP implementation plan because these programs are not considered land management actions, but rather would aid BLM in accomplishing those actions. As the implementation plan for the RMP is developed, a process for such interaction will be considered. BLM encourages the public to provide information on observations and problems to the IFNM Manager, and regularly relies on citizen reports and information to provide for better management of the IFNM. If any groups or individuals have information that they believe would benefit the decision-making process, BLM would ask those individuals to provide such information.

24(128)
Comment: IF YOU ARE GOING TO SHUT A ROAD DOWN PLEASE WORK WITH AZ_ G&F DEPT. TO SEE WHAT THEIR NEEDS ARE BEFORE CLOSING A ROAD THEY SHOULD BE ABLE TO ACCESS THE ROADS AS THEY NEED TO WITH OUT REQUEST FOR ACCESS EACH TIME.
Response: BLM has worked closely with AGFD, a cooperating agency on the IFNM RMP project, with regard to all aspects of the RMP, including the route designations. The RMP ensures AGFD access for administrative purposes where appropriate, and BLM will develop an agreement with AGFD that identifies specific access needs for the agency. Refer also to comment and response 20(520) for additional information regarding designated routes

24(134)
Comment: 1-9 1.6.2
Why was the Hopi tribe not consulted? Are there other tribes that may have an interest in the area? According to this the BLM contacted only four tribes without describing their process for tribal involvement.
Response: At the onset of the planning process, BLM made contact with over 200 Federal, State, local, and tribal entities, including the Hopi Tribe, to extend an invitation to be a cooperating agency on the RMP effort. Follow-up contact was made with a number of tribes, again including the Hopi Tribe, announcing the beginning of the scoping period and inviting input from these tribes. While the Hopi Tribe does claim cultural and ancestral ties to the area, the Hopi Tribe has not expressed an interest in the IFNM planning area during the course of the development of the RMP. BLM did meet with several Indian tribal, band, and chapter councils and members both before and after the Notice of Intent was published, and continues to meet with them with regard to this plan.

24(155)
Comment: Item 1.6.2: The four Indian tribes listed apathetically chose not the be a cooperating agency but all elected to remain "involved." Due to their small population relative to the non-Indian population, and in recognition that their input into similar efforts has historically been self-serving, their input into this Proposed RMP should be carefully examined. In fairness to the general public the Indian input, if any, should be weighted accordingly.
Response: The point of public comment is to elicit issues or concerns regarding the adequacy of the environmental analysis, the accuracy of the information in the document, or to provide new or additional data to the analysis. It is not to determine how many people are for or against any given alternative to allow any one group to have more say than any other group.

24(770)
Comment: I attended the first meeting on this subject more than two years ago, and I was very concerned by the lack of tangible and publically verifiable information the BLM was using to make its decisions regarding land management and use.
Response: The development of the Draft RMP/EIS for the IFNM is based on the Proclamation, FLPMA, and NEPA requirements for protection, preservation and management of the natural and cultural resources that give this area its unique character. Under these requirements, BLM is using the best available data to make decisions for the RMP and future management of the IFNM. BLM does have sufficient data and information related to resources on the IFNM to develop a broad-scale land use plan. Site-specific projects proposed for the planning area will require further analysis and potential data collection.

24(810)
Comment: You are wasting people's time with those meeting, you already know your going to ban hunting on all federal land in this state.
Response: The BLM regards public meetings as an important part of the NEPA process and public comments received on this plan have led to numerous changes in the document. The proposed alternative makes no attempt to ban hunting in the IFNM. Under the proposed alternative, discharge of firearms would be allowed within the IFNM for hunting and other permitted activities in accordance with AGFD regulations Additionally, the proposed alternative allows hunting dogs off leash in the IFNM. Decisions made by BLM as part of the RMP would apply only to Federal land administered by BLM within the boundary of the IFNM.

24(812)
Comment: Why did the BLM decide to prejudge the alternatives, when to wait would have allowed for true unprejudiced comments and dialogue?
Response: BLM must select a preferred alternative to be identified in a Draft RMP/EIS pursuant to 43 CFR 1610.4-7. This alternative is determined through a value analysis process, which takes a critical and interdisciplinary look at the impacts that each alternative would have on the IFNM's resources and the affected public.

24(813)
Comment: I am surprised that they would even consider shutting down a safe area for recreational shooting in this fine state. Is this a partisan decision to make democrats show what power they have acquired?
Response: The range of alternatives considered in the Draft RMP/EIS is a result of extensive public outreach that has occurred since the Proclamation created the monument. Should members of the public determine the range of alternatives inadequate, the NEPA process allows them to come forward with a comprehensive alternative of their own, which could then be considered by the BLM. BLM's

management decisions are not based on the number of comments received for or against any particular management scenario or use.

24(814)
Comment: My next question in regard to that is, has Game and Fish signed off completely on B, C, and D? Because it's a restricted area, and I would think they would want to get all of the area they can.
Response: AGFD formally agreed to be a cooperating agency during this planning process and has developed a Memorandum of Understanding with BLM outlining the agencies' various responsibilities with regard to the planning process. The BLM met and consulted with AGFD on numerous occasions leading up to the publication of the Draft RMP, and AGFD continues to be involved to the extent agreed upon in the memorandum. BLM did receive comments on the Draft RMP from AGFD that communicated its concerns with the alternatives and outlined specific points of disagreement. While BLM and AGFD have attempted to resolve those concerns to the extent possible, it is not a requirement of the planning process that the two agencies come to full agreement on the provisions of the RMP. BLM remains the final decision maker on matters within its jurisdiction.

24(815)
Comment: The second thing I would like to talk about, the commission and the department needs significant and specific clarification on the various definitions and levels of administrative access as it pertains to the department's public trust and responsibility to manage the wildlife of the state, and on the monument specifically.
For guidance in clarifying this definition, I would refer the BLM staff to the draft MOU between the Arizona State office of the BLM and Arizona Game and Fish Commission. And when I say draft, it's a very nearly done draft. It's 99 percent plus. The language is very close.
I would also refer you to a late 1996 -- excuse me, the late 2006 MOU between the USDA, Forest Service, the US Department of Interior, BLM, and Fish and Wildlife Service, and more than 40 national conservation and outdoor recreation organizations representing literally hundreds of thousands of individuals.
The stated purpose of the national level MOU is to enhance public access to federal lands and to improve opportunities for those public lands for people to fish, hunt, and to engage in sport-shooting activities in a safe and environmentally sound manner.
Response: As requested by AGFD, provisions related to administrative access for AGFD to fulfill its responsibilities have been clarified in the Proposed RMP. These provisions are consistent with the master Memorandum of Understanding (MOU) between Arizona BLM and AGFD (Agreement AZ-930-0703). The Federal Lands Hunting, Fishing, and Shooting Sports Roundtable MOU (Agreement WO-250-2007-03) was transmitted to BLM offices on January 18, 2007, just as the Draft RMP was being prepared for printing. Because of the timing, BLM did not immediately meet the MOU requirement to add each of the private organizations party to the MOU to the RMP distribution list. This oversight was quickly brought to BLM's attention, and all the private organizations were contacted regarding the release of the Draft RMP during the 90-day comment period. BLM is currently in compliance with the MOU and will continue to work with the Federal Lands Hunting, Fishing, and Shooting Sports Roundtable as needed.

24(816)
Comment: The word "manage" is used frequently, yet no specifics are offered as to what the word specifically means in all its different contexts within the document (for example, see P. 2-9, "manage land uses" and "manage watersheds.") The word implies action is involved, but no specifics are offered. Who sets the rules and procedures for "management"? How will it be done? Will it be funded? So far, the BLM has done an extremely poor job of managing the Monument, yet it proposes to take on even more "management" responsibilities? How will that work exactly? Similarly, the word "prevent" (i.e., 2-22 "Prevent the avoidable loss") This is vague, undefined, and unclear how it will happen. Also, the word

"partnerships" P. 2-23. With whom? What guarantee is there it will happen? What if no one wants to partner? What then? These kinds of words, vague, undefined, and unsupported, are not helpful.
Response: The word "management" in this document refers to actions taken by the BLM with the intention of affecting the resources or resource uses of the IFNM. Tables 2-1 through 2-17 describe the specific management actions that would be employed under each alternative. The BLM's management philosophy is based on the principles of multiple use and sustained yield of the nation's resources within a framework of environmental responsibility and scientific technology. BLM funding is allocated by the U.S. Congress and is beyond the scope of this document. The word "prevent" as used in Objective 2 for Special Status Species conveys BLM's objective to not allow loss of habitat for special status species where avoidable. The management actions presented in the same table specify how this objective will be achieved. Partnerships are a common tool used by BLM to reach out to its stakeholders, leverage resources, and more effectively and efficiently get work done to meet goals and objectives of the IFNM. Because of the numerous entities that have an interest in the management of the IFNM, and based on current partnerships already in effect, BLM anticipates no shortage in partnering opportunities for projects on the IFNM.

24(817)
Comment: Thank you for attending the Pima Natural Resource Conservation District's board meeting of Tuesday May 22, 2007.
As we discussed, the Pima NRCD holds the viewpoint that the Draft Resource Management Plan and Environmental Impact Statement for the Ironwood Forest National Monument is not based on the best available information, in part because the BLM has not engaged the Pima NRCD's involvement during the planning process.
Response: If any groups or individuals have information that they believe would benefit the decision-making process, BLM would ask those individuals to provide such information. Pima NRCD is encouraged to provide any such information to the BLM to improve planning and decision-making processes. BLM looks forward to working closely with Pima NRCD to improve resource conditions on IFNM.

24(819)
Comment: The BLM analysis of soils, air quality and water is not based on the best available information because the BLM failed to observe the Soil and Water Conservation Act of 1977 and various sections of FLPMA that require the BLM, to the" fullest extent practicable," to cooperate with the Natural Resources Conservation Service and local conservation districts.
Response: The BLM held several collaborative planning meetings to encourage active community and agency involvement in the planning process. The meeting held on June 16, 2004, was held specifically for soil, water, air, geology, and mineral resources in the IFNM. BLM also invited a broad range of Federal, State, tribal, and local agencies, including the NRCS and the ASLD (under which natural resource conservation districts are organized), to become cooperating agencies on the development of the RMP.

24(820)
Comment: While we concur with many of the decisions within the document that have been cooperatively developed by our staff to ensure the Department's abilities to manage wildlife are not negatively impacted, the Department cannot fully support the preferred Alternative C as currently defined in the draft RMP/EIS. Several proposed decisions require either clarification and/or modification to: a) resolve the Department's remaining overarching and specific issues and concerns as outlined below, b) ensure consistency with the National Environmental Policy Act (NEPA) by providing affected agencies and the public with a clear and comprehensive document, and c) ensure consistency with decisions made statewide on other BLM RMPs on National Monuments. Resolution of these issues will contribute to consistent and successful management of fish and wildlife populations and their habitats for the continued enjoyment of future generations.

Response: AGFD's specific concerns are addressed throughout Section 4.3.5.4 and changes to the Draft RMP/EIS have been make where appropriate and agreed upon by BLM and AGFD. The Proposed RMP/EIS for the IFNM represents a good-faith effort by the BLM to provide a clear, comprehensive, draft of a land use planning document; AGFD's specific suggestions for increased clarity have been considered and incorporated. BLM has also attempted to propose management of the IFNM consistent with other BLM national monuments in Arizona, where appropriate. BLM national monuments occur across a broad spectrum of habitats and social uses. While consistency among RMPs across the state is possible in some ways, certain aspects of the IFNM are unique and require specific goals and objectives that may not be necessary or required elsewhere.

24(821)

Comment: The Department understands the challenge of creating a succinct RMP that must meet objectives to manage for multiple resources and uses within the field office planning area over a 20 year period. The complex nature of managing multiple resources in concert can create perceived or real conflicts between Desired Future Conditions or management prescriptions for different uses, resources, or user groups. The Department is concerned several resources and/or uses may inherently conflict, and the proactive and timely management of fish and wildlife could suffer as a consequence. Without more specific national or statewide guidance, wildlife resources may be prioritized, considered, or evaluated at a lower level than those with clear national directives (e.g., guidelines for wilderness management, visual resource management, etc.).

The Department and the BLM Arizona State Office have initiated a revision of the master statewide Memorandum of Understanding (MOU) to address these concerns. This MOU, when finalized, will provide additional context to better enable our respective agencies to resolve potential conflicts arising from RMP decisions that affect wildlife resources and wildlife-based recreation, and to interpret and apply decisions in a consistent manner statewide. The MOU revision has not yet been finalized. Therefore, to address our concerns in the interim and to ensure consistency in management, we request language be added to the RMP that reinforces our mutual commitment to cooperate and collaborate in the proactive management of fish and wildlife and their habitats, for all management prescriptions, designations, and allocations. We suggest this language should read:

"Activities conducted by the Arizona Game and Fish Department to meet Trust Responsibilities to manage wildlife are recognized by BLM as consistent with decisions proposed in this RMP. The Arizona Game and Fish Department's ability to manage wildlife on lands administered by BLM in Arizona will not be diminished or precluded during the life of the plan, based solely on singular or overlapping allocations, designations, and/or management prescriptions (such as those to manage for wilderness characteristics, visual resources, or primitive recreation). All implementation level plans and site-specific projects will continue to be evaluated through appropriate partnerships and through federal and state regulations. This RMP will reflect and support the spirit and intent of the statewide Memorandum of Understanding between BLM and the Arizona Game and Fish Department."

A document of this size and complexity has the potential to negatively impact public participation during development of the RMP. We believe most constituents will find it difficult to thoroughly review and provide comments within the time allotted.

Response: The master Memorandum of Understanding between Arizona BLM and AGFD (Agreement AZ-930-0703) was finalized in August 2007, and BLM looks forward to working with AGFD under and in accord with this agreement. The suggested language has been included, as modified below, in Section 1.6.1 of the Proposed RMP/EIS: "Activities conducted by AGFD to meet Trust Responsibilities to manage wildlife are recognized by BLM as consistent with decisions proposed in this RMP. AGFD's ability to manage wildlife on lands administered by BLM in Arizona will not be diminished. All implementation level plans and site-specific projects will continue to be evaluated through appropriate partnerships and through federal and state regulations."

24(822)
Comment: The Department is also specifically concerned with the lack of detail and clarity regarding the proposed designated route system, and suggests BLM further clarify which routes will be open, closed, or limited. The draft RMP map scale does not provide the level of detail necessary for careful interpretation of route designation decisions. Furthermore, route numbers are not clearly posted within the document and corresponding reference appendices are time consuming to interpret and not easy to digest or understand. Additional maps provided for review on BLM's website are not easily downloaded and do not provide adequate detail. The Department is also concerned with the lack of coordination between TFO and our staff during the development of route alternatives and the selection of the preferred alternative. The Department was integrally involved in route designation processes for other National Monument planning efforts (Sonoran Desert, Agua Fria, AZ Strip, etc.), and was not afforded this opportunity for the IFNM. The Department suggests BLM clarify route designation decisions within the document to provide the public a reasonable opportunity to review proposed route decisions, and further coordinate with the Department to meet both the intent of NEPA and our Cooperating Agency MOU.
Response: AGFD input and information was used to develop the route designations in the proposed alternative. In 2003, BLM provided route inventory data to AGFD and asked for feedback related to sportsman's access needs, access for wildlife management, and other administrative access needed by AGFD to fulfill its mission. AGFD provided BLM this feedback, and it was used to develop the route designation alternatives. BLM also held a community workshop on IFNM travel management at the Pima County Parks and Recreation facility on July 21, 2004. BLM will continue to coordinate with AGFD with regard to route designations and other topics of interest.

24(823)
Comment: The Department firmly supports continued recreational use of the area. The IFNM lies adjacent to the fast growing Tucson metropolitan area surrounded by National Parks and Forests, a National Conservation Area, a National Wildlife Refuge, a large Indian Reservation, and large blocks of State Trust and private lands where public recreational uses are prevented or restricted. The IFNM is one of the few remaining large blocks of public land in the Tucson area that supports a wide range of outdoor recreational activities. The Department believes that if managed properly, outdoor recreational activities can be consistent with the Monument Proclamation, and encourages BLM to support and promote these outdoor recreational activities within the IFNM including: dispersed recreational shooting (see attached Resolution), dispersed and group camping opportunities, and collection of firewood (see page-specific comments).
Response: BLM understands that the continued urban growth of the Tucson and Marana metropolitan areas will continue to increase the public's demand for many types of recreational activities. BLM believes that Alternative C accommodates many forms of recreational activity and realizes that these pressures demand increased consideration of management for the protection of monument resources and values. This alternative is consistent with the monument designation to protect objects of scientific interest and meets the BLM mandate for multiple use. BLM has considered continued recreational shooting under Alternative A, as well as dispersed camping opportunities and collection of firewood under Alternative D.

24(824)
Comment: The Arizona Game and Fish Commission opposes recreational shooting restrictions on any public land in Arizona. BLM should refer to the findings of the Final Report, Tucson Basin Shooting on Public Lands Workshop Project, issued June 2006, by the U.S. Institute for Environmental Conflict Resolution to develop an alternative proposed action. BLM should also define dispersed recreational shooting as "any shooting that is carried out in a safe manner, does not cause resource damage, and does not result in litter" and requests this definition be included in the final RMP. BLM should also develop a law enforcement coordination plan for the IFNM in partnership with local and State law enforcement agencies.

Response: In May, 2002, the BLM Tucson Field Office, in conjunction with the U.S. Institute for Environmental Conflict Resolution, began discussing opportunities for resolving shooting issues that could be included in the planning process for the RMP for the BLM's IFNM. Attendees at the meetings included stakeholders from Federal, State, tribal, and local land management agencies, representatives of the shooting community, other recreationists, local residents, law enforcement representatives, congressional and State representatives, representatives of the environmental community, other recreational users, and other people who shared an interest in this issue. In January 2004, after reviewing the findings of the assessment, several of the key land management agencies (the BLM, the U.S. Forest Service, and AGFD) sponsored a series of working group and public meetings to define a common vision for resolving issues related to shooting on public lands in the Tucson Basin. Final recommendations from the project primarily focused on the increased understanding that was shared by participants regarding the complexity of the issue and the various viewpoints involved. The group did not come to agreement on any substantive decisions regarding shooting within the IFNM or elsewhere in the Tucson area, and did not provide any specific recommendations or criteria by which to evaluate areas for their suitability as shooting areas. In fact, the project report explicitly states that the group was unable to come to agreement on these points when they were discussed.

Going beyond the work that was done by the Tucson Basin Shooting on Public Lands Workshop Project, BLM evaluated whether recreational shooting could be allowed within the monument and still be consistent with the objectives of the Presidential Proclamation to protect the monument's objects. BLM completed an analysis of locations within IFNM that may be suitable as a designated shooting area (for further details see Appendix I). BLM assessed the environmental effects of establishing designated areas for recreational shooting as a component of Alternative D, but concluded that recreational shooting in a designated area would result in significant environmental effects. Opportunities for recreational target shooting continue to be available on BLM lands outside the monument, except where restricted through site-specific management actions. Several shooting ranges in the local area also provide opportunities for this activity, as well as public lands administered by other agencies, such as the U.S. Forest Service.

BLM has not defined recreational target shooting as suggested, primarily because target shooting, even when carried out in a safe and legal manner, can have damaging effects on resources, as is the case with many other legal and legitimate uses of public lands.

24(825)

Comment: SBM reiterates some comments provided earlier in the RMP process in addition to identifying aspects of each alternative that could prove problematic to our current operations or to our private land position. SBM notes that some of the Administrative Actions proposed in Appendix D appear to overstep the authorizations afforded to the BLM under the Categorical Exclusions allowed under Section 1508.4 and therefore should receive full public review.

SBM is concerned that the alternatives do not adequately discuss valid existing rights in regards to valid mining claims and that there appears to be a very apparent bias throughout the document against recognizing those rights. None of the alternatives (B, C, D) recognize that mining is permissible pursuant to valid existing rights. This is very disturbing since the monument proclamation specifically states that establishment of the monument is subject to "valid existing rights." BLM should explicitly acknowledge valid existing rights in all aspects of the proposed alternatives.

Response: BLM recognizes that the establishment of the IFNM is subject to valid existing rights and that these rights would apply under all alternatives. This is addressed in the Draft RMP/EIS in Section 2.3 (Management Common to all Alternatives). It is not necessary to restate this for every goal, objective, and decision within the document, because it qualifies as management common to all alternatives under the provisions of the Proclamation. The Presidential Proclamation 7320 recognizes all valid rights in existence at the time of the monument designation (June 9, 2000). The Proclamation did not revoke any existing withdrawal, reservation, or appropriation of public lands or interests in lands.

24(836)
Comment: The appearance that BLM has ignored these laws and regulations is evident in the omission of a vast resource of knowledge and expertise available from the NRCS and Pima NRCD. The District had a MOU done in 1992 with the Safford BLM Field Office. It is unfortunate that this was not passed to the Tucson Field Office when it was created. We are in the process of updating the MOU. Therefore we recommend the BLM partner with NRCS and the Pima NRCD from this point forward in all decisions related to livestock grazing and rangeland management for the IFNM.
Response: Collaboration on livestock grazing and rangeland management for the IFNM is welcomed and encouraged by BLM. BLM is a signatory to the Memorandum of Understanding (MOU) for Coordinated Resource Management with NRCS and the Arizona Association on Conservation Districts, among various other groups.
This MOU provides a mechanism for our agencies to "work together, share resource information, and develop complementary policies, procedures, and methodologies where possible." BLM also has an MOU with the Pima NRCD that facilitates coordination of "resource planning, management, and educational activities." Completion of the RMP will present numerous opportunities for BLM to coordinate with NRCS, Pima NRCD, and other agencies and individuals on range and grazing management activities at an on-the-ground level, such as the development of allotment management plans, allotment inspections, and standards and guides evaluations. BLM looks forward to working with NRCS and Pima NRCD on these projects.

24(SR15)
Summary Comment: Commenters suggest that the requests for public input are a ruse. They believe that the BLM has ignored public comment and developed the RMP for IFNM in a predecisional manner.
Summary Response: The BLM has made extensive efforts during the RMP process to solicit comments and consider public concerns. BLM considers all comments it receives and provides a response for each; none are ignored. The range of alternatives presented in the RMP is a result of this public outreach. Furthermore, throughout the planning process, many facets of the plan have changed as a result of public concerns, new information provided, or because of comments received from various groups, agencies, and individuals. The proposed version of the RMP contains many corrections, additions, or other changes that stem directly from the comments BLM received on the Draft RMP.

24(SR16)
Summary Comment: In choosing Alternative C as its preferred management plan, the BLM is responding to pressure from political, anti-gun, and environmental special interest groups.
Summary Response: The BLM considered the comments of all concerned public entities, including affected and cooperating agencies, in developing the RMP/EIS. BLM reviews questions, comments, and issues of concern and incorporates these concerns into the environmental analysis where relevant, and does not give arbitrary preference to the positions or interests of any entity or individual. The BLM is responsible for the content of the Proposed RMP/Final EIS, which is subject to final approval by the BLM's Arizona State Director.

24(SR75)
Summary Comment: There is inadequate time to review and provide comments on such a complex and lengthy document. Grant an extension to the review period of the Draft RMP/EIS.
Summary Response: The Draft RMP/EIS was available for public comment for 90 days. BLM considers 90 days sufficient time to analyze and comment on an RMP, and in an effort to move forward with the NEPA process in a timely manner, BLM elected not to extend the comment period. The public can comment at any time, and BLM can consider substantive comments even after the end of a comment period. While BLM may not be able to respond to these comments in the Proposed RMP/EIS document or analyze them with the rest of the comments received during the comment period, BLM will not ignore important and valuable input.

24(SR83)
Summary Comment: The opinion piece Mr. Madigan wrote in a local newspaper was unethical and predecisional because he wrote that recreational shooting should specifically be banned. Mr. Madigan is part of the decision-making process. It is not right that his personal opinion should influence the BLM's choices for the IFNM.
Summary Response: The guest opinion article written by then Field Manager Patrick Madigan and published in the Arizona Daily Star was intended to clarify the reasons why a restriction on target shooting was being considered in the Draft RMP. The guest opinion was seen as an effective communication tool to use to reach a broad audience, in light of the many questions BLM was receiving with regard to the proposed shooting restriction. The article discusses the proposed shooting ban and calls it an "appropriate management choice," indicating that it was part of the preferred alternative in the Draft RMP. The article was in no way predecisional, as it merely reiterated a proposal already put forward by BLM. BLM supported this guest opinion as part of the public involvement and outreach process.

24(SR84)
Summary Comment: We are concerned about the developments regarding the Friends of the Ironwood Forest, an outside group established with BLM funding by BLM managers, but with a selective mailing list. We are concerned that the same organization is now lobbying to influence the final plan. By organizing and partially funding the Friends of the Ironwood Monument in 2006 without publishing the meeting notices in the Federal Register, by failing to send the initial letter of invitation to all parties who had participated in the IFNM planning process, by involving BLM management and BLM financial resources at taxpayer expense, the BLM may be in violation of both FLPMA and the Federal Advisory Committee Act.
Summary Response: This organization was not founded by BLM and was not established with BLM funds. The Friends of the Ironwood Forest is governed by its own bylaws in cooperation with agencies of the U.S. Government and State of Arizona. The organization is not funded by BLM nor is membership restricted to any specific group of people.

24(SR494)
Summary Comment: Public meetings should have been held in more areas so more public comment could have been made.
Summary Response: Six public meetings on the Draft RMP/EIS were held in those communities determined to be most affected by the management of the IFNM, and were generally in close proximity to the monument. Meeting locations were also determined based on attendance during scoping meetings for the RMP. The meetings were held in Tucson, Sells, Sahuarita, and Chandler. Public comments also were encouraged in the form of letters, e-mails, and faxes. More than 12,000 comments from around the nation were received in this manner. BLM made a good-faith effort to involve as many interested public in the review process as possible.

24(SR811)
Summary Comment: BLM did not allow public comment on the Draft RMP/EIS.
Summary Response: Public comment in the form of comment cards, letters, faxes, e-mails and transcripts was taken during the public comment period for the Draft RMP/EIS. BLM designed the majority of public meetings held for the Draft RMP in an open-house format, so that the public could interact with BLM managers and resource specialists in a more meaningful and deliberative way than public hearing formats often provide. Recognizing that many individuals came to meetings with the expectation of providing oral comments in front of a large group, and in response to comments received on this issue, BLM scheduled an additional public meeting where the public hearing format was accommodated. All the oral public comments by speakers were recorded at this meeting.

24(SR826)
Summary Comment: The BLM has effectively ignored important information and public input in developing the alternatives of the Draft RMP/EIS. The BLM should revise the preferred alternative to incorporate more of the public collaboration the agency itself initiated and requested prior to the plan development.
Summary Response: The ideas, input, and information garnered through the public meetings and workshops were used to develop the RMP and specifically to craft the alternatives. The majority of the goals and objectives agreed upon by the working groups have been preserved in the RMP however, based on BLM policy and guidance related to specific BLM programs, some goals and objectives were modified, removed, or merely reworded. Some decisions determined to be beyond the scope of BLM's delegated authority were omitted from the RMP. Other decisions were later identified as administrative actions and were moved to Appendix D. Still others were determined to be inconsistent with specific BLM policy or program guidance and were modified or removed. Through all of the work that was done between the working group sessions and the publication of the Draft RMP, BLM strived to preserve the intent of each element that was changed, where possible. This includes the information that was considered with regard to the proposed route designations and lands managed to protect wilderness characteristics. To keep the public informed of the ongoing development of the alternatives, BLM released a preliminary version of the alternatives in August 2005 and solicited feedback at that time.

24(SR828)
Summary Comment: The Pima NRCD was not among the agencies invited to participate as a cooperating agency, nor was it added to the BLM's mailing list until the current Draft RMP/EIS was already 60 or more days into the public comment period. BLM did not follow the laws requiring coordination with federal, state and local agencies.
Summary Response: BLM has followed all laws requiring coordination with Federal, State, and local agencies in the development of the RMP. BLM invited a broad range of Federal, State, tribal, and local agencies, including the NRCS and ASLD (under which natural resource conservation districts are organized), to become cooperating agencies on the development of the RMP. Because they are not defined as a political subdivision of the State of Arizona, the Pima NRCD does not qualify for cooperating agency status. However, the BLM invites collaboration from natural resource conservation districts affected by the RMP. BLM apologizes for its oversight in omitting the Pima NRCD from the RMP mailing list. Pima NRCD has been added, and BLM looks forward to working with this group in implementing the RMP.

24(SR832)
Summary Comment: BLM did not use professional range management personnel during the development of the Draft RMP/EIS. BLM should coordinate with NRCS and ASLD to finalize any decisions that may affect livestock grazing within the IFNM.
Summary Response: BLM uses an interdisciplinary approach to the planning and NEPA process and employs an interdisciplinary team to develop and review the many interrelated resource components of the RMP. This team is composed of resource professionals with varying educational and professional degrees, along with many years of experience working in the disciplines covered in the RMP, including range management. Where the interdisciplinary team lacked expertise, BLM provided assistance from other levels of the organization. In all cases, proposed actions or activities in the RMP must be, at a minimum, consistent with U.S. Department of the Interior and the BLM regulations, manuals, handbooks, and policies. Grazing systems and changes to allotments are implementation-level planning, and BLM welcomes the assistance of others when evaluating allotments.

24(SR833)
Summary Comment: BLM did not work with the NRCS, ASLD, and Pima NRCD in formulating the alternatives or describing the affected environment.
Summary Response: The BLM held several collaborative planning meetings to encourage active community involvement in the planning process. The meeting held on June 16, 2004, was held specifically for soil, water, air, geology, and mineral resources in the IFNM, and was one of the meetings attended by a representative of NRCS. BLM invited a broad range of Federal, State, tribal, and local agencies, including the NRCS and the ASLD to become cooperating agencies on the development of the RMP. BLM met individually on several occasions with ASLD. Refer also to comment and response 24(828) for additional information regarding the development of alternatives.

24(SR837)
Summary Comment: The spatial data files (geographic information system) used to produce all the maps in the document should be available online.
Summary Response: Geographic information system data relating to the RMP will be posted on the BLM Arizona website.

APPENDIX K

IRONWOOD FOREST NATIONAL MONUMENT
UTILITY CORRIDOR ANALYSIS

President Clinton designated the Ironwood Forest National Monument (IFNM) by Presidential Proclamation 7320 on June 9, 2000, under the authority of the Antiquities Act of 1906. The monument comprises approximately 128,398 acres of public lands administered by the Bureau of Land Management (BLM), and is generally located 30 miles northwest of Tucson, Arizona. The Proclamation identifies objects of scientific interest for protection.

The IFNM Resource Management Plan (RMP) will provide direction for protecting monument objects and for managing the monument to implement the purposes of the Proclamation. In addition, the Secretary's Order (Order) 3308 seeks to further the purposes of the *Omnibus Public Land Management Act of 2009* (Act), which established the National Landscape Conservation System (NLCS) under the jurisdiction of the Bureau of Land Management (BLM) in order to conserve, protect, and restore nationally significant landscapes that have outstanding cultural, ecological, and scientific values for the benefit of current and future generations, and the President's initiative on America's Great Outdoors. This Order recognizes that conservation of this nation's rich natural and cultural heritage is an equally important land management objective, and an integral part of the BLM's multiple-use mission. Conservation is a long-term investment that provides quality of life and economic benefits for current and future generations.

This analysis provides information on the compatibility of designating utility corridors crossing the IFNM with protecting the monument objects identified in the Proclamation, as well as the objectives outlined in the Order.

METHOD OF ANALYSIS

The analysis process is comprised of the following steps:

1. Identification the Monument Objects
2. Description of Utility Corridors on the IFNM and Constraints on Utility Corridor Use in Surrounding Areas
3. Potential Effects to Monument Objects
4. Comments on Utility Corridors Received during Review of Draft RMP
5. Results of Compatibility Analysis

Section 1: Identification of Monument Objects

The IFNM was designated to protect objects of scientific interest within the monument, including the drought-adapted vegetation of the Sonoran Desert, geological resources such as Ragged Top Mountain, and abundant archeological resources. The purpose of the IFNM is to preserve, protect, and manage the biological, cultural and geological resources, and other objects of this area for future generations, and to further our knowledge and understanding of these resources through scientific research and interpretation. These objects are referred to as "monument objects," "objects of the monument," or "objects" in this document.

The text from Presidential Proclamation 7320 identifies the monument objects and lists what those objects are. The table below identifies the specific indicators and thresholds for protection of monument objects, and references the resource management category in which each of the objects are addressed in

this plan. The resource management goals and objectives for each of these resource management categories are identified in Chapter 2 of the IFNM Proposed RMP (see Tables 2-2, 2-4, 2-5, 2-6, 2-8, and 2-10). These goals further define BLM's actions to protect the objects, including opportunities to enhance or restore objects of the monument (IFNM Proposed RMP, p.1-5).

Table K-1: Protection of Objects within the IFNM

Text from Presidential Proclamation 7320	Monument Object	Object Indicators and Protection Thresholds	Resource Management Category
The landscape of the Ironwood Forest National Monument is swathed with the rich, drought-adapted vegetation of the Sonoran Desert. The monument contains objects of scientific interest throughout its desert environment. Stands of ironwood, palo verde, and saguaro blanket the monument floor beneath the rugged mountain ranges, including the Silver Bell Mountains. Ragged Top Mountain is a biological and geological crown jewel amid the depositional plains in the monument.	Drought-adapted vegetation	▪ Maintain viable natural populations of ironwood, palo verde, saguaros, and other drought-adapted vegetation within the monument. ▪ Prevent avoidable loss of unique vegetation communities on Ragged Top and other rugged mountain ranges.	Vegetation Special Status Species (refer to Tables 2-4 and 2-6 for resource condition goals and objectives and management actions)
	Rugged mountain ranges	▪ Maintain natural characteristics, processes, and scenic and wildlife values of geologic resources.	Geology and Caves (refer to Table 2-2 for resource condition goals and objectives and management actions)
The monument presents a quintessential view of the Sonoran Desert with ancient legume and cactus forests. The geologic and topographic variability of the monument contributes to the area's high biological diversity.	View of the Sonoran Desert	▪ Maintain visual quality of landscapes from important viewing areas.	Visual Resources (refer to Table 2-10 for resource condition goals and objectives and management actions)
Ironwoods, which can live in excess of 800 years, generate a chain of influences on associated understory plants, affecting their dispersal, germination, establishment, and rates of growth. Ironwood is the dominant nurse plant in this region, and the Silver Bell Mountains support the highest density of ironwood trees recorded in the Sonoran Desert. Ironwood trees provide, among other things, roosting sites for hawks and owls, forage for desert bighorn sheep, protection for saguaro against freezing, burrows for tortoises, flowers for native bees, dense canopy for nesting of white-winged doves and other birds, and protection against sunburn for night blooming cereus.	Ironwood trees	▪ Maintain viable natural populations of ironwood; prevent increased mortality of ironwood stands.	Vegetation (refer to Table 2-4 for resource condition goals and objectives and management actions)

Text from Presidential Proclamation 7320	Monument Object	Object Indicators and Protection Thresholds	Resource Management Category
The ironwood-bursage habitat in the Silver Bell Mountains is associated with more than 674 species, including 64 mammalian and 57 bird species. Within the Sonoran Desert, Ragged Top Mountain contains the greatest richness of species. The monument is home to species federally listed as threatened or endangered, including the Nichols turk's head cactus and the lesser long-nosed bat, and contains historic and potential habitat for the cactus ferruginous pygmy-owl. The desert bighorn sheep in the monument may be the last viable population indigenous to the Tucson basin.	Habitat for threatened, endangered, and rare wildlife and vegetative species	▪ Maintain a natural range of variation in vegetation communities to support rare species. ▪ Prevent avoidable loss of special status species.	Vegetation Wildlife and Wildlife Habitat Special Status Species (refer to Tables 2-4, 2-5, and 2-6 for resource condition goals and objectives and management actions)
In addition to the biological and geological resources, the area holds abundant rock art sites and other archeological objects of scientific interest. Humans have inhabited the area for more than 5,000 years. More than 200 sites from the prehistoric Hohokam period (600 A.D. to 1450 A.D.) have been recorded in the area. Two areas within the monument have been listed on the National Register of Historic Places, the Los Robles Archeological District and the Cocoraque Butte Archeological District. The archeological artifacts include rhyolite and brown chert chipped stone, plain and decorated ceramics, and worked shell from the Gulf of California. The area also contains the remnants of the Mission Santa Ana, the last mission constructed in Pimeria Alta.	Archeological objects of scientific interest	▪ Reduce threats and resolve conflicts from natural or human-caused deterioration of rock art and other prehistoric sites, Archeological Districts on the National Register of Historic Places, artifacts, and remnants of Mission Santa Ana.	Cultural Resources (refer to Table 2-8 for resource condition goals and objectives and management actions)

Presidential Proclamation 7320 provides guidance for managing the monument for "the purposes of protecting the objects identified." In addition to the protection thresholds identified above, protection of the monument objects is defined as maintaining the objects over time, such that any human-caused change or impact on the known biological, geological, and archaeological monument object(s) would be undetectable or measurable only in small and localized areas and the integrity of the object(s) would be conserved for future generations.

Section 2: Description of Utility Corridors on the IFNM and Constraints on Utility Corridor Use in Surrounding Areas

Brief History of Utility Corridor in the Monument Area:

Under the Phoenix RMP of 1988, three utility corridors were established in the Silverbell Resource Conservation Area (RCA) located in the southern end of the now designated monument area. According to the Phoenix RMP analysis, the corridors were established in the now monument area "because the scattered land pattern outside of the RCA severely limits the usefulness of such designations" (Phoenix RMP, 1988, p. 84). The RCAs were established as blocks of land for the public purpose of consolidating surface/subsurface ownership in order to improve management efficiency and to reduce cost. The seven RCAs in the Phoenix RMP contain public lands with high resource value and would be intensely managed public lands (Phoenix Draft RMP, 1987, p. xii & 5). Each of the three corridors in the Silverbell RCA was one mile in width. Map 2-11 shows the routes of each corridor within the now IFNM (Attachment 1). These corridors identify priority routes for major utility systems. Generally, the corridors were routed along existing utility systems. Routes for the corridors within the now IFNM were identified only within the Silverbell RCA because public lands outside the RCA were and still are so scattered that the designation of useful corridors is impractical. Currently, the land area associated with the IFNM is being managed under the Phoenix RMP and the National Landscape Conservation System (NLCS) interim guidance.

Section 368 of the National Energy Policy Act of 2005

As the BLM began the IFNM Draft RMP in 2003, the proposal to keep utility corridors within the monument was analyzed as three of four alternatives. As the monument lies between the two most populated cities in Arizona and in order to remain consistent with the National Energy Policy Act of 2005, the BLM proposed allocation of two corridors (Attachment 2) in the IFNM Draft RMP, page 2-69 Alternative C, in order to maintain a reasonable range of alternatives as required by the National Environmental Policy Act (NEPA). During the time of the development of the IFNM Draft RMP, the paradigm was focused on providing opportunities for potential energy development for future use. Section 368 of the National Energy Policy Act of 2005 "prescribes guidelines governing energy right-of-way corridors on Federal land." Section 368 states in part:

(c) Ongoing Responsibilities – The Secretaries, in consultation with the Federal Energy Regulatory Commission, affected utility industries, and other interested parties, shall establish procedures under their respective authorities that--

1) Ensure that additional corridors for oil, gas, and hydrogen pipelines and electricity transmission and distribution facilities on Federal land are promptly identified and designated as necessary; and

2) Expedite applications to construct or modify oil, gas, and hydrogen pipelines and electricity transmission and distribution facilities within such corridors, taking into account prior analyses and environmental reviews undertaken during the designation of such corridors.

(d) CONSIDERATIONS – In carrying out this section, the Secretaries shall take into account the need for upgraded and new electricity transmission and distribution facilities to:

1) improve reliability;

2) relieve congestion; and

3) enhance the capability of the national grid to deliver electricity.

(e) SPECIFICATIONS OF CORRIDOR – A corridor designated under this section shall, at a minimum, specify the centerline, width, and compatible uses of the corridor.

In essence, the BLM would manage and provide utility corridors to support energy industry needs, both alternative and traditional, and community growth in consideration of other resource values. Two utility companies expressed their support in comments received during the public review period before and after the release of the IFNM Draft RMP to provide the proposed utility corridors. In Section 368 of the National Energy Policy Act of 2005, corridors are sited to avoid, to the maximum extent possible, significant known resource and environmental conflicts.

In accordance with the National Energy Policy Act of 2005, the BLM executed and implemented the Approved Resource Management Plan Amendments/Record of Decision for Designation of Energy Corridors on Federal Land in the 11 Western States of January 2009 (11 Western States ROD), in the IFNM Draft RMP. The 11 Western States ROD designates corridors and directs the BLM to designate energy corridors by amending existing management plans or in new proposed plans that will improve reliability and enhance the national electric grid (11 Western States ROD, 2009, pg. 2). Criteria for siting corridors to be addressed in 11 western states EIS are listed on page 14 of the ROD (Jan 2009). Among these, the initial step in the siting process was to identify an enhanced regional electric grid for the West. Corridors that did not support connectivity within the grid were not considered in the analysis. Corridors could only be on Federal land, excluding Tribal, state and private lands from the analysis. Thus the corridors crossing the IFNM did not rise to the level of consideration in the EIS.

Congress also directed the Agencies to ensure that additional corridors on Federal Land are promptly identified and designated, as necessary (Section 368). The ROD (11 Western States ROD, 2009, pg. 17 states that the BLM will accommodate the need for future energy corridors through its normal land use planning process.

Though the 11 Western States ROD did not specifically identify a potential corridor within the IFNM area, the BLM could elect to add a utility corridor in accordance with the concept of designating energy corridors in new proposed plans.

Surrounding Area Constraints

The restricted land uses in the surroundings areas also influenced the BLM's consideration of designating utility corridors in the IFNM Draft RMP. Current Avra Valley land ownership restricts utility developments connecting the north and south ends of the Avra Valley. The land ownership consists of Saguaro National Park, mostly designated wilderness area; Tucson Mountain Park (Pima County) which is being used as mitigation lands for the Pima County Multi-species Conservation Plan; the Tucson Wildlife Mitigation Corridor owned by the Bureau of Reclamation (BOR, 1990) (Attachment 3), and the Tohono O'odham Nation (the Nation), Garcia strip.

Sonoran Desert Conservation Plan

The Avra Valley region serves as mitigation under the US Fish and Wildlife Service Section 10 permit under the Endangered Species Act to address Threatened & Endangered Species for the Sonoran Desert Conservation Plan (SDCP) (Attachment 4). The SDCP has been developed in Pima County, Arizona to guide regional planning efforts that provide a balance between the conservation and protection of cultural and natural resource heritage. The area covered in the SDCP is 5.9 million acres in the Tucson metropolitan area. The conservation planning effort addresses the problems of declining natural resources and the loss of cultural identity in one of the fastest growing parts of the country.

Bureau of Reclamation Wildlife Mitigation Corridor

Pima County manages the BOR Wildlife Mitigation Corridor with Cooperative Agreement for Use of Project Lands for Wildlife and Plant Conservation and Management Tucson Mitigation Corridor Central Arizona Project (BOR Cooperative Agreement) to prohibit any future developments within the area other than existing wildlife habitat improvements or future wildlife improvements, management or developments (BOR (1990), *BOR Cooperative Agreement*). The management actions listed above were drawn from the BOR Central Arizona Project Environmental Impact Statement and The Fish and Wildlife Coordination Act of 1958 report.

Tohono O'odham Nation

The Nation, a neighboring jurisdiction, does not have a land use plan for areas near the IFNM. Planning decisions for land within the Nation typically are made on a case-by-case basis and involve community, district, and tribal leaders and elected officials in a decision making process that parallels that of the Federal Government. Land is primarily administered by the Tohono O'odham Tribal Council and political subdivisions of the Nation, called districts.

SunZia Project

SunZia Transmission, LLC plans to construct and operate up to two 500 kilovolt (kV) interstate transmission lines originating at a new substation in New Mexico and terminating at Coolidge, Arizona.

In April 2010, one route west of Tucson, near IFNM, was reviewed during the public scoping period. Comments on the so-called "Route F121 (Map from SunZia)," which runs through the eastern end of the Nation and the western edge of the BOR Mitigation Corridor, were made public in September 2010, in the "*Addendum to SunZia Southwest Transmission Project Scoping Report, April 2010.*" Comments received from the Nation and the BOR oppose Route F121 (Attachment 5 & 6).

Section 3: Potential Effects to Monument Objects in IFNM Draft RMP

Vegetation Community: Vegetation within the IFNM generally is classified within two upland plant communities. The palo verde cacti-mixed scrub community is dominated by foothill palo verde with scattered cacti, mostly saguaro, and contains other associated species such as mesquite and ironwood (i.e., the ancient legume and cactus forest, which is an object of the monument). The creosote bush-white bursage community is dominated by these species, with scattered triangle-leaf bursage, mesquite, and prickly pear cactus.

> Corridor 1 Area: Vegetation consists of foothill palo verde with scattered cacti, mostly saguaro, and contains other associated species such as mesquite and ironwood (i.e., the ancient legume and cactus forest, which is an object of the monument).
>
> Corridor 2 Area: Vegetation is dominated by creosote bush and white bursage, with scattered triangle-leaf bursage, mesquite, and prickly pear cactus. No vegetative objects of the monument exist in this corridor. Areas on either side of the corridor are more diverse in vegetation and provide shelter in travel corridors for wildlife. The area three miles to the east on the Nation is a riparian corridor along the Brawley Wash that is a major north-south movement corridor for wildlife identified in the SDCP (Attachment 4).

Corridor 1



Corridor 2



Wildlife Habitat: The fauna of the IFNM include a diversity of game and nongame wildlife species, as well as migratory birds, typically found in the Sonoran Desert. Several species are restricted to certain locales while others occur widely in suitable habitats. The ironwood-bursage habitat in the Silver Bell Mountains is associated with more than 674 species, including 64 mammalian and 57 bird species (Preplan Analysis for IFNM, 2001). Additional species not specifically noted below also may occur within the IFNM.

Big game species known to occur in the planning area include desert bighorn sheep (an object of the monument), mule deer, and javelina. Small game species that occur in the planning area include desert cottontails, jackrabbits, and quail. Non-game species, including songbirds, raptors, reptiles and one amphibian, are also found within the IFNM.

Land use patterns on the IFNM influence wildlife habitat connectivity. Factors contributing to fragmentation of wildlife habitats within the IFNM include roads, residential development, mines, undocumented immigrant (UDI) traffic, and off-road driving. Wildlife corridors could connect habitats between the Silver Bell Mountains, West Silver Bell Mountains, and Sawtooth Mountains. The primary function of wildlife corridors is to connect fragmented habitat areas. All washes in the IFNM serve as corridors for wildlife. These corridors facilitate dispersal of individuals of species between patches of remaining habitat.

Special status species include the following categories: (1) species currently listed or considered for listing as threatened or endangered by U.S. Fish and Wildlife Service (USFWS); (2) species listed as sensitive by BLM; (3) species listed as Wildlife of Special Concern in Arizona by Arizona Game and Fish Department (AGFD); (4) Priority Vulnerable Species in Pima County; and (5) plants that have special protection under the Arizona Native Plant Law.

As identified by the BLM, USFWS, AGFD, and Pima County's Sonoran Desert Conservation Plan, 122 special status species occur in Pima and Pinal Counties. Of this total, four species with Federal status are known to occur in the planning area and are considered to be objects of the monument: lesser long-nosed bat, Tucson shovel-nosed snake, Sonoran desert tortoise, and Nichol Turk's Head cactus. The other special status species that is not federally listed and has the potential to occur in the IFNM is the cactus ferruginous pygmy owl (Arizona Game and Fish Department, Heritage Data Management System, November 24, 2010).

> Corridor 1 Area: Wildlife consists of small game species, such as desert cottontails, jackrabbits and quail. The big game species include mule deer, javelina, desert bighorn sheep, and non-game species include songbirds, raptors, and reptiles. The monument objects in Corridor 1 include desert bighorn sheep and special status species.
>
> Corridor 2 Area: Wildlife consists of desert cottontails, jackrabbits, quail, songbirds, raptors, and reptiles. No monument objects related to wildlife are in Corridor 2; although, washes stemming from the Brawley Wash on the Nation to the east and washes in the IFNM to the west of Corridor 2 serve as corridors for wildlife. These wildlife corridors facilitate dispersal of individuals of species between patches of remaining habitat.

Scenic Resources: Visual resources on the IFNM lands are an important part of the landscape viewed from public travel routes and populated areas and are considered a monument object, including the Avra and Santa Cruz valleys, I-10, Tucson, Marana, Oro Valley, Casa Grande, and other nearby communities. The landscape in the IFNM exhibits outstanding examples of the Basin and Range, Sonoran Desert Section (which is an object of the monument), with visual resources in largely natural appearing condition. The scenic quality has many outstanding landform, vegetation and special features that attract

sightseeing activities and define the surrounding area's landscape settings. Visual sensitivity is high, and viewing distance is in the foreground and middle-ground from important viewing areas within and outside the monument. Its rugged, steep-sloped mountains (which are objects of the monument) form the background and skyline, defining the flat valleys where agricultural, rural and urban development exists. Due to landform, vegetation and visibility characteristics, IFNM lands are vulnerable to visual impacts from activities that involve vegetation clearing, earthwork disturbance, and placement of structures, which can cause strong visual contrasts noticeable in foreground to background views.

> Corridor 1 Area: In the IFNM Draft RMP Alternative C, the VRM for Corridor 1 was Class III. Effects on the visual and scenic resources would degrade the VRM to Class IV if another above or underground utility was allowed.
>
> Corridor 2 Area: In the IFNM Draft RMP Alternative C, the VRM for Corridor 2 was Class IV. Effects on the visual and scenic resources would remain a Class IV if another above or underground utility was allowed.

Cultural Resources: The primary motivation for protecting and preserving cultural resources is to enhance public and professional interpretation and appreciation of our cultural heritage. Public interpretation within the IFNM has been limited primarily to occasional guided tours of Hohokam petroglyph sites (which are objects of the monument described in the Proclamation). Future opportunities for public interpretation include heritage publications, other media products, interpretive signs and kiosks, and visitor centers.

Archaeological sites reflecting both prehistoric and historic-era occupation of the region are so abundant that only a small percentage of the sites have been recorded. Twenty-one documented surveys have, in the aggregate, inventoried approximately 21,194 acres (33.1 square miles) for cultural resources within the IFNM. The surveys encompass about 13 percent of the public land and about 9 percent of the nonpublic lands within the IFNM boundary. A total of 279 archaeological and historical sites have been recorded on BLM land within the IFNM, 175 of which have been recommended eligible for the National Register of Historic Places. Survey data suggest there could be approximately 2,300 sites on the BLM surface estate within the IFNM.

To date, no officially designated places within the IFNM have been identified as having traditional cultural significance, but knowledge about traditional use areas has been obtained by the BLM through Tribal consultation efforts. Tribes with traditional cultural affiliations within the region are known to have concerns about treatment of human remains, funerary objects, sacred objects, and objects of cultural patrimony that are sometimes present within archaeological sites. Information gathered through tribal consultation efforts has revealed that members of the Four Southern Tribes, which The Nation borders the IFNM, also do consider some places within the IFNM that were used traditionally, such as stands of saguaro where fruit was collected, as having cultural significance.

> Corridor 1 Area: The corridor touches the edge of the Los Robles Archaeological District, which is on the National Register of Historic Places. Additional future development in the Corridor 1 area could affect important cultural sites.
>
> Corridor 2 Area: No known significant cultural objects of the monument would be affected if additional utility developments occur in the future. No significant sites are within two miles of Corridor 2.

Section 4: Comments on Utility Corridors Received During Review of Draft RMP

During the public review period of the IFNM PRMP, the BLM received several written and verbal comments from utility companies, as well as other members of the public for and against having utility corridors within the IFNM.

Comments included having no corridors, providing corridors that would provide for future electrical reliability for the state, assuring corridors avoid sensitive areas, providing one mile corridors, assuring ROW renewals and expanding on the existing authorized width to accommodate future needs.

The BLM reviewed all comments received and aimed to incorporate a balanced response to comments in the IFNM Proposed RMP.

Section 5: Results of Compatibility Analysis

Rationale for Corridor Designation in IFNM Draft RMP:

After analyzing impacts to monument objects in the proposed utility corridors, the BLM proposed to accommodate utility corridor use in the IFNM Draft RMP. The two proposed corridors in the IFNM Draft RMP Alternative C currently have three active ROWs. In Corridor 1, El Paso gas lines currently have two parallel ROWs totaling approximately 100 feet wide from the centerline within the existing corridor that is 1 mile wide. The gas lines are 13 miles in length through the IFNM, transcending over BLM (8 miles), State, and private lands. The corridor contains a pipeline access road. In Corridor 2, Southwest Transmission Cooperative has one 50-foot ROW from the centerline within the existing corridor that is 1 mile wide. Current facilities in Corridor 2 contain a 115 kV line and access road. The 115 kV line is three miles long, two miles on BLM land and one mile on State land. One applicable term of the ROW is that the maintenance road stays within the existing footprint. However, this current ROW expires in October 2011.

Under the IFNM Draft RMP, the corridor footprint was greatly reduced. Corridor 1 (underground use only) decreased from one mile to 200 feet wide and Corridor 2 (infrastructure above or below ground) from one mile to 300 feet wide, reducing Corridor 1 by 96% and Corridor 2 by 94%. The purpose of the size reduction in utility corridor width from the Phoenix RMP to the IFNM Draft RMP was to protect the objects of the monument and visual and scenic resources as described in the IFNM Proclamation, while still being consistent with the National Energy Policy Act of 2005.

Rationale for Corridor Designation Changes from IFNM Draft RMP to Proposed RMP:

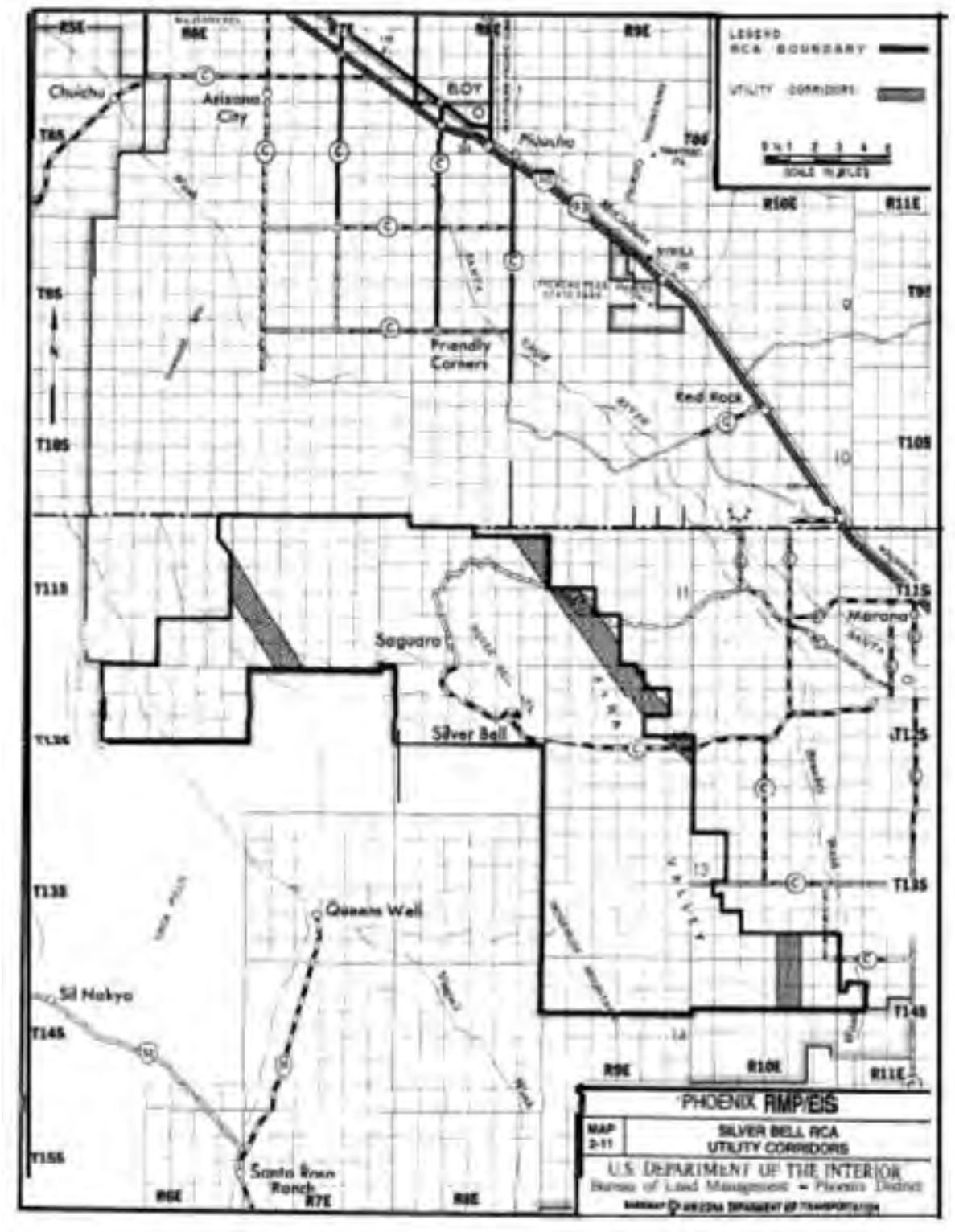
The change in utility corridor designation from the IFNM Draft RMP Page 2-69 Alternative C to the IFNM Proposed RMP Page 2-69 Alternative B is that no utility corridors would be designated as shown on Map 2-16 (Attachment 7). Comment review and the BLM's objective to protect monument objects as specified in the Proclamation and Secretarial Order 3308 of November 15, 2010, provide a basis for this modification.

The purpose of the suggested change to the IFNM Draft RMP corridors was to further protect the monument objects that would be impacted should future additional utility development occur. Under Alternative B, allocating the IFNM as an exclusion area without identifying any utility corridors would result in considering land use authorizations for rights-of-way only when required by law. This would exclude the potential for new rights-of-way for electric generating facilities (including renewable), transmission lines, pipelines, and other utilities. The IFNM Proposed RMP decision is designed to allow for further analysis should a proposal be submitted. Therefore, the changes are based on the need to

balance the National Energy Policy Act of 2005 (PL 109-58) and Secretarial order 3308: Management of the National Landscape Conservation System, while complying with NEPA (PL 91-190 as amended) to analyze a full range of alternatives and to appropriately consider and respond to input from the public sector.

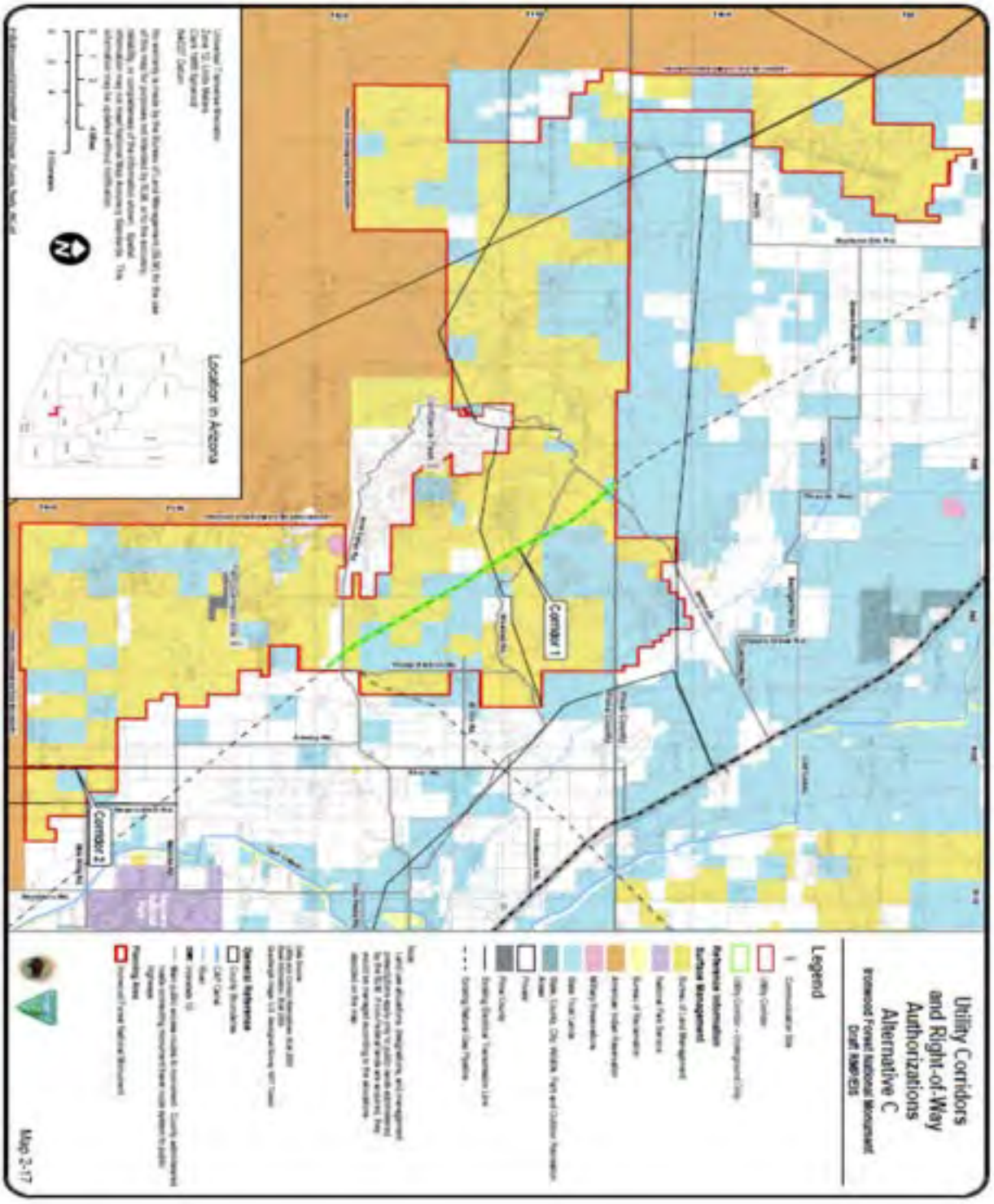
Attachment 1

Utility Corridor Designations Phoenix RMP Map 2-11

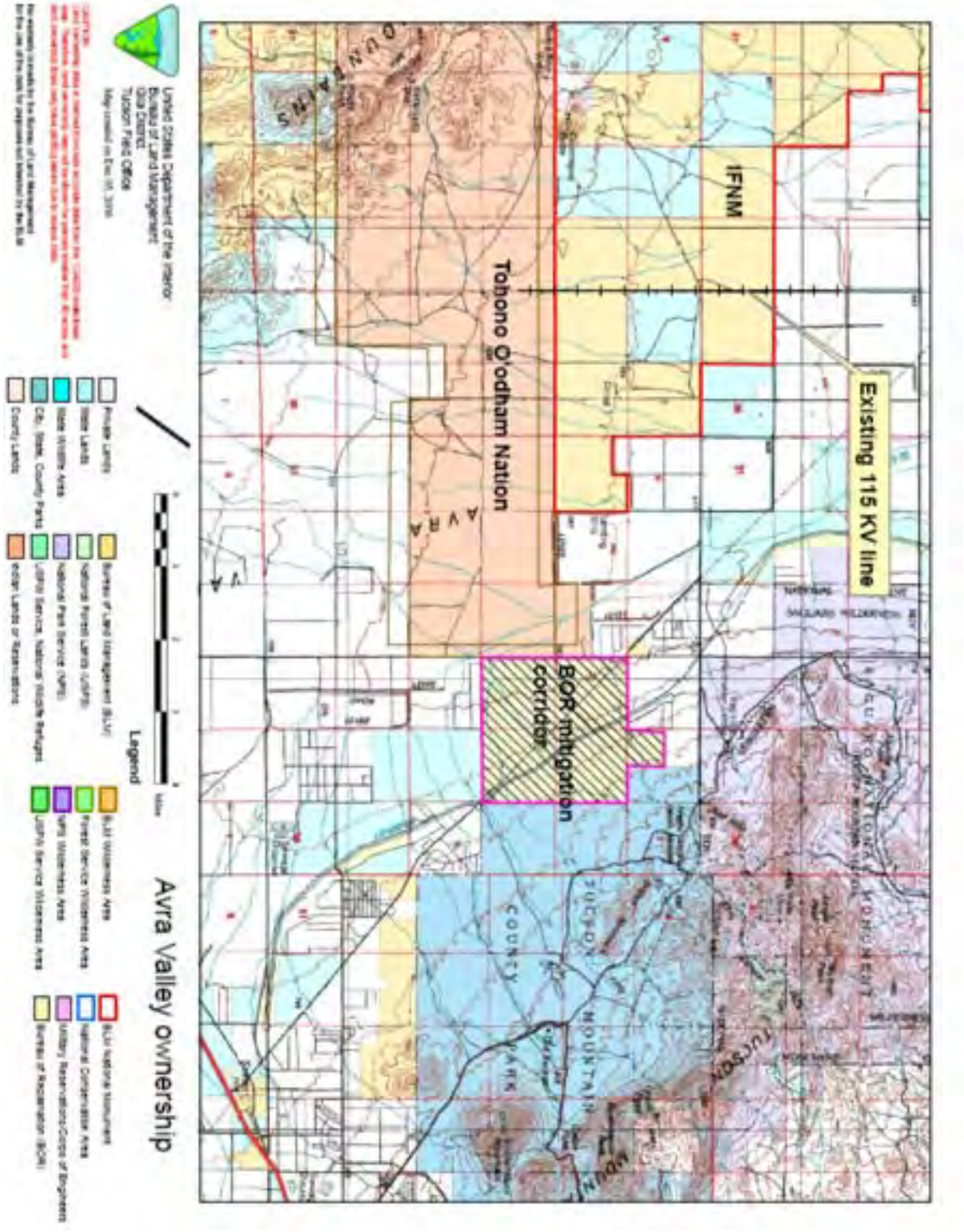


Attachment 2

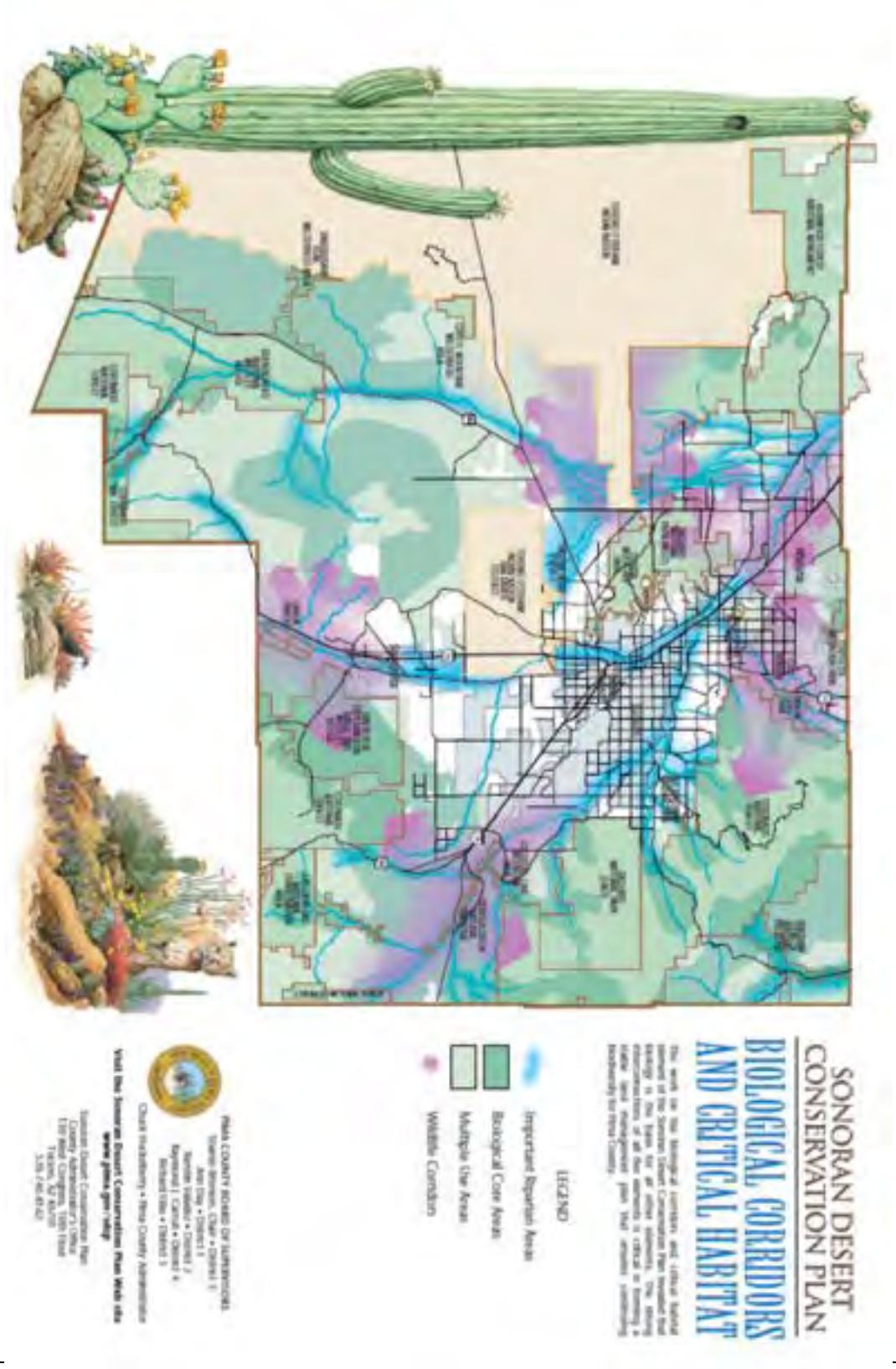
Maps 2-17 – Utility Corridors and Rights-of-Way Authorizations Alternative C IFNM Draft RMP



Attachment 3



Attachment 4



Attachment 5

Tohono O'odham SunZia Comment Letter

TOHONO O'ODHAM NATION
SCHUK TOAK DISTRICT
P.O. Box 368
Sells, Arizona 85634
Telephone (520) 383-4660
Fax (520) 383-5575

RESOULTION OF THE SCHUK TOAK DISTRICT COUNCIL
(Opposing SunZia Southwest Transmission Line Project)

Resolution No. ST-11-06-10-174

WHEREAS: the Schuk Toak District Council held a regular scheduled meeting on November 06, 2010 with a quorum present; and

WHEREAS: at a meeting held on July 10, 2010 the SunZia Representatives and BLM presented a proposal to the Schuk Toak District Council requesting approval to construct and operate up to two 500 kilovolt (kV) transmission lines and new intermediary substations within an estimated 500-mile long corridor; and

WHEREAS: the Schuk Toak District Council did review and discuss the proposed project; and

WHEREAS: the Garcia Strip Community raised questions and concerns regarding the transmission line; and

WHEREAS: on October 31, 2010, the Garcia Strip Community did review and discuss the proposed transmission line presented by SunZia and Bureau of Land Management (BLM).

NOW THEREFORE, BE IT RESOLVED that the Schuk Toak District Council, and the Garcia Strip Community hereby opposes the 500 kilovolt transmission lines and new intermediary substations within an estimated 500-mile long corridor.

BE IT FINALLY RESOLVED that the foregoing resolution was enacted by the Schuk Toak District Council, with a vote of 18 FOR; -0- AGAINST; -0- ABSENT; pursuant to the powers vested in the Council by Section 5 of Article IX of the Constitution of the Tohono O'odham Nation.

ATTEST:

District Council Secretary

Phyllis Juan, Chairperson

Attachment 6

BOR SunZia Comment Letter

United States Department of the Interior

BUREAU OF RECLAMATION
Phoenix Area Office
6150 West Thunderbird Road
Glendale, Arizona 85306-4001

IN REPLY REFER TO:
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APR 26 2010

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SANTA FE, NEW MEXICO

MEMORANDUM

To: Mr. Adrian Garcia, Project Manager, SunZia Southwest Transmission Project, Bureau of Land Management, New Mexico State Office, P.O. Box 27115, Santa Fe, New Mexico 87502-0115

From: Carol Lynn Erwin
Area Manager

Subject: Scoping Comments on Expansion of Study Area, SunZia Southwest Transmission Project

In response to your April 2010 Project Update, and expansion of the SunZia Project study area, I am providing comments specific to the Avra Valley corridor. This memorandum supplements my earlier written comments dated February 25, 2010, on the SunZia Project. The Bureau of Reclamation recognizes and supports the need for renewable energy sources.

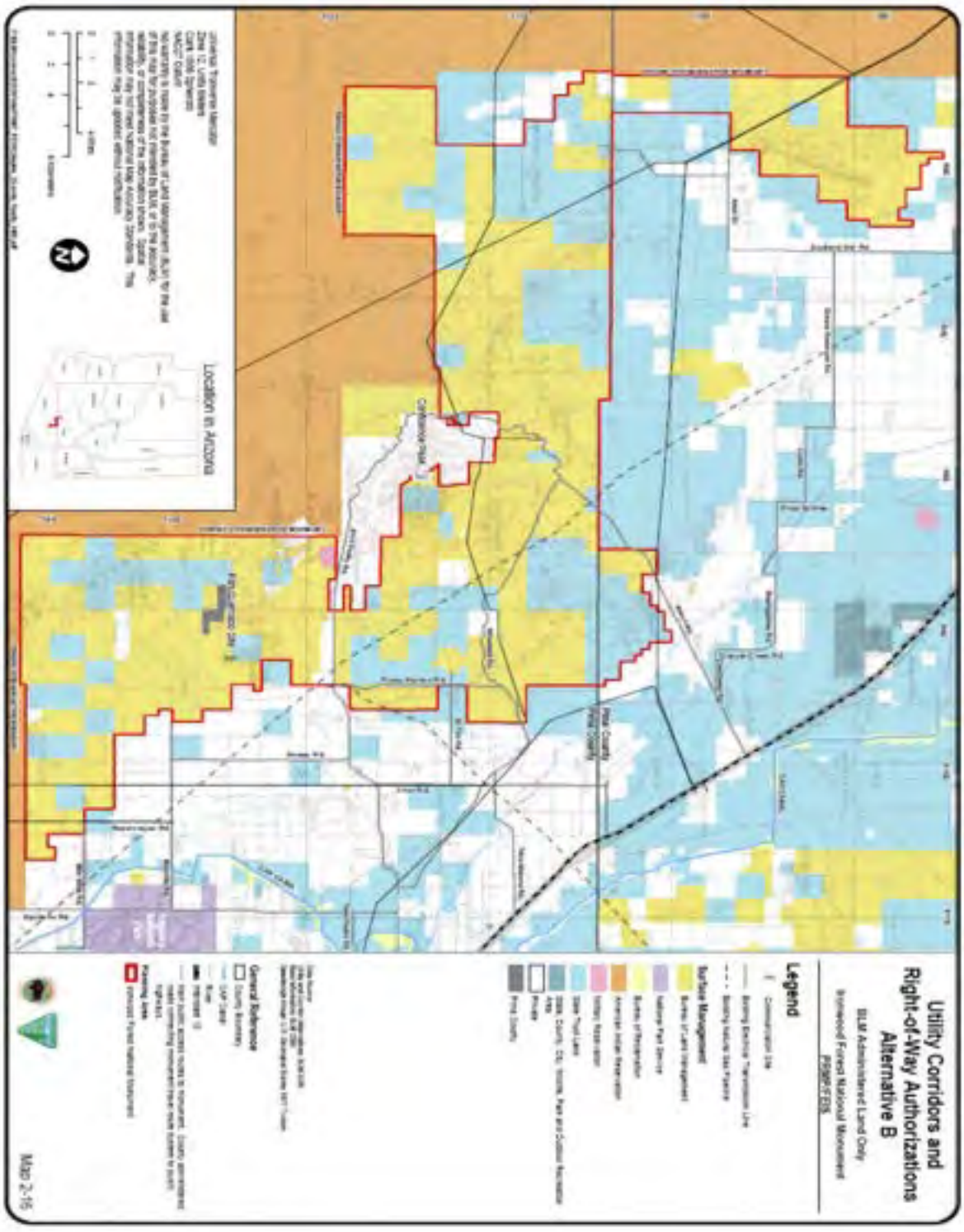
I appreciated the opportunity for Mr. Bruce Ellis of my staff to meet with you and the project proponent and consultants on April 2 in Tucson. However, the Avra Valley route that was discussed in that meeting would bisect Central Arizona Project's (CAP) Tucson Mitigation Corridor, which serves as a preserve for wildlife and plants and provides an undeveloped corridor for large mammals to move between the Tucson Mountains to the east and the Roskruge Mountains to the west. Reclamation acquired the 4.25-square-mile corridor as partial mitigation for biological impacts resulting from construction and operation of the CAP Tucson Aqueduct. Reclamation signed a cooperative agreement with the Arizona Game and Fish Department and the Pima County Parks and Recreation Department for the management of these lands, including agreement to oppose any further development within the corridor. Reclamation has consistently opposed, and continues to oppose, use of the corridor for any use that could adversely affect plants, wildlife, and wildlife movement for which the corridor was established.

I would also point out that visual impacts from sensitive viewing areas such as the Arizona-Sonora Desert Museum were a major issue during planning for the CAP Aqueduct in this area. The Tucson Mitigation Corridor, by preserving these 4.25 square miles of land from future development, helped to mitigate these impacts as well. Based on commitments we have made to prohibit future development within this mitigation corridor, we cannot support the Avra Valley route and do not believe it is a reasonable alternative that should be considered in the Environmental Impact Statement for the SunZia Project.

If you have any questions, please contact Mr. Bruce Ellis of my staff at 623-773-6250.

Attachment 7

Maps 2-17 – Utility Corridors and Rights-of-Way Authorizations Alternative B IFNM Proposed RMP



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LIST OF ABBREVIATIONS AND ACRONYMS

°F	degrees Fahrenheit
ACEC	area of critical environmental concern
ADEQ	Arizona Department of Environmental Quality
ADOC	Arizona Department of Commerce
ADWR	Arizona Department of Water Resources
AGFD	Arizona Game and Fish Department
AMA	active management area
ANSI	American National Standards Institute
A.R.S.	Arizona Revised Statutes
ASLD	Arizona State Land Department
AUM	animal unit month
BLM	Bureau of Land Management
CEQ	Council on Environmental Quality
CFR	Code of Federal Regulations
CLS	Conservation Land System
CO	carbon monoxide
CO_2	carbon dioxide
CRMA	cultural resource management area
dBA	A-weighted decibel
EIS	environmental impact statement
EPA	Environmental Protection Agency
ESA	Endangered Species Act
FLPMA	Federal Land Policy Management Act
FRCC	Fire Regime Condition Class
FY	fiscal year
GIS	geographic information system
HCP	habitat conservation plan
HMP	habitat management plan
IFNM	Ironwood Forest National Monument
IMPROVE	Integrated Monitoring of Protected Visual Environments
lb/hr	pound per hour
MIST	minimum impact suppression technique
MOU	Memorandum of Understanding
NAA	nonattainment area
NAAQS	National Ambient Air Quality Standard
National Register	National Register of Historic Places
NEPA	National Environmental Policy Act
NHPA	National Historic Preservation Act
NLCS	National Landscape Conservation System
NO_2	nitrogen dioxide
NRCS	National Resource Conservation Service
NRHP	National Register of Historic Places
O_3	ozone
OHV	off-highway vehicle
Pb	lead
PILT	Payment in Lieu of Taxes
PL	Public Law
PM_{10}	particulate matter less than or equal to 10 microns in diameter
$PM_{2.5}$	particulate matter less than or equal to 2.5 microns in diameter
ppm	parts per million
R&PP	Recreation and Public Purposes
RAWS	remote automatic weather station
RCA	Resource Conservation Area
RMP	resource management plan
RMZ	recreation management zone
ROS	recreation opportunity spectrum
SHPO	State Historic Preservation Office
SO_2	sulfur dioxide
SRMA	Special Recreation Management Area
SRP	Special Recreation Permit
TMP	Travel Management Plan
USDA	U.S. Department of Agriculture
UDI	undocumented immigrant
U.S.C.	United States Code
USDI	U.S. Department of the Interior
USFWS	U.S. Fish and Wildlife Service
USGS	U.S. Geological Survey
UXO	unexploded ordnance
VHA	vegetation habitat management area
VRM	Visual Resource Management
WHA	Wildlife Habitat Management Area
WRCC	Western Regional Climate Center
WSA	wilderness study area
WUI	wildland urban interface

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BUREAU OF LAND MANAGEMENT
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