U.S. Department of the Interior Bureau of Land Management Gila District Office

San Pedro Riparian National Conservation Area

Draft Resource Management Plan and

Environmental Impact Statement

Volume II: Appendices







June 2018

BLM Mission

The Bureau of Land Management's multiple-use mission is to sustain the health and productivity of the public lands for the use and enjoyment of present and future generations. The Bureau accomplishes this by managing such activities as outdoor recreation, livestock grazing, mineral development, and energy production, and by conserving natural, historical, cultural, and other resources on public lands.

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Figure 2-3 Priority Habitats:

Alternative A



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SPRNCA Planning Area

Wildland Fire Management

Wildland fire use Non wildland fire use





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Figure 2-6 Wildland Fire Management: Alternatives B, C, D

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Wildland Fire Management

Full suppression





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Map Location

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Coordinate System: NAD 1983 UTM Zone 12N

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Date: 5/22/2018

CA

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10

Map Location

Tucson Field Office

ARIZONA

Phoenix

Tucson

U.S. Department of the Interior Bureau of Land Management

NM

Figure 2-8 Visual Resources: Alternative A

SPRNCA Planning Area

Visual Resource Management Class





Coordinate System: NAD 1983 UTM Zone 12N

4 Kilometers

0 1 2 4 Miles

June 2018

UNITED STATES MEXICO



SPRNCA Planning

Visual Resource Man

2 3





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Figure 2-10 Visual Resources: Alternative C

SPRNCA Planning Area

Visual Resource Management Class

2



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Figure 2-11 **Visual Resources:** Alternative D



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Tombstone

80

Charleston



Miles

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ARIZONA CA Phoenix Tucson Map Location

No areas would be allocated to protect wilderness characteristics as a priority.





BLM-administered land



N

(82

(90)

Sierra Vista

90

92



UNITED STATES

MEXICO

Hereford

Palominas



ARIZONA CA 10 Map Location

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Figure 2-14 Livestock Grazing: Alternative A

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Livestock Grazing

Lands open to grazing Lands closed to grazing





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Lands open to grazing

Figure 2-15 Livestock Grazing:

Alternative B



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Figure 2-16 Livestock Grazing: Alternative C

SPRNCA Planning Area

Livestock Grazing

Lands open to grazing Lands closed to grazing





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Lands closed to grazing





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Figure 2-18

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Hereford Trailhead



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Hereford Trailhead

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Date: 5/22/2018

CA

Primitive

Rural

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Figure 2-25 Travel: Alternatives A, B, C

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Travel Designation

Limited to designated roads and trails





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Travel Designation

Limited to designated roads and trails Closed

Figure 2-26 Travel:

Alternative D

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Figure 2-27 Lands and Realty: Alternative A

SPRNCA Planning Area

Right-of-way Limitations



Charleston Road ROW utility corridor

BLM-administered land open to rights-of-way



Y

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Figure 2-28 Lands and Realty: Alternatives B, C

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Right-of-way Limitations





Right-of-way avoidance area



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Figure 2-29 Lands and Realty: Alternative D

SPRNCA Planning Area

Right-of-way Limitations

Right-of-way exclusion area





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Coordinate System: NAD 1983 UTM Zone 12N

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MEXICO



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legislation of the State of Arizona.



Figure 2-32 Areas of Critical **Environmental Concern (ACECs): Alternative D** SPRNCA Planning Area **BLM-administered land**

Areas of Critical Environmental Concern

ACEC





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Figure 2-33 Wild and Scenic Rivers: San Pedro River Alternatives A, B



SPRNCA Planning Area BLM-administered land

Study Corridor Management

Suitable as recreational



Y

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Figure 2-34 Wild and Scenic Rivers: San Pedro River Alternative C



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Study Corridor Management

Suitable as recreational



F

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Figure 2-35 Wild and Scenic Rivers: San Pedro River Alternative D



SPRNCA Planning Area BLM-administered land

Study Corridor Management

Suitable as recreational Suitable as scenic Suitable as wild



A

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Tombstone



80

Figure 2-36 Wild and Scenic Rivers: **Babocomari River Alternative A**

SPRNCA Planning Area **BLM-administered land**

Study Corridor Management

Eligible as scenic

The entire BLM-administered portion of the Babocomari River in the SPRNCA (4 miles) is eligible as scenic.



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Tombstone

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92

UNITED STATES

MEXICO

Palominas



legislation of the State of Arizona.

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Kilometers

Figure 2-38 Wild and Scenic Rivers: Babocomari River Alternative C



SPRNCA Planning Area BLM-administered land

Study Corridor Management

Suitable as recreational



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Figure 2-39 Wild and Scenic Rivers: Babocomari River Alternative D



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WSR Inventory Class

Suitable as scenic





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A. Figures

10 Kilometers

10 Miles



Source: BLM GIS 2017, USGS GIS 2017

BLM-administered land



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Date: 61/2016 SPRNCA_AE_Cumu_watershed.pdf No warranty is made by the Bureau of Land Management (BLM) for the use of this map for purposes not intended by the 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. The BLM conducts land use planting only in the areas administered by the conducts land use planning only in the areas administered by the BLM. BLM has no planning authority under the municipal or county legislation of the State of Arizona.



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ate System: NAD 1983 UTM Zone 12N San Pedro Riparian National Conservation Area Draft RMP/EIS

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Source: BLM GIS 2017



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Figure 3-4 Grazing Allotments SPRNCA Planning Area

BLM-administered land

Grazing allotment

Source: BLM GIS 2017



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Chiricahua leopard frog (threatened)

Critical habitat: A) designated by US Fish and Wildlife Service occupied by a threatened or endangered species "on which are found those physical and biological features (1) essential to the conservation of the species, and (2) which may require special management considerations or protection;" or B) an area with physical and biological features essential to the conservation of a species that may require special management consideration.

Source: BLM GIS 2017, FWS GIS 2014



T

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SPRNCA_AE_wildlife_CritHab.pdf

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A. Figures



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Figure 3-7 Livestock Grazing: Alternative C / Public Use Areas



SPRNCA Planning Area BLM-administered land

Public Use Areas

Public use areas

Livestock Grazing

Lands open to grazing

Lands closed to grazing





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Figure 3-8 WUIs within and Adjacent to the Planning Area

SPRNCA Planning Area

BLM-administered land

Wildland-urban interface

A wildland-urban interface (WUI) refers to the zone of transition between unoccupied land and human development. These lands and communities next to and surrounded by wildlands are often at increased risk for wildfire.





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A. Figures

N





Source: BLM GIS 2017, Cochise County **CWPP 2014**



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Figure 3-10 **Cultural Traditions of Southern Arizona and Northern Mexico**



SPRNCA Planning Area





Source: BLM GIS 2017, adapted from Gilman (2016) and Verde Valley Archaeology Center (2017)



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A. Figures



The potential fossil yield classification (PFYC) scale consists of assigning a number to a geologic unit from PFYC 1–PFYC 5. A geologic unit assigned as PFYC 1 has a low probability of containing fossil resources; an example of this would be an igneous rock formation such as a granite or basalt. A geologic unit that is assigned as a PFYC 5 is a geologic unit that is known to contain numerous scientifically significant fossil resources. The PFYC map is determined by assigning the numbers to geologic units as they are represented on geologic maps.



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Figure 3-12 **Visual Resource Inventory Scenic Quality Ratings**

SPRNCA Planning Area

A-18.5 or more total score for scenic quality

B-11.5 to 18 total score for scenic quality

C-11 or less total score for scenic quality

Scenic quality evaluation measures the visual appeal of a landscape. Lands are rated based on the apparent scenic quality. Scenic quality is determined by reviewing and rating lands using seven key factors: landform, vegetation, water, color, influence of adjacent scenery, and scarcity. The total score determines the scenic quality rating. Higher scores have a higher scenic quality.

Source: BLM GIS 2017, LSD GIS 2013



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Figure 3-13 **Visual Resource Inventory** Sensitivity Level Ratings

SPRNCA Planning Area

Maintenance of visual quality has high value

Maintenance of visual quality has moderate value

Maintenance of visual quality has low value (none)

Sensitivity levels are a measure of public concern for scenic quality. Lands are assigned sensitivity levels based on consideration of the following: types of users, amount of use, public interest, adjacent land uses, special areas, and other. The overall rating is not quantified: instead, the evaluators make a professional judgment about how the overall ratings are valued.

Source: BLM GIS 2017, LSD GIS 2013



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Figure 3-14 **Visual Resource Inventory Distance Zones**

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Foreground/middleground, visibility generally up to 5 miles



Background visibility, generally from 5 to 15 miles

Seldom seen, hidden from view, or not in foreground/ middleground or background visibility zones

Distance zones are based on relative visibility from travel routes or observation points. Details are more visible to the viewer in the foreground-middleground and are less visible in the seldom seen zone. Lands within the foreground/ middleground may therefore be more sensitive to landscape changes.

Source: BLM GIS 2017, LSD GIS 2013



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The SPRNCA conducted a visual resource inventory (VRI). Based on a scenic quality evaluation, sensitivity level analysis, and delineation of distance zones, BLMadministered lands were placed into one of four visual resource inventory classes, representing the relative visual quality of the landscape.

Source: BLM GIS 2017, LSD GIS 2013



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Figure 3-16 Lands with Wilderness Characteristics Inventory

SPRNCA Planning Area BLM-administered land

Lands with wilderness characteristics

In compliance with BLM policy, the maintenance of a current inventory and ground checking of lands with wilderness characteristics was updated from 2013 to 2016 (BLM 2016). The 2013–2016 inventory (BLM 2016) area includes BLM-administered lands in the SPRNCA and adjacent BLM-administered lands outside the SPRNCA that form contiguous blocks of federal land. The inventory identified four units (23,810 acres) with wilderness characteristics (BLM 2016).





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Figure 3-17 **Recreation Setting Characteristics Inventory**



Source: BLM GIS 2017



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Source: BLM GIS 2017



Figure 3-19 **Unexploded Ordinance**

SPRNCA Planning Area **BLM-administered land**

Abandoned mine lands Unexploded ordinance area

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> San Pedro Riparian National Conservation Area Draft RMP/EIS

June 2018
Appendix B Applicable Laws, Regulations, and Policies

Appendix B. Applicable Laws, Regulations, and Policies

The US Department of the Interior, Bureau of Land Management (BLM) must comply with the mandate and intent of many laws, executive orders (EOs), regulations, policies, and court cases that apply to BLM-administered land and resources in the San Pedro Riparian National Conservation Area (SPRNCA) Resource Management Plan (RMP) planning area. The BLM manages public lands in the SPRNCA planning area according to applicable regulations found at Title 43 of the Code of Federal Regulations (CFR) and according to applicable US Department of the Interior and BLM manuals, handbooks, and instruction memoranda (IMs).

Chapter I, Introduction, of the RMP describes the general planning criteria. They guide and direct the plan and determine how the planning team approaches the development of alternatives, and ultimately, the selection of a preferred alternative.

B.I GENERAL LAWS, REGULATIONS, AND POLICIES

B.I.I Public Law 100-696

San Pedro Riparian Conservation Area

Sec. 460xx. Establishment

(a) In general

In order to protect the riparian area and the aquatic, wildlife, archeological, paleontological, scientific, cultural, educational, and recreational resources of the public lands surrounding the San Pedro River in Cochise County, Arizona, there is hereby established the San Pedro Riparian National Conservation Area (hereafter in this subchapter referred to as the "conservation area").

(b) Area included

The conservation area shall consist of public lands as generally depicted on a map entitled "San Pedro Riparian National Conservation Area - Proposed" numbered AZ-040-OZ, dated January 1988, and consisting of approximately 56,431 acres.

(c) Map

As soon as is practicable after November 18, 1988, a map and legal description of the conservation area shall be filed by the Secretary of the Interior (hereafter in this subchapter referred to as the "Secretary") with the Committee on Interior and Insular Affairs of the House of Representatives and the Committee on Energy and Natural Resources of the United States Senate. Each such map shall have the same force and effect as if included in this subchapter. Such map shall be on file and available for public inspection in the Office of the Director of the Bureau of Land Management, Department of the Interior, and in the Bureau of Land Management offices of the State Director for Arizona, and the district office responsible for the management of the conservation area.

Sec. 460xx-1. Management

(a) General authorities

The Secretary shall manage the conservation area in a manner that conserves, protects, and enhances the riparian area and the aquatic, wildlife, archeological, paleontological, scientific, cultural, educational, and recreational resources of the conservation area. Such management shall be guided by this subchapter and, where not inconsistent with this subchapter, by the provisions of the Federal Land Policy and Management Act of 1976 (43 United States Code [USC] 1701 et seq.) (hereinafter in this subchapter referred to as "FLPMA").

(b) Uses

The Secretary shall only allow such uses of the conservation area as he finds will further the primary purposes for which the conservation area is established. Except where needed for administrative or emergency purposes, the use of motorized vehicles in the conservation area shall only be allowed on roads specifically designated for such use as part of the management plan prepared pursuant to section 460xx-2 of this title. The Secretary shall have the power to implement such reasonable limits to visitation and use of the conservation area as he finds appropriate for the protection of the resources of the conservation area, including requiring permits for public use, or closing portions of the conservation area to public use.

(c) Withdrawals

Subject to valid existing rights, all Federal lands within the conservation area are hereby withdrawn from all forms of entry, appropriation, or disposal under the public land laws; from location, entry, and patent under the United States mining laws; and from disposition under all laws pertaining to mineral and geothermal leasing and all amendments thereto.

(d) Water rights

Congress reserves for the purposes of this reservation, a quantity of water sufficient to fulfill the purposes of the San Pedro Riparian National Conservation Area created by this subchapter. The priority date of such reserve rights shall be November 18, 1988. The Secretary shall file a claim for the quantification of such rights in an appropriate stream adjudication.

(e) Enforcement

Any person who violates any provision of this subchapter or any regulation promulgated by the Secretary to implement this subchapter shall be subject to a fine of up to \$10,000, or imprisonment for up to one year, or both.

Sec. 460xx-2. Management plan

(a) Development of plan

No later than 2 years after November 18, 1988, the Secretary shall develop a comprehensive plan for the long-range management and protection of the conservation area. The plan shall be developed with full opportunity for public participation and comment, and shall contain provisions designed to assure protection of the riparian area and the aquatic, wildlife, archeological, paleontological, scientific, cultural, educational, and recreation resources and values of the conservation area.

(b) Recommendations

The Secretary shall, in the comprehensive plan referred to in subsection (a) of this section, develop recommendations to Congress on whether additional lands should be included in the conservation area.

(c) Cooperative agreements

The Secretary may enter into cooperative agreements with appropriate State and local agencies, pursuant to section 1737(b) of title 43, to better implement the plan developed pursuant to subsection (a) of this section.

(d) Research

In order to assist in the development of appropriate management strategies for the conservation area, the Secretary may authorize research on matters including the environmental, biological, hydrological, and cultural resources of the conservation area, pursuant to section 1737(a) of title 43.

Sec. 460xx-3. Advisory Committee

(a) Establishment

The Secretary shall establish a San Pedro Riparian National Conservation Area Advisory Committee, whose purpose shall be to advise the Secretary with respect to the preparation and implementation of the comprehensive, long-range plan required pursuant to section 460xx-2 of this title.

(b) Representation

There shall be 7 members of the Committee, who shall be appointed by the Secretary. Members of the Committee shall be appointed for terms of three years, except that of the members first appointed 2 shall be appointed for terms of 1 year and 3 shall be appointed for terms of 2 years. The Secretary shall appoint one member from nominations supplied by the Governor of the State of Arizona, and one member from nominations supplied by the Supervisors of Cochise County, Arizona. The other members shall be persons with recognized backgrounds in wildlife conservation, riparian ecology, archeology, paleontology, or other disciplines directly related to the primary purposes for which the conservation area was created.

Sec. 460xx-4. Land acquisition

The Secretary may acquire lands or interests in lands within the boundaries of the conservation area by exchange, purchase, or donation, except that any lands or interests therein owned by the State or local government may be acquired by donation or exchange only. Any purchase or exchange of lands to be added to the conservation area shall require the consent of the owner of those lands or rights.

Sec. 460xx-5. Report to Congress

No later than five years after November 18, 1988, and every ten years thereafter, the Secretary shall report to the Committee on Natural Resources of the House of Representatives and the Committee on Energy and Natural Resources of the United States Senate, on the implementation of this subchapter. Such report shall include a detailed statement on the condition of the resources within the conservation area and of the progress of the Bureau of Land Management in achieving the purposes of this subchapter.

Sec. 460xx-6. Authorization of appropriations

There are hereby authorized to be appropriated such sums as may be necessary to carry out the provisions of this subchapter.

B.I.2 Archaeological Resources Protection Act of 1979, as amended

The Archaeological Resources Protection Act (16 USC 470aa-470mm) protects archaeological resources on federal and tribal trust lands. It provides both civil and criminal penalties for unauthorized excavation, removal, damage, alteration, or defacement of any archaeological resources that are at least 100 years old. The Archaeological Resources Protection Act (ARPA) also fosters the cooperative use and exchange of archaeological information for the purpose of furthering knowledge and/or protection of archaeological resources in the public interest. The Archaeological Resources Protection Act implementing regulations entitled *Protection of Archaeological Resources* are found at 43 CFR 7.

B.I.3 BLM Land Use Planning Handbook

The BLM Land Use Planning Handbook (H-1601-1) provides detailed instructions on how to carry out policy and direction described in the manual sections. Handbooks are considered part of the BLM Manual and have the same force of authority as the manual sections. The Land Use Planning Handbook outlines specific techniques, procedures, practices, and processes used to create and organize RMPs and their component sections.

B.I.4 BLM Manuals and Handbooks

BLM manuals and handbooks contains BLM policy and program direction. They provides policy, procedures, and instructions to manage programs. Each handbook is controlled by a manual section, which sets out the basic authority for performing tasks and states who is responsible for seeing that these tasks are accomplished.

B.I.5 Clean Air Act of 1970 and Amendments of 1977 and 1990

The Clean Air Act (CAA) of 1970, as amended 1977 and 1990 (42 USC 7401 et seq.), is a recognition that air pollution endangers public health and welfare. To protect and enhance the quality of the nation's air resources, the CAA authorizes the Environmental Protection Agency (EPA) to set six national ambient air quality standards (NAAQS). These standards regulate carbon monoxide, lead, nitrogen dioxide, ozone, sulfur dioxide, and particulate matter pollution emissions. The CAA seeks to reduce or eliminate the creation of pollutants at their source and designates this responsibility to state and local governments. States are directed to use financial and technical assistance and leadership from the federal government to develop implementation plans to achieve NAAQS. The EPA officially designates geographic areas as attainment or nonattainment areas, based on their compliance with NAAQS. Geographic regions established for air quality planning are designated as air quality control regions; pollutant concentration levels are measured at designated monitoring stations in the air quality control regions. An area is designated as unclassifiable where insufficient monitoring data exist. Section 309 of the CAA authorizes the EPA to review and comment on impact statements prepared by other agencies.

An agency should consider what effect an action may have on NAAQS due to short-term increases in air pollution during project construction as well as long-term increases, i.e., those resulting from changes in traffic patterns. For actions in attainment areas, a federal agency may also be subject to the EPA's prevention of significant deterioration regulations. These regulations apply to major new stationary

sources and modifications to such sources. Although few agency facilities will actually emit pollutants, increases in pollution can result from changes in traffic patterns or volume. Section 118 of the CAA states that all federal agencies will comply with federal and state requirements.

B.I.6 Clean Water Act of 1972 and Amendments of 1977 and 1987

The Clean Water Act (CWA) is the primary Federal statute regulating the protection of the nation's water. The CWA aims to prevent, reduce, and eliminate pollution in the nation's water in order to "restore and maintain the chemical, physical, and biological integrity of the Nation's waters", as described in CWA section 101(a). A stated goal of the CWA is to eliminate discharge of pollutants into navigable waters, as that term is defined in CWA Section 502(7) and corresponding case law.

Section 303 requires each state to adopt water quality standards for protection of designated beneficial water uses for water bodies within the state. Section 303(d) of the CWA requires the State of Arizona to maintain a list of streams impaired because of failure to meet their designated beneficial uses. Section 303(d) also requires that each state develop a list of water bodies that fail to meet water quality standards and to delineate stream segments and listing criteria for all streams. The Section 303(d) list of impaired waters is updated biannually, and the state is required to develop a total maximum daily load allocation for each pollutant of concern.

Section 401 requires applicants for federal permits to obtain water quality certification from the state if the proposed activities would discharge pollutants into a navigable water body.

Section 402 establishes framework for regulating stormwater discharge into surface water and pretreatment standards for discharged water.

Section 404 establishes permitting for discharges of materials into waters. The CWA is intended to achieve the broader goal of restoring and maintaining the chemical, physical, and biological integrity of the nation's waters.

B.I.7 Comprehensive Environmental Response, Compensation, and Liability Act of 1980 and the Superfund Amendments and Reauthorization Act of 1986

The Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) of 1980 authorizes the EPA to respond to spills and other releases of hazardous substances to the environment; it also authorizes the National Oil and Hazardous Substances Pollution Contingency Plan. CERCLA provides a federal "Superfund" to respond to emergencies immediately. Although the Superfund provides funds for site cleanup, where potentially responsible parties cannot be identified, the EPA is authorized to recover funds through damages collected from the responsible parties. This funding process places the economic burden for cleanup on polluters.

The Superfund Amendments and Reauthorization Act of 1986 mandates strong cleanup standards and authorizes the EPA to use a variety of incentives to encourage settlements. Title III of the Superfund Amendments and Reauthorization Act authorizes the Emergency Planning and Community Right-to-Know Act. It requires facility operators with "hazardous substances" or "extremely hazardous substances" to prepare comprehensive emergency plans and to report accidental releases. EO 12856, Federal Compliance with Right-to-Know Laws and Pollution Prevention Requirements, requires federal agencies to comply with the provisions Emergency Planning and Community Right-to-Know Act. If a

federal agency acquires a contaminated site, it can be held liable for cleanup as the property owner/operator. A federal agency also can incur liability if it leases a property, because the courts have found lessees liable as "owners"; however, if the agency exercises due diligence by conducting a phase I environmental site assessment, it may claim the "innocent purchaser" defense under CERCLA. To use this defense, the current owner/operator must show that it undertook "all appropriate inquiry into the previous ownership and uses of the property consistent with good commercial or customary practice" before buying the property, according to Title 42 USC 9601(35).

B.I.8 Endangered Species Act of 1973

The Endangered Species Act (ESA) of 1973, as amended (16 USC 1531 et seq.) establishes a federal program to conserve, protect, and restore threatened and endangered plants and animals and their habitats. The ESA specifically charges federal agencies with using their authority to conserve threatened and endangered species. All federal agencies must ensure that no action they authorize, fund, or carry out is likely to jeopardize the continued existence of an endangered or threatened species or result in the destruction of critical habitat for these species, unless the agency has been granted an exemption. The Secretary of the Interior, using the best available scientific data, determines which species are officially endangered or threatened, and the US Fish and Wildlife Service (USFWS) maintains the list. (A list of endangered species may be obtained from the Endangered Species Division, USFWS at (703) 358-2171). Some species, such as the bald eagle, also have laws specifically for their protection, such as the Bald Eagle Protection Act.

B.I.9 Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations (EO 12898, February 11, 1994)

EO 12898 directs federal agencies to make achieving environmental justice part of their mission. Agencies must identify and address adverse human health and environmental impacts their activities have on minority and low-income populations and develop agency-wide environmental justice strategies. The strategy must list "programs, policies, planning, and public participation processes, enforcement, and rulemakings related to human health or the environment that should be revised to promote enforcement of all health and environmental statutes in areas with minority populations and low-income populations, ensure greater public participation, improve research and data collection relating to the health and environment of minority populations and low-income populations, and identify differential patterns of consumption of natural resources among minority populations and low-income populations." A copy of the strategy and progress reports must be provided to the Federal Working Group on Environmental Justice. The responsibility for compliance with this EO lies with each federal agency.

B.I.10 Federal Land Policy and Management Act of 1976

The FLPMA of 1976 (43 USC 1701) and the regulations contained in 43 CFR 1600 govern the BLM planning process. Land-use plans ensure that public lands are managed in accordance with the intent of Congress, as stated in FLPMA, under the principles of multiple use and sustained yield. As required by FLPMA, the 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; preserves and protects, where appropriate, 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. In addition, the public lands must be managed in a manner that recognizes the nation's need for domestic sources of minerals, food, timber, and fiber from the public lands.

B.I.II National Historic Preservation Act of 1966, as amended

The National Historic Preservation Act (NHPA; 54 USC 300101 et seq.) sets national policy to identify and preserve properties of state, local, and national significance. The act establishes the Advisory Council on Historic Preservation, State Historic Preservation Offices (SHPOs), and the National Register of Historic Places. Section 106 of the NHPA, and its implementing regulations at 36 CFR 800, direct federal agencies to identify and evaluate historic properties, to assess the impacts of federal undertakings, and to consult with the SHPO, Native American tribes, and the public. Section 110 of the NHPA also requires federal agencies to fully integrate cultural resources management into ongoing programs and to identify, evaluate, nominate, and protect historic properties.

In 2012, the BLM entered into a National Programmatic Agreement (NPA) with the Advisory Council on Historic Preservation and the National Conference of State Historic Preservation Officers regarding planning for and managing historic properties under the BLM's jurisdiction or control. For each state that was party to the NPA, state-specific protocols have since been updated, with the BLM Arizona State Protocol Agreement executed among the BLM and Arizona SHPO on December 14, 2014. The NPA and state-specific protocols provide alternative procedures for the BLM to implement 36 CFR 800, and substitutes for Sections 106, 110, 111(a), and 112(a) of the NHPA for most routine undertakings. Specifically, these procedures allow the BLM to identify and evaluate cultural resources that meet criteria for listing on the National Register of Historic Places in 36 CFR 60.4 and determine effects in accordance with 36 CFR 800.9 without consulting with the SHPO for each routine undertaking. The BLM Arizona State Protocol Agreement outlines how the BLM and SHPO will continue to interact, cooperate, and share information to ensure that the alternate procedures are consistent with the goals of the NHPA.

B.I.12 Sikes Act of 1960

The Sikes Act (16 USC 670 et seq.) authorizes the US Department of the Interior, 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 the Department of the Interior's jurisdiction. The plans must conform with overall land use and management plans for the lands involved. The plans could include habitat improvement projects and related activities and adequate protection for fish, wildlife, and plants considered endangered or threatened. The BLM also must coordinate with suitable state agencies in managing state-listed plant and animal species when the state has formally made such designations.

B.I.13 Taylor Grazing Act of 1934, as amended and supplemented

The Taylor Grazing Act (43 USC 315 et seq.) was the federal government's first effort to regulate grazing on federal public land. The act established grazing districts of vacant, unappropriated, and unreserved land from the public domain, excluding Alaska, which were not national forests, parks, or monuments, Indian reservations, railroad grant lands, re-vested Coos Bay Wagon Road grant lands, or land that was valuable chiefly for grazing and raising forage crops. Residents and stock owners pay an annual fee to obtain a grazing permit, which is used to manage livestock grazing in established districts. Grazing administration regulations (43 CFR 4100) provide for the development of state standards for rangeland health and guidelines for grazing management. These standards and guidelines are approved through the BLM planning and NEPA processes.

B.I.14 Wild and Scenic Rivers Act of 1968

By recognizing the remarkable values of specific rivers of the nation, the Wild and Scenic Rivers Act of 1968 (16 USC 1271–1287) provides for a wild and scenic river system. These selected rivers and their immediate environment are preserved in a free-flowing condition, without dams or other construction. The policy not only protects the water quality of the selected rivers but also provides for their enjoyment by present and future generations. Any river in a free-flowing condition is eligible for inclusion. A river can be authorized as such by an act of Congress, an act of a state legislature, or by the Secretary of Interior, on the recommendation of the governor or governors of the state or states that the river flows through.

B.2 PROGRAM SPECIFIC LAWS, REGULATIONS, AND POLICIES

B.2.1 Resources

Air Quality Management

The objective of the air resource program is to maintain or improve air quality as established by the NAAQS, achieve state implementation plan goals for nonattainment areas, and reduce emissions from point and nonpoint sources. Proposed decisions within the influence zone of the planning project that may affect nonattainment areas will be assessed for conformance with air quality standards.

Under the CAA, the BLM-administered lands were given a Class II air quality classification unless reclassified by the state. Wilderness areas and national monuments must be classified as Class I or Class II, which allow moderate deterioration associated with moderate, well-controlled industrial and population growth.

Climate Management

Climate and the Department of the Interior (Secretarial Order [SO] 3226, January 16, 2009

Cultural Resources Management

The BLM views management of cultural resources as an integrated system of identifying and evaluating cultural resources, deciding on their appropriate uses, and administering them accordingly, both on public lands and other lands where BLM decisions could affect cultural resources. Management objectives are to comply with applicable laws in support of the BLM's multiple use and sustained yield directives, recognize and manage for potential public and scientific uses of cultural resources, and ensure that proposed land uses avoid inadvertent damage to cultural resources. Such laws and policies include:

American Indian Religious Freedom Act of 1978 (42 USC 1996)

Antiquities Act of 1906 (16 USC 431-433)

Archaeological and Historic Preservation Act of 1974, as amended (16 USC 469-469c)

Archaeological Resources Protection Act of 1979, as amended (16 USC 470aa-470mm)

BLM Manual 1780--Tribal Relations (BLM MS-1780)

BLM Manual 8100--The Foundation for Managing Cultural Resources (BLM MS-8100)

Consultation and Coordination with Indian Tribal Governments (EO 13175; November 6, 2000)

Historic Sites Act of 1935, as amended (16 USC 461-467)

Indian Sacred Sites (EO 13007; May 24, 1996)

National Historic Preservation Act of 1966, as amended (54 USC 300101 et seq.) National Trails System Act of 1968, as amended (16 USC 1241 et seq.) Native American Graves Protection and Repatriation Act of 1990 (25 USC 3001 et seq.) Preserve America (EO 13287; March 3, 2003)

Paleontological Resources Management

General Procedural Guidance for Paleontological Resource Management (BLM H-8270-1) Issuance of Archaeological and Paleontological Permits (SO 3104, September 28, 1984) Paleontological Resource Management Manual (BLM MS-8270) Paleontological Resources Preservation Act of 2009 (16 USC 470aaa-470aaa11)

Priority Wildlife Habitat and Species Management

Management decisions will be designed to enhance and maintain habitat for threatened and endangered species. Management actions that the BLM authorizes, funds, or implements will not jeopardize the continued existence of federally listed threatened or endangered plant or animal species or destroy or adversely modify critical habitat. Species proposed for federal listing and proposed critical habitat will be given the same consideration as listed species. BLM candidate and special status species and Arizona species of greatest conservation need will be managed so as not to contribute to the need to list them as threatened or endangered. The intent is to recover listed species and maintain healthy populations of all other species, thereby avoiding the need for further listing of any species as threatened or endangered. Terms and conditions and conservation measures from the biological opinion will be incorporated into the plans.

Relevant Laws, Policies, and Regulations Animal Damage Control Act (7 USC 426)

Soil Resource Management

Proposed decisions will be measured against the Arizona Standard for Rangeland Health Standard I; upland soils will exhibit infiltration, permeability, and erosion rates that are appropriate to soil type, climate, and land form (ecological site) to ensure long-term soil productivity. Best management practices will be incorporated into programs to minimize soil erosion and compaction resulting from management actions.

Relevant Laws, Policies, and Regulations Soil and Water Conservation Act of 1977 (16 USC 2001–2009) Soil Conservation and Domestic Allotment Act of 1935 (16 USC 590) Soil Resource Management (BLM MS-7100) Soil, Water, and Air Management (BLM MS-7000)

Visual Resources Management

A visual resource management classification will be conducted to address the public's concerns about open space and natural vistas. Some areas may be subject to special measures to protect resources or reduce conflicts among uses. The monument will be managed to protect the viewshed and other visual resources that are compatible with the purposes for which the monument was established.

Transportation Equity Act for the 21st Century (PL 105-178) 43 USC 1701, Section 102(a)(8) Public Rangelands Improvement Act of 43 USC 4321, Section 101(b) Visual Resource Inventory Handbook (BLM H-8410-1)

Vegetation Resource Management

Vegetation and Habitat Management

Proposed decisions will be measured against the Arizona Standard for Rangeland Health for desired plant communities that provide for biodiversity and protect and restore native species. Vegetation will be managed to achieve desired plant communities (considering the ecological site potential) that provide for biodiversity and protect and restore native species. The plant communities will be managed to protect, improve, and restore communities to provide wildlife habitat and non-consumptive uses, including plant protection, visual quality, watershed protection and stability, and water quality. Provisions may be made for hazardous fuels reduction and habitat restoration.

In the SPRNCA, desired plant community descriptions will be developed that emphasize the protection of the diversity natural communities specified in the PL 100-696. Monument plan decisions will prioritize achieving or maintaining these desired plant communities.

Invasive Species and Noxious Weed Control

The BLM will work with county, state, tribal, and federal agencies, individuals, and managers of weed management areas to monitor, manage, and control noxious weeds and invasive species. Invasive species and noxious weed control will be considered in the plans, in accordance with the integrated weed management guidelines and design features identified in national, state, and local BLM programs and policies. Invasive species and noxious weed infestations will be prevented, contained, or reduced on BLM-administered public land using an integrated pest management approach. Proposed decisions will be assessed to determine whether they would contribute to the introduction or spread of noxious weeds or invasive species, in accordance with the Federal Noxious Weed Act and EO 13112. Management practices that prevent and control invasive species will be emphasized.

Riparian Areas, Floodplains, and Wetlands

Proposed decisions will be measured against the Arizona Standard for Rangeland Health for riparian areas, floodplains, and wetlands that provide for biodiversity and protect and restore native species. Riparian areas, floodplains, and wetlands will be managed to protect, improve, and restore their natural functions to benefit water storage, groundwater recharge, water quality, and fish and wildlife values. All management practices will be designed to maintain or improve the integrity of these high priority values, in accordance with the Clean Water Act and Arizona's Standards for Rangeland Health. Management activities in floodplains will be consistent with EO 11988, and management activities for wetlands and riparian areas will be consistent with EO 11990.

Relevant Laws, Regulations, and Policies

Range Management Grazing Administration Regulations (43 CFR 4100)

Arizona Native Plant Law of 1993 (Arizona Revised Statutes 3-901 et seq.)

Arizona Standards, as developed from Standards and Guidelines for Grazing Administration (43 CFR 4180.2)

Chemical Pest Control (BLM MS-9011)

Federal Advisory Committee Act

Federal Noxious Weed Act of 1974 (7 USC 2801 et seq.)

Floodplain Management (EO 11988, May 24, 1977)

Invasive Species Control (EO 13112, February 3, 1999)

Noxious Plant Control Act (43 USC 1241-43)

Protection of Wetlands (EO 11990, May 24, 1977)

Public Rangelands Improvement Act of 1978

Rangeland Health Standards (BLM MS-4180-1)

Renewable Resource Improvements and Treatments (BLM MS-1740)

Special Status Species Management (BLM MS-6840)

Wildlife and Fisheries Management (BLM MS-6500)

Biological Soil Crusts: Ecology and Management, Technical Reference ([TR]-1730-2), Interagency, 2001

Interpreting Indicators for Rangeland Health, Version 4, (TR 1734-6), Interagency, 2005

Inventory and Monitoring, Ecological Site Inventory, (BLM TR-1737-7), BLM, 2001

Measuring and Monitoring Plant Populations, (TR-1730-1), 1998

National Range Handbook, Handbook, (BLM H-4410-01), 1990

Rangeland Monitoring and Evaluation, (BLM TR-4400-1), BLM 1988

Rangeland Monitoring and Evaluation Handbook, BLM Handbook (BLM H-4400-01), 1990

Rangeland Monitoring: Actual Use Studies, (BLM TR-4400-2), BLM, 1984

Rangeland Inventory and Monitoring: Supplemental Studies, (BLM TR-4400-5), BLM, 1992

Rangeland Monitoring: Analysis, Interpretation, and Evaluation, (BLM TR-4400-7), BLM, 1984

Riparian Area Management, Process for Assessing Proper Functioning Condition, (BLM TR-1737-9), Interagency, 1990

Riparian Area Management, Process for Assessing Proper Functioning Condition for Lentic Riparian-Wetland Areas, (TR-1737-11), Interagency, 1990

Sampling Vegetation Attributes, (TR-1734-4), 1996

Utilization Studies and Residual Measurements, (TR-1734-3), Interagency, 1996

Water Resources Management

Water Quality

Section 319 of the CWA obligates federal agencies to be consistent with state nonpoint source management program plans and relevant water-quality standards. Section 313 requires compliance with state water quality standards. The BLM will coordinate with the Arizona Department of Environmental Quality (ADEQ) regarding their total maximum daily load program and other relevant water quality programs. The BLM will incorporate into the RMP applicable best management practices or other conservation measures for specific programs and activities. Water quality will be maintained or

improved in accordance with state and federal standards. Proposed decisions in the planning area will be made in compliance with the Clean Water Act, federal and state water quality standards, and BLM/ADEQ agreements.

Water Rights

Where the need for water rights is identified on public lands, the BLM will file for water rights in accordance with state law and with PL 100-696. The BLM will continue to quantify and notify the state of its federal reserved water rights.

Relevant Laws, Policies, and Regulations Arizona Revised Statutes Title 45, Waters and Title 49, The Environment Colorado River Basin Project Act (43 USC 1501–1556) Colorado River Basin Salinity Control Act (43 USC 1571–1599) Colorado River Floodway Protection Act (100 Stat. 1129) Colorado River Storage Project Act (43 USC 620) Federal Water Pollution Control Act (33 USC 1251 et seq.) Flood Control Act (16 USC 460 et seq.) Floodplain Management (EO 11988, May 24, 1977) Safe Drinking Water Act (42 USC 300h) Soil, Water, and Air Management (BLM MS-7000) Water Quality Act (PL 100-4) Water Resources Planning Act (42 USC 1962) Water Rights Act (43 USC 666) Fundamentals of Rangeland Health (43 CFR 4180.1)

Wildland Fire and Management

Fire decisions made in the Arizona Statewide Land Use Plan Amendment for Fire, Fuels, and Air Quality Environmental Assessment will be incorporated into the Proposed RMP. Adjustments to the fire decisions, if required, will be consistent with the Federal Wildland Fire Policy, the National Fire Plan, and all other BLM policies, including current zone fire management plans.

Fires will be suppressed with the least amount of surface disturbance and to protect significant cultural or paleontological values. Public lands and resources affected by fire will be rehabilitated in accordance with the objectives identified for the affected area, subject to BLM policies and available funding.

Relevant Laws, Regulations, and Policies BLM Burned Area Emergency Stabilization and Rehabilitation Handbook (BLM H-1742-1) BLM Fire Business Management Manual (BLM MS-1111) BLM Prescribed Fire Management Handbook (BLM H-9214-1) Timber Protection Act (16 USC 594)

B.3 REFERENCES

- BLM (US Department of Interior, Bureau of Land Management). BLM H-1601-1. BLM Land Use Planning Handbook. Washington, DC. March 11, 2005.
- _____. BLM H-1742-1. BLM Burned Area Emergency Stabilization and Rehabilitation Handbook. February 12, 2007.
- _____. BLM H-4400-01. BLM Rangeland Monitoring and Evaluation Handbook. November 28, 1989.
- _____. BLM H-4410-01. BLM National Range Handbook. 1990.
- _____. BLM H-8270-1. BLM General Procedural Guidance for Paleontological Resource Management. Washington, DC. July 13, 1998.
- _____. BLM H-8410-1. BLM Visual Resource Inventory Handbook. November 17, 1986.
- _____. BLM H-9214-1. BLM Prescribed Fire Management Handbook. January 16, 1998.
- _____. BLM MS-1111. BLM Manual 1111 -- Fire Business Management. July 7, 1985.
- _____. BLM MS-1740. BLM Manual 1740 -- Renewable Resource Improvements and Treatments. February 29, 2008.
- _____. BLM MS-1780. BLM Manual 1780 -- Tribal Relations. December 15, 2016.
- _____. BLM MS-4180-1. BLM Rangeland Health Standards. January 19, 2001.
- _____. BLM MS-6500. BLM Manual -- Wildlife and Fisheries Management. June 17, 1988.
- _____. BLM MS-6840. BLM Manual -- Special Status Species Management. December 12, 2008.
- _____. BLM MS-7000. BLM Manual -- Soil, Water, and Air Management.
- _____. BLM MS-7100. BLM Manual 7100 -- Soil Resource Management.
- _____. BLM MS-8100. BLM Manual 8100 -- The Foundation for Managing Cultural Resources. 2004.
- _____. BLM MS-8270. BLM Manual 8270 -- Paleontological Resource Management. July 13, 1998.
- _____. BLM MS-9011. BLM Manual 9011 -- Chemical Pest Control.
- _____. TR (Technical Reference) 1730-1. "Measuring and Monitoring Plant Populations." 1998.
- _____. TR (Technical Reference) 1730-2. "Biological Soil Crusts: Ecology and Management." Interagency. 2001.
- _____. TR (Technical Reference) 1734-3. "Utilization Studies and Residual Measurements." Interagency. 1996.

- _____. TR (Technical Reference) 1734-4. "Sampling Vegetation Attributes." 1996.
- _____. TR (Technical Reference) 1734-6. "Interpreting Indicators for Rangeland Health." Version 4. Interagency. 2005.
- _____. TR (Technical Reference) 1737-7. "Inventory and Monitoring, Ecological Site Inventory." 2001.
- _____. TR (Technical Reference) 1737-9. "Riparian Area Management, Process for Assessing Proper Functioning Condition." Interagency. 1993.
- . TR (Technical Reference) 1737-11. "Area Management, Process for Assessing Proper Functioning Condition for Lentic Riparian-Wetland Areas." Interagency. 1994.
- _____. TR (Technical Reference) 4400-1. "Rangeland Monitoring and Evaluation." 1988.
- _____. TR (Technical Reference) 4400-2. "Rangeland Monitoring: Actual Use Studies." April 1984.
- _____. TR (Technical Reference) 4400-5. "Rangeland Inventory and Monitoring: Supplemental Studies." September 1992.
- _____. TR (Technical Reference) 4400-7. "Rangeland Monitoring: Analysis, Interpretation, and Evaluation." November 1984.

Appendix C Areas of Critical Environmental Concern

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Appendix C. Areas of Critical Environmental Concern Evaluation

This appendix documents the Areas of Critical Environmental Concern (ACECs) evaluation process for the San Pedro Riparian National Conservation Area (SPRNCA) Resource Management Plan (RMP) planning area. An ACEC is defined in Federal Land Policy and Management Act (FLPMA), Section 103(a), as an area on Bureau of Land Management (BLM)-administered 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 ensure safety from natural hazards. BLM regulations for implementing the ACEC provisions of FLPMA are found in 43 CFR 1610.7-2(b). ACECs are an administrative designation made by the BLM during the land use planning process.

Special management attention refers to management prescriptions developed expressly to protect the important and relevant values of an area from the potential impacts of actions permitted by an RMP or RMP amendment, including proposed actions deemed to be in conformance with the terms, conditions, and decisions of the RMP (BLM Manual 1613, Areas of Critical Environmental Concern [BLM 1988]). Such management measures would not be necessary or prescribed if the critical and important features were not present.

To be designated as an ACEC, the area must meet both the relevance and importance criteria found in 43 Code of Federal Regulations (CFR) 1610-7-2(a)(b) and as defined in BLM Manual 1613, Areas of Critical Environmental Concern (BLM 1988). An ACEC possesses significant historic, cultural, or scenic values; fish or wildlife resources including habitat, communities, or species; natural processes or systems; or natural hazards. In addition, the significance of these values and resources must be substantial to satisfy the importance criteria.

ACECs differ from some other special management designations in that designation by itself does not automatically prohibit or restrict other uses in the area. The special management attention is designed specifically for the relevant and important values and, therefore, varies from area to area. Restrictions that arise from an ACEC designation are determined at the time the designation is made and are designed to protect the values or serve the purposes for which the designation was made. The BLM identifies goals, standards, and objectives for each proposed ACEC, as well as general management practices and uses, including necessary constraints and mitigation measures. In addition, ACECs are protected by the provisions of 43 CFR 3809.1-4(b)(3), which requires an approved plan of operations for activities resulting in more than five acres of disturbance under the mining laws.

C.I CURRENT ACECS

Three ACECs, totaling 2,170 acres of BLM-administered lands, are found in the SPRNCA (BLM GIS 2017) (Figure 2-30, Areas of Critical Environmental Concern: Alternative A [Appendix A] and Table C-1, ACECs in the SPRNCA). These ACECs were recommended in the San Pedro River Riparian Management Plan (BLM 1989) and were subsequently designated in the Safford RMP (BLM 1991).

Name	Size
	(Acres)
St. David Ciénega Research Natural Area (RNA)	380
San Pedro River RNA	1,420
San Rafael RNA	370
Total	2,170
Source: BLM GIS 2017	

Table C-I ACECs in the SPRNCA

All three are RNAs and are managed as right-of-way (ROW) exclusion areas (i.e., development and new ROWs are prohibited), to prohibit overnight camping and campfires, to encourage avoidance by recreational users, to preserve and enhance vegetation communities, to sign the boundary, to control exotic vegetation, to prohibit the introduction of nonnative species, and to preclude public vehicular access.

C.I.I St. David Ciénega

The St. David Ciénega ACEC/RNA is a remnant of what much of the San Pedro River Valley used to look like. This marsh-like ciénega has a vegetation type dominated by sedges, rushes, and cattail. It also contains a small mesquite bosque, a grassland area seasonally impacted by water, and small areas of Chihuahuan Desert scrub vegetation (BLM 1989). The St. David Ciénega ACEC/RNA was designated to preserve a remnant ciénega for scientific research (BLM 1991). Examples of studies that have been completed at St. David Ciénega ACEC/RNA include a long-term butterfly study, complete plant inventory, endemic invertebrates inventory, mammal inventory, marsh bird surveys, and a spring assessment. Small numbers of trespassing livestock have grazed the area year-round, and fire has been suppressed.

C.I.2 San Pedro

The San Pedro ACEC/RNA contains cottonwood-willow riparian vegetation type. Bordering the riparian area is an extensive mesquite bosque. The eastern portions contain the Chihuahuan Desert Scrub vegetation type, characterized by creosote bush, tar brush, and cat claw (BLM 1989). This ACEC/RNA was designated to preserve a cottonwood-willow riparian area, mesquite bosques, and Chihuahuan Desert Scrub vegetation for scientific research (BLM 1991).

C.I.3 San Rafael

The San Rafael ACEC/RNA is dominated by grasslands, with alkali and giant sacaton grass being the most common. Running through this grassland area is the San Pedro River, with an excellent representation of the cottonwood-willow riparian vegetation type (BLM 1989). This ACEC/RNA was designated to preserve a giant sacaton grassland and a cottonwood-willow riparian area for scientific research (BLM 1991).

C.2 ACEC EVALUATION

As part of the land use planning process for the SPRNCA RMP, a BLM interdisciplinary team reviewed five ACEC proposals. The team analyzed the areas to determine if they are within the planning area and if they contain values that meet the relevance and importance criteria for consideration as potential ACECs.

C.2.1 Nomination

BLM staff, other agencies, or members of the public may nominate ACECs at any time, but ACECs are only designated during the BLM's land use planning process. Existing ACECs are also reconsidered at this time.

During the scoping period, the BLM solicited ACEC nominations from the public. BLM specialists submitted two nominations, and three are existing ACECs. External sources (including other agencies and the public) did not submit any nominations.

C.2.2 Relevance

Areas meeting the relevance criterion possess "significant historic, cultural, or scenic value; a fish or wildlife resource or other natural system or process; or natural hazard."

An area meets the relevance criterion if it contains one or more of the following:

- 1. A significant historic, cultural, or scenic value (including but not limited to rare or sensitive archeological resources and religious or cultural resources important to Native Americans).
- 2. A fish and wildlife resource (including but not limited to habitat for endangered, sensitive, or threatened species or habitat essential for maintaining species diversity).
- 3. A natural process or system (including but not limited to endangered, sensitive, or threatened plant species; rare, endemic, or relic plants or plant communities that are terrestrial, aquatic, or riparian; or rare geological features).
- 4. Natural hazards (including but not limited to areas of avalanche, dangerous flooding, landslides, unstable soils, seismic activity, or dangerous cliffs). A hazard caused by human action may meet the relevance criteria if it is determined through the resource management planning process that it has become part of a natural process.

C.2.3 Importance

To meet the importance criterion, the value, resource, system, process or hazard resource must "have substantial significance and value." This generally requires qualities of more than local significance and special worth, consequence, meaning, distinctiveness, or cause for concern, especially compared to any similar resource, or qualities or circumstances that make it fragile, sensitive, rare, irreplaceable, exemplary, unique, endangered, threatened, or vulnerable to adverse change. A natural hazard can be important if it is a significant threat to human life or property.

An area meets the importance criterion if one or more of the following characteristics are present:

- 1. Has more than locally significant qualities that give it special worth, consequence, meaning, distinctiveness, or cause for concern, especially compared to any similar resource.
- 2. Has qualities or circumstances that make it fragile, sensitive, rare, irreplaceable, exemplary, unique, endangered, threatened, or vulnerable to adverse change.
- 3. Has been recognized as warranting protection to satisfy national priority concerns or to carry out the mandates of the FLPMA.
- 4. Has qualities that warrant highlighting to satisfy public or management concerns about safety and public welfare.

5. Poses a significant threat to human life and safety or to property.

C.2.4 Findings

The BLM found that all five areas meet the criteria (**Table C-2**, Existing and Nominated ACECs Meeting the Relevance and Importance Criteria). **Tables C-3** through **C-7** present the evaluations of all existing and nominated ACECs, including the values assessed and whether the relevance and importance criteria were met. Areas found to meet the relevance and importance criteria are identified as <u>potential</u> ACECs and are fully considered for designation and management in RMP Chapter 2, Alternatives. The size and management prescriptions for each ACEC may vary by alternative to reflect a balance between the goals and objectives or the alternatives and the values being protected (BLM 1988).

Table C-2 Existing and Nominated ACECs Meeting the Relevance and Importance Criteria

ACEC	Acres
St. David Ciénega RNA	2,767
San Pedro River RNA	3,965
San Rafael RNA	557
Curry-Horsethief	2,551
Lehner Mammoth	35

St. David Ciénega

Table C-3 St. David Ciénega RNA ACEC Expanded

ACEC Proposal Evaluation Form				
Area Considered	St. David Ciénega			
General Location	Portions of T18S, R20E, S21; T18S, R21E, S19, 20, 21, 29, 30 & 32			
General Description	An extensive ciénega maintained by several artesian springs. Ciénegas			
	are maintained by both sheet flow and ground water.			
	In the vicinity of Little Joe Spring, a small pond is maintained by a low			
	dike. This spring-fed pond has served as an excellent reintroduction site			
	for two federally listed endangered fish, Desert pupfish and Gila			
topminnow. Invasive bullfrogs undergo annual control, and a bullfrog				
proof fence has been constructed around the spring.				
In addition, other enringheads evict in the main parties of the sidness to				
the south of Little loe Spring. The ciénega's watershed includes the east				
slope of the Whetstone Mountains				
The ciéners's plant community supports a large population of menarch				
butterflies during annual migrations				
Acres	2 767			
Values Considered	Historic and cultural fish and wildlife rare plants and natural processes			
Identification Criteria				
To be considered as a potential ACEC and analyzed in RMP alternatives, an area must meet the criteria of				
relevance and importance as established and defined in 43 CFR 1610.7-2				
Polovance and importance, as established and defined in 15 Criterion. 7-2.				
Relevance . An area meets are relevance criterion if it contains one or more of the following:				

Relevance Value	Yes/No	Rationale for Determination
A significant historic, cultural, or	Yes	The St. David Ciénega RNA ACEC includes 12+
scenic value		documented cultural sites, with potential for additional
(including but not limited to rare or		sites.
sensitive archeological resources and		
religious or cultural resources		
important to Native Americans).		
A fish and wildlife resource	Yes	The ciénega community represents a significant semi-
(including but not limited to habitat for		natural system. The isolated perennial spring and
endangered, sensitive or threatened		adjacent small pond at Little Joe Spring was used for
species, or habitat essential for		successful reintroduction of native endangered fish. In
maintaining species diversity).		addition, the plant community surrounding the ciénega
		supports a large population of monarch butterflies
		annually. Neotropical migrants, such as Virginia rail,
		common yellowthroat, and song sparrow, utilize the
	X	marshy conditions for nesting.
A natural process or system	Yes	The cienega vegetation, at the outer edges of
(including but not limited to		chairmaker's buirush occur on less saturated soils,
endangered, sensitive, or threatened		where yerba mansa and sedges predominate. On drier
plant species; rare, endemic, or relic		Sites, alkali sacaton and desert satigrass are common.
terrestrial aquatic or riparian; or rare		include false dandelion and alkali marsh aster. A
geological features)		historical record exists from "St. David" for Huachuca
Scological leader colo		water umbel, a US Fish and Wildlife Service (USEWS)
		endangered species. An aquatic herb with a good
		probability of occurrence in the ciénega, this record has
		not been recently re-verified. A mesquite woodland
		surrounds the area to the north and west.
		Another woodland consisting of mesquite, buttonbush,
		and netleaf hackberry abuts the ciénega area along the
		south and west most extent of the ciénega near the
		spring and pond.
Natural hazards	No	
(including but not limited to areas of		
avalanche, dangerous flooding,		
landslides, unstable soils, seismic		
activity, or dangerous it is determined		
through the resource management		
planning process that it has become		
montance The value recourse system i	bracasa ar bazara	I described above must have substantial significance and values
to satisfy the "importance" criterion. This ge	perally means the	t the value resource system process or hazard is
characterized by one or more of the followin	nerany means and	
	s. Yes/No	Bationale for Determination
Has more than locally significant	Yes	Several cultural sites in the ACEC evidence Mormon
qualities which give it special worth		migration and settlement in the area. Additional, related
consequence, meaning, distinctiveness.		sites are likely to exist.
or cause for concern. especially		
compared to any similar resource.		The St. David Ciénega RNA ACEC is also significant
		globally as one of a few remaining ciénegas (of
		hundreds, historically) in the southwest. Cienegas are

 Table C-3

 St. David Ciénega RNA ACEC Expanded

Mexico. Once extensive in the Gila River basin, there are remaining examples, especially ciénegas of this size. Has qualities or circumstances that make it fragile, sensitive, rare, irreplaceable, exemplary, unique, endangered, threatened, or vulnerable Yes While once more extensive, these aquatic communities have diminished substantially in Arizona during the past century because of excessive livestock grazing, streambed modifications, ground water pumping.			extremely rare in southern Arizona and southern New
are remaining examples, especially ciénegas of this size.Has qualities or circumstances thatYesWhile once more extensive, these aquatic communitiesmake it fragile, sensitive, rare,have diminished substantially in Arizona during the pastirreplaceable, exemplary, unique,century because of excessive livestock grazing,endangered, threatened, or vulnerablestreambed modifications, ground water pumping.			Mexico. Once extensive in the Gila River basin, there
Has qualities or circumstances thatYesWhile once more extensive, these aquatic communitiesmake it fragile, sensitive, rare,have diminished substantially in Arizona during the pastirreplaceable, exemplary, unique,century because of excessive livestock grazing,endangered, threatened, or vulnerablestreambed modifications, ground water pumping.			are remaining examples, especially ciénegas of this size.
irreplaceable, exemplary, unique, endangered, threatened, or vulnerable streambed modifications, ground water pumping.	Has qualities or circumstances that make it fragile, sensitive, rare,	Yes	While once more extensive, these aquatic communities have diminished substantially in Arizona during the past
endangered, threatened, or vulnerable streambed modifications, ground water pumping.	irreplaceable, exemplary, unique,		century because of excessive livestock grazing,
	endangered, threatened, or vulnerable		streambed modifications, ground water pumping,
to adverse change. intentional draining, and climatic change. Livestock	to adverse change.		intentional draining, and climatic change. Livestock
impacts have persisted since 1988, yet the ciénega			impacts have persisted since 1988, yet the ciénega
community has retained much of its natural character.			community has retained much of its natural character.
Has been recognized as warranting No	Has been recognized as warranting	No	
protection to satisfy national priority	protection to satisfy national priority		
concerns or to carry out the mandates	concerns or to carry out the mandates		
of FLPMA.	of FLPMA.		
Has qualities which warrant highlighting No	Has qualities which warrant highlighting	No	
to satisfy public or management	to satisfy public or management		
concerns about safety and public	concerns about safety and public		
welfare.	welfare.		
Poses a significant threat to human life No	Poses a significant threat to human life	No	
and safety or to property.	and safety or to property.		

Table C-3St. David Ciénega RNA ACEC Expanded

Special Management: Prohibit livestock grazing, fuelwood cutting, and off-highway vehicle (OHV) use. Due to the complete dependence of this system on perennial water, active management efforts by BLM should focus on ensuring maintenance of minimum perennial flows including federal water rights to protect it from ground water depletion. Additionally, conservations strategies should be employed using prescribed fire, watershed restoration, dike repair, treatments to remove invasive fishes, and deepening to reverse filling that has occurred.

San Pedro

		Tabl	e C-4	
San	Pedro	RNA	ACEC	Expanded

Α	CEC Proposal Evaluation Form			
Area Considered	San Pedro River			
General Location	An area of the unplatted San Juan de Las Boquillas y Nogales land grant			
	that corresponds with portions of T19S, R21E, S4, 5, 8, 9, 16, 17, 20, 21,			
	27, 28, 29, 32, 33 & 34; and T20S, R21E, S2, 3 & 4			
General Description	A deeply incised intermittent stream whose lower floodplain terraces			
have previously supported a gallery riparian forest association				
	dominated by Fremont cottonwood and Goodding's willow. High			
terraces above the level of recent entrenchment border the gallery				
forest and support an extensive mesquite woodland dominated by velver				
mesquite and giant sacaton.				
Acres	3,965			
Values Considered	Historic and cultural, fish and wildlife, and natural processes			
Identification Criteria				
To be considered as a potential ACEC ar	nd analyzed in RMP alternatives, an area must meet the criteria of			
relevance and importance, as established and defined in 43 CFR 1610.7-2.				
Relevance . An area meets the "relevance" criterion if it contains one or more of the following:				

Relevance Value	Yes/No	Rationale for Determination
A significant historic, cultural, or	Yes	The San Pedro River RNA ACEC contains 70+
scenic value		documented cultural sites that, collectively, span the
(including but not limited to rare or		past 2,000+ years of human occupation in the region.
sensitive archeological resources and		
religious or cultural resources		
important to Native Americans).		
A fish and wildlife resource	Yes	The San Pedro River RNA ACEC contains proposed
(including but not limited to habitat for		critical habitat for the threatened yellow-billed cuckoo
endangered, sensitive or threatened		and Mexican gartersnake. Several bird species of limited
species, or habitat essential for		occurrence in the state breed in these riparian habitats
maintaining species diversity).		and include yellow-billed cuckoo, a federally threatened
		species, gray hawk, Mississippi kite, and northern
		beardless-tyrannulet. This ACEC contains major xeric-
		riparian washes coming from the nearby Dragoon
		Mountains to the east and Whetstone Mountains to the
		west, which provides important genetic connectivity for
		many wildlife species.
A natural process or system	Yes	The San Pedro River RNA ACEC contains designated
(including but not limited to		critical habitat for the federally endangered Huachuca
endangered, sensitive, or threatened		water umbel, a rare, endemic, and aquatic plant. This
plant species; rare, endemic, or relic		ACEC also contains aquatic and riparian habitat which
plants or plant communities which are		is rare in the southwest. Perennial surface water
terrestrial, aquatic, or riparian; or rare		remains in most sections of this ACEC throughout the
geological features).		year, although upstream and downstream sections of
		the San Pedro River are intermittent or ephemeral.
		Thus, perennial water is available within this ACEC for
		many wildlife species and for migratory birds. The
		floodplain terrace both the east and west sides of the
		river contain significant areas of both young and fully
		mature mesquite bosque, a rare plant community in the
		southwest. Upland areas on the west side of the river
		within this ACEC contain documented occurrences of
		the BLM sensitive species San Pedro River wild
		buckwheat. This rare plant species occurs only within
		the unusual geological feature of the St. David
		Formation, and may also occur on the east side of the
		river. However, the east side has not been surveyed for
		this plant. This plant occurs only within the SPRNCA
		and near Vail, Arizona.
Natural hazards	No	
(including but not limited to areas of		
avalanche, dangerous flooding,		
landslides, unstable soils, seismic		
activity, or dangerous it is determined		
through the resource management		
planning process that it has become		
part of a natural process).	<u> </u>	
Importance. The value, resource, system, p	rocess, or hazard	described above must have substantial significance and values
to satisfy the "importance" criterion. This ger	nerally means that	t the value, resource, system, process, or hazard is

Table C-4 San Pedro RNA ACEC Expanded

characterized by one or more of the following:

Importance Value	Yes/No	Rationale for Determination
Has more than locally significant	Yes	The overall density and diversity of cultural site types
qualities which give it special worth,		(use values, and cultural/temporal affiliations)
consequence, meaning, distinctiveness,		demonstrates historic and cultural significance within
or cause for concern, especially		the ACEC as evidenced by repeated use and occupation
compared to any similar resource.		across time.
		The San Pedro River RNA ACEC is also significant
		globally as an important migratory and nesting habitat
		for neotropical migrant birds. The only occurrences of
		San Pedro River wild buckwheat on public land is found
		within this ACEC on SPRNCA.
Has qualities or circumstances that	Yes	The National Register of Historic Places (NRHP)-listed
make it fragile, sensitive, rare,		Presidio de Santa Cruz de Terrenate is in the ACEC along
irreplaceable, exemplary, unique,		with many other sites related to early Spanish conquest
endangered, threatened, or vulnerable		and colonization of the region. Likewise, the ACEC
to adverse change.		contains a significant concentration of Sobaípuri sites
		that, in addition to being important ancestrally to
		contemporary O'odham people, may provide additional
		information regarding interactions among ethnohistoric
		Native American groups and the Spanish.
		Beth Francest cottonics of Coordina's willow and
		Both Fremont cottonwood-Goodding's willow and
		vervet mesquite-grant sacaton nparian forest and
		Southwest The San Podro Biver riparian corrider
		southwest. The san Fedro River riparian corridor
		represents the most extensive, well-developed
		lands. The site described here includes one of the best
		developed stands of continuous deciduous broadloaf
		allery forest and mesquite woodland on the upper
		river system. The occurrence of these two types
		together provide an excellent example of low elevation
		riparian forest systems which are associated with the
		larger perennial desert river systems in the Southwest
		Past and present geomorphological changes in this
		riverine/palustrine ecosystem provide an excellent
		opportunity to study riparian plant community
		dynamics in relation to fluvial dynamics.
Has been recognized as warranting	No	
protection to satisfy national priority		
concerns or to carry out the mandates		
of FLPMA.		
Has qualities which warrant highlighting	No	
to satisfy public or management		
concerns about safety and public		
welfare.		
Poses a significant threat to human life	No	
and safety or to property.		

Table C-4 San Pedro RNA ACEC Expanded

Special Management: Non-manipulative research and education in this area. Prohibit livestock grazing, fuelwood cutting, and OHV use. Because several cultural sites in the ACEC are currently open for public use and interpretation (e.g., the *Presidio de Santa Cruz de Terrenate* and the Fairbank Townsite, among others), updated site management and interpretive plans are recommended to address future research and/or preservation. Broadcast herbicide treatments for dicots should be prohibited within areas containing San Pedro River wild buckwheat.

San Rafael

		Tabl	e C-5	
San	Rafael	RNA	ACEC	Expanded

ACEC Proposal Evaluation Form				
Area Considered	San Rafael	San Rafael		
General Location	An area of the unplatted San Rafael del Valle land grant that corresponds			
	with portions of T22S, R22E, S33 & 34; and T23S, R22E, S3 & 4.			
General Description	The San Rafael RNA ACEC contains a perennial reach of the San Pedro			
	River that includes cottonwood-willow gallery forest, giant sacaton			
	grassland, and mesquite bosque habitats. Beaver consistently use this			
	aquatic habitat	and riparian area.		
Acres	557			
Values Considered	Fish and wildlife	e, rare plants, and natural processes		
	Identificati	on Criteria		
To be considered as a potential ACEC ar	nd analyzed in RM	1P alternatives, an area must meet the criteria of		
relevance <u>and</u> importance, as established	and defined in 43	3 CFR 1610.7-2.		
Relevance . An area meets the "relevance"	criterion if it conto	ins one or more of the following:		
Relevance Value	Yes/No	Rationale for Determination		
A significant historic, cultural, or	Yes	A few significant cultural resources are known to exist		
scenic value		in the San Rafael RNA ACEC; however, these do not		
(including but not limited to rare or		meet importance criteria because these resources do		
sensitive archeological resources and		not have more than locally significant qualities.		
religious or cultural resources				
important to Native Americans).				
A fish and wildlife resource	Yes	The San Rafael RNA ACEC contains proposed critical		
(including but not limited to habitat for	habitat for the threatened yellow-billed cuckoo and			
endangered, sensitive or threatened	Mexican gartersnake. This ACEC contains important			
species, or nabitat essential for	habitat for neotropical migratory birds, and is			
maintaining species diversity).		consistently used by beaver because of the perennial		
A patural process or system	Vac	The San Perfect PNA ACEC contains designated critical		
A flatural process or system	Tes	habitat for the federally endangered Huschusa water		
and angered sensitive or threatened		umbel a rare endemic and aquatic plant. This ACEC		
plant species: rare endemic or relic	also contains aquatic and riparian habitat which is rare			
plants or plant communities which are	in the southwest. This ACEC contains the most			
terrestrial aquatic or riparian: or rare	undisturbed, extensive, contiguous, and dense stands of			
geological features).		giant sacaton remaining within the SPRNCA and		
		possibly within the southwest after conversion to		
		agricultural fields. Giant sacaton is a plant community		
		that has undergone significant declines in the southwest		
		and is threatened by groundwater depletion.		
Natural hazards	No	,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,		
(including but not limited to areas of				
avalanche, dangerous flooding,				
landslides, unstable soils, seismic				
activity, or dangerous it is determined				
through the resource management				

Table C-5 San Rafael RNA ACEC Expanded

planning process that it has become			
part of a natural process).			
Importance. The value, resource, system, process, or hazard described above must have substantial significance and values			
to satisfy the "importance" criterion. This gei	nerally means that	the value, resource, system, process, or hazard is	
characterized by one or more of the following	g:		
Importance Value	Yes/No	Rationale for Determination	
Has more than locally significant	Yes	The San Rafael RNA ACEC is globally significant as an	
qualities which give it special worth,		important migratory and nesting habitat for neotropical	
consequence, meaning, distinctiveness,		birds.	
or cause for concern, especially			
compared to any similar resource.			
Has qualities or circumstances that	Yes	The San Rafael RNA ACEC has fragile, sensitive, rare,	
make it fragile, sensitive, rare,		irreplaceable, endangered, and vulnerable qualities	
irreplaceable, exemplary, unique,		because it contains a perennial reach of the San Pedro	
endangered, threatened, or vulnerable		River which is threatened by groundwater depletion.	
to adverse change.			
Has been recognized as warranting	No		
protection to satisfy national priority			
concerns or to carry out the mandates			
of FLPMA.			
Has qualities which warrant highlighting	No		
to satisfy public or management			
concerns about safety and public			
welfare.			
Poses a significant threat to human life	No		
and safety or to property.			

Special Management: Prohibit livestock grazing, fuelwood cutting, and ORV use. Due to the complete dependence of this system on perennial water, active management efforts by BLM should focus on ensuring maintenance of minimum perennial flows.

Curry-Horsethief

Table C-6Curry-Horsethief ACEC

ACEC Proposal Evaluation Form			
Area Considered	Curry-Horsethief		
General Location	Portions of T21S, R21E S25, 26 & 36, and an area of the unplatted San		
	Rafael del Valle land grant that corresponds with portions of T21S,		
	R22E, S30 & 31; T22S, R21E, S1; and T22S, R22E, S6		
General Description	The Curry-Horsethief ACEC consists of an area along the west bank of		
	the San Pedro River, along the upper terrace and associated draws (i.e.,		
	Curry and Horsethief), as buffered by the limits of the BLM's surface		
	jurisdiction to the west and State Route 90 to the south.		
Acres	2,551		
Values Considered	Historic and cultural (including paleontological)		
Identification Criteria			
To be considered as a potential ACEC and analyzed in RMP alternatives, an area must meet the criteria of			
relevance and importance, as established and defined in 43 CFR 1610.7-2.			
Relevance . An area meets the "relevance" criterion if it contains one or more of the following:			

Relevance Value	Yes/No	Rationale for Determination
A significant historic, cultural, or	Yes	The Curry-Horsethief ACEC contains 20+ documented
scenic value		cultural sites and paleontological localities, of which
(including but not limited to rare or		more than half represent Paleoindian (Clovis) and
sensitive archeological resources and		Archaic (Cochise/San Pedro) occupation of the region.
religious or cultural resources		
important to Native Americans).		The potential for additional, related sites is high.
A fish and wildlife resource	No	
(including but not limited to habitat for		
endangered, sensitive or threatened		
species, or habitat essential for		
maintaining species diversity).		
A natural process or system	No	
(including but not limited to		
endangered, sensitive, or threatened		
plant species; rare, endemic, or relic		
plants or plant communities which are		
terrestrial, aquatic, or riparian; or rare		
geological features).		
Natural hazards	No	
(including but not limited to areas of		
avalanche, dangerous flooding,		
landslides, unstable soils, seismic		
activity, or dangerous it is determined		
through the resource management		
planning process that it has become		
part of a natural process).		
Importance. The value, resource, system, p	process, or hazard	described above must have substantial significance and values
to satisfy the "importance" criterion. This get	nerally means that	t the value, resource, system, process, or hazard is
characterized by one or more of the followin	g:	
Importance Value	Yes/No	Rationale for Determination
Has more than locally significant	Yes	The significant concentration of Paleoindian and Archaic
qualities which give it special worth,		cultural site types provides a unique opportunity to
consequence, meaning, distinctiveness,		study and interpret the history and lifeway(s) of early
or cause for concern, especially		humans (i.e., Paleoindians and Archaic peoples),
compared to any similar resource.		megafauna, and the Pleistocene-Holocene transition.
Has qualities or circumstances that	Yes	The NRHP-listed Murray Springs Clovis Site National
make it fragile, sensitive, rare,		Historic Landmark (NHL) is in the ACEC along with
irreplaceable, exemplary, unique,		many other sites related to the region's first human
endangered, threatened, or vulnerable		inhabitants. Cultural and paleontological remains in and
to adverse change.		around the Murray Springs Clovis Site are regarded as
		some of the most significant finds on the continent.
		Likewise, the ACEC contains a significant concentration
		of paleontological localities.
		I REACEC likely contains additional intact deposits that
	N1-	could turther inform the historical record.
Has been recognized as warranting	INO	
protection to satisfy national priority		
of ELPMA		
UTTERTA.		

Table C-6Curry-Horsethief ACEC

Table C-6Curry-Horsethief ACEC

Has qualities which warrant highlighting to satisfy public or management concerns about safety and public welfare.	No	
Poses a significant threat to human life and safety or to property.	No	

Special Management: Prohibit livestock grazing, fuelwood cutting, and OHV use. Because the Murray Springs Clovis Site NHL is currently open for public use and interpretation, updated site management and interpretive plans are recommended to address future research and/or preservation.

Lehner Mammoth

Table C-7 Lehner Mammoth ACEC

Α	CEC Proposal	Evaluation Form	
Area Considered	Lehner Mammoth		
General Location	A portion of T23S, R22E, S21		
General Description	The Lehner Mammoth ACEC consists of the existing public use and		
	interpretive area of the NHRP-Listed Lehner Mammoth Kill Site NHL,		
	buffered to the south west by the existing access road and the limits of		
	the BLM's surfa	ace jurisdiction, respectively.	
Acres	35		
Values Considered	Historic and cu	ıltural (including paleontological)	
	Identificati	ion Criteria	
To be considered as a potential ACEC ar	nd analyzed in RI	1P alternatives, an area must meet the criteria of	
relevance and importance, as established	and defined in 4	3 CFR 1610.7-2.	
Relevance . An area meets the "relevance"	criterion if it cont	ains one or more of the following:	
Relevance Value	Yes/No	Rationale for Determination	
A significant historic, cultural, or	Yes	The Lehner Mammoth ACEC consists of the existing,	
scenic value		NRHP-listed Lehner-Mammoth Kill Site NHL, with an	
(including but not limited to rare or		administrative buffer applied to account for the adjacent	
sensitive archeological resources and	area where similar cultural and/or paleontological		
religious or cultural resources	deposits may exist.		
important to Native Americans).			
A fish and wildlife resource	No		
(including but not limited to habitat for			
endangered, sensitive or threatened			
species, or habitat essential for			
maintaining species diversity).			
A natural process or system	No		
(including but not limited to			
endangered, sensitive, or threatened			
plant species; rare, endemic, or relic			
plants or plant communities which are			
terrestrial, aquatic, or riparian; or rare			
geological features).			

Table C-7 Lehner Mammoth ACEC

Natural hazards	No	
(including but not limited to areas of		
avalanche, dangerous flooding,		
landslides, unstable soils, seismic		
activity, or dangerous it is determined		
through the resource management		
planning process that it has become		
part of a natural process).		
Importance. The value, resource, system, p	process, or hazard	described above must have substantial significance and values
to satisfy the "importance" criterion. This get	nerally means that	the value, resource, system, process, or hazard is
characterized by one or more of the followin	g:	
Importance Value	Yes/No	Rationale for Determination
Has more than locally significant	Yes	The Lehner Mammoth Kill Site NHL is regarded as
qualities which give it special worth,		nationally significant (as evidenced by its NRHP-listing
consequence, meaning, distinctiveness,		and status as an NHL); however, the site and associated
or cause for concern, especially		cultural and paleontological remains have global
compared to any similar resource.		significance in the interdisciplinary study of early
		humans (i.e., Paleoindians and Clovis culture),
		megafauna, and the Pleistocene-Holocene transition,
		with specific interest in exposed localities of Younger-
		Dryas "black mats."
Has qualities or circumstances that	Yes	The cultural and paleontological remains in and around
make it fragile, sensitive, rare,		the Lehner Mammoth Kill Site NHL are regarded as
irreplaceable, exemplary, unique,		some of the most significant finds on the continent.
endangered, threatened, or vulnerable		Lehner Mammoth presented a number of firsts: it was
to adverse change.		the first Clovis site to yield viable radiocarbon dates,
		demonstrated the first Clovis association with small
		animals, and also first exhibited butchering tools in
		direct association with animal remains.
		The start and state to the base of a state of the second state of
		I he site and vicinity likely contain additional intact
Has been recognized as werranting	No	deposits that could further inform the historical record.
protection to satisfy national priority	INU	
concorps or to carry out the mandates		
of FI PMA		
Has gualities which warrant highlighting	No	
to satisfy public or management		
concerns about safety and public		
welfare		
Poses a significant threat to human life	No	
and safety or to property	140	
and survey of to property.		

Special Management: Prohibit livestock grazing, fuelwood cutting, and OHV use. Because the site is currently open for public use and interpretation, updated site management and interpretive plans are recommended to address future research and/or preservation.

REFERENCES

- BLM (US Department of Interior, Bureau of Land Management). 1988. BLM Manual 1613 -- Areas of Critical Environmental Concern. Washington, DC. September 29, 1988.
- _____. 1989. Final San Pedro River Riparian Management Plan and Environmental Impact Statement. Safford District, Safford, Arizona. June 1989.
- _____. 1991. Final Safford District Resource Management Plan and Environmental Impact Statement. Safford District, Safford, Arizona. August 1991.
- BLM GIS. 2017. Data from the BLM's internal eGIS server used to describe landownership, VRM, vegetation, and other datasets. US Department of the Interior, Bureau of Land Management, Arizona, Tucson Field Office, San Pedro Riparian National Conservation Area.

Appendix D Tribal Consultation and Coordination

Appendix D. Tribal Consultation and Coordination

Date	Consultation Method	Tribes Consulted	Responses and Comments
December 17, 2012	Letter (Bellew, Bureau of Land Management [BLM] to tribal officials)	Eight: Ak-Chin Indian Community (ACIC), Gila River Indian Community (GRIC), Hopi Tribe (Hopi), Pueblo of Zuni (Zuni), Salt River Pima-Maricopa Indian Community (SRPMIC), San Carlos Apache Tribe (SCAT), Tohono O'odham Nation (TON), and White Mountain Apache Tribe (WMAT)	Kuwanwisiwma (Hopi) to Bellew (BLM), dated December 26, 2012; see file
June 25, 2013	Four Southern Tribes Cultural Working Group Meeting	Four: ACIC, GRIC, SRPMIC, and TON	Steere (TON) to Markstein (BLM), dated September 23, 2013: "[TON] regards the lands of the San Pedro Riparian National Conservation Area [SPRNCA] as part of the Traditional-Use Lands of the [TON]. The [TON] considers the preservation and protection of cultural sites in the [SPRNCA] of utmost importance[and] considers the preservation and protection of the traditional cultural and natural landscapes of high importance"
April 29, 2014	Four Southern Tribes Cultural Working Group Meeting	Four: ACIC, GRIC, SRPMIC, and TON	N/A
May 22, 2015	Four Southern Tribes Cultural Working Group Meeting	Four: ACIC, GRIC, SRPMIC, and TON	N/A
April 22, 2016	Four Southern Tribes Cultural Working Group Meeting	Four: ACIC, GRIC, SRPMIC, and TON	N/A
May 7, 2016	Letter (Warren, BLM, to tribal officials)	Eight: ACIC, GRIC, Hopi, Zuni, SRPMIC, SCAT, TON, and WMAT	N/A
November 2017	Letter (Lopez, BLM, to tribal officials)	Fourteen: ACIC, Fort McDowell Yavapai Nation (FMYN), Fort Sill Apache Tribe (FSAT), GRIC, Hopi, Mescalero Apache Tribe (MAT), Pascua Yaqui Tribe (PYT), Zuni, SRPMIC, SCAT, TON, Tonto Apache Tribe (TAT), WMAT, and Yavapai-Apache Nation (YAN)	Koyiyumptewa (Hopi) to Lopez (BLM), dated November 29, 2017: "The Hopi Tribe claims cultural affiliation to earlier identifiable cultural groups in Arizona, including the HohokamThe Hopi[support] the identification and avoidance of our ancestral sites and [consider such sites] Traditional Cultural Properties. [W]e strongly support

Date	Consultation Method	Tribes Consulted	Responses and Comments
			the alternative that places the greatest emphasis on minimizing human use and influence, while maintaining a natural, undevelope landscape"

Appendix E

State, County, Local, and Other Related Agency Plans

Appendix E. State, County, Local, and Other Related Agency Plans

The Bureau of Land Management (BLM) consulted the plans listed below while preparing the San Pedro Riparian Area National Conservation Area (SPRNCA) Draft Resource Management Plan (RMP).

E.I STATE PLANS

- Statewide Wildlife Action Plan 2012–2022
- Management Plan for the Sonoran Desert Population of the Desert Tortoise in Arizona
- The Arizona Game and Fish Department's Strategic Plan for the Years 2007–2012
- Arizona's State Wildlife Action Plan
- Arizona Trails 2015: A State Motorized and Non-Motorized Trails Plan (AZ State Parks)
- Statewide Comprehensive Outdoor Recreation Plan (AZ State Parks)
- Arizona's Wildlife Linkages Assessment (Arizona Wildlife Linkages Workgroup 2006)

E.2 COUNTY

- Cochise County Comprehensive Master Plan (1984, as amended in 2011)
- Cochise County Community Wildfire Protection Plan (2014)

Е.3 СІТҮ

• Vista 2030: Sierra Vista General Plan (ratified 2014)

E.4 OTHER FEDERAL PLANS

- Coronado National Forest Land and Resource Management Plan, Revised 2012
- Coronado National Forest Travel Management Plan (in progress; begun November 2011)
- Coronado National Forest Miller Peak Wilderness Implementation Schedule (1993)
- Coronado National Memorial Arizona General Management Plan, 2004
- Fort Huachuca Integrated Natural Resources Management Plan, 2001
Appendix F Administrative Actions

Appendix F. Administrative Actions

	Table F-1					
			Water Management A	dministrative Actions		
	Alternative A (No Action)		Alternative B	Alternative C (Preferred)	Alternative D	
١.	The existing water quality testing p	rogra	am would continue. This includes dri	inking water quality at San Pedro House a	and Fairbank and testing for E. coli,	
	sediment, temperature, pH, electric	al co	onductivity, and dissolved oxygen am	ong others in the San Pedro River.		
2.	Initiate data collection where	2.	Prioritize data collection for surfac	e waters where there is a suspected or l	known pollution threat or hazard to	
	there is a suspected or known		water quality.			
	pollution threat or hazard to					
	water quality.					
3.	Inspect and maintain water	3.	Assess existing potable water syste	ems to determine if any systems should b	e decommissioned or modified to	
	systems to prevent unnecessary		conserve water. Continue to inspe	ect, test, and maintain existing systems to	prevent unnecessary loss of water.	
	loss of water.					
4.	N/A	4.	Collaborate with partners to deve	lop a web-based information portal for sl	naring and interpreting scientific data	
			on resources in the San Pedro wat	ershed.		
5.	Cover and seal unusable or unsuital	ble v	vells to prevent contamination of aqu	uifers and vadose zones, and to contain h	ighly saline water.	

	Table F-2 Cultural Resources					
	Alternative A (No Action)		Alternative B	Alternative C (Preferred)	Alternative D	
1.	Complete a Class III Intensive Field Inventory of the entire SPRNCA and record all cultural resources.	1.	Prepare a comprehensive Class I o	verview and updated cultural context for	r the entire SPRNCA planning area.	
2.	N/A	2.	Identify data gaps to prioritize Clas unique and threatened, or both, cu sites.	s III inventory and scientific investigation Itural resource types, such as rock art a	of areas known or likely to contain nd Archaic, Sobaípuri, and Apachean	

	Table F-3 Paleontological Resources Administrative Actions						
	Alternative A (No Action)		Alternative B	Alternative C (Preferred)		Alternative D	
١.	Monitor high potential areas periodically.	١.	. Work to inventory potential fossil yield classification (PFYC) Class 3, Class 4, or Class 5 areas for any new vertebrate fossil localities that may be exposed due to naturally occurring erosion or surface-disturbing activities.				
2.	Check high potential areas periodically.	2.	Work to survey all PFYC Unknown resources and assign an accurate P	Work to survey all PFYC Unknown (Class U) areas to accurately reflect the presence of paleontological resources and assign an accurate PFYC value.			
3.	N/A	3.	Develop and maintain a Geographic Pedro Riparian National Conservat	c Information System (GIS) database of ion Area (SPRNCA).	know	n fossil localities within the San	
4.	Monitor known sites periodically (every 3-5 years) and collect exposed fossils.	4.	Monitor for and collect scientificall exposed within livestock concentra	y significant fossil resources that are ation areas and range improvements.	4.	Livestock grazing would not be authorized in the SPRNCA.	
5.	Collected fossils would be housed i	n a c	qualified repository.				

	Table F-4 Wildland Fire and Management Administrative Actions					
	Alternative A (No Action)	Alternative B	Alternative C (Preferred)	Alternative D		
Ι.	N/A	I. Review Fire Management Plan and Wildland Fire Decision Support System and amend Fire Management Plan if				
		there are any new SOPs or other restrictions.				

	Table F-5 Fish, Wildlife, and Special Status Species Administrative Actions					
	Alternative A (No Action)		Alternative B	Alternative C (Preferred)	Alternative D	
١.	N/A	١.	Survey for nonnative, invasive aqua necessary.	atic species periodically in areas where the	ey have not yet invaded and control as	
2.	N/A	2.	Northern Mexican garter snake: Evaluate unoccupied areas on the SPRNCA for suitability.			
3.		3.	Revise/update the SPRNCA Habita	at Management Plan (BLM 1993)		

			Cultural I			
	Alternative A (No Action)		Alternative B	Alternative C (Preferred)	Alternative D	
Ι.	ARCHAEOLOGICAL AND HI	STC	DRIC RESOURCES			
1.	Prepare a Cultural Resource Management Plan (CRMP) for the SPRNCA.	1.	Prepare integrated resource site m Landmarks planning, stabilization, a	nanagement plans for sites allocated to p nd research to accommodate continued	ublic use. Prioritize National Historic I public use.	
2.	Maximize the efficiency and quality of site management through the development of cooperative management agreements and the use of volunteers.	2.	Develop cooperative cultural resources management and/or research agreements with local nonprofit groups, volunteer organizations, and academic institutions.			
3.	N/A	3.	In accordance with the Bureau of L Arizona Site Steward Program to s	and Management (BLM)-Arizona Protoc upplement staff monitoring and increase	col (BLM 2014), participate in the site protection.	
4.	Identify scientific research objectives by historic context for the SPRNCA. Promote study to fulfill research objectives and fill regional data gaps.	4.	Develop an updated cultural histor surrounding landscape.	y for the SPRNCA; frame local histories	and sites within the context of the	
5.	N/A	5.	Develop research themes, question encourage research that targets da	ns, and plans for specific sites and/or site ta gaps.	e types as well as promote and	
6.	Provide data and display items for public interpretation, and support the planning, designing, and development of interpretive sites. Promote public interpretation and education.	6.	Develop a SPRNCA cultural resou	rces summary, and interpretive and edu	cational programs for public-use sites.	
7.	N/A	7.	Perform public outreach and engage	ement on the value of cultural resource	S	
8.	Protect sites potentially eligible for allocation to conservation for future use to preserve their scientific and public values.	8.	Use administrative and physical me recording, and public education, to	asures, such as signs, access barriers, pa protect cultural resource values.	trols, fire control, stabilization, detailed	
9.	N/A	9.	Cultural resources databases, map	s, site, and inventory records would be u	updated and maintained to current	
			professional standards for acceptat	ble use in research, compliance, and mor	nitoring activities.	

Table F-6 Cultural Resources						
Alternative A (No Action)	Alternative B	Alternative C (Preferred)	Alternative D			
 Do not allow conflicting land and resource uses on allocated sites. 	 Work with lessees and applicants achieve cultural resources preserv 	to design projects and activities to ation and/or use objectives.	 Preserve or enhance cultural resource values through management actions and the control of land uses. 			
II. NATIVE AMERICAN CONCER	NS					
 Identify socio-cultural values and give full consideration to these values in the management of associated sites and areas. 	 Identify and manage TCPs, sacred American tribes. 	sites, traditional use sites, and cultural la	ndscapes in consultation with Native			
2. N/A	2. Work with Native American tribe quantities of herbals, medicines, ar	s to identify suitable harvesting areas for nd traditional use items.	noncommercial, personal use			
3. N/A	3. Consult with Native American tribes with cultural and historic ties to the SPRNCA in accordance with <i>BLM</i> <i>Manual 1780</i> (BLM 2016) and as consistent with applicable laws, regulations, and authorities.					

Visual Resources Management Administrative Actions					
		visual nesources manageme			
Alternative A (No Action)		Alternative B	Alternative C (Preferred)	Alternative D	
Visual contrast ratings, design,	1.	Visual contrast ratings would be co	ompleted on proposed projects to asses	s potential visual impacts, and identify	
and mitigation measures are		visual design guidelines to ensure \	/RM objectives are achieved. Mitigation	measures to reduce potential visual	
required to meet Visual Resource		impacts would include, but not be	limited to, site selection, material select	ion, screening, rehabilitation, and color	
Management (VRM) objectives.		treatment of structures.			
N/A	2.	BLM-initiated projects (vegetation	treatments, earthwork, ground surface-c	disturbing activities, and construction	
		of roads or structures) would incorporate visual design techniques to ensure VRM objectives are met.			
N/A		3. Mitigation measures would be	identified during National Environmenta	I Policy Act (NEPA) review of external	
		project proposals with potential visual impacts, and implemented through special stipulations to ensure VRM			
		objectives are met.			
N/A	4.	Field analysis would be conducted t	to ensure that project elements are desi	gned appropriately to sufficiently fit	
		the existing natural landscape.			
N/A	5.	Visual simulations would be produce	ed as determined by the BLM to assist i	in developing project design features	
		and mitigation measures to reduce impacts to visual resources. These simulations would also be used to			
		complete contrast ratings.			
N/A	6.	Monitor visual resource conditions	for impacts from land use activities and	for effectiveness of design	
		requirements.			
	Alternative A (No Action) Visual contrast ratings, design, and mitigation measures are required to meet Visual Resource Management (VRM) objectives. N/A N/A N/A N/A	Alternative A (No Action)Visual contrast ratings, design, and mitigation measures are required to meet Visual Resource Management (VRM) objectives.I.N/A2.N/A2.N/A4.N/A5.N/A6.	Alternative A (No Action) Alternative B Visual contrast ratings, design, and mitigation measures are required to meet Visual Resource Management (VRM) objectives. 1. Visual contrast ratings would be convisual design guidelines to ensure Visual design guidelines to reduce and mitigation measures to reduce complete contrast ratings. N/A 6. Monitor visual resource conditions requirements.	Table F-7 Visual Resources Management Administrative Actions Alternative A (No Action) Alternative B Alternative C (Preferred) Visual contrast ratings, design, and mitigation measures are required to meet Visual Resource 1. Visual contrast ratings would be completed on proposed projects to asses visual design guidelines to ensure VRM objectives are achieved. Mitigation impacts would include, but not be limited to, site selection, material select treatment of structures. N/A 2. BLM-initiated projects (vegetation treatments, earthwork, ground surface-of roads or structures) would incorporate visual design techniques to ensure volume impacts and implemented throm objectives are met. N/A 3. Mitigation measures would be conducted to ensure that project elements are desite the existing natural landscape. N/A 5. Visual simulations would be produced as determined by the BLM to assist i and mitigation measures to reduce impacts to visual resources. These simu complete contrast ratings. N/A 6. Monitor visual resource conditions for impacts from land use activities and requirements.	

	Table F-7 Visual Resources Management Administrative Actions						
	Alternative A (No Action) Alternative B Alternative C (Preferred) Alternative D						
7.	N/A	7. Night lighting required for any purp	Night lighting required for any purpose would incorporate measures to protect night skies.				

	Table F-8 Lands with Wilderness Characteristics Administrative Actions					
	Alternative A (No Action)	Alternative B	Alternative C (Preferred)		Alternative D	
1.	N/A	 No areas would be managed to pro priority. 	tect wilderness characteristics as a	1.	Prepare a monitoring and patrol plan to monitor conditions and use in wilderness characteristics areas.	

	Table F-9 Energy and Lands and Realty Administrative Actions						
	Alternative A (No Action)	Alternative B	Alternative C (Preferred)	Alternative D			
Ι.	N/A	 A review of existing ROWs for hidetermine if they have been aband 014180, PHX-016320, PHX-0185 086622, and PHX-086647). 	 A review of existing ROWs for historic reclaiming railroad grades across the SPRNCA would be completed to determine if they have been abandoned according to Surface Transportation Board (STB) procedures (PHX- 014180, PHX-016320, PHX-018518, PHX-058765, PHX-059615, PHX-059620, PHX-086526, PHX-086569, PHX- 086622, and PHX-086647). 				
2.	N/A	2. If the ROWs for historic reclaimin railroad bed) have not been abanc pursued, or permission would be	ng railroads (tracks have been removed ar doned according to STB procedures, aban obtained for use of the ROWs for San Pe	nd vegetation is growing on the donment procedures would be edro Trail system purposes.			

	Table F-10 Livestock Grazing Administrative Actions					
	Alternative A (No Action)	Alternative B	Alternative C (Preferred)		Alternative D	
١.	Grazing lessees would not be perm	itted to manage livestock via motorized v	ehicles off designated routes. One-	١.	Livestock grazing would not be	
time travel by grazing lessees off designated routes could be approved with written authorization from the BLM					authorized in the SPRNCA.	
	Authorized Officer to access sick, i	njured, or dead livestock.				

			Table	F-11	
			Recreation Resources	Administrative Actions	
	Alternative A (No Action)		Alternative B	Alternative C (Preferred)	Alternative D
Ι.	Prepare project plans for all proposed facilities.	Ι.	Prepare site management plans to provided to accommodate recreat administrative functions.	identify maintenance, improvements, and ional and educational uses, access to the	d operations for all public use sites, San Pedro Trail system, trails, and
2.	N/A	2.	Develop interpretive plans for rec the site.	reational and educational sites with them	nes based on the resources available at
3.	Assure the preservation of scientific and other cultural resource values and achieve cultural resource objectives in the development and use of interpretive sites.	3.	Coordinate site planning and inter programs to assure the preservation objectives.	pretive planning with scientific research a on of scientific values and achievement o	and other resource management f other resource management
4.	Provide data and display items for public.	4.	Complete research and gather info and educational materials based or SPRNCA.	prmation to inform interpretive and educ a current data and science, and illustrate	cational materials. Develop interpretive themes using items connected to the
5.	Provide support in the planning, designing, and development of interpretive sites.	5.	Implement interpretive and educat including appropriated funds, partr	ional plans, including site improvements, ierships, permits, agreements, grants, and	through a variety of funding sources, d volunteers.
6.	N/A	6.	Develop interpretative, educationa others to build emotional, intellect	l, and outreach programs through partne ual, and recreational ties with the area a	erships with organizations, schools, and natural heritage.

			Table	F-12	
			Travel Management Ac	Iministrative Actions	
	Alternative A (No Action)		Alternative B	Alternative C (Preferred)	Alternative D
١.	Off-highway vehicle (OHV)	١.	Legal notices would be published to	implement changes in designations and	l/or use restrictions.
	designations and Supplementary				
	regulations for the SPRNCA				
	following completion of the				
	Safford RMP ¹				
2.	N/A	2.	Maps and signs with information on	use restrictions and allowable uses wo	uld be posted.
3.	N/A	3.	Law enforcement and visitor compl	ance patrols would be conducted.	•
4.	N/A	4.	Visitor contact, education, and main	tenance patrols by Park Ranger staff w	ould be conducted.
5.	Road improvements and	5.	Road and trail maintenance would b	e completed according to the appropr	iate intensity and frequency, and
	maintenance have been largely		according to the standards/guideline	es appropriate for the route's purpose	or type of access.
	implemented, with damage found				
	on multiple routes.				
6.	N/A	6.	Project plans for transportation mai	ntenance and improvement projects w	ould be prepared as needed.
7.	Vehicle barriers constructed at	7.	Vehicle barriers and gates would be	provided, monitored, and maintained a	as needed.
	ingress point as part of road				
	maintenance and boundary				
	fencing. A locked gate system is in				
0	place to control vehicle access.				
8.	Identify the transportation system i	n the	BLM's Facility Asset Management Sy	stem.	the destructions to dealer
9.	Permittees and lessees (e.g., outlitte	ers/g	uides and livestock operators) are su	bject to the travel management and rol	ute designations, including
	transportation system restrictions a	ana c -ina	iosures. Administrative access would	De accommodated on a case-by-case b	asis subject to the terms and
10	Conditions of the applicable authori		Instrument (right-of-way [ROVV], per	mit, lease, maintenance agreement, etc	
10.	be monitored condition surveys	10.	on the route	nonitored for conditions, use, and imp	acts, at appropriate intervals depending
	completed and routes would be		on the route.		
	maintained to accommodate their				
	intended access purposes				
	Do not develop, endorse, or publis	h roa	nd or trail ratings. Could describe phy	vsical characteristics of a route.	

¹Federal Register Notice: Off-Road Vehicle Designation, Livestock Grazing Notice, and Establishment of Supplementary Rules for the San Pedro Riparian National Conservation Area, Arizona. Federal Register Notice / Vol. 54, No. 168, August 31, 1989.

REFERENCES

- BLM (US Department of Interior, Bureau of Land Management). 1993. San Pedro River Riparian National Conservation Area Habitat Management Plan. Safford District, Safford, Arizona. November 1993.
- . 2014. State protocol agreement between the Bureau of Land Management, Arizona, and the Arizona State Historic Preservation Office regarding the manner in which the Bureau of Land Management, Arizona, will meet its responsibilities under the National Historic Preservation Act and the National Programmatic Agreement among the Bureau of Land Management, the Advisory Council on Historic Preservation, and the National Conference of State Historic Preservation Officers, Phoenix, Arizona. December 12, 2014. Internet website: http://www.achp.gov/blm/AZ%20State%20Protocol%20Agreement_signed%2012-Dec-2014.pdf.
- _____. 2016. BLM Manual 1780 -- Tribal Relations. December 15, 2016.
- STB (Surface Transportation Board). Procedures (PHX-014180, PHX-016320, PHX-018518, PHX-058765, PHX-059615, PHX-059620, PHX-086526, PHX-086569, PHX-086622, and PHX-086647).

Appendix G

Standard Operating Procedures and Best Management Practices

Appendix G. Standard Operating Procedures and Best Management Practices

G.I STANDARD OPERATING PROCEDURES

Standard operating procedures (SOPs) are procedures carried out daily during proposal implementation that are based on laws; regulations; executive orders; US Department of the Interior, Bureau of Land Management (BLM) manuals, policies, and instruction memorandums (IMs); and other applicable documents. SOPs describe the flow of actions and identify roles and responsibilities. Policy and planning procedures either already exist or have been identified through collaborative processes that are used as a guide during the implementation of management decisions. It is the goal of SOPs to maintain operational efficiency and consistency during the planning and implementation processes.

G.2 BEST MANAGEMENT PRACTICES

Best management practices (BMPs) are land and resource management techniques determined to be the most effective and practical means of maximizing beneficial results and minimizing conflicts and negative environmental impacts from management actions. BMPs can include structural and nonstructural controls, specific operations, and maintenance procedures. BMPs can be applied before, during, and after activities to reduce or eliminate negative environmental impacts.

BMPs are not one-size-fits-all solutions. BMPs should be selected and adapted through interdisciplinary analysis to determine which management practices are necessary to meet the goals and objectives of the resource management plan (RMP). The best practices and mitigation measures for a particular site are evaluated by considering site-specific conditions, local resource conditions, and a suite of techniques that guide or may be applied to management actions to aid in achieving desired outcomes.

G.2.1 Soil, Water, and Air Resources

Standard Operating Procedures

• Comply with all federal and state statutes pertaining to air quality and cooperate with the State of Arizona in carrying out the State Implementation Plan.

Best Management Practices

- When implementing BLM-approved activities where dust from surface disturbance may occur, enforce stipulations to mitigate impacts on air quality.
- Minimize disturbance to surface resources when constructing new developments or reconstructing existing facilities. Develop mitigation plans, restore disturbed surfaces, and stabilize soils in accordance with restoration objectives.
- Use structural (in the tributaries only) and nonstructural controls and vegetation to reduce erosion and capture sediments.
- For heavy metals, remediate heavy metal contaminated soils or fill materials (i.e., railroad grade; http://www.hindawi.com/journals/isrn/2011/402647/) by reducing the mobility of the metals in the soil or removing the metals.

- Correct and prevent erosion where needed using cross-logs and rock stair steps, and rerouting unsustainable trail segments.
- Abandon and remediate trail segments that are not in stable locations on banks.

Enhancement of Riverine Geomorphology

- Stream restoration structures would preferably be comprised of soft structures such as wooden post and rock and/or vegetation (tree poles or saplings).
- Restoration would occur with incremental implementation based on monitoring of design performance following floods and adaptive management to improve design before full implementation in a specified reach.
- Haul roads across flood plains to individual sites where structures/planting will occur will be located and designed to minimize erosion and ease of rehabilitation.

Watershed Improvements

- Use hand tools before mechanical tools.
- Use natural materials as much as possible.
- Use plantings before structures. If structures are used, loose and irregular components would be preferred (usually rock, wood, and earth) instead of flexible or rigid structures.
- A few smaller features will be preferred over using a large structure/feature.
- Prioritize watershed improvements for the stabilization and protection of natural and cultural resources.
- Use a reanalysis of overbank flood frequency, channel dimensions, and the profile pattern, and an evaluation of sediment supply and pulse flows to the San Pedro River to help design projects.

G.2.2 Paleontological Resources

Standard Operating Procedures

- Paleontological resources are managed according to the Paleontological Resources Preservation Act of 2009 (16 United Stated Code [USC] 470aaa-470aaa11) and the general guidance of Federal Land Policy and Management Act of 1976 and National Environmental Policy Act of 1969 (NEPA). Agency-level guidance is provided through the BLM Manual 8270, Paleontological Resource Management and the BLM Handbook 8270, General Procedural Guidance for Paleontological Resource Management.
- A proposed rule would amend title 43 of the Code of Federal Regulations (CFR) by adding a new part 49, entitled Paleontological Resources Preservation. In accordance with 16 USC 470aaa-1, the proposed rule would further outline how the BLM would manage, protect, and preserve paleontological resources on federal land using scientific principles and expertise (Federal Register 2016 - https://www.fws.gov/policy/library/2016/2016-29244.html).
- A qualified professional paleontologist will accomplish a paleontological inventory of project areas prior to authorizing surface-disturbing activities to protect vertebrate or noteworthy occurrences of invertebrate, plant, or trace fossils.
- Assign survey priorities to those areas that are most likely to include significant paleontological resources, are known to contain paleontological localities, are relatively accessible to the public, and/or are vulnerable to damage or loss from land-use activities.

- Include standard discovery stipulations in any permit approval that is likely to affect significant paleontological resources.
- The following stipulations may be applied:
 - User/operator shall be responsible for informing all persons associated with a project that they shall be subject to prosecution for damaging, altering, excavating, or removing any vertebrate or noteworthy occurrences of invertebrate or plant fossils on-site.
 - If vertebrate or noteworthy occurrences of invertebrate or plant fossils are discovered, the user/operator shall suspend all operations that further disturb such materials and immediately contact the BLM Authorized Officer (AO).
 - User/operator shall not resume until the AO issues a written authorization to proceed.
 - Within 5 working days, the AO will evaluate the discovery and inform the operator of actions that will be necessary to prevent loss of significant scientific values.
 - The user/operator shall be responsible for the cost of any mitigation required by the AO.
 - Upon verification from the AO that the required mitigation has been completed, the operator shall be allowed to resume operations.

G.2.3 Vegetation Resources

Standard Operating Procedures

- Plant collection may occur under limited circumstances.
 - Plant collection or manipulation may be authorized under certain circumstances through a scientific permit issued by the AO.
 - When plants are to be removed from the San Pedro Riparian National Conservation Area (SPRNCA), the Arizona Department of Agriculture must be contacted for appropriate permitting.

Best Management Practices

- Avoid or minimize ground-disturbing activities in riparian areas and other habitats with sensitive plant communities located on fragile soils.
- Do not broadcast spray herbicides in riparian areas that provide habitat for threatened, endangered, and proposed aquatic species. Appropriate buffer distances will be determined on a project-by-project basis to ensure that vegetation that provides habitat for threatened, endangered, and proposed species is not removed from the site.
- Avoid mechanical removal of trees and shrubs within riparian areas. Where heavy or specialized
 equipment is required for a riparian vegetation treatment, such as grubbing, mulching, chipping,
 mowing, grinding, and thinning by heavy equipment, limit access to areas with dry soil and those
 where bank soil compaction is likely to be minimal. Avoid to the extent possible mechanical
 removal of trees and shrubs within riparian areas.
- Utilize chemical (herbicide) treatments where ground-disturbing activities such as heavy equipment are not permitted, and where the control of resprouting and new vegetation is desired. To limit impacts on adjacent plants, use the cut stump method, spot treatments, or the basal bark method where small amounts of herbicide are applied directly to freshly cut stumps, canopy, or the basal area of trees and shrubs.

- Develop a pesticide use proposal for areas where herbicide treatments are utilized. A certified pesticide applicator will supervise herbicide treatments, which will adhere to the product label or be applied at BLM-approved application rates if less than label authorized rates.
- Implement biomass utilization immediately following mechanical treatments and prior to any rehabilitation treatments that may be needed.
- Utilize some portion of the slash generated from vegetation treatments to enhance cover in adjacent downstream areas where cover has been determined to be limiting for reptiles and amphibians. Take measures to avoid fluid leaks from equipment used to treat vegetation.
- When protecting riparian resources with firebreaks, protect bank cover by moving larger fuel elements removed from the break to downstream locations in the stream reach to aid in bank protection.
- Restrict motorized vehicles for vegetation treatment or other activities, to the extent feasible, to existing roads, trails, washes, and temporary firebreak or site-access routes. When off-road travel is deemed necessary, any cross-country travel paths will be surveyed for sensitive plants and soil conditions prior to use and will be closed and rehabilitated after the project is completed.
- Use seed from regionally native species of grasses and herbaceous vegetation in areas where reseeding is necessary following ground disturbance to revegetate bare areas, stabilize soils, and prevent erosion.
- In designing vegetation treatments, use ecological site descriptions to determine where vegetation treatments would be appropriate.
- Avoid impacts on protected plants or their habitats by developing, modifying, redesigning, mitigating, or abandoning projects.

G.2.4 Fire Management

Standard Operating Procedures

- Carry out fire suppression in a manner consistent with Interagency Standards for Fire and Aviation Operations (BLM 2018b), which is updated on an annual basis by the National Interagency Fire Center. Logistical support, operation and coordination, and policies and procedures for mobilization of firefighting resources are outlined in the Southwest Area Mobilization Guide (BLM 2018a).
- Fire management activities will continue to avoid disturbing known archaeological sites or sites found during such activities. Fires will not be intentionally started at known sites. Archaeologists will serve as resource advisors for fire management and help develop and implement fire and fuels management tactics and treatments to minimize or avoid effects on cultural resources. Fire crews will be briefed about the need to protect cultural resources.
- In areas suitable for fire, the BLM will monitor existing air quality levels and weather conditions to determine which prescribed fires can be ignited and which, if any, must be delayed to ensure that air quality meets federal and state standards. If air quality approaches unhealthy levels, the BLM will delay igniting prescribed fires.
- Use suppression tactics that limit damage or disturbance to the habitat and landscape. Heave equipment (such as dozers) must be approved.

• Use fire retardants or chemicals next to waterways in accordance with the Interagency Policy for Aerial and Ground Delivery of Wildland Fire Chemicals Near Waterways and Other Avoidance Areas (2017 Interagency Standards for Fire and Aviation Operations).

Best Management Practices

- Use Minimum Impact Suppression Tactics to the extent possible.
- Follow existing conservation measures to the extent possible to minimize harm to federally listed, proposed, or candidate species within the action area.

G.2.5 Fish and Wildlife Management

Standard Operating Procedures

• The BLM will comply with the BLM Migratory Bird Treaty Act- Interim Management Guidance (BLM IM 2008-050).

Best Management Practices

- Emphasize use of new technologies, products, and construction designs that provide for the lowest degree of maintenance and a visually obscure wildlife water development that is compatible with the surrounding terrain.
- Fences constructed will comply with applicable wildlife fence standards (BLM Handbook H-1741-1). Existing fences that impede big game movement or that otherwise conflict with wildlife may be modified to comply with applicable wildlife fence standards on a case-by-case basis.
- The BLM will consult agency species management plans and other conservation plans as appropriate to guide management and devise mitigation measures when needed. Examples of these plans include, but are not limited to, the North American Landbird Conservation Plan (Rich et al. 2004), National and Arizona Partners in Flight Bird Conservation Plans (Rosenberg et al. 2016, Latta et al. 1999), the Arizona Bat Conservation Plan (Hinman and Snow 2003), and the Arizona State Wildlife Action Plan (AZGFD 2012).
- Work with other agencies to control nonnative, invasive species in the San Pedro River as new methods of eradication are developed.
- Encourage adjacent landowners to control nonnative, invasive species to reduce the threat in the basin.

G.2.6 Cultural Resources

Standard Operating Procedures

- The BLM applies the following standard discovery stipulations to all permits, grants, and work authorizations; project-specific cultural resources stipulations also may be applied as necessary:
 - The operator is responsible for informing all persons who are associated with the authorized operations that they will be subject to prosecution for knowingly disturbing historic or archaeological sites, or for collecting artifacts. Any cultural (historic/prehistoric site or object) or paleontological (fossil remains of plants or animals) resource discovered during operations shall be immediately reported to the AO or his/her designee. All operations in the immediate area of the discovery shall be suspended until written authorization to proceed is issued. A qualified archaeologist or

paleontologist shall make an evaluation of the discovery to determine appropriate actions to prevent the loss of significant cultural or scientifically important values.

- If in connection with this work any human remains, funerary objects, sacred objects, or objects of cultural patrimony as defined in the Native American Graves Protection and Repatriation Act (Public Law [PL] 101-601; 104 Stat. 3048; 25 United States Code [USC] 3001) are discovered, operations in the immediate area of the discovery shall cease, the remains and objects shall be protected, and the operator shall immediately notify the AO. The immediate area of the discovery shall be protected until notified by the AO that operations may resume.
- BLM authorizations are considered undertakings subject to compliance with Section 106 of the National Historic Preservation Act (NHPA; 54 USC 306108 et seq.) and its implementing regulations found at 36 CFR 800, wherein the BLM has the legal responsibility to consider the effects of its actions on *historic properties*. The BLM Manual 8100 Series and the BLM Arizona State Protocol provide applicable Section 106 compliance procedures to meet appropriate cultural resources management standards. Section 106 of the NHPA requires federal agencies to 1) identify historic properties within areas of potential effects (APEs) for a federal undertaking; 2) evaluate the significance of cultural resources by determining National Register of Historic Places (NRHP) eligibility; and 3) consult with applicable federal, state, and tribal entities regarding assessment results, NRHP eligibility determinations, and proposed methods to avoid or mitigate potential impacts on historic properties.
- In Arizona, the BLM's routine NHPA responsibilities are carried out in accordance with the BLM Arizona State Protocol—a Programmatic Agreement among the BLM and the Arizona State Historic Preservation Officer (SHPO; agreement executed December 14, 2014). Should the BLM determine that an undertaking would result in no historic properties affected or no adverse effect, as advised by a qualified cultural resources specialist, the undertaking may proceed under the terms and conditions of the BLM Arizona State Protocol. If the undertaking is determined to have an adverse effect, or otherwise meets stipulated consultation thresholds, project-specific consultation is then initiated with the SHPO.
- Native American traditional and religious concerns are legislatively considered under several acts and executive orders, including the American Indian Religious Freedom Act (AIRFA; 42 USC 1996), the Native American Graves Protection and Repatriation Act (NAGPRA; 25 USC 3001), and Executive Order 13007 (Indian Sacred Sites). In sum and in concert with other provisions such as those found in the NHPA and Archaeological Resources Protection Act (ARPA; 16 USC 470aa-470mm), these acts and orders require the federal government to carefully and proactively consider the traditional and religious values of Native American culture and lifeways to ensure, to the greatest degree possible, that access to sacred sites, treatment of human remains, the possession of sacred items, conduct of traditional religious practices, and the preservation of important cultural properties are not unduly infringed upon. In some cases, these concerns are directly related to historic properties and/or archaeological resources, such as those considered under Section 106 of the NHPA. Likewise, elements of the landscape without archaeological or human material remains also may be involved.
- Project-specific assessments and consultations will occur during the BLM's review of any future proposed action on BLM-administered lands. Should the BLM identify adverse impacts, additional consideration for potentially significant sites and possible protection or mitigation strategies would be warranted.

- The BLM's primary and preferred measure used to protect cultural resources is avoidance of impacts through appropriate design and/or relocation of activities and facilities. Avoidance measures are best accomplished through early planning and consultation, and use of adequate identification and assessment strategies. For undertakings where avoidance is not practicable, the BLM may apply measures to minimize potential impacts (e.g., through project redesign or construction and archaeological monitoring) or develop plans to mitigate potential adverse effects on specific sites through consultation with interested and affected parties.
- Mitigation strategies depend on the nature of an undertaking and, where present, the nature and NRHP eligibility criteria of any historic property. For example, sites eligible under Criterion D (i.e., having the potential to provide significant information about the past) are often mitigated through data recovery. Data recovery procedures could include archaeological excavation, mapping, collection of artifacts and other archaeological materials, archival research, or ethnographic research and collection of oral histories. Final reports will be required to document the results of analysis, with collections and data preserved for long-term research in a museum or other federally approved repository.
- Potential visual impacts on a historic property (or its associated setting) may be mitigated by reducing the contrast of developed facilities within the surrounding terrain and viewshed. Auditory intrusions could be mitigated by scheduling activities to avoid sensitive times of the year. Reclamation can restore aspects of a historic property's setting after the conclusion of construction activities and/or use. However, it may not be possible to reduce or fully mitigate all potential adverse effects in the long term and, in such cases, compensatory mitigation strategies could be developed.

Best Management Practices

- As with the application of cultural resources mitigation strategies, application of BMPs depends on the nature of an undertaking and any potentially affected historic property. In situations where a proposed undertaking—or a series of undertakings—poses potential direct (alteration of the physical integrity) or indirect (visual, auditory, or atmospheric) impacts on a historic property, the following BMPs shall be considered through analysis and consultation:
 - Avoidance by design or relocation
 - Consolidating project facilities and the construction footprint
 - Using low-profile facilities
 - Using sighting and location to maximize the use of topography and vegetation to screen development and potential visual and/or auditory intrusions
 - Using environmental coloration or advance camouflage techniques to minimize visual intrusions
 - Using fencing with low-visibility fiberglass posts, environmentally coordinated colors, or other setting-appropriate designs
 - Designing linear facilities to run parallel to key observation points rather than perpendicular
 - Modifying the orientation of facilities to present less of a direct, visual, and/or auditory impact

Where the BLM identifies existing or actively occurring impacts on historic properties, protective and restorative measures may be used to protect the remaining integrity of at-risk sites. As provided in BLM Manual 8140, these measures may include installation of signs, fencing, or other barriers; administratively closing the area to public access and use; installation of erosion control features; and site or structural stabilization using backfilling and structural repair or shoring. Although this list is not exhaustive, the BLM is committed to considering avoidance and protective measures as cultural resources BMPs prior to pursuing mitigation or demolition of any historic property.

G.2.7 Visual Resources

Standard Operating Procedures

- Complete visual contrast ratings on proposed projects to assess potential visual impacts and to identify visual design guidelines to ensure visual resource management (VRM) objectives are achieved. Mitigation measures to reduce potential visual impacts will include, but not be limited to, site selection, material selection, screening, rehabilitation, and color treatment of structures.
- Identify design features and/or mitigation measures for proposed projects with a potential for visual impacts on the SPRNCA to ensure VRM class objectives can be met. Analyze design features and mitigation measures through the National Environmental Policy Act of 1969 (NEPA) process and required as part of the decision.
- Conduct field analysis to ensure that project elements are designed appropriately to sufficiently fit the existing natural landscape.
- Produce visual simulations as determined by the BLM to assist in developing project design features and mitigation measures to reduce impacts on visual resources. These simulations will also be used to complete contrast ratings.
- Monitor visual resource conditions for impacts from land use activities, and effectiveness of design requirements.
- Night lighting required for any purpose will incorporate measures to protect night skies.

Best Management Practices

- Screen project elements through proper siting and location.
 - Site and locate project elements to reduce visual impacts, especially where viewsheds are highly sensitive to the public. This includes siting projects in a way that allows the natural topography and vegetation to obstruct the view of project elements as much as possible while allowing the function of the project to be maintained. If the natural topography and vegetation are not sufficient to screen a project, analyze relocating or redesigning the project. If natural topography and vegetation does not sufficiently reduce impacts to meet VRM objectives, properly designing and constructing an artificial landscape visual screen will be used. Avoid skylining project elements (structure elements being visible above the landscape in sky view) where practicable to reduce visibility of project elements.
- Minimize the disturbance footprint of land-disturbing activities.
 - Design land-disturbing activities to reduce the overall footprint on the landscape.
 Where possible, use avoidance or drive and crush method for site clearing and access to

promote vegetation preservation and regrowth. Use blading or clearing and grubbing activities only when there is no other option to achieve the result.

- Color treat project elements to reduce visual contrast.
 - Complete color treating project structures to reduce visual contrast. Conduct color analysis to determine the most appropriate color for the specific landscape condition. The BLM Standard Color Chart will be the basis of the color analysis and selection, but other colors could be used if the resulting condition would be a reduction of visual contrast. Color treatment techniques, such as liquid paint application and powder coating, will be considered on a case-by-case basis and will be selected to ensure the most durable and best performing surface possible.
- Use natural materials to allow project elements to blend with the natural surroundings.
 - Design elements of a project will incorporate natural materials where practicable. Natural materials have an innate quality that help to reduce contrast, creating structures that mimic the natural character of the landscape. These materials will be used at the discretion of the BLM to ensure natural resources are not collected to the detriment of the natural landscape.
- Utilize reclamation and revegetation.
 - Reclaim land-disturbing activities to return the landscape to a natural condition. This
 includes activities such as recontouring, soil preparation through tilling and adding soil
 amendments such as compost and fertilizer, revegetation through nursery stock planting
 and reseeding, and an overall returning of disturbed land to a natural condition.
 Vegetation and seeding species would be native and site specific and would be
 appropriate species for the ecoregion and local habitat.

G.2.8 Lands with Wilderness Characteristics

Standard Operating Procedures

- Patrol by law enforcement and resource specialists will be completed to monitor public use and to ensure compliance with use restrictions.
- Supplemental rules would be amended to provide for enforcement of use restrictions.

Best Management Practices

- Post visitor information and regulatory signs at access points.
- Install physical barriers at ingress/egress points to prevent vehicle access.

G.2.9 Lands and Realty

Standard Operating Procedures

- Obtain reasonable public and administrative access to BLM-administered land in the following ways:
 - I. Require reciprocal access easements to meet specific program needs.
 - 2. Consider and manage the use of BLM-administered land for rights-of-way (ROW), ROW reservations, easements, permits, leases, licenses, and agreements, except for those areas identified as exclusion areas.

- 3. Secure access easements as needed to prevent closing of access to BLM-administered land.
- The BLM will strive to coordinate applicable transportation-related planning efforts for the SPRNCA with the Arizona Department of Transportation (AZDOT) and Cochise County.
- In February 2003, the Department of Homeland Security (DHS) issued the National Strategy for the Physical Protection of Critical Infrastructures and Key Assets (DHS 2003), which summarized the initial assessment of and planning to protect against vulnerabilities to the terrorist threat. The designation of utility and transportation corridor locations and the planning and maintenance of utilities; railroads; and federal, state, and interstate highways that cross BLMadministered lands will be consistent with all directives, policies, and procedures that DHS may institute to minimize vulnerabilities to the energy grid.
- Whenever possible, design or route utility transmission lines to minimize adverse visual impacts on the surrounding land and vistas.
- New ROWs will make maximum use of existing routes and will share facilities whenever possible, including joint use by different types of utilities, such as transmission line towers and communication sites.
- Coordinate communications-related planning efforts with the Federal Communications Commission, as needed.
- The BLM may require that a licensed surveyor provide a cadastral survey (to be reviewed by a BLM cadastral surveyor) of a ROW route prior to issuance of the authorization to an outside entity.

Best Management Practices

• In designated corridors (e.g., utility, roads, trails, and bridges) through riparian areas, perform needed maintenance with the least possible habitat disturbance.

G.2.10 Livestock Grazing

Standard Operating Procedures

- Make any compensation for a loss of range improvements in accordance with 43 CFR 4120.3-6.
- Livestock management changes may be made when sufficient assessment, inventory, or monitoring data are available.
- Fence construction and maintenance will follow guidance provided in BLM Handbook H-1741-1.

Best Management Practices

- Consider deferment of livestock, where possible in cooperation with leaseholders, to allow for the use of prescribed fire or other vegetation treatments, or to allow for rest in other grazing allotments.
- Intensity, season and frequency, and distribution of grazing use shall provide for growth and reproduction of the plant species needed to reach desired plant community objectives.
- Rest rotation, deferred rotation, seasonal or short-duration use, or other grazing management systems may be implemented where the need has been identified through monitoring. Use monitoring to assess the effectiveness of changes brought about by new management practices.
- Only allow salt/nutrient blocks in upland areas.

G.2.11 Recreation Resources

Standard Operating Procedures

- Make information available on allowable uses and use restrictions/regulations.
- Establish supplementary regulations to implement RMP decisions on allowable uses and restrictions in accordance with 43 CFR 8365.1-6.
- Issue temporary orders of closure or restriction to protect public safety or resources in accordance with 43 CFR 8364.1.
- Provide enforcement of public land recreation program regulations and rules of conduct, and supplementary regulations.
- Encourage Leave No Trace travel and camping techniques.
- Promote use of designated campsites for backcountry camping. Educate visitors on campfire etiquette to reduce proliferation of campfire rings, and dead and down firewood gathering.
- Systematically monitor public use sites developed or designated. Take action to prevent safety problems and resource damage.
- Conduct comprehensive site assessments where existing physical and social impacts of recreational use and activities may be inconsistent with management objectives, and to define corrective actions.
- Develop and maintain partnerships with authorized users, local clubs, and organizations to provide visitor services and educational opportunities consistent with management objectives.
- Install cultural and natural resource interpretation signs at ingress/egress points to promote visitor awareness, enjoyment, and appreciation, and resource protection consistent with recreation, interpretation, and educational objectives for the area.
- Pursue interpretation and environmental educational opportunities, outreach development, and implementation of on-site and off-site programs for adults, children, and special populations.
- Work with partners to develop and distribute visitor information materials for websites, brochures, maps, access guides, and information sheets about the area, resource values, recreational opportunities, use restrictions, and visitor ethics.
- Design, construct, or alter public use facilities to comply with the Americans with Disabilities Act and the regulations in the Architectural Barriers Act Accessibility Guidelines for Outdoor Developed Areas (36 CFR 1191). Implement project plans for accessibility guidelines consistent with the recreational setting of the facility. Give priority to the most heavily used sites at the San Pedro House and Fairbank Townsite.
- Prohibit discharge of firearms within developed recreation and administrative sites and within 1/4 mile of occupied structures, as currently defined in federal and state regulations.

Special Recreation Permits

- Make information available on activities that require a Special Recreation Permit (SRP).
- Special stipulations may be identified and added to the SRP to mitigate safety concerns, avoid use conflicts, or protect sensitive resources.
- Permits for specified uses and activities may be issued for a single event, a year, or multiple years in the identified use areas, for the specified term, and subject to the approved operating plan and permit stipulations.

- Compliance checks on permitted activities are completed as needed to ensure compliance with permit requirements.
- Permit audits may be conducted to ensure program and regulatory requirements are being implemented properly.
- Require accurate and up-to-date operating plans.
- Require liability insurance coverage with liability limits depending on the nature of the activity and associated risks.
- Require use reports at designated intervals or after the permitted use.
- Collect permit fees in advance, and after the permitted activity based on actual use.

Best Management Practices

- Post signs, provide information kiosks, and make area guides available through a variety of media to ensure public awareness of allowable uses and restrictions and to promote compliance.
- Employ staff and volunteers to provide visitor services and information on allowable uses and restrictions.
- Schedule law enforcement patrols to provide a visible presence when and where public visitation is heaviest, and in response to incidents and reports of violations.
- Post signs to make users aware of camping restrictions within 1/4 mile of a natural water hole containing water or a man-made watering facility containing water in such a place that wildlife or domestic stock will be denied access to the only reasonably available water (Arizona Revised Statutes [ARS] 17-308, unlawful camping).

G.2.12 Education and Interpretation

Best Management Practices

• Involve non-BLM partners in developing and delivering educational and interpretive programs and services.

G.2.13 Travel Management

Standard Operating Procedures

- Consider new routes, including additions to the designated route system, to ensure connectivity, accommodate emerging access needs, resolve conflicts, protect resources, protect public safety, mitigate impacts of existing routes, or in response to internal or external proposals.
- Complete a comprehensive review of the designated route system every 5 years as provided in the BLM Land Use Planning Handbook, H-1601-1, section V.B, on pages 33-36. The review will analyze the system's implementation status and its effectiveness, and identify any needed adjustments or changes.
- Proposed route additions (roads or trails) will require:
 - I. Accurate route location information using global positioning system devices.
 - 2. Route description (access purpose and need, type of use to be accommodated, and design criteria including design vehicle, width, vegetation clearance, traffic volume, and grades).

- 3. Centerline staking or flagging on the ground for review and analysis.
- 4. Route analysis that will address conformance with the land use plan and resource management objectives, alternatives, safety, potential conflicts with other uses, and mitigation.
- 5. Compliance with NEPA documented according to established procedures, including compliance with a cultural resources and biological resources survey, and clearance and consultation requirements.
- 6. Route additions as a basis for updating the comprehensive route inventory and Transportation Plan, and the BLM Facility Asset Management System, as appropriate.

Best Management Practices

- Identify access needs for administrative purposes for the various resource management programs and activities, including emergency and fire suppression. Designate administrative vehicle access routes and allowable uses.
- Identify access needs for achieving recreation and visitor management objectives. Designate public use routes and allowable uses. Limit use of routes to avoid or prevent user conflicts.
- Designate the transportation system (motorized and nonmotorized) to accommodate administrative and public access needs. Identify the type of access a route is intended to provide or accommodate in route management objectives.
- Identify route maintenance intensities, and establish guidelines for maintenance and improvement of the route system to facilitate analysis and maintenance activities, including travel way width, grade, vegetation clearance, surface, drainage, and other maintenance items.
- Provide maintenance for roads and trails as needed based on the road and trail conditions and intended use(s).
- Designate or identify reclamation or restoration objectives for existing routes that do not have identified access purposes.

Road Construction/Maintenance

- Manage administrative roads to accommodate the intended access purposes and vehicle type.
- Open administrative roads to the public for nonmotorized uses (hiking, biking, and horseback riding).
- Provide road maintenance at a level of intensity and frequency based on the functional characteristics of the route, type of use, level of use, and the condition of the route.
- Construct new roads or trails only if existing routes do not provide adequate access to meet management objectives.
- Use or reconstruct existing routes to provide for emerging access needs whenever possible instead of constructing new routes.
- Comply with BLM 9113 Roads Manual, the BLM 9115 Primitive Roads Manual, or the BLM 9114 Trails Manual in the design, construction, and maintenance of roads and primitive roads.

Trail Construction and Maintenance

• Design the trail system to provide connectivity between access points and sites or areas of interest throughout the SPRNCA.

- Maintain and improve multi-use trails to accommodate equestrian, hiking, and bicycle use.
- Maintain and improve interpretive paths for foot traffic only, with bicycle and equestrian use not allowed.
- Provide hitching rails for horses and/or bicycles at interpretive sites accessed by equestrian and bicycles.
- Modify vehicle gates to provide trail access without having to unlock a gate for foot, horse, and bike access.
- Ensure that trailhead facility design considers the various types of use (equestrian, hiking, and bicycling).
- Avoid using heavily traveled roads for trail connections and on-grade crossings (cross under highway bridges). Designate the highway crossings (under highway bridge, or on-grade). Work with AZDOT on permits for the highway crossings and safety signs ("horse/hiker crossing ahead").

Accessibility

- Identify routes that will be improved to meet accessibility guidelines for outdoor developed areas in the Rural Recreation Management Zone.
- Distinguish accessibility levels provided using concrete and compacted aggregate surfacing, and backcountry trail accessibility barriers; ensure awareness through signs at access points and visitor information materials.

REFERENCES

- AZGFD (Arizona Game and Fish Department). 2012. Arizona's State Wildlife Actin Plan: 2012-2022. Phoenix, Arizona. May 16, 2012.
- BLM (US Department of Interior, Bureau of Land Management). BLM Arizona State Protocol --Programmatic Agreement among the BLM and the Arizona State Historic Preservation Officer. Executed December 14, 2014.
- _____. BLM Handbook H-1601-1 -- Land Use Planning Handbook. Washington, DC. March 11, 2005. Internet website: https://www.blm.gov/sites/blm.gov/files/uploads/Media_Library_BLM_Policy_ Handbook_h1601-1.pdf.
- _____. BLM Handbook H-1741-1 -- Fencing. Washington, DC. December 6, 1989.
- _____. BLM IM 2008-050. BLM Migratory Bird Treaty Act -- Interim Management Guidance. 2007.
- _____. BLM Manual 8140 -- Protecting Cultural Resources. Washington, DC. December 3, 2004. Internet website: https://www.blm.gov/sites/blm.gov/files/uploads/mediacenter_blmpolicy manual8140.pdf.
- _____. BLM Manual 8270 -- Paleontological Resource Management. Washington, DC. Rel 8-68. July 13, 1998.

- . BLM Handbook 8270-1 -- General Procedural Guidance for Paleontological Resource Management. Rel 8-69. Washington, DC. July 13, 1998.
- _____. BLM Manual 9113 -- Roads. Washington, DC. May 4, 2015. Internet website: https://www.blm.gov/sites/blm.gov/files/uploads/mediacenter_blmpolicymanual9113.pdf.
- _____. BLM Manual 9114 -- Trails. Bureau of Land Management. Washington, DC. July 24, 1987.
- _____. BLM Manual 9115 -- Primitive Roads Manual. Washington, DC. March 6, 2012. Internet website: https://www.blm.gov/sites/blm.gov/files/uploads/mediacenter_blmpolicymanual9115.pdf.
- _____. BLM Standard Color Chart.
- . 2018a. Southwest Area Mobilization Guide. Interagency. 2018. https://gacc.nifc.gov/swcc/ dispatch_logistics/dispatch/mobguide/Full_Version/SWA_Mobilization_Guide.pdf
- . 2018b. Interagency Standards for Fire and Aviation Operations. Interagency. 2018. https://www.nifc.gov/policies/pol_ref_redbook.html
- DHS (Department of Homeland Security). 2003. National Strategy for the Physical Protection of Critical Infrastructures and Key Assets. The National Strategy for the Physical Protection of Critical Infrastructures and Key Assets. Washington, DC. February 2003.
- Hinman, K.E. and T.K. Snow, eds. 2003. Arizona Bat Conservation Strategic Plan. Nongame and Endangered Wildlife Program Technical Report 213. Arizona Game and Fish Department, Phoenix, Arizona.
- Latta, M.J., C.J. Beardmore, and T.E. Corman. 1999. Arizona Partners in Flight Bird Conservation Plan. Version 1.0. Nongame and Endangered Wildlife Program Technical Report 142. Arizona Game and Fish Department, Phoenix, Arizona.

Leave No Trace Travel and Camping Techniques. https://Int.org/

- Rich, T. D., C. J. Beardmore, H. Berlanga, P. J. Blancher, M. S. W. Bradstreet, G. S. Butcher, D. W. Demarest, E. H. Dunn, W. C. Hunter, E. E. Iñigo-Elias, J. A. Kennedy, A. M. Martell, A. O. Panjabi, D. N. Pashley, K. V. Rosenberg, C. M. Rustay, J. S. Wendt, T. C. Will. 2004. Partners in Flight North American Landbird Conservation Plan. Cornell Lab of Ornithology. Ithaca, New York.
- Rosenberg, K.V., J. A. Kennedy, R. Dettmers, R. P. Ford, D. Reynolds, J.D. Alexander, C. J. Beardmore,
 P. J. Blancher, R. E. Bogart, G. S. Butcher, A. F. Camfield, A. Couturier, D. W. Demarest, W. E.
 Easton, J.J. Giocomo, R.H. Keller, A. E. Mini, A. O. Panjabi, D. N. Pashley, T. D. Rich, J. M. Ruth,
 H. Stabins, J. Stanton, T. Will. 2016. Partners in Flight Landbird Conservation Plan: 2016 Revision
 for Canada and Continental United States. Partners in Flight Science Committee. 119 pp.
- 2017 Interagency Standards for Fire and Aviation Operations. Interagency Policy for Aerial and Ground Delivery of Wildland Fire Chemicals Near Waterways and Other Avoidance Areas. 2017 https://www.nifc.gov/PUBLICATIONS/redbook/2017/RedBookAll.pdf

Appendix H

Arizona Standards for Rangeland Health and Guidelines for Grazing Administration

Appendix H. Arizona Standards for Rangeland Health and Guidelines for Grazing Administration

H.I INTRODUCTION

The Department of the Interior's final rule for Grazing Administration, issued on February 22, 1995, and effective August 21, 1995, requires that Bureau of Land Management (BLM) State Directors develop State or regional standards and guidelines for grazing administration in consultation with BLM Resource Advisory Councils (RAC), other agencies and the public. The final rule provides that fallback standards and guidelines be implemented, if State standards and guidelines are not developed by February 12, 1997. Arizona Standards and Guidelines (BLM 1997) and the final rule apply to grazing administration on public lands as indicated by the following quotation from the *Federal Register*, Volume 60, Number 35, page 9955.

"The fundamentals of rangeland health, guiding principles for standards and the fallback standards address ecological components that are affected by all uses of public rangelands, not just livestock grazing. However, the scope of this final rule, and therefore the fundamentals of rangeland health of §4180.1, and the standards and guidelines to be made effective under §4180.2, are limited to grazing administration."

Although the process of developing standards and guidelines applies to grazing administration, present rangeland health is the result of the interaction of many factors in addition to grazing by livestock. Other contributing factors may include, but are not limited to, past land uses, land use restrictions, recreation, wildlife, rights-of-way, wild horses and burros, mining, fire, weather, and insects and disease.

With the commitment of BLM to ecosystem and interdisciplinary resource management, the standards for rangeland health as developed in this current process will be incorporated into management goals and objectives. The standards and guidelines for rangeland health for grazing administration, however, are not the only considerations in resolving resource issues.

The following quotations from the *Federal Register*, Vol. 60, No. 35, page 9956, February 22, 1995, describe the purpose of standards and guidelines and their implementation:

"The guiding principles for standards and guidelines require that State or regional standards and guidelines address the basic components of healthy rangelands. The Department believes that by implementing grazing-related actions that are consistent with the fundamentals of §4180.1 and the guiding principles of §4180.2, the long-term health of public rangelands can be ensured.

"Standards and guidelines will be implemented through terms and conditions of grazing permits, leases, and other authorizations, grazing-related portions of activity plans (including Allotment Management Plans), and through range improvement-related activities.

"The Department anticipates that in most cases the standards and guidelines themselves will not be terms and conditions of various authorizations but that the terms and conditions will reflect the standards and guidelines.

"The Department intends that assessments and corrective actions will be undertaken in priority order as determined by BLM.

"The Department will use a variety of data including monitoring records, assessments, and knowledge of the locale to assist in making the "significant progress" determination. It is anticipated that in many cases it will take numerous grazing seasons to determine direction and magnitude of trend. However, actions will be taken to establish significant progress toward conformance as soon as sufficient data are available to make informed changes in grazing practices."

H.2 FUNDAMENTALS AND DEFINITION OF RANGELAND HEALTH

The Grazing Administration Regulations, at §4180.1 (43 Code of Federal Regulation [CFR] 4180.1), *Federal Register* Vol. 60, No. 35, pg. 9970, direct that the authorized officer ensures that the following conditions of rangeland health exist:

(a) Watersheds are in, or are making significant progress toward, properly functioning physical condition, including their upland, riparian-wetland, and aquatic components; soil and plant conditions support infiltration, soil moisture storage, and the release of water that are in balance with climate and landform and maintain or improve water quality, water quantity, and timing and duration of flow.

(b) Ecological processes, including the hydrologic cycle, nutrient cycle, and energy flow, are maintained, or there is significant progress toward their attainment, in order to support healthy biotic populations and communities.

(c) Water quality complies with State water quality standards and achieves, or is making significant progress toward achieving, established BLM management objectives such as meeting wildlife needs.

(d) Habitats are, or are making significant progress toward being, restored or maintained for Federal threatened and endangered species, Federal Proposed, Category I and 2 Federal candidate and other special status species.

These fundamentals focus on sustaining productivity of a rangeland rather than its uses. Emphasizing the physical and biological functioning of ecosystems to determine rangeland health is consistent with the definition of rangeland health as proposed by the Committee on Rangeland Classification, Board of Agriculture, National Research Council (Rangeland Health, 1994, pg. 4 and 5). This Committee defined Rangeland Health ". . .as the degree to which the integrity of the soil and the ecological processes of rangeland ecosystems are sustained." This committee emphasized ". . .the degree of integrity of the soil and ecological processes that are most important in sustaining the capacity of rangelands to satisfy values and produce commodities." The Committee also recommended that "The determination of whether a rangeland is healthy, at risk, or unhealthy should be based on the evaluation of three criteria: degree of soil stability and watershed function, integrity of nutrient cycles and energy flow, and presence of functioning mechanisms" (Rangeland Health, 1994, pg. 97-98).

Standards describe conditions necessary to encourage proper functioning of ecological processes on specific ecological sites. An ecological site is the logical and practical ecosystem unit upon which to base an interpretation of rangeland health. Ecological site is defined as:

"... a kind of land with specific physical characteristics which differs from other kinds of land in its ability to produce distinctive kinds and amounts of vegetation and in its response to management" (Journal of <u>Range Management</u>, 48:279, 1995). Ecological sites result from the interaction of climate, soils, and landform (slope, topographic position). The importance of this concept is that the "health" of different kinds of rangeland must be judged by standards specific to the potential of the ecological site. Acceptable erosion rates, water quality, productivity of plants and animals, and other features are different on each ecological site.

Since there is wide variation of ecological sites in Arizona, standards and guidelines covering these sites must be general. To make standards and guidelines too specific would reduce the ability of BLM and interested publics to select specific objectives, monitoring strategies, and grazing permit terms and conditions appropriate to specific land forms.

Ecological sites have the potential to support several different plant communities. Existing communities are the result of the combination of historical and recent uses and natural events. Management actions may be used to modify plant communities on a site. The desired plant community for a site is defined as follows: "Of the several plant communities that may occupy a site, the one that has been identified through a management plan to best meet the plan's objectives for the site. It must protect the site as a minimum." (Journal of Range Management, 48:279, 1995.)

Fundamentals (a) and (b) define physical and biological components of rangeland health and are consistent with the definition of rangeland health as defined by the Committee on Rangeland Classification, Board on Agriculture, National Research Council, as discussed in the paragraph above. These fundamentals provide the basis for sustainable rangelands.

Fundamentals (c) and (d) emphasize compliance with existing laws and regulation and, therefore, define social and political components of rangeland health. Compliance with Fundamentals (c) and (d) is accomplished by managing to attain a specific plant community and associated wildlife species present on ecological sites. These desired plant communities are determined in the BLM planning process, or, where the desired plant community is not identified, a community may be selected that will meet the conditions of Fundamentals (a) and (b) and also adhere to laws and regulations. Arizona Standard 3 is written to comply with Fundamentals (c) and (d) and provide a logical combination of Standards and Guidelines for planning and management purposes.

H.3 STANDARD AND GUIDELINE DEFINITIONS

Standards are goals for the desired condition of the biological and physical components and characteristics of rangelands. Standards:

- (I) are measurable and attainable; and
- (2) comply with various Federal and State statutes, policies, and directives applicable to BLM Rangelands.

Guidelines are management approaches, methods, and practices that are intended to achieve a standard. Guidelines:

- (1) typically 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.4 IMPLEMENTING STANDARDS AND GUIDELINES

The authorized officer will review existing permitted livestock use, allotment management plans, or other activity plans which identify terms and conditions for management on public land. Existing management practices, and levels of use on grazing allotments will be reviewed and evaluated on a priority basis to determine if they meet, or are making significant progress toward meeting, the standards and are in conformance with the guidelines. The review will be interdisciplinary and conducted under existing rules which provide for cooperation, coordination, and consultation with affected individuals, federal, state, and local agencies, tribal governments, private landowners, and interested publics.

This review will use a variety of data, including monitoring records, assessments, and knowledge of the locale to assist in making the significant progress determination. Significance will be determined on a case by case basis, considering site potential, site condition, weather and financial commitment. It is anticipated there will be cases where numerous years will be needed to determine direction and magnitude of trend.

Upon completion of review, the authorized officer shall take appropriate action as soon as practicable but no later than the start of the next grazing year upon determining that the existing grazing management practices or level of use on public land are significant factors contributing to failure to achieve the standards and conform with the guidelines that are made effective under 43 CFR 4180.2. Appropriate action means implementing actions that will result in significant progress toward fulfillment of the standards and significant progress toward conformance with guidelines.

Livestock grazing will continue where significant progress toward meeting standards is being made. Additional activities and practices would not be needed on such allotments. Where new activities or practices are required to assure significant progress toward meeting standards, livestock grazing use can continue contingent upon determinations from monitoring data that the implemented actions are effective in making significant progress toward meeting the standards. In some cases, additional action may be needed as determined by monitoring data over time.

New plans will incorporate an interdisciplinary team approach (BLM1995). The terms and conditions for permitted grazing in these areas will be developed to comply with the goals and objectives of these plans which will be consistent with the standards and guidelines.

H.5 ARIZONA STANDARDS AND GUIDELINES

Arizona Standards and Guidelines (BLM 1997) for grazing administration have been developed through a collaborative process involving the BLM State Standards and Guidelines Team and the Arizona Resource Advisory Council. Together, through meetings, conference calls, correspondence, and Open Houses with the public, the BLM State Team and RAC prepared Standards and Guidelines to address the

minimum requirements outlined in the grazing regulations. The Standards and Guidelines, criteria for meeting Standards, and indicators are an integrated document that conforms to the fundamentals of rangeland health and the requirements of the regulations when taken as a whole.

Upland sites, riparian-wetland areas, and desired resource conditions are each addressed by a standard and associated guidelines.

H.5.1 Standard I: Upland Sites

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

Criteria for meeting Standard I

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
 - litter
 - live vegetation, amount and type (e.g., grass, shrubs, trees, etc.)
 - rock
- Signs of erosion
 - flow pattern
 - gullies
 - rills
 - plant pedestaling

Exceptions and exemptions (where applicable)

• none

Guidelines

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.

I-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.

H.5.2 Standard 2: Riparian-Wetland Sites

Riparian-wetland areas are in properly functioning condition.

Criteria for meeting Standard 2

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, land form, or large woody debris is present to dissipate stream energy associated with high water flows.

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.

The checklist for riparian areas is in Technical Reference 1737-15 "Riparian Area Management: Proper Functioning Condition Assessment for Lotic Areas" (BLM technical reference [TR] 1737-15). The checklist for wetlands is in Technical Reference 1737-16 "Riparian Area Management: A User's Guide to Assessing Proper Functioning Condition and the Supporting Science for Lentic Areas" (BLM TR 1737-16). These checklists are reprinted on the pages following the Guidelines for Standard 3.

As indicated by such factors as

- Gradient
- Width/depth ratio
- Channel roughness and sinuosity of stream channel
- Bank stabilization
- Reduced erosion
- Captured sediment
- Ground-water recharge
- Dissipation of energy by vegetation

Exceptions and exemptions (unnatural or altered water sources, where applicable)

- 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 are exempt.
- Water impoundments permitted for construction, mining, or other similar activities are exempt.
- Ephemeral washes (drainages that don't have flow for more than 30 continuous days) unless there is a resource concern or lentic sources that have improvements causing altered potential and artificial conditions.

Guidelines

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.

H.5.3 Standard 3: Desired Resource Conditions

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

Criteria for meeting Standard 3

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, Federal Land Policy and Management Act, 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 I 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 such factors as

- Composition
- Structure
- Distribution

Exceptions and exemptions (where applicable)

• Ecological sites or stream reaches on which a change in existing vegetation is physically, biologically, or economically impractical.

Guidelines

3-1. The use and perpetuation of native species will be emphasized. However, when restoring or rehabilitating disturbed or degraded rangelands, non-intrusive, non-native 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 non-native species, and/or (d) cannot compete with already established non-native 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.

H.6 LOTIC AND LENTIC CHECKLISTS

H.6.1 General Instructions

- I. The concept "Relative to Capability" applies wherever it may be inferred.
- 2. This checklist constitutes the Minimum National Standards required to determine Proper Functioning Condition of lotic or lentic riparian-wetland areas.
- 3. As a minimum, an ID Team will use this checklist to determine the degree of function of a lotic or lentic riparian-wetland area.
- 4. Mark one box for each element. Elements are numbered for the purpose of cataloging comments. The numbers do not declare importance.
- 5. For any item marked "No," the severity of the condition must be explained in the "Remarks" section and must be a subject for discussion with the ID Team in determining riparian-wetland functionality. Using the "Remarks" section to explain items marked "Yes" is encouraged but not required.
- 6. Based on the ID Team's discussion, "functional rating" will be resolved and the checklist's summary section will be completed.
- 7. Establish photo points where possible to document the site.

H.7 LOTIC STANDARD CHECKLIST

Name of Riparian-Wetland Area:_____

Date:_____ Area/Segment ID:_____ Miles:_____

ID Team Observers:_____

Yes	No	N/A	HYDROLOGIC
			1) Floodplain inundated in "relatively frequent" events (1-3 years)
			2) Active/stable beaver dams
			 Sinuosity, width/depth ratio, and gradient are in balance with the landscape setting (i.e., landform, geology, and bioclimatic region)
			4) Riparian zone is widening or has achieved potential extent
			5) Upland watershed not contributing to riparian degradation

Yes	No	N/A	VEGETATIVE
			6) Diverse age-class distribution (recruitment for maintenance/recovery)
			7) Diverse composition of vegetation (for maintenance/recovery)
			8) Species present indicate maintenance or riparian soil moisture characteristics
			 Streambank vegetation is comprised of those plants or plant communities that have root masses capable of withstanding high streamflow events
			10) Riparian plants exhibit high vigor
			11) Adequate vegetative cover present to protect banks and dissipate energy during high flows
			12) Plant communities in the riparian area are an adequate source of coarse and/or large woody debris

Yes	No	N/A	EROSION DEPOSITION
			 Floodplain and channel characteristics (i.e., rocks, overflow channels, coarse and/or large woody debris) adequate to dissipate energy
			14) Point bars are revegetating
			15) Lateral stream movement is associated with natural sinuosity
			16) System is vertically stable
			 Stream is in balance with the water and sediment being supplied by the watershed (i.e., no excessive erosion or deposition)

(Revised 1995)

REMARKS (Lotic Checklist)

	SUMMARY DETERM	INATION
Functional Rating:	SUMMARY DETERM	INATION
Functional Rating: Proper Functioning Condition	SUMMARY DETERM	INATION
Functional Rating: Proper Functioning Condition FunctionalAt Risk	SUMMARY DETERM	INATION
Functional Rating: Proper Functioning Condition FunctionalAt Risk Nonfunctional	SUMMARY DETERM	INATION
Functional Rating: Proper Functioning Condition FunctionalAt Risk Nonfunctional Unknown	SUMMARY DETERM	IINATION
Functional Rating: Proper Functioning Condition FunctionalAt Risk Nonfunctional Unknown Frend for FunctionalAt Risk:	SUMMARY DETERM	INATION
Functional Rating: Proper Functioning Condition FunctionalAt Risk Nonfunctional Unknown Frend for FunctionalAt Risk:	SUMMARY DETERM	INATION
Functional Rating: Proper Functioning Condition FunctionalAt Risk Nonfunctional Unknown Frend for FunctionalAt Risk: Upward	SUMMARY DETERM	IINATION
Functional Rating: Proper Functioning Condition FunctionalAt Risk Nonfunctional Unknown Frend for FunctionalAt Risk: Upward Downward Not Apparent	SUMMARY DETERM	INATION
Functional Rating: Proper Functioning Condition FunctionalAt Risk Nonfunctional Unknown Frend for FunctionalAt Risk: Upward Downward Not Apparent	SUMMARY DETERM	INATION
Functional Rating: Proper Functioning Condition FunctionalAt Risk Nonfunctional Unknown Frend for FunctionalAt Risk: Upward Downward Not Apparent	SUMMARY DETERM	Side BLM's control or management?
Functional Rating: Proper Functioning Condition FunctionalAt Risk Nonfunctional Unknown Frend for FunctionalAt Risk: Upward Downward Not Apparent Are factors contributing to unaccontributing to unaccont	SUMMARY DETERM	side BLM 's control or management?
Functional Rating: Proper Functioning Condition FunctionalAt Risk Nonfunctional Unknown Frend for FunctionalAt Risk: Upward Downward Not Apparent Are factors contributing to unacco Yes No	SUMMARY DETERM	side BLM 's control or management?
Functional Rating: Proper Functioning Condition FunctionalAt Risk Nonfunctional Unknown Frend for FunctionalAt Risk: Upward Downward Not Apparent Are factors contributing to unacco Yes No	SUMMARY DETERM	Side BLM's control or management?
Functional Rating: Proper Functioning Condition FunctionalAt Risk Nonfunctional Unknown Trend for FunctionalAt Risk: Upward Downward Not Apparent Are factors contributing to unacco Yes No State factors?	SUMMARY DETERM	side BLM's control or management?
Functional Rating: Proper Functioning Condition FunctionalAt Risk Nonfunctional Unknown Trend for FunctionalAt Risk: Upward Downward Not Apparent Are factors contributing to unacco Yes No f yes, what are those factors? Flow regulations	SUMMARY DETERM	Upstream channel conditions
Functional Rating: Proper Functioning Condition FunctionalAt Risk Nonfunctional Unknown Trend for FunctionalAt Risk: Upward Downward Not Apparent Are factors contributing to unacco Yes Yes No f yes, what are those factors? Flow regulations Channelization	SUMMARY DETERM	INATION side BLM's control or management? Upstream channel conditions Oil field water discharge
H.8 LENTIC STANDARD CHECKLIST

Name of Riparian-Wetland Area:_____

Date:_____ Area/Segment ID:_____ Acres:_____

ID Team Observers:_____

Yes	No	N/A	HYDROLOGIC					
			 Riparian-wetland area is saturated at or near the surface or inundated in "relatively frequent" events (1-3 years) 					
			2) Fluctuation of water levels is not excessive					
			3) Riparian-wetland zone is enlarging or has achieved potential extent					
			4) Upland watershed not contributing to riparian-wetland degradation					
			5) Water quality is sufficient to support riparian-wetland plants					
			6) Natural surface or subsurface flow patterns are not altered by disturbance (i.e., hoof action, dams, dikes, trails, roads, rills, gullies, drilling activities)					
			7) Structure accommodates safe passage of flows (e.g., no headcut effecting dam or spillway)					

Yes	No	N/A	VEGETATION					
			8) Diverse age-class distribution (recruitment for maintenance/recovery)					
			9) Diverse composition of vegetation (for maintenance/recovery)					
			10) Species present indicate maintenance of riparian-wetland soil moisture characteristics					
			 Vegetation is comprised of those plants or plant communities that have root masses capable of withstanding wind events, wave flow events, or overland flows (e.g., storm events, snowmelt) 					
			12) Riparian-wetland plants exhibit high vigor					
			13) Adequate vegetative cover present to protect shorelines/soil surface and dissipate energy during high wind and wave events or overland flows					
			14) Frost or abnormal hydrologic heaving is not present					
			15) Favorable microsite condition (i.e., woody debris, water temperature, etc.) is maintained by adjacent site characteristics					

Yes	No	N/A	SOILS-EROSION DEPOSITION			
			16) Accumulation of chemicals affecting plant productivity/composition is not apparent			
			17) Saturation of soils (i.e., ponding, flooding frequency and duration) is sufficient to compose and maintain hydric soils			
			18) Underlying geologic structure/soil material/permafrost is capable of restricting water percolation			
			19) Riparian wetland is in balance with the water and sediment being supplied by the watershed (i.e., no excessive erosion or deposition)			
			20) Islands and shoreline characteristics (i.e., rocks, coarse and/or large woody debris) adequate to dissipate wind and wave event energies			

(Revised 1995)

REMARKS (Lentic Checklist)

Functional Rating:	SUMMARY DETERM	INATION	
Proper Functioning Conditior FunctionalAt Ris Nonfunctional Unknown	(
Trend for FunctionalAt Risk:			
Upward Downward Not Apparent			
Are factors contributing to una	cceptable conditions out	side BLM's control or management?	
Yes _ No _			
If yes, what are those factors?			
DewateringMini Dredging activities Other (specify)	ng activities Road encroachment	Watershed condition Land ownership	

H.9 GLOSSARY

ACCELERATED EROSION: Soil loss above natural levels resulting directly from human activities. Due to the slow rate of soil formation, accelerated erosion can lead to a permanent reduction in plant productivity.

ACTIVITY PLAN: A detailed and specific plan for managing a single resource program or plan element undertaken as needed to implement the more general resource management plan decisions. An activity plan is prepared for specific areas to reach specific resource management objectives within stated timeframes.

ALLOTMENT: An area of land where one or more individuals graze their livestock. 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.

ALLOTMENT MANAGEMENT PLAN (AMP): A livestock grazing management plan dealing with a specific unit of rangeland and based on multiple use resource management objectives. The AMP considers livestock grazing in relation to other uses of rangelands and in relation to renewable resources-watershed, vegetation, and wildlife. An AMP establishes the seasons of use, the number of livestock to be permitted on rangelands, and the rangeland improvements needed.

AQUATIC COMPONENTS (HABITATS): Habitats confined to streams, rivers, springs, lakes, ponds, reservoirs, and other water bodies.

AUTHORIZED OFFICER: Any person authorized by the Secretary of the Interior to administer BLM's rangeland management program.

CHANNEL MORPHOLOGY: Relating to the form and structure of channels.

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.

DESIRED PLANT COMMUNITY (DPC): The plant community that has been determined through a land use or management plan to best meet the plan's objectives for a site. A real, documented plant community that embodies the resource attributes needed for the present or potential use of an area, the desired plant community is consistent with the site's capability to produce the required resource attributes through natural succession, management intervention, or a combination of both.

ECOLOGICAL SITE: A distinctive kind of rangeland that differs from other kinds of rangeland in its ability to produce a characteristic natural plant community.

EPHEMERAL: A rangeland that does not consistently produce enough forage to sustain a livestock operation but may briefly produce unusual volumes of forage that may be utilized by livestock.

GOAL: The desired state or condition that a resource management policy or program is designed to achieve. Broader and less specific than objectives, goals are usually not measurable and may not have

specific dates by which they must be reached. Objectives are developed by first understanding one's goals.

GRADIENT: Rate of regular or graded ascent or descent.

GRAZING PERMIT/LEASE: Official written permission to graze a specific number, kind, and class of livestock for a specified time period on a defined rangeland.

GULLIES: A furrow, channel or miniature valley cut by concentrated runoff, usually with steep sides through which water commonly flows during and immediately after rains or snow melt.

HYDROLOGIC CYCLE: The circuit of water movement from the atmosphere to the earth and its return to the atmosphere through various stages or processes, such as precipitation, interception, runoff, infiltration, percolation, storage, evaporation and transpiration.

INFILTRATION: The downward entry of water into the 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.

INTERESTED PUBLIC: An individual, group or organization that has submitted a written request to the authorized officer to be provided an opportunity to be involved in the decision-making process for the management of livestock grazing on specific grazing allotments or has submitted written comments to the authorized officer regarding the management of livestock grazing on a specific allotment.

LANDFORM: A discernible natural landscape that exists as a result of geological activity such as a plateau, plain, basin, or mountain.

LENTIC: Standing water riparian-wetland areas such as lakes, ponds, seeps, bogs, and meadows.

LITTER: The uppermost layer of organic debris on the soil surface, essentially the freshly fallen or slightly decomposed vegetative material.

LOTIC: Running water riparian-wetland areas such as rivers, streams and springs.

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.

NONFUNCTIONAL: Riparian-wetland areas are considered to be in nonfunctioning condition when they don't provide adequate vegetation, landform, or large woody debris to dissipate stream energy associated with high flows and thus are not reducing erosion, improving water quality, or other normal characteristics of riparian areas. The absence of certain physical attributes such as a flood plain where one should be are indicators of nonfunctioning conditions.

NOXIOUS WEED: A weed arbitrarily defined by law as being especially undesirable, troublesome, and difficult to control.

NUTRIENT CYCLE: The process of use, release and reuse of elements by plants and animals through uptake by incorporation into and decomposition of organisms. Elements involved in nutrient cycling remain in the vicinity of the earth's surface.

OBJECTIVES: The planned results to be achieved within a stated time period. Objectives are subordinate to goals, more narrow in scope, and shorter in range. Objectives must specify time periods for completion, and products or achievements that are measurable.

PERMEABILITY: The ease with which gases, liquids (water), or plant roots penetrate or pass through a bulk mass of soil or a layer of soil. Since different soil horizons vary in permeability, the particular horizon under question should be designated.

PERMITTED LIVESTOCK USE: The forage allocated by, or under the guidance of, an applicable land use plan for livestock grazing in an allotment under a permit or lease and is expressed in animal unit months (AUMs).

PLANT PEDESTALING: A condition where the soil has eroded from around individual plants or other objects such as small rocks, leaving them on small pedestals of soil. Sometimes the result of frost heaving.

PROPERLY FUNCTIONING: Riparian-wetland areas are functioning properly when adequate vegetation, landform, or large woody debris is present to dissipate stream energy associated with high waterflows, thereby reducing erosion and improving water quality; filter sediment, capture bedload, and aid floodplain development; improve floodwater retention and groundwater recharge; develop root masses that stabilize streambanks against cutting action; develop diverse ponding and channel characteristics to provide the habitat and the water depth, duration, and temperature necessary for fish production, waterfowl breeding, and other uses; and support greater biodiversity. The functioning condition of riparian-wetland areas is influenced by geomorphic features, soil, water, and vegetation.

Uplands function properly when the existing vegetation and ground cover maintain soil conditions capable of sustaining natural biotic communities. The functioning condition of uplands is influenced by geographic features, soil, water, and vegetation.

RESOURCE ADVISORY COUNCIL (RAC): A citizen-based group of 10 to 15 members chartered under the Federal Advisory Committee Act and appointed by the Secretary of the Interior to forward advice on public land planning and management issues to the BLM. Council membership reflects a balance of various interests concerned with the management of the public lands and users of the public lands.

RILL EROSION: Removal of soil by running water forming shallow channels that can be smoothed out by normal cultivation.

RIPARIAN AREA: An area of land directly influenced by permanent water. It has visible vegetation or physical characteristics reflective of permanent water influence. Lake shores and streambanks are typical areas. Excluded are such sites as ephemeral streams or washes that do not exhibit the presence of vegetation dependent on free water in the soil.

SEASON OF USE: The time during which livestock grazing is permitted on a given range area, as specified in the grazing permit.

SEEPS: Wet areas, normally not flowing, arising from an underground water source.

SINUOSITY: The ratio of stream length between two points divided by the valley length between the same two points.

SOIL MOISTURE STORAGE: The water content stored in a soil.

SPECIAL STATUS SPECIES: Plant or animal species listed as threatened, endangered, candidate, or sensitive by Federal or State governments.

STRUCTURAL DIVERSITY: The diversity of the composition, abundance, spacing, and other attributes of plants in a community.

TERMS AND CONDITIONS: Stipulations contained in livestock grazing permits and leases as determined by the authorized officer to be appropriate to achieve management and resource condition objectives for the public lands and other lands administered by BLM and to achieve standards for rangeland health and ensure conformance with guidelines for grazing administration.

TREND: The direction of change over time, either toward or away from desired management objectives.

WIDTH/DEPTH RATIO: Bankfull stream width divided by average depth.

UPLANDS: Land at a higher elevation than the alluvial plain or low stream terrace; all lands outside the riparian-wetland and aquatic zones.

WETLANDS: An area that is inundated or saturated by surface or ground water at a frequency and duration sufficient to support and which, under normal circumstances, do support a prevalence of vegetation typically adapted for life in saturated soil conditions. Wetlands include marshes, shallows, swamps, lake shores, bogs, muskegs, wet meadows, estuaries and riparian areas.

REFERENCES

- BLM (US Department of Interior, Bureau of Land Management). <u>Interdisciplinary Resource Management</u> <u>Handbook</u>. Arizona State Office. April 1995.
- _____. 1997. Arizona Standards for Rangeland Health and Guidelines for Grazing Administration. BLM, Arizona State Office, Phoenix.
 - _____. TR (Technical Reference) 1737-15. "Riparian Area Management: Proper Functioning Condition Assessment for Lotic Areas." 1998.
 - ____. TR (Technical Reference) 1737-16. "Riparian Area Management: A User's Guide to Assessing Proper Functioning Condition and the Supporting Science for Lentic Areas." 2003.

Appendix I Watershed Improvement Techniques

Appendix I. Watershed Improvement Techniques

Watershed improvements and recharge enhancement projects would consist of native tree and shrub planting and seeding, where appropriate, to induce channel meandering and to increase roughness coefficients that slow floodwaters. Tributary upland watershed improvements would help enhance riverine geomorphology by providing naturally regulated rates of runoff and sediments to the main river's stem.

The focus for these improvement projects would be on the west side of the San Pedro Riparian National Conservation Area (SPRNCA). Examples of such projects are the US Geological Survey, Borderlands, and Laurel Lacher projects on the Babocomari River, which could be applied to the San Pedro River watershed.

Actions related to the enhancement of natural recharge areas would include the following:

- Introduction of human-made hydrological features in the tributaries
- Upland vegetation treatments
- Mechanical watershed improvements
- Tamarisk removal
- Prescribed fire in the uplands
- Structural and nonstructural erosion control
- Use of best management practices for road redesign affecting the San Pedro River tributaries

Appendix J Species Common and Scientific Names

Appendix J. Species Common and Scientific Names

Species Common Name	Species Scientific Name			
Amphibians				
Arizona tree frog	Hyla eximia			
Bullfrog	Lithobates catesbeianus			
Chiricahua leopard frog	Lithobates chiricahuensis			
Lowland leopard frog	Lithobates yavapaiensis			
Sonoran Desert toad	Incilius alvarius			
Birds				
Aplomado falcon	Falco femoralis			
Arizona Bell's vireo	Vireo bellii arizonae			
Arizona Botteri's sparrow	Peucaea botterii			
Bewick's wren	Thryomanes bewickii			
Black hawk	Buteogallus anthracinus			
Burrowing owl	Athene cunicularia			
Cactus ferruginous pygmy-owl	Glaucidium brasilianum cactorum			
Canyon towhee	Melozone fusca			
Desert purple martin	Progne subis hesperia			
Gambel's quail	Callipepla gambelii			
Gilded flicker	Colaptes chrysoides			
Golden eagle	Aquila chrysaetos			
Gould's turkey	Meleagris gallopavo mexicana			
Grasshopper sparrow	Ammodramus savannarum			
Gray hawk	Buteo plagiatus			
Least bittern	Ixobrychus exilis			
Lucy's warbler	Oreothlypis luciae			
Mississippi kite	lctinia mississippiensis			
Northern beardless-tyrannulet	Camptostoma imberbe			
Rufous-winged sparrow	Peucaea carpalis			
Scaled quail	Callipepla squamata			
Southwestern willow flycatcher	Empidonax traillii extimus			
Sprague's pipit	Anthus spragueii			
Varried bunting	Passerina versicolor			
Virginia rail	Rallus limicola			
Western burrowing owl	Athene cunicularia hypugaea			
Yellow warbler	Setophaga petechia			
Yellow-billed cuckoo	Coccyzus americanus			

Species Common Name	Species Scientific Name			
Fish				
Colorado pike minnow	Ptychocheilus Lucius			
Desert pupfish	Cyprinodon macularis			
Desert sucker	Catostomus clarki			
Flannel-mouth sucker	Catostomus latipinnis			
Gila chub	Gila intermedia			
Gila topminnow	Poeciliopsis occidentalis			
Loach minnow	Rhinichthys cobitis			
Longfin dace	Agosia chrysogaster			
Razorback sucker	Xyrauchen texanus			
Roundtail chub	Gila robusta			
Sonora sucker	Catostomus insingis			
Speckled dace	Rhinichthys osculus			
Spikedace	Meda fulgida			
Invertebrates				
Crayfish	Orconectes virilis, Procambarus clarki, etc.			
Hyalella Azteca	Hyalella Azteca			
Mammals				
Allen's big-eared bat	Idionycteris phyllotis			
American beaver	Castor canadensis			
Arizona myotis	Myotis occultus			
Banner-tailed kangaroo rat	Dipodomys spectabilis			
Black-tailed jackrabbit	Lepus californicus			
Cave myotis	Myotis velifer			
Collared peccary	Pecari tajacu			
Coues whitetail deer	Odocoileus virginianus couesi			
Desert cottontail	Sylvilagus audubonii			
Greater western mastiff bat	Eumops perotis californicus			
Harris's antelope squirrel	Ammospermophilus harrisii			
Jaguar	Panthera onca			
Javelina	Pecari tajacu			
Lesser long-nosed bat	Leptonycteris yerbabuenae			
Mountain lion	Felis concolor			
Mule deer	Odocoileus hemionus			
Northern grasshopper mouse	Onychomys leucogaste			
Ocelot	Leopardus pardalis			
Plains harvest mouse	Reithrodontomys montanus			
Pronghorn antelope	Antilocapra americana			
Rock pocket mouse	Chaetodipus intermedius			
Southern grasshopper mouse	Onychomys torridus			
Spotted bat	Euderma maculatum			
Tawny-bellied cotton rat	Sigmodon fulviventer			

Species Common Name	Species Scientific Name
Townsend's big-eared bat	Corynorhinus townsendii
Yellow-nosed cotton rat	Sigmodon ochrognathus
Plants	
Acacia	Acacia spp.
Alkali marsh aster	Almutaster <u>pauciflorus</u>
Alkali sacaton	Sporobolus airoides
Arizona cottontop	Digitaria californica
Arizona eryngo	Eryngium sparganophyllum
Arizona giant sedge	Carex ultra
Arizona walnut	Juglans major
Ash	Fraxinus spp.
Beaked spike rush	Eleocharis rostellata
Bermuda grass	Cynodon dactylon
Big/giant sacaton	Sporobolus wrightii
Bindweed	Convolvulus arvensis
Blue grama	Bouteloua gracilis
Broom snakeweed	Gutierrezia sarothrae
Bur bristle grass	Setaria adhaerens
Buttonbush	Cephalanthus occidentalis
California loosestrife	Lythrum californicum
Cane beardgrass	Bothriochloa barbinodis
Canelo Hills ladies' tress	Spiranthes delitescens
Cattail	Typha domingensis
Chairmaker's bulrush	Schoenoplectus americanus
Coastal sandbur	Cenchrus spinifex
Creosote	Larrea tridentata
Deergrass	Muhlenbergia rigens
Desert saltgrass	Distichlis spicata
Desert sumac	Rhus microphylla
Desert willow	Chilopsis linearis
Desert-thorn	Lycium pallidum
False dandelion	Pyrrhopappus pauciflorus
Fremont cottonwood	Populus fremontii
Giant reed	Arundo donax
Goodding's willow	Salix gooddingii
Huachuca water umbel	Lilaeopsis schaffneriana var. recurve
Johnsongrass	Sorghum halepense
Lehmann lovegrass	Eragrostis lehmanniana
Littleleaf sumac	Rhus microphylla
Malta star thistle	Centaurea melitensis
Mariola	Parthenium incanum
Mesquite	Prosopis velutina

Species Common Name	Species Scientific Name
Netleaf hackberry	Celtis reticulata
Ocotillo	Fouquieria splendens
Palmer's century plant	Agave palmeri
Prairie threeawn	Aristida spp.
Puncturevine	Tribulus terrestris
Rosemallow	Hibiscus spp.
Russian knapweed	Acroptilon repens
Russian thistle	Salsola tragus
Sedge	Carex praegracilis and Cyperus spp.
Sideoats grama	Bouteloua curtipendula
Soap tree yucca	Yucca elata
Tamarisk	Tamarix spp.
Tarbush	Flourensia cernua
Tobosa grass	Pleuraphis mutica
Tree of heaven	Ailanthus altissima
Vine mesquite grass	Panicum obtusum
Wild buckwheat	Eriogonum terrenatum and eucycla
Wire rush	Juncus arcticus var. balticus
Wright's marsh thistle	Cirsium wrightii
Yellow star thistle	Centaurea solstitialis
Yerba mansa	Anemopsis californica
Reptiles	
Canyon spotted whiptail	Cnemidophorus exsanguis
Gila monster	Heloderma suspectum
Massasauga	Sistrurus catenatus
Northern Mexican gartersnake	Thamnophis eques megalops
Ornate box turtle	Terrapene ornata
Regal horned lizard	Phrynosoma solare
Sonora mud turtle	Kinosternon sonoriense
Sonoran coral snake	Micruroides spp.
Sonoran whipsnake	Coluber bilineatus
Yaqui black-headed snake	Tantilla yaquia

Appendix K Visual Resource Management Objectives

Appendix K. Visual Resource Management Objectives

K.I OBJECTIVE I

Manage areas with high visual resource value as visual resource management (VRM) Class I to preserve the character of the landscape. VRM Class I would provide for natural ecological changes; however, it would not preclude very limited management activity. The level of change to the characteristic landscape would be very low and must not attract attention.

К.2 ОВЈЕСТІУЕ 2

Manage areas with high visual resource value under VRM Class II, to provide for management activities with low visual impacts, and retain the character of the landscape. The level of change to the characteristic landscape would be low. Management activities may be seen but would not attract the attention of the casual observer. Any changes must repeat the basic elements of form, line, color, and texture found in the predominant natural features of the characteristic landscape.

K.3 OBJECTIVE 3

Manage areas with low and moderate visual resource value under VRM Class III to provide for management activities with low to moderate visual impacts, and partially retain the character of the landscape. The level of change to the characteristic landscape would be moderate. Management activities may attract attention but would not dominate the view of the casual observer. Changes would repeat the basic elements found in the predominant natural features of the characteristic landscape.

К.4 ОВЈЕСТІ**У**Е **4**

Manage areas of relatively low visual resource value for VRM Class IV to provide for management activities that require major modification of the character of the landscape. The level of change to the characteristic landscape could be high. These management activities may dominate the view and be the major focus of viewer attention; however, every attempt should be made to minimize the impact of these activities.

K.5 OBJECTIVE 5

Manage disturbed areas with high visual contrast that are noticeable and attract attention from important viewing areas; manage for visual rehabilitation to achieve visual contrast levels consistent with the surrounding area's VRM objectives.

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Appendix L Method for Calculating Animal Unit Months

Appendix L. Method for Calculating Animal Unit Months

In order for the Bureau of Land Management (BLM) to allow grazing on public lands, the agency must first establish a carrying capacity for an area. Carrying capacity is the average number of livestock or wildlife that may be sustained in a specific area compatible with management objectives for the area. In addition to site characteristics, the carrying capacity is a function of management goals and intensity. A unit's carrying capacity is typically expressed in animal unit months (AUMs). An AUM is the amount of forage necessary for the subsistence of one cow or its equivalent for one month. Carrying capacity is determined through analyzing various components: determining forage production and forage demand by livestock, adjusting for slope and water, and selecting a harvest coefficient.¹

The determination of forage production was established by the BLM Tucson Field Office (TFO), in coordination with the Natural Resource Conservation Service, to collect information and data through an ecological site inventory (ESI). The ESI is annual forage production for each ecological site on the San Pedro Riparian National Conservation Area (SPRNCA). Available forage² was taken into account when establishing the annual forage production. This ensures that the production amount is not biased to include forage that would not be consumed and if included would incorrectly inflate the carrying capacity. For example, tobosagrass has an available forage of 20 percent, meaning only 20 percent of the plant's total production weight is available for consumption; therefore, only that 20 percent of forage production is considered in setting a carrying capacity.

The determination of forage demand by livestock is the amount of forage consumed by an animal per day when forage availability is not restricted. For the SPRNCA's carrying capacity, the BLM assumed that a cow would consume 3 percent of its total body weight per, day when forage availability is not restricted. The agency also assumed that the average weight of a cow is 1,000 pounds; therefore the forage demand for one cow for one day is 30 pounds. To convert this to the forage demand per AUM, the forage demand for one day is multiplied by the number of days in a month (30), which is equivalent to 900 pounds of forage demand per AUM.

Steps for determining the forage demand by livestock:

Step 1.

3 percent (total body weight per day) \times 1000 lbs (average weight of cow) = forage demand for one cow for one day

Step 2.

Example:

 $3 percent \times 1000 lbs = 30 lbs per day$

Forage Demand per day \times # of day in 1 month (30) = Forage Demand per AUM

Example:

 $30 \ lbs \times 30 = 900 \ lbs \ per \ AUM$

¹ The percentage of total forage assigned to grazing animals for consumption; also known as utilization.

² The portion of forage, expressed as weight, that is accessible for a grazing animal to consume.

In the case of SPRNCA, no slope adjustments were necessary, due to its topography. Also no adjustment was made for distance from water, as water improvements could be implemented to facilitate grazing without an adjustment, depending on which alternative is selected.

The harvest coefficient selected for SPRNCA was 30 percent, based on a variety of reasons. First the team wanted to establish a utilization level that was considered light; light grazing is typically a utilization level of 31 percent or below. This harvest coefficient is the same as that for the Las Ciénegas National Conservation Area, which is also managed by the Tucson BLM. This percentage would also allow for the natural and cultural resources of the SPRNCA to be protected, while allowing for flexibility during lower precipitation years.

With the required components identified, a carrying capacity can now be calculated; the annual forage production amount per acre is multiplied by the harvest coefficient, giving the total annual forage production available for livestock consumption per acre. This amount is then multiplied by the number of acres in a unit, which yields the total amount of annual forage production available for livestock consumption for that unit. This total is then divided by the forage demand per AUM to arrive at the carrying capacity. The AUM amount can also be divided by 12 (months in a year) to equal the number of cattle yearlong.

Steps for calculating carrying capacity:

Step 1.
Annual Forage Production per Acre × Harvest Coefficient
= Total annual forage production available for consumption per acre (TAFPA
/ac)
Example:
$2140 \ lbs/acre \times 30 \ percent = 642 \ lbs/acre$
Step 2.
$T_{AFPA/ac} \times IInit Acres$
= Total amount of annual forage production available for livestock consumption for unit (TAFPA)
Example:
642 lbs per acre \times 5000 acres = 3,210,000 lbs for unit
Step 3.
TAFPA \div Forage Demand per AUM = AUM amount for unit
Example:
$3,210,000 \ lbs \div 900 \ lbs = 3,567 \ AUMs$
Stab /
$\int dt M = m + m + 12 (m + m + h + m + m + m + h + h + h + m + m$
AUM amount -12 (months in 1 year) = # 0) cuttle yearlong
Example. $2 E (7.41) M_{\odot} + 12 = 207.55 \text{ saturbary}$
$3.5b/AUMS \div 1Z = Z9/Cattle Veariona$

Appendix M Recreation Setting Characteristics Inventory

Appendix M. Recreation Setting Characteristics Inventory

M.I RECREATION SETTING CHARACTERISTICS INVENTORY

The BLM conducted an inventory of the recreation setting characteristics (RSCs) for the San Pedro Riparian National Conservation Area (SPRNCA). This was done to provide a baseline for recreation resources, visitor management planning, and analysis of resource management plan (RMP) land use allocation alternatives (see **Table M-I**, below). The inventory included a list of recreation sites and features that attract the public for recreation and education in the different settings.

The criteria used for the inventory were a series of physical, social, and operational factors, or attributes, that are used to classify the landscape for its recreation setting qualities.

Table M-I
Recreation Settings Characteristics Criteria

ATTRIBUTES	SETTING CLASSES						
Components/ Characteristics (RSCs)	Primitive	Back country	Middle Country	Front Country	Rural	Urban	
Physical Setting Attributes (physical qualities of the landscape in the study area)							
Remoteness	More than 1/2 miles from either mechanized or motorized routes.	Within I/2 miles of mechanized routes.	Within 1/2 miles of four-wheel drive vehicle, all-terrain vehicle, and motorcycle routes.	Within 1/2 miles of low-clearance or passenger vehicle routes (includes unpaved county roads and private land routes).	Within 1/2 miles of paved/primary roads and highways.	Within 1/2 miles of streets and roads within municipalities and along highways.	
Naturalness	Undisturbed natural landscape.	Natural landscape without any modifications in harmony with surroundings and not visually obvious or evident (e.g., trails and fire breaks).	Character of the natural landscape retained. a few modifications contrast with the character of the landscape (e.g., fences and primitive roads).	Character of the natural landscape partially modified, but none of the modifications overpower the natural landscape (e.g., roads, structures, and utilities).	Character of the natural landscape considerably modified (e.g., agriculture, residential, or industrial).	Urbanized developments dominate the landscape.	
Facilities	No structures. foot/horse and water trails only.	Developed trails made mostly of native materials such as log bridges. structures are rare and isolated.	Maintained and marked trails, simple trailhead developments, and basic toilets.	Rustic facilities such as restrooms, trailheads, and interpretive displays.	Modern facilities such as group shelters and occasional exhibits. recreational vehicle camping with no hookups.	Elaborate full-service facilities such as laundries, restaurants, and groceries. recreational vehicle camping with hookups.	

ATTRIBUTES	SETTING CLASSES						
Components/ Characteristics (RSCs)	Primitive	Back country	Middle Country	Front Country	Rural	Urban	
Social Setting A	ttributes (degree of	interaction among u	sers)				
Contacts	Fewer than 3 encounters/day at campsites and fewer than 6 encounters/day on travel routes.	3-6 encounters/day off travel routes (e.g., campsites) and 7-15 encounters/day on travel routes.	7-14 encounters/day off travel routes (e.g., trailheads) and 16 encounters/day on travel routes.	15-29 encounters/day off travel routes (e.g., special events) and 30 or more encounters/day on travel routes.	People seem to be generally everywhere.	Busy place with other people constantly in view.	
Group Size	Fewer than or equal to 3 people per group.	4-6 people per group.	7-12 people per group.	13-25 people per group.	26-50 people per group for special events.	Greater than 50 people per group for special events.	
Evidence of Use	No alteration of the natural terrain.	Areas of alteration uncommon. Little surface vegetation wear observed. sounds of people infrequent.	Small areas of alteration. Surface vegetation showing wear with some bare soils. sounds of people occasionally heard.	Small areas of alteration prevalent. Surface vegetation gone with compacted soils observed. sounds of people regularly heard.	A few large areas of alteration. Surface vegetation absent with hardened soils. sounds of people frequently heard.	Large areas of alteration prevalent. Some erosion. constantly hear people.	
Operational Set	ting (management, o	operations, and mair	ntenance)				
Type of Access	Foot, horse, and nonmotorized float boat travel.	Mountain bikes and perhaps other mechanized use, but all is nonmotorized (except mobility devices).	Four-wheel drives, all-terrain vehicles, dirt bikes, or snowmobiles in addition to nonmotorized, mechanized use.	Two-wheel drive vehicles predominant, but also four-wheel drives and nonmotorized, mechanized use.	Ordinary highway auto and truck traffic is characteristic.	Wide variety of street vehicles and highway traffic is ever present.	

Table M-IRecreation Settings Characteristics Criteria

ATTRIBUTES	SETTING CLASSES					
Components/ Characteristics (RSCs)	Primitive	Back country	Middle Country	Front Country	Rural	Urban
Visitor Services	No maps or brochures available on-site. Staff rarely present to provide on-site assistance.	Staff infrequently present (e.g., only seasonally and during high-use periods) to provide on-site assistance.	Staff occasionally (e.g., most weekends) present to provide on-site assistance.	Information materials describe recreation areas and activities. staff periodically present (e.g., weekdays and weekends).	Information materials describe recreation areas and activities, plus experience and benefit descriptions. staff regularly present (e.g., almost daily).	Information materials describe recreation areas and activities, plus there are regularly scheduled on-site outdoor demonstrations and clinics. There is daily staff coverage.
Management and Controls	No on-site posting/signs of visitor regulations, interpretive information, or ethics. moderate use restrictions (e.g., camping and human waste). Infrequent patrols.	Basic user regulations at key access points. moderate use restrictions (e.g., camping and human waste). Less frequent patrols.	Some regulatory and ethics signs. moderate use restrictions. (e.g., camping and human waste).	Rules, regulations, and ethics clearly posted. There are use restrictions, limitations, and/or closures. Frequent patrols.	Regulations strict and ethics prominent. Use may be limited by permit, reservation, etc. Frequent patrols.	Enforcement in addition to rules to reduce conflicts, hazards, and resource damage. Frequent patrols.

Table M-IRecreation Settings Characteristics Criteria

Source: BLM Handbook H-8320—Planning for Recreation and Visitor Services. Washington, DC. August 2014.

M.2 RECREATION SITE INVENTORY

The inventory of sites and areas below includes developed and undeveloped sites that are important for public recreation and education in the SPRNCA. The list includes sites that were designated and developed under the current San Pedro River Riparian Management Plan and sites that were designated in the plan but not developed. Some of the sites receive regular maintenance, and others are basically under custodial management and are unmaintained. The list also includes sites that were not specifically designated in the San Pedro River Riparian Management Plan but that are important for providing access to recreation in the SPRNCA.

The sites in **Table M-2**, below, would be considered and analyzed for management to accommodate public recreation and educational/interpretative purposes.

Site Name	Primary Recreation Purposes	Current Management and Conditions
Babocomari Trail • Access •	Access from SR82 to the Babocomari River trail along the railroad grade in the canyon for dispersed recreational opportunities Viewing wildlife in scenic riparian canyon	 The trail along the river is the old railroad grade. It is designated in the current RMP with a connection to the Boquillas Ranch Road trail route on the east side of the San Pedro River and east of the Union Pacific railroad. The trail has not been developed. There is a small parking area and trailhead near the river's mouth and an interpretive sit An access point for administration has been established along SR 82; it is a US Geological Survey right-of-way for stream gauge monitoring, which also provides public access.
Boston Millsite •	Learning about historic mineral processing and the significance of the site	 Building remnants and tailings along multi- use trail on a trail spur
Boquillas Ranch Headquarters (planned)	Education and interpretation of historic ranching along the San Pedro River Historic railroads and buildings	 Current RMP-designated public use site Used for administration, containing a storage yard, warehouse, and camp retreats Not developed were a planned gravel access road from SR 82, an interpretive display for the ranch house, and an old railroad commissary building Accessible by multi-use trail along the access road
Brunckow Cabin •	Learning about historic ranching and the significance of this site Viewing building remnants	 Current RMP-designated public use site Planned site interpretation not implemented Primitive road access
Charleston • Townsite (planned) •	Learning about the Charleston Townsite and its significance in the mining boom of the late 1800s Viewing building remnants	 Current RMP-designated public use site Planned interpretive display near the ruins and foot trail to the ruins not implemented
Charleston • Trailhead (planned) •	Access to San Pedro River and Charleston Road Learning about historic roads and	 Current RMP-designated public use site Gravel parking area on the south side of Charleston Road

Table M-2 SPRNCA Inventoried Recreation Sites

Site Name	Primary Recreation Purposes	Current Management and Conditions
	the significance of Charleston RoadViewing historic bridge	 Planned visitor information, directions, and interpretive signs Foot trail to the ruins and a small picnic site not implemented
Clanton Ranch	 Learning about historic ranching and the significance of this site and Clanton family in Territorial Tombstone history Viewing building remnants 	 Nonmotorized trail access from Escapule and Murray Springs trailheads and SR 90 Site interpretation not implemented
Ciénega Site	 Learning about the ciénega, the wetland habitat, and the significance of this site Viewing wetland and wildlife 	 Unmaintained nonmotorized paths
Contention City	 Learning about historic mineral processing, ghost town, and the significance of this site Viewing historic building remnants 	Nonmotorized trail access
Curtis Flats Trailhead (new)	 Access to the San Pedro Trail System Learning about early Mormon settlers 	No recreation management
Escapule Trailhead	 Access to the San Pedro Trail system Orientation and learning about the SPRNCA 	Gravel road and parking areaSigns
Fairbank	Learning about the historic settlers	Interpretive trail
Cemetery	Viewing graves	Signs and bench
Fairbank Townsite	 Learning about the historic townsite and its significance Viewing historic buildings Learning about the SPRNCA, its multiple resources, and conservation values Access to the San Pedro Trail System 	 Small visitor contact and interpretive facility and an information/directions station Parking area Small picnic site with water system, toilet, and benches Site host unit
Fairbank Trailhead	 Access to the San Pedro Trail System Orientation and learning about the SPRNCA 	Gravel parking areaSigns
Grand Central Mill Site	Learning about historic mining and the significance of this siteViewing building remnants	 Mill site along multi-use trail (Fairbank Loop) Signs
Hereford Trailhead	 Access and orientation to the San Pedro Trail System from Hereford Road to Waters Road Camping and picnicking in a backcountry setting 	 Graveled access road and parking area Interpretive display Information/directions station Picnic shelter and tables Backcountry permit dispenser Toilet Trash collection

Table M-2SPRNCA Inventoried Recreation Sites

Site Name	Primary Recreation Purposes	Current Management and Conditions
Hereford Camping Area (planned)	 Planned campground for 15 to 30 units in current RMP 	 General developed site would be accessible from Hereford Road Potential access points are the Del Valle Road on the north side of Hereford Road and the Hereford Trailhead Management decision has not been implemented
Horsethief Access Point	• Access to existing trails north of SR 90 to Escapule trailhead, with connection to trails south of SR 90	 Parking on highway shoulder and pedestrian passage (not gated) Locked vehicle access gate No equestrian access
Horsethief Camping Area (planned)	 Planned campground development for 30 to 50 units 	 Current RMP-designated public use site Identified with the San Pedro House but with its location not specifically identified; potential locations include south of SR 90 (the vicinity of the San Pedro House using the existing ingress/egress) and north of SR 90, using the existing administrative road for ingress/egress Management decision has not been implemented
Kingfisher Site	 Learning about riparian and open water habitat Viewing avian wildlife along paths 	 Access by multi-use trail from the San Pedro House Footpaths through riparian habitat Shoreline access to open water habitat Signs and benches
Land Corral Trailhead	 Access to the San Pedro Trail System Orientation to the SPRNCA and the St. David Ciénega Learning about wetland habitat, wildlife, and historic ranching 	 Access from Cary Road (partly county maintained) Gravel parking area Fencing Interpretive and other signs Unimproved paths to wetland; connection to existing trail system at Summers Well not yet implemented
Lehner Mammoth- Kill Site	 Learning about Paleoindian people and megafauna 	Interpretive displayInterpretive trail through the site
Lehner Trailhead	 Access to the San Pedro Trail System and the Lehner Mammoth- Kill Site 	Gravel road and parking area
Lewis Springs	 Learning about the SPRNCA Camping and picnicking in a backcountry setting 	 Graded access road and parking areas Group picnic site Primitive camping area Interpretive displays (not developed)
Little Boquillas Trailhead	 Access and orientation to the San Pedro Trail System from SR 82 to Charleston Road 	Gravel road and parkingSigns
Miller Backcountry Camp	 Backcountry camping in a primitive setting 	 Nonmotorized trail access Toilet Tent pads

Table M-2SPRNCA Inventoried Recreation Sites

Site Name	Primary Recreation Purposes	Current Management and Conditions
	<i>,</i> .	Signs
Millville Site	• Learning about historic mineral	Nonmotorized trail access
	processing and the significance of	Signs
	this site	Benches
	 Viewing historic building remnants 	
Millville Trailhead	 Access to San Pedro Trail System 	 Gravel road and parking
	and interpretive trails	Toilet
		• Signs
Murray Springs	 Learning about Paleoindian people 	Interpretive display
Clovis Site	and megafauna	 Interpretive trail through the site
		Shade shelter
		Benches
Murray Springs	 Access to the San Pedro Trail 	 Gravel road and parking area
Trailhead	System and the Murray Springs	
	Clovis Site	
Palominas Tusilla a d	Access to the San Pedro Trail	 Highway pullout, with information,
Trainead	System south of SR 92	directions, and interpretive signs
	Orientation to the SPRINCA	Graded access road
		• Small picnic site
Potrostura Sito		I ollet
Petrogryph Site	Learning about prenistoric and native	INONMOTORIZED TRAIL ACCESS Since
	peoples Viewing petroglyphs	• Signs
	• viewing periographis	Dench Viewing area
Prosidio Santa	a Learning about the early Spenish	Viewing area
Cruz de Terrenate	Learning about the early spanish colonization and interactions with	Controlled access to the site An interpretative trail through the site for
	native peoples	An interpretative train through the site for pedestrian use planned
		Toilet
		Signs
		Benches
San Pedro House	• Learning about historic ranching and	Current RMP-designated public use site
	farming along the San Pedro River	Large visitor contact and interpretive facility
	 Learning about the San Pedro 	 Interpretive display in the historic San Pedro
	Riparian National Conservation	Ranch House
	Area, its multiple resources, and	San Pedro Ranch House includes
	conservation purposes	headquarters of the Friends of the San
	 Access and orientation to San Pedro 	Pedro River support group
	Trail System	 Interpretive trail to the river
		 Interpretive displays at the campground and
		picnic sites
		Highway pullout
		Interpretive pavilion
		• Signs
		Site host camp unit
	· · · · · · · · · · · · · · · · · · ·	Water system and toilet
San Pedro River-	• Learning about the riparian and	Nonmotorized trail access
Kingtisner Site	aquatic habitat	• Paths
	 Viewing wildlife 	Signs

Table M-2SPRNCA Inventoried Recreation Sites

Site Name	Primary Recreation Purposes	Current Management and Conditions
Summers Lane	Access to San Pedro River and the SPRNCA	 Unmaintained dirt road into the SPRNCA Paths on reclaimed roads
Summers Well	 End of existing San Pedro Trail north of Millville trailhead Learning about wetland habitat and wildlife, historic homesteading and ranching, and historic wagon transportation 	 Access from administrative road used for groundwater monitoring Remnants of historic land uses Minimal signs
Terrenate Trailhead	 Access to the Presidio Santa Cruz de Terrenate trail Orientation to the SPRNCA 	 Gravel parking area Fencing Signs Multi-use trail to the Presidio Santa Cruz de Terrenate interpretive site
Waters Road Trailhead	 Access to the San Pedro Trail System between Hereford Road and Waters Road Orientation to the SPRNCA 	Gate and boundary fenceSigns
Whitehouse Well Wetland	• Learning about spring fed (artesian well fed) wetland habitat and wildlife	Nonmotorized trail accessWetland projectFencing

Table M-2SPRNCA Inventoried Recreation Sites

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Appendix N Draft Wild and Scenic Rivers Suitability Report

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DIAGRAM

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ACRONYMS AND ABBREVIATIONS

ACEC	area of critical environmental concern
ADEQ	Arizona Department of Environmental Quality
AZGFD	Arizona Game and Fish Department
BLM	United States Department of the Interior, Bureau of Land Management
CCCP	Cochise County Comprehensive Plan
CFR	Code of Federal Regulations
EIS	environmental impact statement
ESA	Endangered Species Act of 1973
FLPMA	Federal Land Policy and Management Act of 1976
Forest Service	United States Department of Agriculture, National Forest Service
GIS	geographic information system
NEPA	National Environmental Policy Act of 1969
NHPA	National Historic Preservation Act of 1966
NPS	US Department of the Interior, National Park Service
NWSRS	National Wild and Scenic Rivers System
OHV	off-highway-vehicle
ORV	outstandingly remarkable value
PL	Public Law
RMP	resource management plan
RMZ	recreation management zone
ROW	right-of-way
scorp	Statewide Comprehensive Outdoor Recreation Plan
sprnca	San Pedro Riparian National Conservation Area
TFO	Tucson Field Office
USFWS	US Department of the Interior, Fish and Wildlife Service
USGS	US Geological Survey
VRI	visual resource inventory
VRM	visual resource management
WSR	Wild and Scenic River
WSRA	Wild and Scenic Rivers Act of 1968

Chapter I. Introduction

This report documents the reassessment of the Babocomari River's and San Pedro River's outstandingly remarkable values (ORVs). It also considers the tentative changes in their classification and suitability for designation in the National Wild and Scenic Rivers System (NWSRS) in the San Pedro Riparian National Conservation Area (SPRNCA).

After considering information, comments, and recommendations from Bureau of Land Management (BLM) resource staff, cooperating agencies, stakeholder groups, landowners, and other interested parties, the BLM identified Babocomari River and San Pedro River segments in the SPRNCA as suitable for NWSRS consideration. The BLM used the findings to develop the preferred alternative for the SPRNCA Resource Management Plan (RMP) and to make NWSRS recommendations to Congress.

I.I PROJECT AREA

The SPRNCA planning area corresponds to the Riparian National Conservation Area boundary designated by Public Law (PL) 100-696. It covers approximately 58,254 surface acres and includes BLM-administered, private, and state land. The subsurface mineral estate was withdrawn under PL 100-696 from all forms of entry, appropriation, or disposal; from location, entry, and patent under the US mining laws; and from disposition under all laws pertaining to mineral and geothermal leasing and all amendments thereto.

The SPRNCA is in Cochise County, south of Benson and west of Tombstone and Bisbee, Arizona. The city of Sierra Vista is to the west of the SPRNCA. Surrounding landownership includes federal land (Fort Huachuca, National Park Service [NPS] lands, US Forest Service [Forest Service] land, and BLM-administered land); state land (Arizona State Land Department); and private land. The BLM is responsible for managing only public land in the planning area. This is known as the decision area and contains 55,990 BLM-administered acres.

I.2 WHY CONDUCT A WILD AND SCENIC RIVER STUDY AND WHY NOW?

Section 5(d)(1) of the Wild and Scenic Rivers Act of 1968 (WSRA; PL 90-542; 16 US Code 1271-1287) directs federal agencies to consider potential WSRs in their land and water planning processes ("In all planning for the use and development of water and related land resources, consideration shall be given by all federal agencies involved to potential national wild, scenic, and recreational river areas"). To fulfill this requirement, whenever the BLM undertakes land use planning (for example, in an RMP), it analyzes river and stream segments that might be eligible for inclusion in the NWSRS.

The Tucson Field Office (TFO) is preparing an RMP and associated environmental impact statement (EIS) to guide management of BLM-administered lands in the SPRNCA. The RMP/EIS will be prepared as a dynamic and flexible plan to allow management to reflect the changing needs of the planning area. The RMP updates and clarifies land use plan decisions for the SPRNCA that were previously made in the San Pedro River Riparian Management Plan (BLM 1989) and incorporated into the Safford District RMP (BLM 1992, 1994a).

This Wild and Scenic River (WSR) study is being conducted now because the BLM is required by the WSRA to assess river and stream segments under its management jurisdiction as part of its RMP process.

I.3 WHAT IS A WILD AND SCENIC RIVER?

Congress enacted the WSRA on October 2, 1968, to address the need for a national system of river protection. As an outgrowth of a national conservation agenda in the 1950s and 1960s, the WSRA was in response to the dams, diversions, and water resource development projects that built on America's rivers between the 1930s and 1960s. The WSRA stipulated that selected rivers should be preserved in a free-flowing condition and be protected for the benefit and enjoyment of present and future generations. Since 1968, the WSRA has been amended many times, primarily to designate additional rivers and to authorize the study of other rivers for possible inclusion.

The WSRA seeks to protect and enhance a river's natural and cultural values and to provide for public use consistent with its free-flowing character, its water quality, and its ORVs. Designation affords certain legal protection from development. For instance, new dams cannot be constructed, and federally assisted water resource development projects that might negatively affect the designated river values are not permitted. Where private lands are involved, the federal managing agency works with local governments and owners to develop protective measures.

I.4 STEPS IN THE WILD AND SCENIC RIVER STUDY PROCESS

A WSR study process is composed of two main components: the eligibility phase and the suitability phase. These phases were conducted in accordance with BLM Manual 6400, Wild and Scenic Rivers—Policy and Program Direction for Identification, Evaluation, Planning, and Management (BLM 2012) and with The Wild and Scenic River Study Process technical report (Interagency Wild and Scenic Rivers Coordinating Council 1999). An overview of the WSR study process is shown in **Diagram I-I**, Wild and Scenic Rivers Study Process. Excerpts from BLM Manual 6400 are presented below to explain the process.

A river study area extends the length of the identified river segment and includes the river area and its immediate environment. It should include (or total) an average of no more than 320 acres per mile, measured from the ordinary high-water mark on both sides of the river. The planning team should outline a preliminary or proposed boundary, usually a 0.25-mile buffer from the ordinary high-water mark on either side of the river.

I.4.1 Eligibility Evaluation

Each identified river segment is evaluated to determine whether it is eligible for inclusion as a component of the NWSRS. The BLM Authorized Officer (Field Manager or District Manager) should document determinations of eligibility. This should be done before the alternatives are formulated but no later than the release of the Draft RMP or RMP amendment.

The WSRA states that, in order to be found eligible, a river segment must be "free flowing" and contain at least one river-related value considered to be "outstandingly remarkable." If the eligibility phase determines segments to be eligible, the BLM assigns a tentative classification and management measures needed to ensure appropriate protection of the values supporting the eligibility and classification determinations.


Diagram I-I Wild and Scenic Rivers Study Process

There are three classes for rivers designated under the WSRA: wild, scenic, and recreational. Classes are based on the type and degree of human development and access associated with the river and adjacent lands at the time of the eligibility determination. The classification does not reflect the types of values present along a river segment, and it is tentatively assigned during the eligibility phase. Final classification is a congressional legislative determination, along with designation of a river segment as part of the NWSRS.

I.4.2 Suitability Phase

The purpose of the suitability phase is to determine whether eligible river segments are suitable for inclusion in the NWSRS, in accordance with the criteria of the WSRA. Suitability considerations include the environmental and economic consequences of designation and the manageability of a river if Congress were to designate it.

The suitability evaluation does not result in actual designation, only that a river segment is suitable for designation. The BLM cannot administratively designate a stream via a planning decision or other agency decision into the NWSRS; no segment studied is automatically designated as part of the NWSRS. In most cases, only Congress can designate a WSR; however, in some instances, the Secretary of the Interior may designate a WSR. This would happen when the governor of a state, under certain conditions, petitions for a river to be designated.

Members of Congress will ultimately choose the legislative language if any suitable segments are presented to them. Water protection strategies and measures to meet the purposes of the WSRA will be the responsibility of Congress in any legislation proposed. Rivers found not suitable would be dropped from further consideration and managed according to the objectives outlined in the RMP. Suitability determinations are in draft form until the record of decision for the RMP is signed.

I.5 ELIGIBILITY ANALYSIS

Previously, in the Safford RMP (BLM 1991), the BLM completed the eligibility phase of the WSR study for specific portions, totaling 44 miles of the San Pedro River on BLM-administered lands. The segments were identified as eligible with a tentative classification as recreational for inclusion in the NWSRS, as defined by the WSRA. A suitability determination done as part of the Arizona Statewide WSR Legislative EIS (BLM 1994b) found the entire BLM-administered portion of the San Pedro River (44 miles) to be suitable as recreational for inclusion in the NWSRS. Congress has not designated the San Pedro River as part of the NWSRS.

Due to changed circumstances affecting the San Pedro River's ORVs, its eligibility and suitability are being revisited in this RMP. All other decision area streams were also evaluated for eligibility in this RMP; the only other river that meets the eligibility criteria is the Babocomari River.

Public involvement for this WSR evaluation process was included as part of scoping for the RMP from April 30 through September 27, 2013. An overview of the WSR process and a preliminary draft inventory map were presented at the August 17, 2013, education forum. The BLM presented the draft results of its initial identification process, provided educational materials regarding the WSR process, and solicited comments from the public and government agencies. The public was invited to submit comments via mail, facsimile, or email, and the BLM accepted comments until September 27, 2013. Eight

comments specific to WSR were received during scoping (refer to the SPRNCA RMP Scoping Report [BLM 2014] for more information).

The San Pedro River Wild and Scenic River Study Area Eligibility Report (BLM 2016a) describes the information that the BLM considered in the eligibility and tentative reclassification of the San Pedro River for suitability analysis in the San SPRNCA RMP.

Chapter 2. Babocomari River

2.1 BACKGROUND

The Babocomari River is a new study river identified during the RMP planning for the SPRNCA. During the 2013 public scoping for the SPRNCA RMP, commenters asked for continued protection of the 44 miles of the San Pedro River and its designation as a WSR. They recommended an inventory of other river segments for possible WSR designation (BLM 2014).

The BLM Final Arizona Statewide Wild and Scenic Rivers Study Report, completed in 1997, identified 13 rivers, totaling approximately 233.5 river miles in Arizona, that were studied and determined suitable for designation as WSRs. They included the San Pedro River (BLM 1997) and other rivers in the Gila District (**Figure 2-1**, Wild and Scenic Rivers: Babocomari River Study Location Map). The Babocomari River was not evaluated in this study report.

The Babocomari River was evaluated in 2016 to determine its eligibility for potential designation in the NVVSRS, along with a reassessment of the San Pedro River. The eligibility analysis included approximately 27 river miles from the San Pedro to its headwaters near Elgin. The evaluation found approximately 22.1 miles ineligible because the landownership was predominantly not federal. The evaluation identified approximately 4.9 miles of the river and approximately 560 acres in the SPRNCA as eligible for designation, with several ORVs and a tentative classification of scenic. The ORVs identified were scenic, recreation, wildlife, historic, and cultural.

2.1.1 Authority

The eligibility evaluations were completed under the authority of the WSRA of 1968 (PL 90-542), which Congress enacted "to preserve certain rivers with outstanding natural, cultural, and recreational values in a free-flowing condition for the enjoyment of present and future generations." The suitability analysis is being prepared under the same authority, PL 90-542, and under the Federal Land Policy and Management Act of 1976 (FLPMA) for completing and maintaining inventories of the resources on public lands. Guidance for conducting river studies is provided by BLM Manual 6400—Wild and Scenic Rivers—Policy and Program Direction for Identification, Evaluation, Planning, and Management (BLM 2012).

2.2 SUMMARY

The Babocomari River study area found eligible for designation in the 2016 assessment is summarized on **Table 2-1**, below.

Table 2-IBabocomari River WSR Study Area and Tentative Classification (River Miles)

Study Area	Wild	Scenic	Recreational	Total
Babocomari River	0	4.9	0	4.9
Note: The river mileage inc	licated above is sligh	tly greater than the r	nileage on the 2016 eligibili	ty report due to

Note: The river mileage indicated above is slightly greater than the mileage on the 2016 eligibility report due to more accurate mapping of the river channel than that used at the time of the eligibility evaluation.

2. Babocomari River



June 2018

conducts land use planning only in the areas administered by the BLM. BLM has no planning authority under the municipal or county legislation of the State of Arizona.

2.3 DESCRIPTION OF STUDY AREA

The Babocomari River is a tributary of the San Pedro River, and the study area includes approximately 4.9 miles of stream entirely in the SPRNCA (see **Figure 2-1**). The river corridor boundary is defined by the topographic break between the canyon slopes and the surrounding rolling uplands; it encompasses approximately 560 acres.

Several rural residences are on private lands next to the study area, including an inholding in the SPRNCA. A historic railroad grade follows the river in the canyon, which provides administrative access and is a designated trail route. The rail line operated in the early 1880s and connected Fairbank to Fort Huachuca, Sonoita, and Patagonia.

2.3.1 General Location and Setting

The Babocomari River study area is near the town of Sierra Vista, approximately 70 miles southeast of Tucson. Access to the study area is from Interstate 10, via State Highway 82, and a primitive resource access road.

The study area is on acquired federal lands generally situated in Township 20 South, Range 21 East, Sections 3, 4, 8, 9, 17, 18 of the Gila and Salt River Principal Meridian, Cochise County.

The natural setting is in the Basin and Range physiographic province, in the Apachian Low Valleys and Low Hills ecoregion, in the Madrean Archipelago found in southeastern Arizona. This ecoregion is characterized by basins and mountain ranges, with local relief of 3,000 to 5,000 feet, and native vegetation mostly composed of grama-tobosa shrub-steppe in the basins and oak-juniper woodland on the mountains. Elevation ranges from 3,850 feet above mean sea level near the confluence with the San Pedro River, to 4,000 feet at the SPRNCA boundary. The local climate is typical of the high deserts in southeastern Arizona, characterized by warm to hot summers and cool to cold winters. Most of the annual precipitation is in the summer rainy season, usually from June to September, with a few snowy days in the winter.

2.3.2 Segment Length

The Babocomari River study area is approximately 4.9 river miles, from the western SPRNCA boundary to its confluence with the San Pedro River.

2.4 SUITABILITY CRITERIA

I) Characteristics that do, or do not, make the area a worthy addition to the NWSRS

These characteristics (free flow and outstandingly remarkable values) are described in the WSRA and may include additional factors.

Free-Flowing Condition

The Babocomari River is free-flowing and has a natural and predictable flow regime. Flows are perennial, though they appear to be on a declining trend and may be transitioning to intermittent.¹ There are no diversions or impoundments in the study area. The river drains an area of approximately 306 square miles in the Huachuca Mountains, Canelo Hills, and Mustang Mountains. Peak flows occur in the summer.

¹USGS streamflow information, Babocomari gaging station

Outstandingly Remarkable Values

The following ORVs were identified in the eligibility evaluation completed in 2016:

- Scenic—The study area includes a scenic, relatively narrow steep-walled canyon cut through Holocene bedrock formations in the rolling hills and slopes bordering the west side of the San Pedro River. Vegetation is typical of the ecoregion, with a healthy cottonwood-willow riparian community and mesquite woodland along the narrow river bottom. The scenic quality is Class A, with many outstanding landform, vegetation, and water features, in a largely natural appearing condition (Logan Simpson 2013).
- Recreation—The study area is in an undeveloped backcountry area, with nonmotorized access that provides opportunities for dispersed recreation (sightseeing, hunting, and trail uses) as part of the SPRNCA. The area is relatively remote but is accessible by a designated trail along the historic railroad grade. A primitive road provides administrative vehicle access from State Route 82.
- Wildlife—The study area contains relatively undisturbed, high quality habitat for a variety of terrestrial and avian species, including several federally listed or proposed to be listed species.
- Historical—The study area includes a historic railroad grade along the river in the canyon. The grade and associated structures are visible remnants of a railroad that operated in the late 1880s and connected Fairbank, Fort Huachuca, Sonoita, and Patagonia.
- Cultural—The study area is known to contain abundant prehistoric and historic sites, representing human occupancy from the end of the last glacial period to historic times.

2) The current status of landownership and use in the area

The study area is predominantly BLM-administered lands, entirely within the boundaries of the SPRNCA. Due to the intermingled landownership pattern, the study area includes a private property inholding within the SPRNCA boundary (**Table 2-2**, below).

1		•
Ownership	Acres	River Miles
Bureau of Land Management	525.8	3.9
Private land	31.5	1.0
Total	557.3	4.9

 Table 2-2

 Babocomari River Study Area River Miles and Landownership

3) The reasonably foreseeable potential uses of the land and water that would be enhanced, foreclosed, or curtailed if the area were included in the NWSRS

All reasonably foreseeable potential uses of federal lands in the study area are subject to PL 100-696, which established the SPRNCA and requires the BLM "to conserve, protect, and enhance the riparian area and the aquatic, wildlife, archeological, paleontological, scientific, cultural, educational, and recreational resources," and to "only allow such uses of the conservation area as he finds will further the primary purposes for which the conservation area is established."

Foreseeable and potential uses in the river study area are also subject to the land use allocations for all resources and uses in the current RMP. It is being updated and a range of alternatives are being analyzed

in the Draft RMP.² The allowable uses under the Draft RMP would vary among the alternatives. Discussed below are the potential impacts on those uses from designating the study river's eligibility for inclusion in the NWSRS.

Alternatives for Designation and Classification of the Babocomari River

Described below in the text and in **Table 2-3** are the NWSRS designations for the Babocomari River under the Draft SPRNCA RMP alternatives.

Table 2-3
Alternatives for Suitability of the Babocomari River Study Area for Designation
(Draft SPRNCA RMP)

Draft RMP Alternative	Wild (Miles)	Scenic (Miles)	Recreational (Miles)
A	0	0	0
В	0	0	0
С	0	0	4.9
D	0	4.9	0

Alternatives A and B

The Babocomari study area would be eligible as scenic under Alternative A (see **Figure 2-2**, Wild and Scenic Rivers: Babocomari River Alternative A). The Babocomari study area would be determined nonsuitable under Alternative B. This would be done to allow maximum flexibility for potential future management actions that may be taken to achieve multi-resource management objectives in the SPRNCA (see **Figure 2-3**, Wild and Scenic Rivers: Babocomari River Alternative B). Resources in the study area would be protected under PL 100-696 and the RMP.

Alternative C

The Babocomari study area would be determined suitable for designation with a classification of recreational (see **Figure 2-4**, Wild and Scenic Rivers: Babocomari River Alternative C).

<u>Alternative D</u>

The Babocomari study area would be determined suitable for designation with a classification of scenic (see **Figure 2-5**, Wild and Scenic Rivers: Babocomari River Alternative D).

Impacts on Allowable Uses from Designation

<u>Air Quality</u>

Uses in the study area that could emit pollutants would be managed as part of the SPRNC. The purpose would be to reduce emissions that may violate Arizona Class II air quality standards. Projects would be required to minimize surface disturbance to prevent dust emissions and mitigate potential impacts on air quality.

Designating the study river as eligible for the NWSRS would not affect uses that may affect air quality or cause of air quality standards to be redesignated. Air quality in the study area would be protected from potential impacts on the SPRNCA lands under all alternatives in the Draft RMP.

²SPRNCA Draft RMP/EIS, Chapter 2 (Alternatives)

Figure 2-2 Wild and Scenic Rivers: Babocomari River Alternative A



SPRNCA Planning Area

BLM-administered land San Pedro River study corridor

Babocomari River Study Corridor Management



Eligible as scenic





U.S. Department of the Interior Bureau of Land Management Tucson Field Office

Date: 6/6/2018

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Figure 2-3 Wild and Scenic Rivers: Babocomari River Alternative B



SPRNCA Planning Area BLM-administered land

San Pedro River study corridor

Babocomari River Study Corridor Management







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Figure 2-4 Wild and Scenic Rivers: Babocomari River Alternative C



SPRNCA Planning Area

BLM-administered land

San Pedro River study corridor

Babocomari River Study Corridor Management







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2. Babocomari River

Figure 2-5 Wild and Scenic Rivers: Babocomari River Alternative D



SPRNCA Planning Area BLM-administered land

San Pedro River study corridor

Babocomari River Study Corridor Management







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Soils and Water

Stream flows in the study area are considered perennial, but they have been declining over the past 16 years and appear to be transitioning to intermittent during dry years. The river sustains a cottonwood-willow riparian area approximately 100 to 300 feet wide in a narrow, scenic canyon. There are no federally reserved water rights on the Babocomari River, but its flows contribute to the federally reserved water rights on the San Pedro River in the SPRNCA. According to the Arizona Department of Environmental Quality (ADEQ 2015), the Babocomari River is listed as attaining the standards set by the Clean Water Act for some uses.

The study area would be found non-suitable for designation under Alternatives A and B; resource values would continue to be protected by the SPRNCA legislation and the RMP. Under Alternatives C and D, the BLM would not approve land use authorizations involving additional groundwater pumping in the SPRNCA. Use of wells for administrative purposes throughout the SPRNCA would be designed to reduce impacts on base flows in the San Pedro River; this could benefit flows on the Babocomari River.

Land and stream treatments to control soil erosion, promote watershed stability and infiltration of surface runoff, and prevent lowering of the water table would be allowed in the SPRNCA. Structural and nonstructural treatments to enhance groundwater recharge and river geomorphology would also be allowed.

Designation of the study river in the NWSRS under Alternatives C and D would not affect potential uses of water and soils; however, it may constrain the design of watershed treatments in the study area to protect river values.

Paleontological Resources

No significant paleontological resources have been identified in the study area; however, significant paleontological resources are found along the San Pedro River in the SPRNCA: the Murray Springs and Lehner sites, which are used for interpretation, education, and research.

The study area would be determined non-suitable under Alternatives A and B, and resource values would be protected as part of the SPRNCA. Designating the study area for inclusion in the NWSRS under Alternatives C and D would not affect potential uses of paleontological resources if any are found in the future.

<u>Vegetation</u>

As part of the SPRNCA, the study area would be managed to control invasive plants and restore native species, to maintain or improve habitats, to allow for firebreaks, and to maintain unique ecological sites. Generally, vegetation treatments could be allowed to achieve vegetation management objectives, such as biological, mechanical, prescribed fire, and chemical treatments. under Alternatives B and C. Only natural processes with limited management would be used under Alternative D.

The study area would be determined non-suitable under Alternatives A and B, and vegetation resources would be protected under PL 100-696 as part of the SPRNCA. Designation of the study area in the NWSRS would not relinquish foreseeable uses of vegetation resources; however, it could constrain the design of potential treatments in the study area to protect river values under Alternatives C and D.

Wildland Fire Management

The study area contains sensitive resource values that are at risk of loss and destruction by natural or human-caused wildland fire. As part of the SPRNCA, all fires in the study area would be managed commensurate with the values at risk, and they would be fully suppressed under all alternatives. Minimum impact suppression tactics would be employed, where required by the nature of the resource values. Appropriate emergency stabilization and rehabilitation would be implemented following a wildfire to prevent post-fire resource damage. If needed, fire breaks could be established and maintained to control the spread of fire in the wildland-urban interface and around developments and sensitive areas, including the study area.

The study area would be determined non-suitable under Alternatives A and B, and fires would be managed according to the SPRNCA RMP. Designation of the study river in the NWSRS would not affect fire management but may constrain fire suppression tactics. This would come about by requiring minimum impact suppression methods and special measures for restoration or rehabilitation activities under Alternatives C and D.

Fish, Wildlife, and Special Status Species

The study area provides a variety of natural riparian, aquatic, wetland, and upland habitats used by native fish and avian and terrestrial wildlife, including several special status species. The study area includes US Fish and Wildlife Service (USFWS) designated critical habitat for the yellow-billed cuckoo and proposed critical habitat for the northern Mexican garter snake, which is federally listed as threatened.

As part of the SPRNCA, the study area may be used for reintroducing species to recover, maintain, or increase populations, distribution, and genetic diversity under all alternatives in the Draft RMP. Projects may be considered for restoring habitat for special status species under Alternatives B and C.

The study area would be determined non-suitable for designation under Alternatives A and B, and resource values would be protected by PL 100-696 and the SPRNCA RMP.

Designating the study area for inclusion in the NWSRS would not affect wildlife habitat under Alternatives C and D; however, it could constrain the design of potential habitat treatments or restoration.

Cultural Resources

The study area is in an area with abundant cultural resources. It contains remnants of a historic railroad that once connected Fairbank to Sonoita and Patagonia. As part of the SPRNCA, if significant cultural resources are identified in the future, they may be evaluated and allocated for appropriate uses, such as research, education, and preservation, depending on their nature and value. They would be managed according to Section 106 of the National Historic Preservation Act (NHPA) under all alternatives in the Draft RMP. Uses and activities may include developing interpretive and educational materials, site stabilization and restoration, and detailed recording and monitoring. The historic railroad grade is used for nonmotorized trail access and for administrative vehicle access.

The study area would be determined non-suitable for designation under Alternatives A and B, and resource values would be protected by PL 100-696 and the SPRNCA RMP. Designating the study river

as eligible for the NWSRS under Alternatives C and D would not affect potential uses of cultural resources; it may enhance their management.

Visual Resources Management

The study area is in largely natural condition, with outstanding scenic values, and is enjoyed for its natural scenery. Visual resources in the study area are protected by the existing visual resource management (VRM) Class II designation under current management and all alternatives in the Draft RMP. In Class II areas the existing landscape is retained, with a low level of change from management activities.

The study area would be determined non-suitable for designation under Alternatives A and B, and resource values would be protected by PL 100-696 and the SPRNCA RMP. Designating the study area for inclusion in the NWSRS under Alternatives C and D would not affect the use of visual resources, and it may enhance their protection.

Lands with Wilderness Characteristics

The part of the study area south of the river is in an area identified as having wilderness characteristics, which are those areas that are over 5,000 acres, are roadless, and provide opportunities for solitude and primitive and unconfined recreation (BLM 2016b).³ The study area is currently used for nonmotorized dispersed recreation in a roadless, largely natural, and relatively remote setting, without specific management to protect those values. Those uses and settings would be managed to protect wilderness characteristics under Alternative D.

The study area would be determined non-suitable for designation under Alternatives A and B, and resource values would be protected by PL 100-696 and the SPRNCA RMP.

Designating the study area for inclusion in the NWSRS would not affect its wilderness characteristics, and, under Alternatives C and D, it may enhance protection of the resource values.

Special Designations

The study area is in the SPRNCA, a congressionally designated National Conservation Area protected by PL 100-696. There are no other administrative special designations in the study area.

The study area would be determined non-suitable for designation under Alternatives A and B, and resource values would be protected by PL 100-696 and the SPRNCA RMP.

Designating the study area for inclusion in the NWSRS under Alternatives C and D would not affect any specially designated areas.

Energy and Lands and Realty

Federal lands in the study area were acquired and are not open for mineral entry or disposal; these lands are closed to mineral material leasing and sales under current management. No energy projects have been identified in the SPRNCA or near the study area. The study area includes a right-of-way (ROW) for a US Geological Survey (USGS) stream gaging station and access road (AZA-31107), and a

³Wilderness Characteristics Inventory, Oxbow Unit AZ-G022-014, 2016

ROW for the historic railroad (PHX-059615). A private land inholding in the study area is used for residences.

Existing infrastructure in the ROWs would continue to be maintained under all alternatives in the Draft RMP. The entire SPRNCA, including the study area, would be open to new ROWs under Alternatives A and B, on a case-by-case basis. This could result in applications for transportation or utility ROWs. The entire SPRNCA, including the study area, would be designated an avoidance area under Alternative C. This would protect resource values if new ROW proposals were to arise. The entire SPRNCA, including the study area, would be designated an exclusion area under Alternative D, which would preclude new ROWs.

The study area would be determined non-suitable under Alternatives A and B, and resource values would be protected by PL 100-696 and the SPRNCA RMP.

Designating the study area for inclusion in the NWSRS under Alternatives C and D would constrain development of new ROWs.

Livestock Grazing

Part of the study area is grazed by cattle under current management (Babocomari allotment). The entire study area would be open to cattle grazing under Alternative B; this could require new fencing, range improvements, and access for maintaining and operating them. Most of the study corridor would be open to grazing under Alternative C; this also could require new fencing or range improvements. The entire SPRNCA would be closed to grazing under Alternative D, which may require new fencing on the SPRNCA boundary. Cattle grazing may increase the risk of water quality impacts, particularly by *E. coli* bacteria, under Alternatives B and C.

The study area would be determined non-suitable under Alternatives A and B, and resource values would be protected by PL 100-696 and the SPRNCA RMP.

Designating the study area for inclusion in the NWSRS may constrain the design of range improvements under Alternative C, particularly construction of new fencing and range improvements. Cattle grazing may also be constrained if water quality impacts exceed acceptable levels under Alternative C.

Recreation Resources

The study area is used as part of the SPRNCA for dispersed public recreation in a backcountry setting, primarily related to hunting and sightseeing along the trail. Visitation is currently low, and the designated trail has not been maintained or connected to the main San Pedro Trail near the Boquillas Ranch. The public access route from State Route 82 is limited to nonmotorized travel, and there are no designated ingress/egress public facilities.

Recreation management zones (RMZs) would be designated under Alternatives B, C, and D in the Draft RMP. This would be based on the character of the landscape, with different configurations to emphasize different recreation outcomes and settings. Under Alternatives C and D, the study area would be designated partly under a primitive RMZ and partly under a nonmotorized backcountry RMZ. This would protect nonmotorized recreation.

The study area would be determined non-suitable under Alternatives A and B, and resource values would be protected by PL 100-696 and the SPRNCA RMP.

Designating the study area for inclusion in the NWSRS would not affect recreation; it may enhance opportunities for nonmotorized recreation under Alternatives C and D.

Interpretation and Environmental Education

As part of the SPRNCA, the study area is available for interpretation and environmental education. The study area may be used for guided interpretive or educational tours, and self-interpretive exhibits or signs may be installed under all alternatives in the Draft RMP.

The study area would be determined non-suitable under Alternatives A and B, and resource values would be protected by PL 100-696 and the SPRNCA RMP.

Designating the study area for inclusion in the NWSRS would not affect interpretation or educational uses, and it may enhance opportunities for those uses.

Travel Management

The study area is designated as limited, under 43 Code of Federal Regulations (CFR) 8342, which limits motor vehicle use to designated routes under current management. The entire SPRNCA and study area would continue to be designated as limited to designated roads and trails under Alternatives B and C.

Part of the study area south of the railroad grade would be designated as closed to motor vehicle use, and the rest of the study area would be designated as limited to designated roads and trails under Alternative D. Under all alternatives, the administrative access road would be available for motorized vehicle use for administrative purposes and for nonmotorized recreation. After the RMP is completed, the route inventory for the SPRNCA would be evaluated to identify the appropriate route designations. This would be done to provide a comprehensive transportation system for administrative access and public use. River values would be considered as part of the route evaluation criteria.

The study area would be determined non-suitable under Alternatives A and B, and resource values would be protected by PL 100-696 and the SPRNCA RMP.

Designating the study area for inclusion in the NWSRS under Alternatives C and D would not affect travel management or route designations, and it may enhance nonmotorized uses.

Scientific Research and Monitoring

As part of the SPRNCA generally, the study area may be used for various scientific research and monitoring activities for various resources—groundwater, stream flows, water quality, vegetation, wildlife, and cultural resources—and other purposes. Some of these activities are conducted by other agencies and partners. The USGS would continue to operate a streamflow gaging station in the study area. These uses would continue under all alternatives in the Draft RMP.

The study area would be determined non-suitable under Alternatives A and B, and resource values would be protected by PL 100-696 and the SPRNCA RMP.

Designating the study area for inclusion in the NWSRS under Alternatives C and D would not affect research or monitoring. Access by vehicle for research and monitoring may be constrained by the travel management designations in the RMP.

4) The federal agency that will administer the area should it be added to the NWSRS

The study area is on federal lands administered by the BLM as part of the SPRNCA. It would continue to be administered by the BLM if it were added to the NWSRS.

5) The extent to which the agency proposes that administration of the river, including the costs thereof, is shared by state and local agencies

- Since the Babocomari river study area is in the SPRNCA, the BLM would continue to administer its resources and uses according to PL 100-696, other laws, public land regulations, and the SPRNCA RMP. The study area is small and would not require a high level of management intensity. It is not expected to increase current administration costs significantly.
- The BLM currently works with other agencies, organizations, and individuals in its management; this includes providing visitor services and information, monitoring, and other activities under partnership agreements or voluntary contributions.
- The USGS would continue monitoring stream flows.
- State agencies, such as the ADEQ and Arizona Game and Fish Department (AZGFD), would continue to administer state laws and regulations within their authority.
- Cochise County would continue to regulate land use and development on private land in the study area, through zoning and building requirements for new developments.
- The BLM would pursue volunteers from local groups and organizations to help implement various projects or management; this would include such activities as public outreach, interpretation and education, trail maintenance, signing, resource and use monitoring.

6) The estimated cost to the United States of acquiring necessary lands or interests in land within the corridor, as well as the cost of administering the area, should it be added to the NWSRS

Potential acquisition costs based on all private land acres in the study corridor (undeveloped and developed)

Most of the Babocomari River study area is BLM-administered land, with approximately 31.2 acres of private land inholdings developed for residential use.

A rough estimate of acquisition costs, assuming a willing seller, is approximately \$30,000, based on labor and incidental acquisition costs, such as those for property surveys, environmental assessment, appraisals, legal description, title work, and environmental professional and legal services. The estimated purchase price is roughly \$0.5 to \$1 million, depending on property values and other factors at the time of acquisition.

Cost of administering the area if designated as eligible for the NWSRS

The cost of administering the study area would be about the same as current costs, because the BLM is already administering it for conservation purposes. The additional acreage from acquiring inholdings would be small. Administration costs are not expected to increase significantly, except for one-time costs for land restoration projects that may be needed.

The total additional cost to administer the study area is estimated at less than one work month for basic custodial management, or approximately \$4,000 annually.

7) A determination of the extent that other federal agencies, the state, or its political subdivisions might participate in the preservation and administration of the river should it be proposed for inclusion in the NWSRS

The BLM would be the primary agency responsible for administration in the study river. Federal, state, or other agencies would continue to participate within their own agency programs and authorities to achieve common or related purposes.

The USGS operates a stream gauge monitoring station on the Babocomari River, and it has been collecting stream flow information for over 10 years. The data collected benefits water resource management in the basin and the SPRNCA.

The USFWS would continue providing technical assistance and consultations under the Endangered Species Act of 1973 (ESA). It would do this on a case-by-case basis, whenever the BLM is considering land use plans or project proposals. The USFWS has designated critical habitat in the study area.

The BLM would pursue the participation of Arizona State Parks for shared funding through its grant programs for eligible activities. Examples of these activities are recreation site construction and improvements, trails, accessibility, education, interpretation, preservation, and signing.

The AZGFD would continue participating in wildlife habitat preservation through cooperative habitat improvement projects or habitat management plans and enforcement of hunting and off-highway-vehicle (OHV) regulations.

Cochise County would continue to administer zoning regulations on private land development in the river corridor.

8) An evaluation of local zoning and other land use controls in protecting the river's outstandingly remarkable values and preventing incompatible development

Cochise County regulates private lands development in the study area through zoning districts (Cochise County 2015). The 31-acre private land inholding in the study area is in an RU-4 zoning district. It provides for residential development on lots with a minimum size of 4 acres. There are three residences on the inholdings, and an additional three to four residences could be developed under current zoning. Current zoning promotes low density rural residential development, which would be compatible with protecting river values.

9) The state/local government's capacity to manage and protect the outstandingly remarkable values on non-federal lands; this factor requires an evaluation of the river protection mechanisms available through the authority of state and local governments. Such mechanisms may include, for example, statewide programs related to population growth management, vegetation management, and water quantity or quality or protection of river-related values, such as open space and historic areas

The study area includes a relatively small amount of non-federal land, consisting of several private land parcels. State and local regulations could be applied to help protect the San Pedro River values through

zoning and development permitting. This would keep the area's character rural and natural and would reduce the demand for groundwater.

10) The existing support or opposition of designation; assessment of this factor will define the political context. The interest in designation or non-designation by federal agencies; state, local, and tribal governments; national and local publics; and the state's congressional delegation should be considered

During the BLM's 2013 public scoping process for the SPRNCA RMP revision, it received a few comments on designating the San Pedro River as eligible for the NWSRS. The comments were from nongovernmental organizations: Friends of San Pedro River, Sierra Club Grand Canyon Chapter, Center for Biological Diversity, and the Huachuca Audubon Society. Commenters asked for continued protection of the San Pedro River and studies on other rivers for potential designation. The BLM received no comments addressing designation from any federal, state, county, or town governments.

Additional opportunities will be available for public comment on the Draft RMP, including preliminary suitability recommendations for designation of the Babocomari River in the NWSRS. The BLM will consider comments received during the RMP and EIS process when finalizing this suitability report.

11) The consistency of designation with other agency plans, programs, and policies in meeting regional objectives

Designation may help or impede the goals of tribal governments or other federal, state, or local agencies. For example, designating a river may contribute to state or regional protection objectives for fish and wildlife resources. Similarly, adding a river that includes a scarce recreation activity or setting to the NWSRS may help meet statewide recreation goals; however, designation might limit irrigation or flood control measures in a manner that is inconsistent with regional socioeconomic goals.

BLM reviewed the following plans for their consistency with NWSRS designations.

- Arizona's Statewide Comprehensive Outdoor Recreation Plan (SCORP)—The recreation opportunities available in the study area, together with those available in the SPRNCA, meet some of the recreation demand identified in the 2013 SCORP (Arizona State Parks 2013).
- Arizona Trails Plan—The trail in the study area, together with the San Pedro Trail System, meets some of the demand for nonmotorized trail use identified in the Arizona Trails Plan, approved by the Arizona State Parks board in 2009 (Arizona State Parks 2009).
- Cochise County Comprehensive Plan (CCCP)—The SPRNCA generally is valued and is
 essentially considered by Cochise County to be protected open space. Land use zoning in the
 study area and adjacent land promotes a rural character, with relatively large residential lots and
 low density; however, the CCCP contains no specific designation for open space or park
 protection related to the river.

12) The contribution to river system or basin integrity

This factor reflects the benefits of a systems approach (e.g., expanding the designated portion of a river in the NWSRS or developing a legislative proposal for an entire river system—headwaters to mouth—or watershed). Numerous benefits may result from managing an entire river or watershed, including the ability to design a holistic protection strategy in partnership with other agencies and the public.

Although small, the study area is one of a few rivers found eligible for designation. It contributes to the integrity of the San Pedro River and the integrity of the Upper San Pedro Basin in sustaining diverse, healthy riparian, aquatic, and upland habitats connected to the surrounding mountains.

The study area's location in the Madrean Archipelago ecoregion in Arizona would contribute toward broadening the representation of natural landscapes in the NWSRS.

13) The potential for water resources development

Identify any proposed water resource projects that may be relinquished, as designation may limit development of water resources projects as diverse as irrigation and flood control measures, hydropower facilities, dredging, diversion, bridge construction, and channelization.

There are no such planned or proposed projects in the study area. There is some potential for development of small structural improvements in the study area to promote groundwater recharge under all alternatives in the Draft RMP, except Alternative D. Structural projects in the channel may not be constructed if the study area is designated, but no projects have been proposed.

The potential for groundwater development on private land inholdings is likely; however, this is beyond the jurisdiction of the BLM, unless it acquires inholding, such as new wells, continued use of wells, or deepening of existing wells as water table drops. Continued groundwater pumping could increase the local cone of depression in the water table and affect the rivers' flows over time. This also could continue to gradually transition intermittent flows.

2.5 SUITABILITY DETERMINATION

The preliminary determination is that the Babocomari River study area in the SPRNCA is suitable for designation as recreational in the NWSRS, as described in Alternative C in the Draft RMP. It is also suitable for designation in the NWSRS as scenic, as described in Alternative D in the Draft RMP.

Key factors in this determination are the following:

- The study river is free flowing, with perennial flows, and it contains ORVs.
- The study area consists primarily of federal land already administered under PL 100-696 for conservation purposes.
- Foreseeable land and water uses under the management alternatives in the Draft RMP would be minimally affected by designating the river for inclusion in the NWSRS.
- Estimated land acquisition and administration costs are anticipated to be low and reasonable, though acquiring parcels already developed for residential use may not be feasible.
- The study river is mostly under BLM jurisdiction, and it could be administered as part of the SPRNCA with minimal impacts.
- The public generally supports designation; support from local government agencies is uncertain.
- Designation would be generally consistent with state agency plans.
- Designation would contribute to preserving the integrity of the Upper San Pedro basin and would contribute to representing underrepresented ecoregions in the NWSRS.
- Designation would not relinquish any water resource development projects.

Chapter 3. San Pedro River

3.1 BACKGROUND

The San Pedro River was studied and described in the Arizona Statewide WSR Legislative EIS (BLM 1994b). This 1994 study identified two river segments, totaling 44 river miles, in the SPRNCA as eligible for designation in the NWSRS, with a recreational classification. The river segments were determined suitable for designation, and the Associate Secretary of the Interior approved the recommendation in 1997 (BLM 1997). Congress has not designated the river, and it is presently under protective management, as identified in the BLM Safford RMP/EIS, approved in 1992 (BLM 1992).

During the BLM public scoping for the SPRNCA RMP in 2013, commenters asked for continued protection of the 44 miles of the San Pedro River and its designation as a WSR. They recommended an inventory of other river segments for possible WSR designation (BLM 2014).

In an eligibility reassessment completed in 2016 the BLM evaluated the San Pedro River study area for changes in the study area that have occurred in the 20 years since the 1997 study. The BLM also determined whether those changes affect the eligibility or suitability determinations. In the SPRNCA RMP the agency identified potential amendments to its recommendations for designation. Notable changes in the study area are landownership, access, and the condition of natural resources. Using more accurate river length measurements using current geographic information system (GIS) data, the BLM determined that the 44 river miles reported in the 1997 EIS are closer to 50.8 miles. Based on the location of the river channel in 2015 aerial imagery, the channel alignment has remained relatively stable since 1994.

Statewide Arizona legislative EIS recommendations (BLM 1997)—The Final Arizona Statewide Wild and Scenic Rivers Study Report identified the two segments of the San Pedro River, totaling 44 river miles, as suitable for designation as recreational. The San Pedro River was one of 13 rivers on BLM-administered lands in Arizona, totaling approximately 233.5 river miles; this included several rivers in the Gila District (**Figure 3-1**, Wild and Scenic Rivers: San Pedro River Study Location Map).

GIS data and landownership changes since 1996—The BLM made several land acquisitions in the SPRNCA that increased the amount of public land in the river study area by approximately 521 acres.

2016 reassessment of San Pedro River (eligibility and tentative re-classifications)—The BLM reevaluated the San Pedro River in 2016 to determine if any changes in circumstances had occurred since the 1997 suitability determination. The changes in circumstances include a minor change in the amount of federal land in the study area, due to BLM acquisitions in the SPRNCA, access, and condition of riparian vegetation and habitat.

This report documents the reassessment of the San Pedro River's ORVs and tentative changes in its classification and suitability for designation in the NVVSRS.

3. San Pedro River



3-2

3.1.1 Authority

The BLM made the eligibility evaluations under the authority of the WSRA of 1968 (PL 90-542), which Congress enacted "to preserve certain rivers with outstanding natural, cultural, and recreational values in a free-flowing condition for the enjoyment of present and future generations." The reevaluation was done under the authority of the FLPMA for completing and maintaining inventories of the resources on public lands. BLM Manual 6400—Wild and Scenic Rivers—Policy and Program Direction for Identification, Evaluation, Planning, and Management (BLM 2012) provided guidance.

3.2 SUMMARY

The San Pedro River study area found eligible for designation in the 2016 assessment is summarized in **Table 3-1**, below.

Table 3-1
San Pedro River WSR Study Area and Tentative Classification (River Miles)

Study Area	Wild	Scenic	Recreational	Total
San Pedro River	27.7	11.8	8.8	48.3

3.3 DESCRIPTION OF STUDY AREA

The San Pedro River study area is one of a few free-flowing perennial streams in southeastern Arizona. The river flows in a shallow valley approximately 1/2 to 1 mile wide, bounded by low hills and bajada slopes. There is a relatively narrow cottonwood-willow riparian forest along the river that is from 200 to 800 feet wide. Land use in the study area includes wildlife habitat, developed and dispersed recreation (camping, hiking, equestrian riding, birding, and viewing historic/cultural sites) utilities (power line, natural gas line, and surveillance tower), transportation (highways, roads, trails, and an abandoned railroad), and research. Rural residential areas are near the river in the Palominas, Hereford, Escapule and Escalante Crossing areas.

3.3.1 General Location and Setting

The study area is near the town of Sierra Vista, approximately 70 miles southeast of Tucson (**Figure 3-1**). Access to the study area is from Interstate 10 via State Highways 82, 90 and 92, county-maintained Charleston and Hereford roads, and BLM primitive roads and trails.

The natural setting is in the Basin and Range physiographic province, in the Apachian Low Valleys and Low Hills ecoregion (USGS 2013), which is in the Madrean Archipelago in southeastern Arizona. This ecoregion is characterized by basins and mountain ranges, with local relief of 3,000 to 5,000 feet. Native vegetation is mostly composed of grama-tobosa shrub-steppe in the basins, with oak-juniper woodland on the mountains. The San Pedro River is at the bottom of the upper basin, bordered by the Dragoons Mountains, Huachuca Mountains, Canelo Hills, and Mustang Mountains. Elevation ranges from 3,650 feet above mean sea level at the north terminus to 4,290 feet at the international boundary. The climate is typical of the high deserts in southeastern Arizona, with warm to hot summers and cool to cold winters. Most of the annual precipitation is in the summer rainy season, usually from June to September.

3.3.2 Segment Length

The San Pedro River study area includes the two river segments previously studied, totaling approximately 48.3 river miles from the international boundary between the United States and Mexico,

to the SPRNCA boundary along Escalante Crossing. The study area is entirely in the SPRNCA (**Figure 3-1**).

The river segment on private land between State Highway 92 and the SPRNCA boundary near Waters Road was found non-suitable in 1997 and is not included in this study (BLM 1997). The river miles indicated in this report differ from the miles indicated in the 1997 study report, due to today's more accurate measurements of the river channel alignment.

3.4 SUITABILITY CRITERIA

Characteristics that do, or do not, make the area a worthy addition to the NWSRS. These characteristics (free flow and outstandingly remarkable values) are described in the WSRA and may include additional factors

Free-Flowing Condition

The San Pedro River is free flowing and is considered perennial, with intermittent stretches. There are no impoundments, but there is one diversion near the north terminus of the study area for the Saint David Irrigation Ditch.

Outstandingly Remarkable Values

The ORVs identified in the 2016 eligibility reassessment include scenic, recreational, fish and wildlife habitat, cultural, historic, paleontological, and botanical. The ORVs identified in the 1997 river study are still present. A new ORV for botanical resources was identified, due to the outstanding and diverse native vegetation cover, which has developed since current management was put in place for the SPRNCA.

Scenery—The study area is scenic and is viewed at all distances along state and county highways, recreation trails and sites, and the residential developments in the surrounding area. The study area appears largely natural in the landscape, with many outstanding landform, vegetation, and water features. In the visual resources inventory completed for the SPRNCA in 2012, the BLM identified the study area as having Class A scenic quality and a Class II visual resource inventory (VRI) (Logan Simpson 2013).

In the current RMP, the BLM designated portions of the river study corridor in several areas of critical environmental concern (ACECs) (Saint David Ciénega, San Pedro River, and San Rafael) under VRM Class I. This was done to preserve the character of the landscape and provide for natural ecological changes, with very limited management activity. The rest of the riparian corridor was designated under VRM Class II to retain the character of the landscape.

 Recreational—Together with the other SPRNCA lands, the study area provides opportunities for dispersed outdoor recreation in a variety of settings, ranging from rural to primitive. Designated access points with minimal facilities and visitor services are available along States Route 82, 90, and 92 and Charleston, In Balance, Cary, Waters, and Hereford Roads. Public contact and information centers staffed by volunteers are available at the Fairbank Historic Townsite and San Pedro House, with self-serve information kiosks at trailheads at locations throughout the SPRNCA.

The San Pedro Trail System, initially established in 1995, provides opportunities for hiking, horse, and bicycle access to backcountry recreation in remote areas away from access points and between trailheads.

Recreation opportunities, which attract most of the public use, include scenic sightseeing, wildlife viewing, hunting, viewing sites of historic, prehistoric, or paleontological interest, viewing high desert vegetation, viewing the river and riparian woodland, and backcountry camping.

Bird watching opportunities are internationally renowned, and the San Pedro River is recognized as a globally important bird area. Fishing opportunities are limited, with warm water exotic species attracting limited use. River floating is severely limited by the short duration river flows, narrow channel, and sections of channel obstructed by vegetation or debris.

Water play (wading and swimming) attracts some use, particularly near the public access points along the highways. Hunting opportunities for deer, javalina, dove, quail, and other game species are available, with nonmotorized access facilitated by the trail system. State hunting regulations prohibit use of fire arms for hunting in the SPRNCA, between Charleston Road and State Route 92, to protect public safety; this limits hunting to archery use.

Visitor facilities and services include gravel parking areas, trails, vault toilets, signs, interpretive exhibits, trash collection and disposal, and visitor information. Visitor stations are available at the Fairbank Historic Townsite and the San Pedro House. Volunteer site hosts assist with visitor services and grounds maintenance, though the position for the San Pedro House site host has been vacant for several years.

- Fish—The San Pedro River provides aquatic habitat for native and exotic species, such as the desert pupfish and Gila topminnow. These native fish species are listed as endangered by the USFWS under the ESA. Habitat for fish species is limited by poor water quality, which leads to occasional fish kills. The river segment between State Route 90 and Charleston Road offers the most reliable fish habitat, due to generally sufficient flows and good water quality. The segment from Fairbank to the Saint David Irrigation Ditch diversion is not considered fish habitat, due to insufficient flows and poor water quality. Sport fish species that may be found in the river are channel catfish, green sunfish, black bullhead catfish, carp, and occasionally largemouth bass.
- Wildlife Habitat—Biological and resource studies since the 1996 river study report have identified numerous resident and migratory avian species that use the San Pedro River year-round or for part of the year. Many rare and unique avian species may be present at times. The San Pedro River is in a critical location along a north-south migratory corridor for neotropical birds from South America to Canada. Many species depend on the river for survival.

The study area includes habitat for federally listed (or proposed for listing) species: Huachuca water umbel, southwest willow flycatcher, yellow-billed cuckoo, northern Mexican garter snake, desert pupfish, Gila topminnow, lesser long-nosed bat, jaguar, and ocelot. Critical habitat designated or proposed for designation by the USFWS is found in study area for the following species: Huachuca water umbel, listed as endangered; the northern Mexican garter snake, listed as threatened, and the yellow-billed cuckoo, also listed as threatened. The critical habitat designations, or proposed critical habitat designations, were made after the 1996 rivers study report, and highlight the importance of these ORVs.

Together with the entire SPRNCA, the study area provides habitat that supports game species that attract hunters for javelina, mule deer, white-tailed deer, dove, quail, rabbit, waterfowl, predators, and fur bearers. Additionally, the study area supports a high diversity of reptile species, including lizards, snakes, amphibians, and insects, which attract research and wildlife viewing for enjoyment.

- Cultural—The study area includes significant cultural resources, including several allocated for public use. Numerous sites represent evidence of human occupancy by various peoples from the end of the last glacial age through historic times. Significant sites allocated for public interpretation and educational purposes are the Presidio de Terrenate, Boquillas Ranch, Fairbank Historic Townsite, Millville, site, San Pedro House, Clanton Ranch, and the international border.
- Historic—The study area includes the historic townsites of Fairbank, Contention, and Charleston and remnants of mining and ore processing (Millville, Boston Mill, and Central Station Mill), historic railroad grades, historic roads and trails, historic ranching (Clanton Ranch), and farming (Del Valle and Palominas). These sites represent land use and development during the area's mining boom of the late 1800s. The Fairbank Historic Townsite and San Pedro House have been refurbished and restored and are managed to provide visitor contact and information facilities.
- Paleontological—Geologic formations in the study area include alluvial deposits dating to the last glacial age (Holocene), approximately 11,000–13,000 years ago, which contain world renowned paleontological resources. The Lehner and Murray Springs sites, both National Historic Landmarks, are next to the study area. Both sites have contributed information, which helped date and understand the Clovis culture in North America during the last ice age, and the interactions of humans and mega fauna. Both sites are internationally renowned for scientific research, education, and visitation.
- Botany—The river study area supports a high variety of riparian and upland vegetation, which attracts the public for research, education, sightseeing, and recreation and provides habitat for wildlife. The study area includes outstanding cottonwood/willow gallery tree woodland, mesquite bosque, sacaton grassland, mixed desert shrubs and other vegetation communities. It also has examples of the natural revegetation process, converting previously irrigated farm fields into native vegetation cover, mostly sacaton grass land and mesquite bosque.

2) The current status of landownership and use in the area

Existing Study Corridor

The existing river study area primarily consists of BLM-administered land as part of the SPRNCA. Acquisitions since the 1994 river study report was completed increased federal land in the quarter-mile river corridor by approximately 521 acres. This study area was determined suitable for designation in the NVVSRS in 1997; it and now includes approximately 13,998.5 acres (**Table 3-2**, below). The private lands in the study corridor mainly consist of the Union Pacific Railroad right-of-way, abandoned farm fields, or undeveloped parcels; several parcels contain residences.

Proposed River Study Corridor

The proposed river study area, defined by topography, primarily consists of BLM-administered land as part the SPRNCA (**Table 3-3**, below).

The lands in the SPRNCA, including the existing and proposed river study corridors, are withdrawn from mineral entry under PL 100-696 and are closed to mineral material leasing or sales under current

Acres	River Miles
12,872.7	45.3
3.0	0.01
1,122.8	2.9
13,998.5	48.3
	Acres 12,872.7 3.0 1,122.8 13,998.5

Table 3-2San Pedro River 1997 Study Area River Miles and Landownership

Source: BLM 1997

Table 3-3			
San Pedro River Proposed Study River Miles Landownership)		

Ownership	Acres	River Miles
Bureau of Land Management	16,567.5	45.3
International Boundary Water Commission	8.4	0.01
Private	1,278.6	2.9
Total	17,854.5	48.3

management. The study area includes several existing land use authorizations for transportation, utilities, or special purposes.

3) The reasonably foreseeable potential uses of the land and water that would be enhanced, foreclosed, or curtailed if the area were included in the NWSRS

All reasonably foreseeable potential uses of federal lands in the study river corridor are subject to PL 100-696, which established the SPRNCA and requires the BLM "to conserve, protect, and enhance the riparian area and the aquatic, wildlife, archeological, paleontological, scientific, cultural, educational, and recreational resources" and to "only allow such uses of the conservation area as he finds will further the primary purposes for which the conservation area is established." The SPRNCA is withdrawn from mineral entry and disposal by PL 100-696.

Foreseeable and potential uses in the existing and proposed river study corridor are also subject to the land use allocations for all resources and uses in the current RMP and in the management alternatives being considered in the Draft RMP⁴ for the SPRNCA.

Discussed below are the potential impacts of designating the study river for inclusion in the NWSRS.

Alternatives for Designation and Classification of the San Pedro River

The NWSRS designations for the San Pedro River are described below and in **Tables 3-4** through **3-6**.

Alternative A

The existing San Pedro River study area would remain under the current protective management as suitable for designation in the NWSRS, with a recreational classification and a quarter-mile-wide corridor (**Table 3-4**). The suitability recommendation approved by the Secretary of the Interior in 1997 would remain unchanged (**Figure 3-2**, Wild and Scenic Rivers: San Pedro River Alternatives A, B). The river segment on International Boundary Waters Commission property is non-suitable.

⁴SPRNCA Draft RMP/EIS Chapter 2 (Alternatives)

3. San Pedro River

Figure 3-2 Wild and Scenic Rivers: San Pedro River Alternatives A, B



SPRNCA Planning Area **BLM-administered land**

San Pedro River Study **Corridor Management**



Suitable as recreational





U.S. Department of the Interior **Bureau of Land Management Tucson Field Office**

Date: 6/6/2018

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Tentative Class	River Miles	BLM-Administered Acres	Private Acres	Total Acres
Wild	0	0	0	0
Scenic	0	0	0	0
Recreational	48.3	12,872.7	1,122.8	13,995.5
Total	48.3	12,872.7	1,122.8	1,3995.5

 Table 3-4

 Alternatives A and B for San Pedro River Study Area Designation (Draft RMP)

Alternative B

The existing San Pedro River study area would remain under protective management as suitable for designation in the NWSRS, with a recreational classification and a quarter-mile-wide corridor, same as Alternative A (**Figure 3-2**, Wild and Scenic Rivers: San Pedro River Alternatives A, B). The suitability recommendation approved by the Secretary of the Interior in 1997 would remain unchanged (**Table 3-4**). The river segment on International Boundary Waters Commission property is non-suitable.

Alternative C

The San Pedro River study area would be determined suitable under this alternative, classified as recreational. The river corridor would be redefined to follow the topographic break of the river valley and along the top of the valley slopes. The redefined corridor would include lands in the river valley next to the river that are outside the quarter-mile corridor (**Figure 3-3**, Wild and Scenic Rivers: San Pedro River Alternative C). The suitability recommendation approved by the Secretary of the Interior in 1997 would be amended to reflect the proposed study area (**Table 3-5**). The river segment on International Boundary Waters Commission property is non-suitable.

Tontativo Class	River	BLM	Private	Total
Tentative Class	Miles	Acres	Acres	Acres
Wild	0	0	0	0
Scenic	0	0	0	0
Recreational	48.3	16,567.5	1,278.6	17,846.1
Total	48.3	16,567.5	1,278.6	17,846.1

 Table 3-5

 Alternative C for San Pedro River Study Area Designation (Draft RMP)

Alternative D

The San Pedro River study area would be determined suitable for designation. Multiple segments would contain wild, scenic, and recreational tentative classifications, as shown on the Draft RMP (**Figure 3-4**, Wild and Scenic Rivers: San Pedro River Alternative D). The tentative classifications reflect the study area's conditions and the character of the recreational setting under current management. It would be accessed by nonmotorized travel on trails. The suitability recommendation approved by the Secretary of the Interior in 1997 would be amended to reflect the proposed study area and the new tentative classifications (**Table 3-6**, below). The river segment on International Boundary Waters Commission property is non-suitable.

3. San Pedro River

Figure 3-3 Wild and Scenic Rivers: San Pedro River Alternative C



SPRNCA Planning Area

BLM-administered land

San Pedro River Study **Corridor Management**



Suitable as recreational





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3. San Pedro River

Figure 3-4 Wild and Scenic Rivers: San Pedro River Alternative D



SPRNCA Planning Area

BLM-administered land

San Pedro River Study Corridor Management

Suitable as recreational

Suitable as scenic Suitable as wild



V

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		•	0 (,
Tentative Class	River	BLM	Private	Total
Tentative Class	Miles	Acres	Acres	Acres
Wild	27.7	9,668.1	319.3	9,987.3
Scenic	11.8	5,945.8	833.3	6,779.1
Recreational	8.8	953.7	126.0	1,079.7
Total	48.3	16,567.6	1278.6	17,846.1

Table 3-6	
Alternative D for San Pedro River Study Area Designation (Draft RMP)

Impacts of Designating the San Pedro River on Allowable Uses

Discussed below are the potential impacts on the allowable uses of designating the San Pedro River for inclusion in the NWSRS.

<u>Air Quality</u>

The air in the study area is used by visitors engaged in outdoor recreation, and it contributes to the quality of the area for healthy outdoor activities. The air quality in the area is good, though airborne dust and other pollutants may be encountered at times due to soil disturbance or other activity.

Uses in the study area and SPRNCA that may emit pollutants would be managed under all alternatives in the Draft RMP to reduce emissions that could violate Arizona Class II standards. Projects involving construction or land treatments would be required to minimize surface disturbance, to prevent dust emissions, and to mitigate potential impacts on air quality.

Designating the study river for inclusion in the NWSRS would not affect uses that may affect air quality, nor would it cause air quality standards to be redesignated. Air quality in the study area would be protected from potential impacts on SPRNCA lands under all alternatives by implementing best management practices.

Soils and Water

PL 100-696 reserved a quantity of water sufficient to fulfill the purposes of the SPRNCA. The Upper San Pedro Basin has been the subject of intensive groundwater measuring and monitoring for several decades by the USGS, the BLM, and others. This was done to gather information to manage the area's water resources. Information gathered so far indicates groundwater pumping is lowering the local water table, potentially causing a decline in river flows. The BLM filed a federally reserved water right. It is being adjudicated to establish and protect a base flow for the San Pedro River that sustains the SPRNCA values and ORVs.

The ADEQ monitors water quality in the study area. It lists the reach of the San Pedro River between the Babocomari River and Dragoon Wash as Category 5, impaired due to *E. coli* exceedance; it lists the reach between Charleston and Walnut Gulch as Category 2, attaining some use; finally, the ADEQ lists the reach from the US-Mexico border to Charleston as Category 5, impaired due to *E. coli*, copper, and oxygen level exceedances (ADEQ 2016). Livestock grazing under Alternatives B and C could introduce additional pollutants in the river and contribute to *E. coli* exceedances.

The BLM would continue to pursue water rights to achieve the purposes of the SPRNCA and to promote water conservation under all alternatives. Land use proposals involving additional groundwater

pumping would not be approved under Alternatives B, C, and D, and water use for administrative purposes would be minimized. Use of wells for administration would be designed to reduce potential impacts on base flows. The BLM would continue to operate water systems for fire protection or potable uses in Fairbank Historic Townsite and at San Pedro House.

Under Alternatives B and C, land and stream treatments to control soil erosion, promote watershed stability and surface runoff infiltration, and prevent water table lowering would be allowed in the SPRNCA and in the study area. This includes treatments to enhance groundwater recharge and river geomorphology. Watershed conditions would be allowed to evolve with predominantly natural processes and largely unaided by management under Alternative D.

Designating the study river for inclusion in the NWSRS would enhance water resources protection and efforts to define and protect base flows on the San Pedro River. Designation would curtail projects that may require in-stream structures to enhance river geomorphology, if they would interfere with free-flowing characteristics.

Paleontological Resources

The SPRNCA and study area contain significant paleontological resources, including the Murray Springs and Lehner sites. These sites are used for public interpretation, educational, and scientific research, which would continue under all alternatives. Surveys would be required before surface-disturbing activities take place. Avoidance or mitigation would be implemented as needed to protect paleontological resource values under all alternatives.

Designating the study area for inclusion in the NWSRS would not affect foreseeable uses of paleontological resources.

<u>Vegetation</u>

As part of the SPRNCA, the study area would be managed to control invasive plants, to restore native species, to maintain or improve habitats, to provide firebreaks, and to maintain unique ecological sites. Vegetation treatments would be allowed to achieve management objectives, including biological, mechanical, prescribed fire, and chemical treatments, under Alternatives B and C. Only natural processes with limited management would be used to manage vegetation under Alternative D.

Designating the study river for inclusion in the NWSRS would not affect foreseeable uses of vegetation; however, it could constrain the design of potential vegetation treatments in the study area to protect river values under all alternatives.

Wildland Fire Management

Lands in the study area contain sensitive resource values and developments, which are at risk of loss and destruction by natural or human-caused wildland fire. As part of the SPRNCA, all fires in the study area would be managed commensurate with the values at risk. They would be fully suppressed under all alternatives. Minimum impact suppression tactics would normally be employed as required by the nature of the resource values. Appropriate emergency stabilization and rehabilitation would be implemented following a wildfire to prevent post-fire resource damage. Fire breaks in designated areas would be allowed to control the spread of fire (wildland-urban interface and around developments and sensitive areas).

Designating the study river for inclusion in the NWSRS would not affect foreseeable fire management uses; however, it may constrain the design of firebreaks and restoration or rehabilitation activities under all alternatives.

Fish, Wildlife, and Special Status Species

Lands in the study area provide a variety of riparian, aquatic, wetland, and upland habitats used by numerous native fish, avian, and terrestrial wildlife, including several special status species. The river study area includes USFWS-designated critical habitat for several species. Under all alternatives the area may be used for reintroduction, transplant, and supplemental stocking of fish and wildlife populations to recover, maintain, or increase populations, distribution, and genetic diversity.

Designating the study area for inclusion in the NWSRS would not affect uses to support wildlife habitat or related management activities.

Cultural Resources

The study area includes many sites with significant cultural resources, some of which are allocated for the public for interpretive and educational purposes. The cultural resource sites include historic roads and railroad grades, townsites, homesteads, mineral processing mills, petroglyph sites, farmhouses, a Spanish presidio, and other sites representing human occupancy from the end of the last glacial period until historic times. Sites currently allocated for public use would continue to be so managed under all alternatives. Stabilization and rehabilitation to preserve cultural values would continue.

Designating the study river for inclusion in the NWSRS would not affect foreseeable uses of cultural resources under the alternatives.

Visual Resources Management

Lands in the study area are part of a scenic landscape used for sightseeing and the setting for a variety of outdoor recreation opportunities. The landscape appears to be in largely natural condition, has many outstanding visual values, and contributes to the enjoyment of the SPRNCA.

Visual resources are managed under current VRM classes aimed at preserving, retaining, or partially retaining the character of the landscape. VRM Class I areas preserve the landscape, with allowable changes due to natural ecological changes and very limited management activity. The level of change in the landscape is limited to very low levels and must not attract attention. VRM Class II areas retain the landscape, with a low level of change from management activities. VRM Class III areas partially retain the landscape, with moderate levels of change from management.

Current VRM classes would be redesignated under the alternatives. The purpose would be to retain, or partially retain, the character of the landscape, with different configurations, depending on the alternative.

Designating the study river for inclusion in the NWSRS would not affect use of the landscape in the study area for visual resource protection; however, it could constrain the design of allowable landscape modifications to scenic values.

Lands with Wilderness Characteristics

The study area includes portions of the SPRNCA that were identified as having wilderness characteristics. These areas are over 5,000 acres; they are roadless and largely natural, with opportunities for primitive and unconfined recreation or solitude. These areas are relatively remote and are accessed by nonmotorized trails for backcountry and primitive recreation. They would be managed to protect their wilderness characteristics under Alternative D.

Designating the study river for inclusion in the NWSRS would not affect use of the area to protect wilderness characteristics. Management for those values would support the primitive tentative river classification under Alternative D.

Special Designations

Portions of the study river corridor are presently designated as ACECs to protect special vegetation communities: Saint David Cienega, San Pedro River, and San Rafael. The ACECs would be undesignated under Alternatives B and C. The Saint David Cienega and San Pedro River ACECs would be expanded under Alternative D to protect cultural resources; two new ACECs would be designated to protect both cultural and paleontological resources.

Designating the study river for inclusion in the NWSRS would not affect use of the area for ACECs. It could enhance protection of vegetation and cultural and paleontological resources under Alternative D.

Energy and Lands and Realty

Federal lands in the SPRNCA were withdrawn from mineral entry and disposal by PL 100-696. They are closed to mineral material leasing and sales under current management. Acquired lands are not open to mineral entry.

No energy projects have been identified in the SPRNCA or near the study corridor, though the general area has solar energy potential. The study area is crossed by a high voltage electric transmission line along Charleston Road and a high pressure natural gas pipeline near the north end of the study area. Several power distribution lines are also found in the study corridor.

The study river corridor is crossed by State Routes 82 and 90, county roads (Charleston, Hereford, Copper Glance, and Escapule), and a water pipeline near Escapule.

Existing infrastructure uses in ROWs would continue under all alternatives. The entire SPRNCA would be open to issuance of new ROWs under Alternatives A and B on a case-by-case basis. These alternatives could result in applications for transportation or utility ROWs in the study corridor.

The entire SPRNCA would be designated as an avoidance area under Alternative C, except at the utility corridor crossing along Charleston Road. This alternative could result in new ROW applications across the study corridor along Charleston Road. New ROWs would be excluded in the entire SPRNCA under Alternative D. It would impact potential new future development of transportation, utility, or other projects in the study corridor.
Designating the study river for inclusion in the NWSRs would not affect existing uses for utilities and transportation infrastructure under ROWs; however, it could constrain the design of facilities to protect river values under all alternatives.

Livestock Grazing

A small portion of the study area, the Brunkow Hill allotment, is used for cattle grazing, and most of the area is closed to grazing under current management. The entire river corridor would be used for cattle grazing under Alternative B, with one exception: for exclusions at designated locations to prevent conflicts with other uses. This would require constructing new fencing and range improvements for managing livestock and for maintaining and operating range improvements.

Most of the study area would be closed to grazing under Alternative C. This would prevent grazing in the riparian area but would allow grazing on upland portions of the study area. It also would require constructing fencing and range improvements to manage livestock. The entire SPRNCA, including the study area, would be closed to grazing under Alternative D, thereby preventing grazing and eliminating the need for range improvements.

Designating the study river would not affect grazing use under any alternative; however, it may constrain the design of range improvements to protect river values under Alternatives B and C. Grazing uses under those alternatives could introduce new pollutants, potentially affecting the water quality in the river.

Recreation Resources

Public lands in the study area are used for outdoor recreation under current management, primarily that related to natural, cultural, and paleontological resources which attract visitors. Use is concentrated around designated public use sites and along the San Pedro Trail System. The most heavily used sites are the San Pedro House and the Fairbank Historic Townsite, where visitor contact stations and other amenities are provided. Public use sites have minimal developments to accommodate ingress and egress, parking, sanitation, signing, and camping or picnicking, depending on the specific site and its primary purposes. Popular recreation is birding and viewing other wildlife, viewing the natural landscape, viewing historic and paleontological sites, picnicking, and hunting.

The San Pedro Trail System and administrative access roads and used to access recreation throughout the SPRNCA from the designated public access points. This attracts recreationists for hiking, horseback riding, and bicycling. The study area is primarily for day use, with a small amount of overnight backcountry camping. Most of the study river corridor consists of largely undeveloped backcountry settings, with rural settings found along the public highways and areas with rural residential developments.

Portions of the study area away from the access points are characterized by primitive recreation settings. Recreation management zones would be designated under the alternatives considered in the Draft RMP, based on the existing character of the landscape; different configurations would emphasize different recreation outcomes and settings.

Existing recreation facilities are the visitor contact stations at the San Pedro House and the Fairbank schoolhouse; trailhead and picnic facilities; and outdoor toilets, roads, and trails. Trash receptacles are

provided at the San Pedro House and Fairbank Historic Townsite and are emptied weekly. Most of the land is undeveloped, with no facilities. Some sites and trails receive weekly maintenance, some receive annual maintenance, and others may be maintained every 3 to 5 years. Site hosts are located at Fairbank Historic Townsite and the San Pedro House to help with grounds maintenance, though the San Pedro House position is currently vacant because the power supply is inadequate.

Foreseeable recreation uses in the study area under Alternative B would be similar to those under current management; however, developments would be allowed for car and recreational vehicle camping in the vicinity of the San Pedro House and Hereford. Also, several roads would be managed to accommodate public motor vehicles for sightseeing and access to backcountry recreation.

Recreation in the study area under Alternative C would be similar to that under current management. Alternative D would include primitive RMZs, which would protect the setting for nonmotorized recreation.

Designating the study river for inclusion in the NWSRS would not affect recreation under the alternatives; it could enhance opportunities for some recreation.

Interpretation and Environmental Education

Designated sites in the river corridor are used for public interpretation and environmental education under current management; these uses would continue under all the alternatives.

Designating the study river for inclusion in the NWSRS would not affect interpretation and environmental education under the Draft RMP.

Travel Management

Public lands in the study area are designated under 43 CFR 8342 as limited to designated roads and trails. Public motor vehicles are allowed on designated routes under current management, which would continue under Alternatives B and C. Part of the study area would be designated as closed to motor vehicles under Alternative D to protect natural resources and primitive settings.

The existing route inventory for the SPRNCA will be evaluated to identify the appropriate route designations and to provide a comprehensive transportation system for administrative access and public use, depending on the management alternative. Protecting river values would be part of the route evaluation criteria. To meet recreation management objectives, several routes would be opened to accommodate campground developments and to provide motorized recreation opportunities under Alternative B. This would introduce vehicles in portions of the study corridor that are presently closed; however, this would be consistent with the recreational classification under this alternative.

Designating the study river for inclusion in the NWSRS would not affect access and travel under the Draft RMP alternatives; however, it could constrain the design of potential road improvements to protect river values.

Scientific Research and Monitoring

The BLM and other agencies use the SPRNCA and river study area for various scientific research and monitoring activities, particularly those related to groundwater, stream flows, water quality, vegetation,

wildlife, and cultural resources. These uses would continue under all alternatives. Access to monitoring wells, gaging stations, study sites, and other monitoring locations require vehicle access, which would be accommodated by the administrative road system.

Designating the study river for inclusion in the NWSRS would not affect research or monitoring uses or activities; however, access by vehicle may be constrained, depending on the travel management designations established to implement the new RMP decisions.

4) The federal agency that will administer the area should it be added to the NWSRS

The study area is on BLM-administered lands as part of the SPRNCA. The BLM would continue to administer the San Pedro River if it is added to the NWSRS.

5) The extent to which the agency proposes that administration of the river, including the costs thereof, is shared by state and local agencies

The BLM would continue administering the study river as part of the SPRNCA, since the river is entirely within the SPRNCA boundaries. Administrative costs for labor and operations would continue to be funded by BLM budget appropriations and through grants or voluntary contributions by other agencies or cooperators.

State agencies would continue to administer state laws and regulations under their own regulatory obligations and state laws. The AZGFD would continue to administer hunting-related uses and regulations.

Cochise County would continue to regulate land use and development on private lands in the study area through zoning and building requirements. The county would continue to establish groundwater recharge projects, using reclaimed effluent and captured stormwater runoff; this would help preserve the San Pedro River flows.

Sierra Vista, Fort Huachuca, and other communities near the study area would continue administering and regulating land uses through their own programs and building permits. This could reduce demand for groundwater and help preserve the San Pedro River flows.

Local nongovernment interest groups and organizations would continue to help with many administrative functions through voluntary contributions. Examples of such opportunities to engage individual and organization volunteers are public outreach, interpretation and education, visitor contact and information, trail maintenance, and special projects.

6) The estimated cost to the United States of acquiring necessary lands or interests in land in the corridor, as well as the cost of administering the area should it be added to the NWSRS

Potential acquisition costs (based on all private land acres within the study corridor)

Most of the San Pedro River study area is BLM-administered land; approximately 1,122.8 acres are private land inholdings in the quarter-mile-wide study area under Alternatives A and B. The private parcels are in several locations, and most are presently undeveloped; three parcels have residential developments, and the rest could be developed for rural residential use under current Cochise County zoning. Because of the slightly larger river study area under Alternatives C and D, the private land

inholdings would be approximately 1,278.6 acres, including those parcels with existing residential development.

A rough estimate for processing acquisition costs, assuming a willing seller, is approximately \$100,000. This is based on labor and incidental acquisition costs, for example, negotiations, property surveys, environmental assessments, appraisals, legal descriptions, title work, and environmental professional and legal services. The estimated purchase price is roughly \$5 to \$6 million, depending on property values and other factors at the time of acquisition.

Cost of administering the area if designated in the NWSRS

The cost of administering the San Pedro River as a national river would be about the same as the cost of administering the SPRNCA for its conservation purposes, with little or no additional costs. The cost of administering potentially acquired inholdings would be relatively small and would not increase costs significantly due to the foreseeable uses of the acquired lands.

Based on total expenditures to administer the SPRNCA during the past 5 fiscal years (fiscal year 2013 to fiscal year 2017), the cost to administer the river if designated in the NWSRS would be approximately \$1 to 1.2 million annually.

7) A determination of the extent that other federal agencies, the state, or its political subdivisions might participate in preserving and administering the river should it be proposed for inclusion in the NWSRS

The BLM would be the primary agency responsible for administering the study river. This is because most of the lands are already under BLM jurisdiction and are administered as part of the SPRNCA. Federal, state, or other agencies would continue to participate in administration in their own agency programs and authorities to achieve mutual, common, or related purposes.

The USGS operates three stream gauge monitoring stations on the San Pedro River and has been collecting stream flow information for many years. The information is invaluable for water resource management in the Upper San Pedro Basin and the San Pedro River.

The Bureau of Reclamation holds a withdrawal on approximately 78 acres of the study area for the Charleston Dam project. This project was determined unnecessary in the 1970s and was never approved for development. The withdrawn lands are currently under BLM administration, and the withdrawal could be revoked, since it is not expected to be developed.

The USFWS would continue providing technical assistance and consultations under the ESA on a caseby-case basis, whenever the BLM considers land use plans or project proposals in the study area. The USFWS has designated critical habitat for several species in the study area and is proposing new critical habitat designations.

The BLM would pursue Arizona State Parks participation for shared funding through its grant programs. This would be done for eligible activities, such as recreation site construction and improvements, trails, accessibility, education, interpretation, preservation, and signing. The AZGFD would continue participating in preserving wildlife habitat through cooperative habitat improvement projects or habitat management plans, access acquisition, and enforcement of hunting and OHV regulations.

Cochise County would continue to administer zoning regulations on private land developments in the study area. It would also continue maintaining several county roads that provide important access to the SPRNCA.

8) An evaluation of local zoning and other land use controls in protecting the river's outstandingly remarkable values and preventing incompatible development

Cochise County regulates development of private lands in the study area through existing zoning districts (Cochise County 2015). Private land parcels in the river study area under Alternatives C and D total approximately 1,278.6 acres, in a number of separate parcels. The private lands in the study area are under an existing RU-4 zoning district, which provides for residential development on a minimum site area of 4 acres, with a maximum density of one dwelling per 4 acres. The private land inholdings could be developed for approximately 300 to 320 residences. Potential development of the inholdings would likely depend on individual wells, which could affect groundwater pumping near the river and potentially contribute to lowering the water table and declining river flows. Potential development of the inholdings would also likely depend on individual septic systems, which could introduce new sources of pollutants and potentially affect water quality in the river.

9) The state and local governments' capacity to manage and protect the outstandingly remarkable values on non-federal lands

This factor requires an evaluation of the river protection mechanisms available through the authority of state and local governments. Such mechanisms may include, for example, statewide programs related to population growth management, vegetation management, water quantity or quality, or protection of river-related values, such as open space and historic areas.

The study area is predominantly on BLM-administered land, and it includes approximately 1,278.6 acres of private land. State and local regulations could be applied to help protect the San Pedro River values, through zoning and permits, from development impacts on the private lands; however, there are no specific mechanisms to protect the private lands from development and its potential impacts on the river and its ORVs from declining river flows.

Groundwater and water table monitoring has revealed that pumping has been lowering the water table and creating a growing cone of depression, which could dry up river flows within several decades. Protecting river flows is the most critical factor in sustaining the ORVs in the study area. It is the greatest challenge facing all water conservation and development stakeholders at the state, county, and local levels in the Upper San Pedro Basin.

Some water conservation is already being implemented by county and local governments, such as groundwater recharge projects (treated and captured runoff); water conservation education, water quantity and quality monitoring; and building code and permit requirements. These efforts might help preserve river flows, but they are not likely to change the long-term declining water table and river flows that the river's ORVs depend on.

10) The existing support or opposition of designation. Assessment of this factor will define the political context

The BLM should consider the interest in designating or not designation by federal agencies; state, local, and tribal governments; national and local publics; and the state's congressional delegation.

During the 2013 SPRNCA RMP scoping process, the BLM received comments on potentially designating the San Pedro River for inclusion in the NWSRS. Comments came from several nongovernment organizations, such as the Friends of San Pedro River, the Sierra Club Grand Canyon Chapter, the Center for Biological Diversity, and the Huachuca Audubon Society (BLM 2014). Commenters asked for continued protection of the San Pedro River and studies on other rivers for potential designation. No comments addressing designation were received from any federal, state, county, or town governments.

Additional opportunities will be available for other agencies and the general public to comment on the Draft RMP and on the recommendations for potential designation of the San Pedro River in the NWSRS. The BLM will consider comments received during the RMP/EIS process when finalizing the suitability report.

11) The consistency of designation with other agency plans, programs, and policies in meeting regional objectives

Designation may help or impede the goals of tribal governments or other federal, state, or local agencies. For example, designating a river may contribute to state or regional protection objectives for fish and wildlife resources. Similarly, adding a river that includes a scarce recreation activity or setting to the NWSRS may help meet statewide recreation goals; however, designation might limit irrigation or flood control measures in a manner that is inconsistent with regional socioeconomic goals.

BLM reviewed the following plans for their consistency with NWSRS designations.

- Arizona's SCORP—The recreation opportunities available in the San Pedro River study area, together with the SPRNCA, meet some of the recreation demands identified in the 2013 SCORP (Arizona State Parks 2013).
- Arizona Trails Plan—The trail system in the study area meets some of the demand for nonmotorized trail use, identified in the Arizona Trails Plan and approved by the Arizona State Parks board in 2009 (Arizona State Parks 2009).
- CCCP—Cochise County values the SPRNCA and essentially considers it to be protected open space. Land use zoning in the study area and adjacent land promotes a rural character, with relatively large residential lots and relatively low density; however, no specific designation for open space or park protection related to the river is in the CCCP (Cochise County 2015).

12) The contribution to river system or basin integrity

This factor reflects the benefits of a systems approach (e.g., expanding the designated portion of a river in the NWSRS or developing a legislative proposal for an entire river system—headwaters to mouth—or watershed). Numerous benefits may result from managing an entire river or watershed, including the ability to design a holistic protection strategy in partnership with other agencies and the public.

- The study river includes only approximately 48.3 miles, or 31 percent of the 158 river miles of the San Pedro River, from the US-Mexico boundary to its confluence with the Gila River near the town of Winkelman.
- Designating the river would contribute to the integrity of the river system in the Upper San Pedro Basin and would provide an indicator of the overall health of the water system in the basin.
- Designation would enhance habitat preservation for the international neotropical bird migration corridor between Mexico and Central America and the northern United States and Canada.
- Designation would support local efforts in promoting water use and conservation to meet the long-term needs of the local communities; it also would preserve the SPRNCA and ensure the long-term viability of Fort Huachuca.

13) The potential for water resources development

Identify any proposed water resource projects that may be relinquished, as designation may limit development of water resources projects as diverse as irrigation and flood control measures, hydropower facilities, dredging, diversion, bridge construction, and channelization.

- There are no planned or proposed water resource, hydroelectric, flood control, channelization, diversion, bridge construction, or other similar structural projects that would not be developed due to designating the study area for inclusion in the NWSRS.
- There is no potential for construction of the Charleston Dam under the existing dam and reservoir site withdrawal (Public Land Order 5269), which is approximately 78 acres of the withdrawn lands in the study river corridor.
- The potential for dam construction in Mexico in the headwaters of the San Pedro River is unknown.
- The State Route 90 bridge over the San Pedro River was recently replaced. The construction area is in the early stages of reclamation or revegetation. No other bridge replacement projects have been identified.
- The Saint David Irrigation Ditch diversion will continue to be operated, and the water rights holder will rebuild the earthen diversion dam, using river bed material. There are no other diversions in the study area.
- There is potential for small dams or impoundments on side drainages along the study river corridor. Under all alternatives except Alternative D, this would be done to achieve SPRNCA management objectives for livestock water, groundwater recharge, and erosion control.
- Groundwater for livestock use could be developed under Alternatives B and C. This would provide for grazing in all or parts of the SPRNCA, including the study area.
- The potential for groundwater development on private land remains beyond the jurisdiction under all the alternatives, unless the BLM acquires the land.

3.5 SUITABILITY DETERMINATION

The quarter-mile-wide study river under Alternatives A and B was previously determined to be suitable for designation, with a recreational classification. Under Alternative C, the study river, with a topographically defined corridor, would be determined suitable for designation, with a recreational classification. Under Alternative D the study river, with a topographically defined corridor, would be determined suitable for designation, with wild, scenic, and recreational classifications, on different sections to reflect river characteristics under (see **Table 3-7**, below).

Table 3-7San Pedro River Alternative D Suitability Recommendation in Miles

Wild	Scenic	Recreational	Total
27.7	11.8	8.8	48.3

The key factors in this determination are as follows:

- The San Pedro River is perennially free flowing and contains outstandingly remarkable values.
- The study area has been previously studied and determined to be suitable for designation, with a recreational classification.
- The study area is suitable for designation, with a scenic classification, in sections that are less developed and are accessible by nonmotorized travel on trails.
- The study area may not be suitable for designation, with a wild classification on the entirety of the segment, due to impaired water quality.
- The study area consists primarily of federal land already administered under PL 100-696 for conservation purposes.
- Foreseeable land and water uses under the management alternatives in the Draft RMP would be minimally affected by designating the river for inclusion in the NWSRS.
- Estimated land acquisition and administration costs are anticipated to be relatively low and reasonable, though acquisition of parcels already developed for residential use may not be feasible.
- The study river is mostly under BLM jurisdiction, and, if designated for inclusion in the NWSRS, it could be administered as part of the SPRNCA, with minimal impacts.
- In general, the public appears to support designation, although federal, state, and local government support is uncertain. Comments on the potential designation during the RMP process help determine the level of support among various agencies and the general public.
- Designation would be generally consistent with state agency plans.
- Designation would contribute to preserving the integrity of the upper San Pedro River and would contribute to representing the diverse landscapes in the NWSRS.
- Designation would not relinquish any water resource development projects.

Chapter 4. Interim Management and Next Steps

4.1 INTERIM MANAGEMENT

River segments determined to be eligible are afforded interim protective management until a suitability study is completed. The BLM's policy is to protect any ORVs identified in the eligibility determination process. This is to ensure that a decision on suitability can be made, or in the case of suitable rivers, until Congress designates the river or releases it for further uses (BLM 2012).

The BLM has broad discretion authority to not affect river values or make decisions that might lead to a determination of eligibility. It is the BLM's policy to manage and protect the free-flowing character, tentative classification, and identified ORVs of eligible rivers according to the decisions in the associated RMP. This protection occurs at the point of eligibility determination, so as not to adversely constrain the suitability assessment or subsequent recommendation to Congress. The BLM may protect river values using both the National Environmental Policy Act of 1969 (NEPA) and the FLPMA.

Wild and scenic river issues involving NEPA supplementation are the same as those for other resource values. When the BLM considers a proposal that could constitute a major federal action that significantly affects the quality of the human environment, the Council on Environmental Quality's regulations require NEPA compliance before the BLM can act on the proposal (40 CFR 1506.1). Eligible river segments determined to be unsuitable through a land use plan decision are subject to the direction and management decisions contained in the RMP.

Table 4-1, below, describes the interim protection standards for eligible and suitable segments.

Issue	Management Prescription/Action
Study boundary	Minimum of a quarter-mile from the ordinary high-water mark
	Boundary may include adjacent areas needed to protect identified values
Preliminary classification	Three classes: wild, scenic, recreational (defined by statute)
(Section 2[b] of VVSRA)	Criteria for classification described in interagency guidelines
	Manage at recommended classification
Study report review	Notice of study report/draft EIS published in the Federal Register
procedures	Comments from federal, state, and local agencies and the public and the BLM's responses included in the study report/final EIS transmitted to the president and Congress
Private land administration and acquisition	Affect private land uses through voluntary partnership with state and local governments and landowners
	No regulatory authority
	Typically an evaluation of the adequacy of local zoning and land use controls is a component of suitability determination ¹
	No ability to acquire interest in land under the act's authority prior to designation

Table 4-1
Interim Protection for Candidate Wild and Scenic Rivers

Issue	Management Prescription/Action
Water resources project	River's free-flowing condition protected to the extent of other agency
	authorities; not protected under the WSRA
Land disposition	Agency discretion to retain lands in a river corridor in federal ownership
Mining and mineral leasing	Protect free flow, water quality, and ORVs through other agency authorities
Actions of other agencies	Affect actions of other agencies through voluntary partnership
Protect ORVs	No regulatory authority conferred by the WSRA; agency protects through other authorities
	Section 11(b)1: Limited financial or other assistance to encourage participation in the acquisition, protection, and management of river resources ²

 Table 4-1

 Interim Protection for Candidate Wild and Scenic Rivers

Source: Interagency Wild and Scenic Rivers Coordinating Council 1999

¹For an agency-identified study river that includes private lands, there is often the need to evaluate existing state and local land use controls and, if necessary, to assess the willingness of state and local government to protect river values. ²Section 11(b)1 authorizes the Secretary of the Interior and Secretary of Agriculture, or the head of any other federal agency, to provide for "limited financial or other assistance to encourage participation in the acquisition, protection, and management of river resources." This authority "applies within or outside a federally administered area and applies to rivers which are components of the National and to other rivers." The recipients of federal assistance include states or their political subdivisions, landowners, private organizations, or individuals. Some examples of assistance under this section include riparian restoration, riparian fencing to protect water quality and riparian vegetation, and vegetation screening to enhance scenery/recreation experience.

4.2 NEXT STEPS

The Draft RMP will incorporate each of the eligible rivers into one or more alternatives. The BLM will then seek public review and comment on the Draft RMP. The Draft EIS will assess the potential impacts of recommending each river as either suitable or not suitable for inclusion in the NWSRS. The Proposed RMP and Final EIS will include final suitability determinations on the eligible rivers. Congressional action is required for actual designation and final classification of suitable river segments.

Chapter 5. List of Preparers

BUREAU OF LAND MANAGEMENT

Name	Title/Role
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Randolph Varney	Technical Editor	MFA, Writing; BA, Technical and Professional Writing		

Chapter 6. References

- ADEQ (Arizona Department of Environmental Quality). 2015. 2012/2014 Status of Water Quality, Arizona's Integrated 305(b) Assessment and 303(d) Listing Report. August 2015. Internet website: http://www.azdeq.gov/20122014-water-quality-arizona-305b-assessment-report.
- _____. 2016. 2016 Water Quality in Arizona 305(b) Assessment Report. Internet website: https://azdeq.gov/2016-water-quality-arizona-305b-assessment-report.
- Arizona State Parks. 2009. Arizona Trails 2010: A Statewide Motorized and Non-Motorized Trails Plan. Phoenix, Arizona. July 2009.
- _____. 2013. Arizona 2013 SCORP, Statewide Comprehensive Outdoor Recreation Plan. Phoenix, Arizona. January 2013. Internet website: https://d2umhuunwbec1r.cloudfront.net/gallery/asparchive/publications/downloads/2013_SCORP_c.pdf.
- BLM (US Department of the Interior, Bureau of Land Management). 1989. Final San Pedro River Riparian Management Plan and Environmental Impact Statement. Safford District, Safford, Arizona. June 1989.
- _____. 1991. Final Safford District Resource Management Plan Environmental Impact Statement. Safford District Office, Safford, Arizona. August 1991.
- _____. 1992. Partial Record of Decision for the Approval of the Safford District Resource Management Plan. Arizona State Office, Phoenix. September 1992.
- _____. 1994a. Partial Record of Decision for the Approval of the Safford District Resource Management Plan Environmental Impact Statement. Arizona State Office, Phoenix. July 1994.
- _____. 1994b. Final Arizona Statewide Wild and Scenic Rivers Legislative Environmental Impact Statement. Arizona State Office, Phoenix. December 1994.
- _____. 1997. Final Arizona Statewide Wild and Scenic Rivers Study Report/Record of Decision. Phoenix, Arizona. February 1997.
- . 2012. Manual 6400—Wild and Scenic Rivers, Policy and Program Direction for Identification, Evaluation, Planning, and Management. Rel. 6-136. BLM, Washington, DC. July 13, 2012.
- _____. 2014. Scoping Report: San Pedro Riparian National Conservation Area Resource Management Plan. Tucson Field Office, Tucson, Arizona. January 2014.
- _____. 2016a. Wild and Scenic River Study Area Eligibility Report, San Pedro Riparian National Conservation Area. Tucson Field Office, Tucson, Arizona. May 2016.
- _____. 2016b. San Pedro Riparian National Conservation Area, Lands with Wilderness Characteristics Inventory. Tucson Field Office, Tucson, Arizona. May 2016.

- Cochise County. 2015. Cochise County Comprehensive Plan. Amended and Readopted. Internet website: www.cochise.az.gov/sites/default/files/planning_and_zoning/Cochise%20County%20Comprehensi ve%20Plan%202015%20FINAL.pdf
- Interagency Wild and Scenic Rivers Coordinating Council. 1999. The Wild and Scenic Rivers Study Process, Technical Report. Washington, DC.
- Logan Simpson Design, Inc. 2013. San Pedro Riparian National Conservation Area, Visual Resources Inventory. Tempe, Arizona. August 2013.
- USGS (US Geological Survey). 2013. Ecoregions of Arizona. Internet website: http://ecologicalregions.info/htm/az_eco.htm.

Appendix O Management Guidelines for Wild and Scenic Rivers

Appendix O. Management Guidelines for Wild and Scenic Rivers

These management guidelines were considered in developing the Resource Management Plan (RMP) management alternatives. The guidelines would be applied when considering and analyzing site-specific projects and activities on Bureau of Land Management (BLM)-administered lands within the suitable river corridor or on adjacent lands. The guidelines would continue to be applied until Congress acts on the river designation recommendations.

A. MINERALS

- I. Wild, Scenic, and Recreational
 - i. Locatable. Subject to valid existing rights, the minerals in any Federal lands that constitute the bed or bank or are situated within 1/4 mile of the bank of any river listed under Section 5(a) are withdrawn from all forms of appropriation under the mining laws, for the time periods specified in Section 7(b) of the Wild and Scenic Rivers Act (WSRA). See Section 9(b) of the WSRA. Mining activity on a Section 5(a) study river on properly located claims existing at the time Congress authorized the study may still be allowed. Existing or new mining activity on a BLM-identified study river are allowed and will be conducted in a manner that minimizes surface disturbance, sedimentation and pollution, and visual impairment. The BLM identification of a study river does not withdraw the lands from appropriation under the mining law.
 - ii. Leasable. New leases, licenses, and permits under mineral leasing laws may be made, but consideration should be given to applying conditions necessary to protect the values of the river corridor in the event it is subsequently included in the National System. Existing leases, licenses, and permits may be renewed, but consideration should be given to applying conditions necessary to protect the values of the river corridor upon renewal.
 - iii. Saleable. For river segments tentatively classified as wild, new disposal of saleable mineral material or the extension or renewal of existing contracts should be avoided to the greatest extent possible to protect river values. For river segments tentatively classified as scenic or recreational, disposal of saleable mineral material is allowed, but consideration should be given to applying conditions necessary to protect values for which the river may be included in the National System.

B. TRANSPORTATION SYSTEM

- 1. Wild. New roads and airfields are not generally compatible with this classification. A few existing roads leading to the boundary of the river corridor may be acceptable. New trail construction should generally be designed for nonmotorized uses. However, consider allowing limited motorized uses and unobtrusive bridges that are compatible with identified values.
- Scenic. New roads and railroads may be allowed to parallel the river for short segments or bridge the river if such construction fully protects river values (including the river's free-flowing condition). Bridge crossings and river access are allowed. New trail construction or airfields should be compatible with and fully protect identified values.

3. *Recreational.* Consider permitting new roads and railroads that parallel the river if such construction fully protects river values (including the river's free-flowing condition). Bridge crossings and river access are allowed. Consider new trail construction or airfields that are compatible with and fully protect identified values.

C. AUTHORIZATION OF RIGHTS-OF-WAY

1. Wild, Scenic, and Recreational. For BLM-identified eligible and suitable rivers, the BLM should consider exercising its discretion to deny applications for right-of-way (ROW) grants if the BLM determines through appropriate environmental analysis that the ROW proposal is not compatible with the river's classification and the protection and enhancement of river values. Where the ROW proposal is found to be compatible, additional or new facilities should be located, to the greatest extent possible, to share, parallel, or adjoin an existing ROW. For congressionally authorized study rivers, see chapter 7.5D for guidance. Any portion of a utility proposal that has the potential to affect the river's free-flowing condition will be evaluated as a water resources project (see chapter 3.6J).

D. RECREATION DEVELOPMENT

- 1. Wild. Major public-use areas, such as large campgrounds, interpretive centers, or administrative headquarters, should be located outside the river corridor. Minimum facilities may be provided in keeping with the essentially primitive condition. If sanitation and convenience facilities are necessary, they should be located at access points or a sufficient distance from the river bank so that they are not visible from the river. Such facilities should be located and developed in a manner that maintains or improves water quality and other identified river values. Any portion of a recreation restoration or enhancement project that has the potential to affect the river's free-flowing condition (e.g., a whitewater park for kayakers) will be evaluated as a water resources project (see chapter 3.6]).
- 2. Scenic. Public-use facilities, such as moderate-size campgrounds, simple sanitation and convenience facilities, public information centers, administrative sites, and river access developments, are allowed within the river corridor. All facilities should be located and designed to harmonize with the natural and cultural settings, protect identified river values including water quality, and be screened from view from the river to the extent possible. Any portion of a recreation restoration or enhancement project that has the potential to affect the river's free-flowing condition (e.g., a whitewater park for kayakers) will be evaluated as a water resources project (see chapter 3.6]).
- 3. Recreational. Recreation, administrative, and river access facilities may be located in close proximity to the river. However, recreational classification does not require extensive recreation development. All facilities should be located and designed to harmonize with the natural and cultural settings, protect identified river values including water quality, and be screened from view from the river to the extent possible. Any portion of a recreation restoration or enhancement project that has the potential to affect the river's free-flowing condition (e.g., a whitewater park for kayakers) will be evaluated as a water resources project (see chapter 3.6]).

E. MOTORIZED TRAVEL

1. Wild, Scenic, and Recreational. Motorized and mechanized travel on land or water may be permitted, prohibited, or restricted to protect the river values.

F. WILDLIFE AND FISH PROJECTS

- 1. Wild. Construction of minor structures and vegetation management to protect and enhance wildlife and fish habitat should harmonize with the area's essentially primitive condition and should fully protect identified river values. Any portion of a wildlife or fisheries restoration or enhancement project that has the potential to affect the river's free-flowing condition will be evaluated as a water resources project (see chapter 3.6]).
- 2. Scenic. Construction of structures and vegetation management to protect and enhance wildlife and fish habitat should harmonize with the area's largely undeveloped condition and fully protect identified river values. Any portion of a wildlife or fisheries restoration or enhancement project that has the potential to affect the free-flowing condition will be evaluated as a water resources project (see chapter 3.6]).
- 3. Recreational. Construction of structures and vegetation management to protect and enhance wildlife and fish habitat should fully protect identified river values. Any portion of a wildlife or fisheries restoration or enhancement project that has the potential to affect the river's free-flowing condition will be evaluated as a water resources project (see chapter 3.6J).

G. VEGETATION MANAGEMENT

- Wild. Cutting or eradication of trees and other vegetation is not consistent with the wild classification except under the following circumstances: (1) when needed in association with a primitive recreation experience, such as to clear trails; (2) to protect users or the environment, including the use of wildfire suppression; and (3) when vegetation is an invasive species and managed in accordance with chapter 3.611. In addition, prescribed fire and wildland fire may be used to restore or maintain habitat for threatened, endangered, or sensitive species and/or restore the historic range of variability.
- 2. Scenic and Recreational. The authorized officer may consider a range of vegetation management and timber harvest actions that are designed to protect, restore, or enhance the river environment, including the long-term scenic condition.

H. LIVESTOCK GRAZING

1. Wild, Scenic, and Recreational. Domestic livestock grazing should be managed to protect identified river values. Existing structures may be maintained. Any new facilities to facilitate livestock management should be unobtrusive so as to maintain the values for which a river was found eligible or suitable.

I. INVASIVE SPECIES MANAGEMENT

 Wild, Scenic, and Recreational. The spread of terrestrial and aquatic invasive species should be prevented and controlled, consistent with direction in the land use plan, other authorities, and available funding. A full range of manual and chemical prevention and control methods may be used, consistent with direction in the land use plan; BLM Manual Sections 9011, 9014, and 9015; BLM Handbook 1740-2; and other approved Federal direction. Chemical treatment must be carefully evaluated so as not to adversely affect water quality and outstandingly remarkable values.

J. WATER RESOURCES AND HYDROELECTRIC POWER PROJECTS

1. Wild, Scenic, and Recreational. For congressionally authorized study rivers, see chapter 3.8 for guidance on the determination of impacts under Section 7(b) of the WSRA. The WSRA does not explicitly address hydroelectric facilities or other federally assisted water resources projects that have the potential to affect BLM-identified eligible or suitable rivers. However, the BLM should, within its authority, consider protecting the river values that make the river eligible or suitable (as previously discussed in chapter 3.5) through the Coordinated Resource Management Plan (CRMP) and activity-level National Environmental Policy Act (NEPA) analysis. If a river is listed in the Nationwide Rivers Inventory, the Federal agency involved with the proposed action must consult with the land-managing agency in an attempt to avoid or mitigate adverse effects.

K. WITHDRAWAL FROM PUBLIC LAND LAWS

 Wild, Scenic, and Recreational. Public (Federal) lands within ¹/₄ mile of a congressionally authorized (WSRA Section 5(a)) study river are withdrawn from entry, sale, or other disposition under the public land laws of the United States pursuant to Section 8(b) of the WSRA (BLM Manual 6400).

REFERENCES

- BLM (US Department of Interior, Bureau of Land Management). BLM Manual Sections 9011, 9014, and 9015.
 - _____. BLM Handbook 1740-2 -- Integrated Vegetation Management. March 25, 2008.
- _____. BLM Manual 6400 -- Wild and Scenic Rivers Policy and Program Direction for Identification, Evaluation, Planning, and Management. Rel. 6-136, Section 3.6. July 13, 2012.

Appendix P Historic Climax Plant Communities

Appendix P. Historic Climax Plant Communities (HCPC)

State	Acres	Percent	State Description	HCPC
HCPC	4,550	14	 Native shrub, grass, and forb 	See State
			 Creosote, whitethorn 1–45% 	description
			 Bush muhly, threeawns 0–35% 	
			 Other sub-shrubs and succulents 0–10% 	
			 Perennial forbs and grasses 	
I	1,220	4	 Native shrub with exotic annuals 	See state
			 Nonnative annuals 1–80% 	description for
			 Creosote, whitethorn 10–20% 	HCPC, above
2	19,510	59	 Increase of shrubs 	See state
			 Mimosas, mesquite 10–35% 	description for
			 Other shrubs and succulents 5–20% 	HCPC, above
			 Annuals and half shrubs dominate understory 	
3	110	<	Large mesquite	See state
			 Mesquite and large shrubs 10–15% 	description for
			 Native and nonnative annual forbs and grasses 	HCPC, above
4	1,070	3	 Mesquite, natives 	See state
			 Mesquite 20–80% 	description for
			 Mid-grasses 5–20% 	HCPC, above
Outside	4,360	13	• 40% Sacaton, 60% annual forbs/annual grasses ²	See state
model				description for
				HCPC, above
No data	2,090	6	N/A	N/A

Table P-I Chihuahuan Desert Scrub

Source: Natural Resources Conservation Service (NRCS) 2018, BLM GIS 2017

Notes:

¹ Total acres may differ slightly from those in **Table 3-10** because acres in the two tables are derived from different spatial data layers.

² Observed in data

Table P-2
Semidesert Grassland

State	Acres	Percent	State Description	НСРС
HCPC	1,190	17	 Native mid-grassland; perennial grassland 	See state description
			 Mid-grass 1–30% 	
			 Suffrutescent grasses 5–25% 	
			 Mesquite 1–5% 	
			 Half shrubs 1–5% 	
I	640	9	 Mesquite, Lehmann 	See state description
			 Mesquite 5–15% 	for HCPC, above
			 Lehmann 40–70% 	
			 Remnant natives 	

State	Acres	Percent	State Description	НСРС		
2	820	11	Mesquite, annuals	See state description		
			Mesquite 10–15%	for HCPC, above		
			Annuals 5–90%			
3	1,210	17	 Mesquite, 20–25% 	See state description		
			 Other shrubs and succulents 15–30% 	for HCPC, above		
			Erosion			
4	680	9	Mesquite, natives	See state description		
			 Mesquite 2–10% 	for HCPC, above		
			 Mid-grass 5–20% 			
			 Suffrutescent grasses 5–15% 			
Outside	1,250	17	• Medium density to velvet mesquite state ²	See state description		
model				for HCPC, above		
No data	1,370	19	N/A	N/A		
Source: NR	Source: NRCS 2018, BLM GIS 2017					

Table P-2 Semidesert Grassland

Notes:

¹ Total acres may differ slightly from those in **Table 3-10** because acres in the two tables are derived from different spatial data layers.

² Observed in data

Table P-3Mesquite Forest (Bosque)

State	Acres	Percent	State Description	НСРС
HCPC	950	13	• Warm perennial grasses dominant—alkali sacaton	See state description
			Scattered trees	
			 Perennial grass—twoflower chloris, desert 	
			saltgrass, vine mesquite	
			 Annual grass—prairie threeawn, fingergrass 	
I	330	5	Mesquite 20–30%	See state description
			 Creosotebush 10–20% 	for HCPC, above
			Whitethorn 10–20%	
			 Nonnative annuals 1–80% 	
2	1,210	17	 Mesquite, shrubland 	See state description
			 Mesquite, shrubby 5–20% 	for HCPC, above
			 Graythorn and other shrubs 5–15% 	
			 Annuals fluctuate with climate 	
3	150	2	 Eroded, with or without mesquite 	See state description
			 Mesquite 0–25% 	for HCPC, above
			 Other shrubs and succulents 0–10% 	
4	2,170	30	 Sacaton grassland 	See state description
			 Sacaton 25–80% 	for HCPC, above
			 Annuals 0–20% 	
			 Mesquite 1–15% 	

State	Acres	Percent	State Description	HCPC
Outside	350	5	• Observed 84% sacaton cover—outside of the 25–	See state description
model			00% described in State 4, above	IOF FICE C, above
No Data	2,020	28	N/A	N/A
<u> </u>				

Table P-3	
Mesquite Forest (E	Bosque)

Sources: NRCS 2018; BLM GIS 2017

¹ Total acres may differ slightly from those in **Table 3-10** because acres in the two tables are derived from different spatial data layers.

² Observed in data

State	Acres	Percent	State Description	HCPC
HCPC	120	2	• Warm perennial grasses dominant—alkali sacaton	See state description
			 Scattered trees 	
			 Perennial grass—twoflower chloris, desert 	
			saltgrass, vine mesquite	
			 Annual grass—prairie threeawn, fingergrass 	
I	60	I	 Mesquite 5–30% 	See state description
			 Lehmann's lovegrass 40–70% 	for HCPC, above
			Remnant natives	
2	360	5	 Mesquite, shrubland 	See state description
			 Mesquite, shrubby 5–20% 	for HCPC, above
			 Graythorn and other shrubs 5–15% 	
3	660	9	 Mesquite bosque, exotic annuals 	See state description
			 Mesquite, large 20–80% 	for HCPC, above
			 Understory dominated by exotic annuals— 	
			London rocket and foxtail barley	
4	1,170	16	 Mesquite shrubland/sacaton grassland 	See state description
			 Mesquite 1–20% 	for HCPC, above
			 Sacaton 25–80% 	
			 Annuals 0–20% 	
Outside	230	3	 Observed 84% sacaton cover—outside of the 25– 	See state description
model			80% described in State 4^2 , above	for HCPC, above
No data	640	9	N/A	N/A

Table P-4 Big Sacaton Grassland

Sources: NRCS 2018; BLM GIS 2017

Notes:

¹ Total acres may differ slightly from those in **Table 3-10** because acres in the two tables are derived from different spatial data layers

² Observed in data

REFERENCES

- NRCS (US Department of Agriculture, Natural Resources Conservation Service). 2018. National Resources Inventory Rangeland Resource Assessment—Native Invasive Woody Species. Internet website: https://www.nrcs.usda.gov/wps/portal/nrcs/detail/national/landuse/ rangepasture/?cid=stelprdb1041705.
- BLM GIS. 2017. Data from the BLM's internal eGIS server, used to describe landownership, VRM, vegetation, and other datasets. US Department of the Interior, Bureau of Land Management, Tucson Field Office, Arizona. San Pedro Riparian National Conservation Area.

Appendix Q

Weed Species on the San Pedro Riparian National Conservation Area

Appendix Q. Weed Species on the SPRNCA

Noxious Weed and Invasive Plant Species	Presence on the SPRNCA	Arizona Department of Agriculture (ADA), Plant Services Division, Noxious Weed?
<u>Russian knapweed</u>	The species occupied less than I acre total in six separate sites on the SPRNCA; however, eradication began in 2008 and is nearly complete.	Yes
<u>Giant reed</u>	Giant reed has been controlled on the SPRNCA since 2009. Nine giant reed patches were known along the San Pedro River on the SPRNCA boundary. At least one new occurrence was found near Hereford during the proper functioning condition (PFC) assessments in April 2012.	No
<u>Malta star thistle</u> and <u>yellow star thistle</u>	In 2009 a small patch of Malta star thistle was discovered near Charleston Road, between Moson Road and the San Pedro River. The patch was removed by hand, and plants and seed heads were placed in trash bags and removed. The patch has been periodically monitored since then, and no Maltese star thistle has been observed, demonstrating the importance of early weed detection and control.	Yes
Bindweed	Bindweed grows on dry soil in retired agricultural fields on the SPRNCA.	Yes
<u>Puncturevine</u>	Puncturevine begins growing after the beginning of monsoons, on barren soil along roads, trails, and retired agricultural fields on the SPRNCA. It has been introduced to areas by foot and vehicle traffic; burs become attached to shoes and tires and then dislodge and germinate.	
Johnsongrass	This species is commonly found in moist areas along the San Pedro River. Repeat photography at permanent photo points on the SPRNCA has indicated that Johnsongrass infestations have become newly established or have enlarged since the original photos were taken in 1988. Its control or eradication has not been feasible because of its widespread infestation throughout the riparian area. Use of specific herbicides to target weedy grasses is not feasible because of native grasses in stands of Johnsongrass.	No
<u>Bermuda grass</u>	Bermuda grass is widespread along the banks of the San Pedro River where additional moisture is present; however, it is also very drought and alkali resistant once established. It may be found in sandy washes on the SPRNCA, where only ephemeral moisture is available. Bermuda grass on the SPRNCA has not been controlled or eradicated for the same reasons that Johnsongrass control is not feasible (see above).	

Table Q-I Weed Species on the SPRNCA

Noxious Weed and Invasive Plant Species	Presence on the SPRNCA	Arizona Department of Agriculture (ADA), Plant Services Division, Noxious Weed?
<u>Russian thistle</u>	Russian thistle commonly occurs in disturbed areas and	No
	retired agricultural fields on the SPRNCA. It has been mowed in some agricultural fields to prevent fire hazard and seed maturation.	
<u>Lehmann lovegrass</u>	Lehmann lovegrass on the SPRNCA has not been controlled or eradicated. This is due to its widespread infestation throughout upland areas and because current control methods are not effective.	No
<u>Bur bristle grass</u>	This species is found in retired agriculture fields on the SPRNCA.	Yes
<u>Coastal sandbur</u>	This species is found mainly in disturbed areas on the SPRNCA.	Yes
<u>Tree of heaven</u>	Documented on the SPRNCA at Boquillas and Fairbank; control is ongoing, although few plants remain.	No

Table Q-I Weed Species on the SPRNCA

Sources: BLM TFO data (BLM 2017); Parker (1972); Howard (2004); Makings (2006); ADA (2006)

REFERENCES

- ADA (Arizona Department of Agriculture Plant Services Division). 2006. Arizona State Listed Noxious Weeds. US Department of Agriculture, Natural Resources Conservation Service. Internet website: http://plants.usda.gov/java/noxious?rptType=State&statefips=04.
- BLM (US Department of the Interior, Bureau of Land Management). 2017. Data from the BLM's internal eGIS server used to describe landownership, VRM, vegetation, and other datasets. US Department of the Interior, Bureau of Land Management, Arizona, Tucson Field Office, Arizona.
- Howard, J. L. 2004. "Sorghum halepense." In: Fire Effects Information System. US Department of Agriculture, Forest Service, Rocky Mountain Research Station, Fire Sciences Laboratory. Fort Collins, Colorado.
- Makings, E. 2006. Flora of the San Pedro Riparian National Conservation Area. Desert Plants 22(2). Internet website: http://swbiodiversity.org/seinet/checklists/checklist.php?cl=3.

Parker, K. F. 1972. An Illustrated Guide to Arizona Weeds. University of Arizona Press, Tucson.

Appendix R

Threatened and Endangered Species and Critical Habitat

Appendix R. Threatened and Endangered Species, and Critical Habitat

Table R-I
Federally Listed Threatened, Endangered, and Proposed Species and Designated and
Proposed Critical Habitat

Common Name	Scientific Name	Status	Occurrence and Designated Critical Habitat in the SPRNCA	Priority Habitat
		PLANT	S	
Huachuca water umbel	Lilaeopsis schaffneriana ssp. recurva	Endangered	Occurs in perennial portions of the San Pedro River. In the Babocomari River the species is present between two sections of the San Pedro Riparian National Conservation Area (SPRNCA), but it has not been observed on Bureau of Land Management (BLM)-administered lands. It has been transplanted to Murray Spring, Horse Thief Draw, and Frog Spring, where self-sustaining populations may become established. Designated critical habitat for Huachuca water umbel exists in the SPRNCA, from approximately 660 feet (200 meters) south of the Hereford Road Bridge continuing north (downstream) for about	Ciénega Wetland
			33.7 miles to about I mile north of Summers Well (64 Federal Register [FR] 37453).	
		AMPHIBIA	NS /	
Chiricahua leopard frog	Lithobates chiricahuensis	Threatened	This species has been extirpated from the SPRNCA but has been reintroduced in two locations. There is no	Aquatic Lentic and Lotic

Common Name	Scientific Name	Status	Occurrence and Designated Critical Habitat in the SPRNCA critical habitat for this species on the SPRNCA. Habitat has the potential for species recovery in protected open water habitats when excluded from bullfrogs.	Priority Habitat
		FISH		
Desert pupfish Gila topminnow	Cyprinodon macularius Poeciliopsis occidentalis occidentalis	Endangered	This species has been extirpated from the SPRNCA but was reintroduced into springs and wetlands in the SPRNCA. There is no critical habitat for this species on the SPRNCA. Habitat has the potential for species recovery in aquatic habitats protected from invasive, predatory fish. This species has been extirpated from the SPRNCA but was	Aquatic Lentic and Lotic Aquatic Lentic and Lotic
	occidentalis	REPTILE	SPRNCA but was reintroduced into springs on the SPRNCA. No critical habitat has been designated for this species. Habitat on the SPRNCA has the potential for species recovery in habitats protected from invasive, predatory species.	
Northern Mexican	Thamnophis eaues	Threatened	USEWS has documented	Ciénega Wetland
garter snake	megalops	sateried	observations of the northern Mexican gartersnake from the SPRNCA. Proposed Critical habitat occurs on the SPRNCA.	5.5 ₀ 2
		BIRDS		
Southwestern willow flycatcher	Empidonax traillii extimus	Endangered	Willow flycatchers have been documented as nesting and as migrants in the SPRNCA (Krueper	Cottonwood/ Willow

Table R-IFederally Listed Threatened, Endangered, and Proposed Species and Designated and
Proposed Critical Habitat

Common Name	Scientific Name	Status	Occurrence and Designated Critical Habitat in the SPRNCA	Priority Habitat
			1999; Radke 2014). There is no critical habitat for this species on the SPRNCA.	
Yellow-billed cuckoo	Coccyzus americanus	Threatened	Up to five pair could be found per mile of riparian habitat, for an estimated 125 pair utilizing SPRNCA during the nesting season (Krueper 1999). Proposed critical habitat exists in the SPRNCA, running its full length, up the Babocomari River, to the SPRNCA boundary. It includes not only the stands of the riparian gallery forest along the river, but also the mesquite bosques on the bajadas and floodplains along the San Pedro river.	Cottonwood Willow, Mesquite Bosque
		MAMMA	LS	
Jaguar	Panthera onca	Endangered	Jaguars have not been documented in the SPRNCA but potentially use the area as connectivity/movement habitat. There is no critical habitat for this species on the SPRNCA.	Xeric Riparian
Ocelot	Leopardus pardalis	Endangered	Ocelots have not been documented in the SPRNCA but potentially use the area as connectivity/movement habitat. No critical habtiat has been disgnated for this species.	Xeric Riparian

Table R-IFederally Listed Threatened, Endangered, and Proposed Species and Designated and
Proposed Critical Habitat

Common	Scientific	Occurrence and Habitat in the	Priority Habitat
Name	Name	Planning Area	
Arizona giant	Carox ultra	PLANIS	Cottonwood/Willow Biparian Forest
sodro	Curex ultru	babitat (Radko 2014)	Cottonwood/willow Riparian Forest
San Podro	Friogonum	Documented in the SPRNCA in the area	Chibuahuan Desort Scrub
River wild	terrenatum	between Highway 82 and Escalante	Chindandan Desert Scrub
buckwheat	terrendum	(Anderson 2004: Radke 2011).	
		FISH	
Desert	Catostomus	Occurs on the SPRNCA in the San	Aquatic Lentic and Lotic
sucker	clarki	Pedro River, from Charleston to the	•
		Highway 90 Bridge, and still persists in	
		small numbers in the lower mile of Curry	
		Draw.	
Longfin dace	Agosia	This is the last native minnow in the	Aquatic Lentic and Lotic
	chrysogaster	SPRNCA. It can still be found throughout	
		the San Pedro River, where there is still	
		perennial surface water during dry	
		periods. It is an excellent colonizer of	
		unoccupied nabitat and can be found in	
		intermittent reaches, but most	
Sonoran	Bufo alvarius	Documented in the SPBNCA at Fairbank	Ciénega Marsh
desert toad	Dujo alvanas	(BLM 1988).	
		REPTILES	
Ornate box	Terrapene	Documented in the SPRNCA in	Semidesert Grassland
turtle	ornata	preferred shrub/grass habitat (BLM	
		1988).	
Sonora mud	Kinosternon	Documented in the SPRNCA in most	Aquatic Lentic and Lotic
turtle	sonoriense	permanent aquatic habitats, especially the	
	sonoriense	San Pedro River, Babocomari River, and	
		St. David Ciénega and in some	
		intermittent aquatic habitats (BLM 1988).	
	A	BIRDS	
Sprague's	Anthus	A rare local winter resident in the	Semidesert Grassland
pipit	spragueii	SPRINCA in grasslands near Palominas	
		and Hereford. There are no breeding	
Arizona	Doucaoa bottorii	Fecords in Arizona.	Pig Sector Cressland
Anzona Botteri's	arizonae	breeding bird in the SPRNCA in	Dig Sacaton Grassiand
sparrow	unzonac	savannah-type grassland habitats	
sparrow		primarily between Charleston and	
		Palominas (Krueper 1999).	
Arizona	Ammodramus	This sparrow has an extremely small	Semidesert Grassland
grasshopper	savannarum	breeding range in southeastern Arizona	
sparrow	ammolegus	and northern Sonora. In the SPRNCA, it	
	5	is a common summer breeding bird in	
		Semiarid Grasslands, with a low, woody	
		shrub component, such as scattered	
		young mesquite (Radke 2014).	

Table R-2BLM Sensitive Species that May Occur in the SPRNCA

Common	Scientific	Occurrence and Habitat in the	Briarity Habitat
Name	Name	Planning Area	Friority Habitat
Cactus	Glaucidium	A calling individual was reported south of	Cottonwood/Willow Riparian Forest
ferruginous	brasilianum	Kingfisher Pond in the SPRNCA in 1997,	
pygmy-owl	cactorum	but it was not located the next day; this	
		sighting is considered hypothetical	
		(Krueper 1999).	
Desert purple	Progne subis	Casual spring and fall migrant in the	Chihuahuan Desert Scrub
martin	hesperia	Upper San Pedro River Valley, with no	
		documented breeding (Krueper 1999).	
Gilded flicker	Colaptes	Uncommon permanent resident below	Chihuahuan Desert Scrub
	chrysoides	4,000 feet of the Upper San Pedro River	
		Valley and within the riparian zone of the	
		SPRNCA (Krueper 1999).	
Golden eagle	Aquila	Uncommon permanent resident in the	Cottonwood/Willow Riparian Forest;
	chrysaetos	Huachuca and Mule Mountains, where	Bat Roosts/Rocky Outcropping
		adult and juvenile birds have been	
	A.1	Observed (Radke 2014)	
VVestern	Athene	Rare permanent resident of desert and	Semidesert Grassland
burrowing	cunicularia	grassiands in the Upper San Pedro River	
OWI	nypugaea	valley in the SPRINCA. These owis have	
		been observed in the SPRINCA, where	
		burrow (Padka 2014)	
Cave myotis	Muotis velifer	Documented in the SPRNCA at	Bat Boosts/Bocky Outcropping
Cave myous	Wiyous venjer	Fairbank Boguillas Hereford and	Chibushuan Desert Scrub
		Highway 92 (Duncan 1989)	Chindandan Desert Serdb
Greater	Eumobs berotis	Documented in the SPRNCA at Lewis	Bat Roosts/Rocky Outcropping:
western	californicus	Spring (Duncan 1989).	Chihuahuan Desert Scrub
mastiff bat		-F	
Lesser long-	Leptonycteris	This species has been documented in the	Chiluahuan Desert scrub; Semidesert
nosed bat	curasoae	SPRNCA (Duncan 1989). The planning	Grasslands
	yerbabuenae	area is within the foraging radus from	
	,	known roost site.	
Spotted bat	Euderma	Range maps (Reid 2006) depict the	Bat Roosts/Rocky Outcropping
	maculatum	occurrence of spotted bat in	
		southeastern Arizona, and it has been	
		documented in the SPRNCA (Duncan	
		1989).	
Townsend's	Corynorhinus	Documented in the SPRNCA at	Bat Roosts/Rocky Outcropping;
big-eared bat	townsendii	Hereford (Duncan 1989).	Chihuahuan Desert Scrub
		MAMMALS	
Banner-tailed	Dipodomys	This species has not been documented	Semidesert Grassland
kangaroo rat	spectabilis	within the SPRNCA. Range maps indicate	
		it may occur in the planning area (Reid	
		2006), and records do exist for the	
		Upper San Pedro River Valley.	

Table R-2BLM Sensitive Species that May Occur in the SPRNCA

Source: BLM 2017; USFWS 2018

Complied using Arizona Game and Fish Department (AZGFD) Heritage Data Management System unpublished species' abstracts

REFERENCES

- Anderson, J. 2004. "A tale of two rare wild buckwheats (Eriogonum subgenus eucycla: Polygonaceae) from southeastern Arizona." Southwestern Rare and Endangered Plants: Proceedings of the Fourth Conference. USDA Forest Service Proceedings RMRS-P-48CD, Las Cruces, New Mexico.
- AZGFD (Arizona Game and Fish Department). Unpublished species' abstracts compiled and edited by the Heritage Data Management System, AZGFD, Phoenix.
- BLM (US Department of the Interior, Bureau of Land Management). 1988. Proposed San Pedro Riparian National Conservation Area Reptiles and Amphibians Preliminary Inventory Results. San Pedro Technical Report Number 3. BLM San Pedro Project Office, Sierra Vista, Arizona.
- . 2017. San Pedro Riparian National Conservation Area Analysis of the Management Situation. US Department of the Interior, Bureau of Land Management, Arizona, Tucson Field Office, San Pedro Riparian National Conservation Area.
- Krueper, D. J. 1999. Annotated Checklist of the Birds of the Upper San Pedro River Valley, Arizona. BLM, San Pedro Project Office, Sierra Vista, Arizona.
- Radke, M. 2011. Monitoring of San Pedro River wild buckwheat. Bureau of Land Management San Pedro Project office files, Sierra Vista, Arizona. November 12, 2011.
- _____. 2014. Wildlife biologist, personal observations. Bureau of Land Management, Sierra Vista, Arizona.
- Duncan, D. 1989. Mammal inventory of the San Pedro Riparian Conservation Area, Cochise County, Arizona: Final Report. BLM, San Pedro Project Office, Sierra Vista, Arizona.
- Reid, F. A. 2006. Mammals of North America. Houghton Mifflin Co., New York, New York.
- USFWS (US Fish and Wildlife Service). 2018. List of threatened and endangered species that may occur in your proposed project location, and/or may be affected by your proposed project. Arizona Ecological Services Field Office. March 06, 2018. Phoenix, Az.

Appendix S

Primary Constituent Elements of Proposed and Final Critical Habitat

Appendix S. Primary Constituent Elements of Proposed and Final Critical Habitat

Primary constituent elements (PCEs) are specific elements of physical or biological features that provide for a species' life-history processes and are essential to its conservation. Critical habitat is a specific geographic area that is essential for the conservation of a threatened or endangered species; only areas that contain a species' PCEs are considered critical habitat. This may be an area that is not currently occupied by the species but that may be required for its recovery.

Table S-I lists the PCEs for critical habitats of federally listed species that occur in the San Pedro Riparian National Conservation Area (SPRNCA).

 Table S-I

 Primary Constituent Elements of Proposed and Final Critical Habitats on the SPRNCA and Upper San Pedro Watershed (USPW)

Feature	Description
	Yellow-billed cuckoo (proposed critical habitat:
	10,200 acres on the SPRNCA, 16,500 acres in the USPW)
Riparian	Riparian woodlands with mixed willow-cottonwood vegetation, mesquite-thorn forest vegetation,
woodlands	or a combination of these. These areas contain habitat for nesting and foraging, in contiguous or
	nearly contiguous patches that are greater than 325 feet wide and 200 acres or more in area.
	These habitat patches contain one or more nesting groves, which are generally willow dominated,
	have above average canopy closure (greater than 70 percent), and have a cooler, more humid
	environment than the surrounding riparian and upland habitats.
Adequate	Presence of a prey base consisting of large insect fauna (for example, cicadas, caterpillars, katydids,
prey base	grassnoppers, large beetles, and dragonilies) and tree trogs, for adults and young in breeding areas
Dunamia	Diver systems that are dynamic and provide hydrologic processes that encourage adiment
rivorino	movement, and deposits that allow seedling germination and promote plant growth, maintenance
Drocesses	health and vigor. Examples are lower gradient streams and broad floodplains, elevated subsurface
processes	groundwater table, and perennial rivers and streams. This allows habitat to regenerate at regular
	intervals, leading to riparian vegetation with variously aged patches from young to old.
Huachuca	water umbel (final critical habitat: 480 acres on the SPRNCA, 570 acres on USPW)
Base flows	Sufficient perennial base flows to provide a permanent or nearly permanent wetted substrate for
	growth and reproduction.
Stream	A stream channel that is relatively stable but subject to periodic flooding, that provides for
channel	rejuvenation of the riparian plant community, and that produces open microsites for Lilaeopsis
	expansion.
Riparian plant	A riparian plant community that is relatively stable over time, where nonnative species do not
community	exist or are at a density that has little or no adverse effect on resources available for Lilaeopsis
	growth and reproduction.
Refuge sites	In streams and rivers, refuge sites in each watershed and in each reach, including springs or
	backwaters of mainstem rivers, that allow each population to survive catastrophic floods and to
	recolonize larger areas.

Table S-I
Primary Constituent Elements of Proposed and Final Critical Habitats on the SPRNCA
and Upper San Pedro Watershed (USPW)

Feature	Description
Northern Me	xican garter snake (proposed critical habitat: 6,600 acres on the SPRNCA, 15,160 acres
in the USPW)	
Aquatic or riparian habitat	 Perennial or spatially intermittent streams of low to moderate gradient that possess appropriate amounts of in-channel pools, off-channel pools, or backwater habitat and that possess a natural, unregulated flow regime that allows for periodic flooding or, if flows are modified or regulated, a flow regime that allows for adequate river functions, such as flows capable of processing sediment loads Lentic wetlands, such as livestock tanks, springs, and ciénegas Shoreline habitat with adequate organic and inorganic structural complexity to allow for thermoregulation, gestation, shelter, predator protection, and foraging opportunities; examples are boulders, rocks, organic debris such as downed trees or logs, debris jams, small mammal burrows, and leaf litter Aquatic habitat, with characteristics that support a native amphibian prey base, such as salinities less than 5 parts per thousand, pH greater than or equal to 5.6, and pollutants absent or minimally present at levels that do not affect survival of any age class of the more minimally present at levels that do not affect survival of any age class of the more minimally present at levels that do not affect survival of any age class of the more minimally present at levels that do not affect survival of any age class of the more minimally present at levels that do not affect survival of any age class of the more minimally present at levels that do not affect survival of any age class of the more minimally present at levels that do not affect survival of any age class of the more minimally present at levels that do not affect survival of any age class of the more minimally present at levels that do not affect survival of any age class of the many survival of any age class of the more minimally present at levels that do not affect survival of any age class of the more many survival of any age class of the more more minimally present at levels that do not affect survival of any age class of the more more more more more more more mor
Adequate	Adequate terrestrial space (600 feet lateral extent to either side of bankfull stage) next to
terrestrial	designated stream systems with sufficient structural characteristics to support life-history
space	functions, such as gestation, immigration, emigration, and brumation (extended inactivity).
Adequate	A prey base consisting of viable populations of native amphibian and native fish species.
prey base	
Absence of	Absence of nonnative fish species of the families Centrarchidae and Ictaluridae, bullfrogs, or
nonnative fish	crayfish or occurrence of these nonnative species at low enough levels that there is still
species	recruitment of northern Mexican garter snakes and maintenance of its prey, native fish or soft-
	Chiricabua loopard frog (0 acros on the SPBNCA acro in the LISPW)
Aquatic	Aquatic breading babitat and immediately adjacent uplands exhibiting the following characteristics:
breeding habitat next to uplands	 Standing bodies of freshwater (with salinities less than 5 parts per thousand, pH greater than or equal to 5.6, and pollutants absent or minimally present), including natural and human-made ponds (such as stock ponds), slow-moving streams or pools within streams, off-channel pools, and other ephemeral or permanent water bodies that typically hold water or rarely dry for more than a month. During periods of drought or less than average rainfall, these breeding sites may not hold water long enough for individuals to complete their metamorphosis, but they would still be considered essential breeding habitat in non-drought years. Emergent or submerged vegetation, root masses, undercut banks, fractured rock substrates, or some combination thereof, but emergent vegetation does not completely
	 cover the surface of water bodies. Nonnative predators, such as crayfish, bullfrogs, ad nonnative fish, absent or occurring at levels that do not preclude the Chiricahua leopard frog. Absence of chytridiomycosis, or if present, then environmental, physiological, and genetic conditions are such that allow Chiricahua leopard frogs to persist.
	 Optand nabitats that provide opportunities for foraging and basking and are next to or surrounding breeding aquatic and riparian habitat.

¹ An infectious disease in amphibians, caused by the chytrid fungi Batrachochytrium dendrobatidis and Batrachochytrium salamandrivorans.
Table S-I Primary Constituent Elements of Proposed and Final Critical Habitats on the SPRNCA and Upper San Pedro Watershed (USPW)

Feature	Description
Dispersal and nonbreeding habitat	 This habitat consists of areas with ephemeral (present for only a short time), intermittent, or perennial water that is generally unsuitable for breeding; also associated upland or riparian habitat that provides corridors (overland movement or along wetted drainages) for frogs among breeding sites in a metapopulation with the following characteristics: Are not more than 1.0 mile overland, 3.0 miles along ephemeral or intermittent drainages, 5.0 miles along perennial drainages, or some combination thereof not to exceed 5.0 miles In overland and nonwetted corridors, provide some vegetation cover or structural features, such as boulders, rocks, organic debris (such as downed trees or logs), small mammal burrows, or leaf litter for shelter, forage, and predator protection; wetted corridors provide some ephemeral, intermittent, or perennial aquatic habitat Are free of barriers that block movement by Chiricahua leopard frogs, including urban, industrial, or agricultural development; reservoirs that are 50 acres or more and contain nonnative predatory fish, bullfrogs, or crayfish; highways that do not include frog fencing and culverts; and walls, maior dams, or other structures that block movement.

Source: USFWS 1999, 2004, 2012, 2013, 2014a, 2014b

REFERENCES

- USFWS (US Department of the Interior, Fish and Wildlife Service). 1999. Endangered and Threatened Wildlife and Plants; Endangered Status and Designations of Critical Habitat for Huachuca Water Umbel, a Plant; Final Rule, 50 CRF 17.
 - 2012. Biological Opinion on the Gila District Livestock Grazing Program. Arizona Ecological Services Office, Phoenix. May 21, 2012.

Appendix T

Social and Economic Conditions and Analysis Methods

Appendix T. Social and Economic Conditions and Analysis Methods

This appendix provides an overview of the current social and economic conditions of the San Pedro Riparian National Conservation area (SPRNCA) and surrounding area to support analysis for the Resource Management Plan/Environmental Impact Statement. In addition, information is provided for the method used for analyzing the social, economic, and environmental justice concerns, based on proposed management. A summary of this information is in **Section 3.5.3**.

T.I SOCIAL AND ECONOMIC CONDITIONS

Certain defining features of every area influence and shape the nature of local economic and social activity. Features of particular relevance for this planning are as follows:

- Local history
- Population
- Presence of or proximity to large cities or regional population centers
- Types of longstanding industries, such as agriculture and forestry
- Predominant land and water features
- Unique area amenities

To accurately portray the relationship of Bureau of Land Management (BLM) management and the community, the social and economic geographic scope of analysis must be defined. At the broad scale, the entire planning area is used to examine social and economic conditions. As discussed in **Section 3.5.3**, the broad socioeconomic study area is defined as Cochise County. Data is also provided for Sierra Vista, which is the closest and largest municipality to the SPRNCA and has the most visitor services. There are three other incorporated places within 20 miles of the study area with populations greater than 1,000, based on 2010 data: Benson (5,105), Tombstone (1,380), and Bisbee (5,575). Given their size and proximity to the SPRNCA, and since visitation to the SPRNCA is often coupled with visitation to these other communities, data is also presented for these communities. Comparison with trends for Arizona is used to place Cochise County trends in context, relative to larger regional trends.

The economic analysis focuses on the existing social and economic conditions in and surrounding the planning area, such as population and ethnicity and employment and income. This was based on publicly available data sources, including Headwater Economic's Economic Profile System; US Department of Commerce, Census Bureau, 2000 and 2010 census data, as well as 5-year American Community Survey (ACS) data (US Census Bureau 2016); Bureau of Economic Analysis; Bureau of Labor Statistics; Environmental Protection Agency (EPA) Environmental Justice Guidance; and other state and local data.

In addition, planning area-specific data are included from a BLM and US Geological Survey (USGS) pilot project launched in early 2010. Its purpose is to assess the validity of ecosystem service valuation as an input to the BLM's resource management decisions. The pilot project was to review available tools for quantifying, mapping, and valuing ecosystem services; it also was used to quantify ecosystem services

using different tools, where feasible, comparing the utility of model outputs for decision-makers for a chosen management unit and for agency-wide application.

Two spatially explicit, ecosystem services modeling systems are designed to quantify tradeoffs between multiple services: Integrated Valuation of Ecosystem Services and Tradeoffs (InVEST) and Artificial Intelligence for Ecosystem Services (ARIES). Quantification and comparison of these models was performed in the pilot project (Bagstad et al. 2013).

T.I.I Overview of Area History

Human occupation of the SPRNCA stretches back at least 12,000 years. The SPRNCA contains the Murray Springs Clovis Site, a significant archaeological resource that contains evidence of the earliest known people to inhabit North America; the site served as a hunting camp approximately 9,000 years before common era (BCE) (Haynes 2007). The hunter-gatherer Cochise culture next made this area home, between about 5000 and 200 BCE, followed by the more advanced Mogollon, Hohokam, and Salado people, who built permanent homes and engaged in agriculture here. By the time the first Europeans arrived, the San Pedro River was home to the Sobaipuri people.

The first Europeans to visit the San Pedro River may have been the parties of Cabeza de Vaca (1536), Fray Marcos de Niza (1536), or the Coronado expedition (1540). The Jesuit priest Eusebio Kino visited the villages along the San Pedro and Babocomari Rivers in 1692 and soon after introduced the first livestock to this area. By the late 1700s conflicts between the Apache, Spanish, and other Indian tribes increased, driving many of the Sobaipuri and Spanish out of the San Pedro Valley (Seymour 2011). The Spanish established the Presidio Santa Cruz de Terrenate around 1775; however, it was never completed, partially due to repeated attacks from the Apache, and it was abandoned in 1780.

Early American exploration of the San Pedro River was driven by the pursuit of beaver pelts. James Ohio Pattie and his father led a party of fur trappers down the Gila River and then down the San Pedro River in 1826. Trapping was so successful that he called the San Pedro the Beaver River. The Mexican government granted the San Juan de las Boquillas y Nogales and San Rafael del Valle land grants to individuals in the Gonzales family in the 1830s for use as cattle ranches. By the late 1840s, however, the ranches were abandoned, as Apache raids continued and wild cattle were left behind to graze on the open range.

Southern Arizona became a US possession at the end of the Spanish American War, with the Treaty of Guadalupe Hidalgo of 1848 and the Gadsden Purchase of 1854. Conflicts between the US Army and the Apaches began during the Mexican-American war in 1849. These armed conflicts, collectively known as the Apache Wars, continued until approximately 1886, though some smaller battles extended into the early 1900s.

As the Apache presence was reduced in the area, American prospectors started mining silver deposits previously known to the Spanish and Mexicans. In the late 1800s the population in the area exploded in mining boom towns. From around 1877 to 1890 the Tombstone mines produced 40 to 85 million dollars in silver bullion, the largest productive silver district in Arizona. The town of Bisbee was known as The Queen of the Copper Camps; mines there produced nearly 3 million ounces of gold and more than 8 billion pounds of copper until mining operations closed in the 1970s. The SPRNCA features the

ruins of Fairbank, active from about 1892 to 1900, which was important as a railroad and mining supply town for Tombstone.

In the late 1880s to early 1900s the land grants in the area were sold to American investors by descendants of the original land grant holders, and eventually the land was acquired by a large cattle ranching company. Other claims to the land were invalidated in court and other land uses and residents were removed.

A downturn in mining and removal of other land uses resulted in large-scale cattle ranching in the area; from the late 1800s to 1930, the Willcox depot in Cochise County was a nationwide ranching and cattle-shipping area. The San Pedro House, a 1930s-era converted ranch house, is from this period and is an example of former agricultural use along the SPRNCA.

T.I.2 Communities of Place

Sierra Vista

Located 75 miles southeast of Tucson, Sierra Vista serves as the main commercial, cultural, and recreational hub of Cochise County. Its population is 44,892 people (US Census Bureau 2015). The main economic sectors in the local economy are retail trade, military, and defense activities at Fort Huachuca, as well as healthcare, supported by the new 100-bed Canyon Vista Hospital (Sierra Vista Economic Development 2016). Sierra Vista is approximately 9 miles from the SPRNCA.

Tombstone

Tombstone is a historic western town founded in 1879. It prospered from about 1877 to 1890, during which time its mines produced 40 to 85 million dollars in silver bullion, the largest productive silver district in Arizona. Its population grew from 100 to around 14,000 in less than 7 years; current population is around 1,510 (US Census Bureau 2015), and today the town draws most of its revenue from tourism. Tombstone received approximately 48,000 visitors in 2015 (Arizona Sonoran News 2016). It is approximately 5 miles from the SPRNCA.

Bisbee

Bisbee has a population of 5,415 (US Census Bureau 2015). It was founded as a copper, gold, and silver mining town in 1880. By 1910 its population had swelled to 25,000, but by 1950 the population had dropped to fewer than 6,000. In 1975 the Phelps Dodge Corporation halted its Bisbee copper mining operations (Western Mining History 2016). Starting in the 1960s, Bisbee became a destination for artists. In the 1990s, additional people were attracted to Bisbee, leading it to develop such amenities as coffee shops and live theatre. Many of the old houses have been renovated, and property values in Bisbee now greatly exceed those of other southeastern Arizona cities. Today the town is supported by the tourism and cultural scene and as a retirement community. It is approximately 15 miles from the SPRNCA.

Benson

Benson has a population of 5,013 (US Census Bureau 2015). The city was founded in 1880 when the Southern Pacific Railroad came through. Today Benson is supported by tourism. It is home to the Kartchner Caverns State Park. Benson is approximately 10 miles from the SPRNCA.

T.I.3 Communities of Interest

In addition to communities in the planning area, there are specific groups for whom management of public lands is of particular interest, specifically bird and wildlife groups, residents, and area ranchers. Furthermore, special interest groups and individuals who represent resource conservation or resource use perspectives have an interest in planning area public lands management.

Wildlife Groups

The SPRNCA is an important site for national and international bird and wildlife groups. These groups, such as the Audubon Society, value the rare desert riparian habitat as a site to visit and view bird species. These groups are principally concerned with maintaining the biological value of the site to support bird and wildlife populations and to maintain access for wildlife viewing.

Residents

Residents represent a diverse group, with varying interests and priorities; however, most residents with property next to the SPRNCA are concerned with regulating visitation and recreation and minimizing conflicts. In addition, residents are concerned with fire and fuels, due to the potential for fires on the SPRNCA to spread to adjacent property.

Ranchers

The planning area has traditionally supported livestock grazing. Ranchers in the planning area use both private and BLM-administered lands to support grazing operations. Ranchers are primarily concerned with locations where grazing will be permitted, as well as the level of restrictions applied to structural and nonstructural range improvements.

T.I.4 Social and Economic Conditions and Trends

Populations and Demographics

The 2015 population in Cochise County was 129,647 (US Census Bureau 2016). The population density was 21 per square mile, compared with the state average of 56 people per square mile and a national average of 79.6 people per square mile (Arizona Department of Administration 2012).

The 2010 census population estimate of Cochise County (131,346) represented a 24.6 percent increase since 2000 in Arizona as a whole and an 11 percent increase in the county. It also represents a growth of 32 percent since 1990, the year after the last resource management plan (RMP) was undertaken.

Sierra Vista's population in 2010 was 43,888, a 16 percent increase since 2000. Since 1970, Cochise County's population has increased 112 percent. The state's population is projected to increase to 7,485,163 by 2020, an increase of 17 percent from 2010 (Arizona Department of Administration 2012). Of note is that while more recent data (2012) for Sierra Vista show over a 4 percent population increase since 2010 (45,794), the county's population fell 0.4 percent, to 130,752, during the same period (Cochise College 2013). The rate of increase for communities in the socioeconomic planning area may be slower or may even decrease if current trends continue (see **Table T-1**).

In addition to communities named in **Table T-I**, there are numerous other unincorporated communities near the SPRNCA that function with independent or shared services, including water districts, sewer districts, and school districts.

			-	-		
Population	Sierra Vista	Benson	Bisbee	Tomb- stone	Cochise County	Arizona
2000 population	37,775	4,711	6,090	1,504	117,775	5,130,632
2010 population	43,888	5,105	5,575	1,380	131,346	6,392,017
2015 population	44,892	5,013	5,415	1,510	129,647	6,641,928
Percent change	18.8	6.4	-11.1	0.4	10.1	29.5

Table T-I Socioeconomic Study Area Population

Source: US Census Bureau 2000, 2010, 2015

Population Age Distribution

Over the past 10 years, Cochise County has consistently had an older population of residents than that of Arizona or the United States, and a greater percent of the population has been over the age of 60 (see **Diagram T-I**, Percent of Population Over Age 60). In 2016, the median age in Cochise County was 42.2, and 28.8 percent of the population was over the age of 60. In comparison, the median age in Arizona was 37.4, and 22.2 percent of the population was over age 60. In the United States, the median age was 37.8, and 22.5 percent of the population was over the age of 60 during the same period (US Census Bureau 2016).

The age of the population is one indicator of the types of public services required in an area, indicating that the planning area population may require services to support an aging population.



Diagram T-I Percent of Population Over Age 60

Source: US Census Bureau 2016

Education

Education levels in an area may be one indicator of the most commonly available types of local employment. In Cochise County, 86.7 percent of persons over 24 were high school graduates, similar to statistics for Arizona (86.0 percent) and the same as the United States as a whole (US Census Bureau 2016).

Employment and Income

Historically, employment in Cochise County was based on mining. From 1879 to 1970 nearly 4 million tons of copper, 193,000 tons of lead, 244,000 tons of zinc, 146.4 million ounces of silver, and more than 3 million ounces of gold were produced in Cochise County (Arizona Bureau of Geology and Mineral Technology 1985). Mining peaked in the early 1900s, although it continued to some extent until the 1970s. Since then, mining employment in the county has further declined, from 7.4 percent to 1 percent of all private employment in the county by 2014 (Headwaters Economics 2016).

Ranching and agriculture, another historically important economic sector, have declined from about 5 percent in 1970 to just over 3 percent in 2014. Over the same period, employment in the service industries has steadily increased, from 34 percent of total employment in 1970 and 60 percent in 2014 (Headwater Economics 2016).

Currently, employment in Cochise County is primarily focused on education services, health care, and the social assistance industry, with 20.5 percent of the population employed in these categories. Several other industries employ greater than 10 percent of the population (see **Table T-2**). These industry employment percentages are nearly similar to that for Arizona as a whole.

The exception is public administration, in which Cochise County is almost 10 percent higher, likely due to the presence of Fort Huachuca, a US Army base and home of the US Army Intelligence Center and the US Army Network Enterprise Technology Command. Fort Huachuca is the largest employer in Cochise County and Sierra Vista, and this has been so since at least 1999. Fort Huachuca has a military presence of approximately 4,100; it employed 9,369 full-time employees in 2012.

Fort Huachuca also has had a large indirect employment impact on Cochise County. It has been estimated that 26,921 full-time employees are supported by Fort Huachuca, which includes the 9,369 employees listed above as well as those employed in support of government contracts and those who are supported by the spending of Fort Huachuca and its employees. Nearly 83 percent of the indirect and induced¹ employment generated by Fort Huachuca is in the county's retail trade and services industries.

Other important employers in the area are General Dynamics Information Technology, which was the second largest employer in Sierra Vista in 2012, with 855 full-time employees. Others are Sierra Vista Unified School District (685 employees), the Sierra Vista Regional Health Center (611 employees), and Mantech International (560 employees) (Cochise College 2013).

¹ Indirect employment is from industries that sell goods to the industries that are directly affected; induced employment is changes in household spending as household income increases or decreases due to the changes in industry production.

Overall, total employment in Cochise County increased 104 percent between 1970 and 2014, compared with a 364 percent increase in Arizona overall (Headwater Economics 2016). Major industries have remained similar at the county and state level for the past decade, based on US Bureau of Economic Analysis data from 2001 and 2014 (see **Table T-2**).

Industry		Cochise County		Arizona
	2001	2014	2001	2014
Farm employment	3%	3%	.4%	1%
Forestry, fishing, and related activities	N/A	1%	1%	.4%
Mining, quarrying, and oil and gas extraction	0.2%	1%	0.5%	1%
Utilities	1%	1%	0.4%	<.01%
Construction	6%	4%	8%	5%
Manufacturing	2%	2%	7%	5%
Wholesale trade	1%	1%	4%	3%
Retail trade	12%	12%	11%	11%
Transportation and warehousing	2%	2%	3%	3%
Information	1%	1%	2%	2%
Finance and insurance	2%	3%	5%	6%
Real estate, rental, and leasing	N/A	4%	5%	6%
Professional, scientific, and technical services	5%	7%	6%	6%
Company and enterprise management	0.2%	1%	1%	1%
Administrative and support and waste	4%	5%	8%	8%
management and remediation services				
Educational services	1%	2%	1%	2%
Health care and social assistance	8%	8%	8%	11%
Arts, entertainment, and recreation	1%	2%	2%	2%
Accommodation and food services	8%	7%	8%	8%
Other services (except public administration)	6%	5%	5%	5%
Government and government enterprises	32%	30%	14%	13%

Table T-2County Employment by Sector (2001–2014)

Source: Bureau of Economic Analysis 2014, table CA25

N/A = not available due to nondisclosure requirements

Note that sectors of industry vary from those collected by the US Census Bureau, as displayed in Table T-3.

Employment characteristics in the City of Sierra Vista are similar to those of Cochise County (see **Table T-3**). The opening of the enlarged Copper Vista Medical Center in Sierra Vista in 2015 has continued to fuel the educational services, health care, and social assistance industries.

Educational services/health care/social assistance (27.5 percent) and retail (17 percent) are the two strongest industries in Benson.

Educational services/health care/social assistance (27.1 percent), arts and entertainment, accommodation and food services (15.3 percent), and retail (17 percent) employ the most people in Bisbee. Traffic from US Interstate Highway 10 and the presence of Kartchner Caverns influence spending in the second two categories.

In Tombstone, the most employment (27.5 percent) is in the arts, entertainment, recreation, accommodation, and food services industry; this sector is driven primarily by tourism.

Industry	Sierra Vista	Benson	Bisbee	Tombstone	Cochise County	Arizona
Agriculture, forestry, fishing and	1.3%	1.9%	1.9%	3.6%	4.0%	1.6%
hunting, and mining						
Construction	2.7%	6.1%	5.1%	8.7%	5.1%	6.6%
Manufacturing	4.1%	5.5%	5.6%	0.0%	3.8%	7.3%
Wholesale trade	1.3%	3.8%	0.7%	1.1%	1.3%	2.4%
Retail trade	10.8%	17.0%	14.0%	11.9%	11.6%	12.2%
Transportation, warehousing, and	2.7%	3.2%	4.1%	7.8%	4.2%	4.9%
utilities						
Information	0.0%	0.0%	0.0%	0.0%	I.4%	1.8%
Finance and insurance, real estate,	5.4%	4.8%	1.4%	0.8%	4.2%	8.1%
rental, and leasing						
Professional, scientific, and	12.6%	8.3%	7.8%	3.2%	11.3%	11.9%
management and administrative and						
waste management services						
Educational services and health care	21.0%	27.5%	27.1%	22.3%	22.0%	22.1%
and social assistance						
Arts, entertainment, and recreation,	12.5%	6.2%	15.3%	27.5%	10.8%	10.8%
accommodation and food services						
Other services, except public	3.4%	3.4%	2.6%	1.7%	3.9%	4.8%
administration						
Public administration	21.5%	14.0%	13.5%	10.4%	16.4%	5.5%

Table T-3Socioeconomic Study Area Employment by Sector (2016)

Source: US Census Bureau 2016

Note: Data were derived from US Census Bureau American Community Survey (ACS) data about selected economic characteristics for the civilian population age 16 years and older at the state, county, and local level. ACS employment data reflect place of residence and an individual's primary occupation only.

The 2015 median family income in Cochise County was \$45,075, with a per capita income of \$25,506. This is lower than Arizona as a whole, at \$50,255 and \$25,848 (see **Table T-4**). Sierra Vista has a significantly higher median family income (\$59,091) and per capita income (\$26,988), which is likely due to its proximity to Fort Huachuca and its higher paying jobs. Benson and Bisbee are close in both median family income (\$32,010 and \$31,010) and per capita income (\$19,239 and \$22,051). Median family income in Tombstone (\$32,140) is approximately \$18,000 less than the state as a whole, and per capita income (\$17,717) is approximately \$8,000 less than the state as a whole. Poverty data is discussed below under *Environmental Justice*.

Table T-4	
Socioeconomic Study Area Income in Dollars (2	2015)

	Sierra Vista	Benson	Bisbee	Tombstone	Cochise County	Arizona
Median family income	59,091	32,010	31,010	32,140	45,075	50,255
Per capita	26,988	19,239	22,05 I	17,717	23,506	25,848
	2017					

Source: US Census Bureau 2016

Components of Personal Income

A further examination of trends in personal income provides insight into the area economy and its connection to the lands administered by the BLM. There are three major sources of personal income, as follows:

- Labor earnings or income from the workplace
- Investment income or income received by individuals in the form of rent, dividends, or interest earnings
- Transfer payment income or income received as Social Security, retirement and disability income, or Medicare and Medicaid

In Cochise County, labor earnings account for only 49.4 percent of total personal income; non-labor earnings in the county represented a higher percentage of total income than for the state or nation (Table T-5).

	Cochise County	Arizona	United States
Total personal income*	\$4,679,941	\$255,092,928	\$14,683,147,000
Non-labor income	\$2,367,728	\$98,416,844	\$5,252,427,000
	50.6%	38.6%	35.8%
Dividends, interest, and rent	\$ 941,268	\$46,309,843	\$2,723,288,000
	20.1%	18.2%	18.5%
Transfer payments	\$1,426,460	\$52,107,001	\$2,529,139,000
	30.5%	20.4%	17.2%
Age-related transfer payments (e.g.,	\$664,738	\$29,124,554	\$1,432,431,000
Medicare and Social Security)	14.2%	11.4%	9.8%
Hardship-related transfer payments	\$485,082	\$15,426,343	\$803,394,000
(e.g., unemployment and welfare)	10.4%	6.0%	5.5%
Other transfer payments (e.g.,	\$276,640	\$7,556,104	\$293,314,000
veterans' benefits)	5.9%	3.0%	2.0%
Labor earnings	\$2,312,213	\$156,676,084	\$9,430,720,000
	49.4%	61.4%	64.2%

Table T-5Source of Personal Income (2014)

Source: Headwaters Economics 2016

*In \$1,000 of 2014 dollars

Note: Nonlabor income and labor earnings may not total personal income because of adjustments made by the Bureau of Economic Analysis. This is done to account for contributions from such factors as Social Security and cross-county commuting.

In Cochise County, a slightly higher rate of income from dividends, income, and rent may relate to the higher percentage of retirees in some portions of the county. Retirees are more likely than younger adults to have investment earnings. In addition, age-related transfer payments, such as Social Security and Medicare, are higher in Cochise County; however, hardship-related payments also represent a higher percent of income than in Arizona as a whole. In addition, a higher rate of other transfer payments (specifically, payments to veterans) is likely due to the presence of Fort Huachuca and associated business (Headwater Economics 2016).

Housing

Housing information is an indication of the economic strength of the area and the ability to accommodate changes in population. Cochise County contains approximately 60,087 housing units (US Census Bureau 2016). The rental vacancy rate is approximately 15.9 percent. Median home value was \$143,900, and median rental rates were \$802 per month, slightly lower than the Arizona state rates (see **Table T-6**).

	Cochise	Arizona
Number of housing units	60,087	2,890,664
Occupied	48,825	2,412,212
Vacant	11,262	478,452
Homeowner vacancy rate	3.4%	2.9%
Rental vacancy rate	15.9%	8.6%
Median value	\$143,900	\$167,500
Median rental rate	\$802	\$913
Source: US Census Bureau 2016		

Table T-6					
Cochise County Housing (2015)					

Local Fiscal Conditions

Revenues for Cochise County are from property taxes; the general fund; contributions from special funds collected for highway maintenance, health services, library districts, and other uses; and capital improvement funds for investment to support infrastructure projects.

A summary of revenue sources and expenditures is in **Table T-7**, below. County property taxes are collected at a rate of 2.6276 per \$100 of assessed value. Property values and the resultant property taxes may be influenced by adjacent public land regulations. The positive effect of a land use regulation on property values can be due to an "amenity effect," when land use regulations protect, enhance, or create amenities or services that benefit property owners. For example, positive amenity effects can arise with regulations to protect environmental amenities, open space, and farmland or to control objectionable conditions, such as noise, congestion, and pollution (Jaefer 2006).

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Table I-7									
Cochise County Finances									
	Adopted Budgeted	Actual	Fund	Estimated Property	Estimated Revenue	Total Funds			
Fund	Expenditures	Expenditures	Balance, as	Tax	Other than	Available			
	and Expenses	2014	of June 2014	Revenue	Property	2015			
	2014			2015	Taxes 2015				
Total general fund	\$80,459,349	\$54,407,112	\$29,059,354	\$25,114,167	\$27,190,434	\$81,595,849			
Special revenue funds	\$46,216,289	\$34,652,084	\$15,233,765	\$4,512,860	\$24,609,018	\$44,209,619			
Capital projects funds	\$29,117,440	\$7,830,674	\$16,766,605	NA	\$4,880,826	\$21,515,649			
Total enterprise funds	\$4,570,433	\$4,975,470	-\$305,596	NA	\$4,959,542	\$4,653,946			
Total all funds	\$160,363,511	\$161,247,922	\$60,754,128	\$29,627,027	\$61,639,820	\$151,975,063			

Source: Cochise County 2014

The sales tax in Arizona, is based on a state rate of 5.6 percent, plus a county rate of .5 percent and an additional city rate, where applicable, averaging 2.5 percent. Cochise County average total tax rates are

approximately 8.6 percent. Sales tax may be generated from expenditures made by recreationists coming to BLM-administered lands.

The presence of federal lands results in payment in lieu of taxes (PILT) to offset lack of tax revenues generated from these lands. PILT payments to Cochise County in fiscal year 2014 were \$2,142,985 (Department of Interior 2014). PILT payments are included in general fund revenue and come from BLM-administered lands and from National Forest System, Bureau of Reclamation, and National Park Service lands.

T.I.5 Ecosystem Services

Ecosystem services describes the comprehensive set of benefits that people receive from nature, including both nonmarket and market components. Ecosystem processes are the complex physical and biological cycles and interactions that underlie what is observed as the natural world; ecosystem services are the specific results of those processes that either directly sustain or enhance human life or maintain the quality of ecosystem goods (Brown et al. 2007; Costanza et al. 1997; Daily et al. 1997; Kline 2013).

The Millennium Ecosystem Assessment Classification System (Millennium Ecosystem Assessment 2005) developed a frequently referenced classification of ecosystem services into four categories: provisioning, supporting, regulating, and cultural services. Each is summarized below.

Provisioning services—These are broadly described as products derived from ecosystems. They can include a broad spectrum of products from raw materials, minerals and energy products, water, and medicines. In the planning area, livestock forage and water resources represent the primary provisioning services from BLM-administered lands.

Supporting services—These are the underlying natural processes that sustain ecosystems and enable the production of all other ecosystem services, such as nutrient recycling and soil formation. These processes, in turn, support plants and animals, which support habitat and species diversity, abundance, and distribution. The functioning ecosystem in the planning area provides support for maintained biodiversity.

Regulating services—These are defined as benefits obtained from the regulation of ecosystem processes. Examples are carbon sequestration and climate regulation, waste decomposition and detoxification, and water and air purification. The San Perdo River provides a range of regulating services, particularly those focused on clean water.

Cultural services—These are defined as the benefits that people obtain from ecosystems through spiritual enrichment, cognitive development, reflection, recreation, and aesthetic experiences. The planning area supports a variey of cultual services, including preservation of historic resources and traditional life-ways, such as ranching. In addition, the area supports recreation and preserves the viewshed for visitors and local residents.

Ecosystem service contributions were modeled using two spatially explicit, ecosystem service modeling systems: InVEST and ARIES. The two scenarios modeled were urban growth and restoration management. The urban growth scenarios were compared using year 2000 baseline data plus "open" and "constrained" development scenarios for 2020. These scenarios assume expansion in desert scrub (10 to 17 percent) and urban land cover (179 to 507 percent) types and reductions in agriculture (13 to

85 percent) and grasslands (17 to 21 percent). Carbon, water, and viewshed models are included in both ARIES and InVEST, so these services were quantied and compared (Bagstad et al. 2013).

While other biodiversity and cultural services were not included in the ARIES and InVEST comparisons, they have been measured and quantified using those or other tools. Biodiversity supports key recreation activities, such as bird watching, wildlife viewing, and hunting on the SPRNCA. Cultural services include the nonmaterial benefits people obtain through spiritual enrichment, cognitive development, reflection, recreation, and aesthetic experiences (Begsted et al. 2012).

Carbon

InVEST results indicated a loss of 168,000 tons per year of stored carbon under the open development scenario (valued at 35 to 144 million 2011 dollars; Bagstad et al. 2012) and 110,000 tons per year under the constrained development scenario (valued at 26 to 105 million 2011 dollars; Bagstad et al. 2012). Under ARIES, results indicate a relatively similar lost carbon sequestration under the urban-growth scenarios—a loss of 115,000 and 110,000 tons per year, respectively, under the open and constrained development scenarios. A relatively small change in carbon sequestration was quantified under the mesquite management scenario (loss of 148 tons per year) (Bagstad et al. 2013), valued at .76 to 3.0 million in 2011 dollars (Bagstad et al. 2012).

Water

The InVEST water-yield model showed annual water-yield increases in the Upper San Pedro Watershed of 8 to 12 percent under the open development scenario (estimated at 9.0 to 36.5 million in 2011 dollars; Bagstad et al. 2012) and 4 to 5 percent under the constrained development scenario (valued at \$9.1 to \$37 million in 2011 dollars, Bagstad et al. 2012). This increase in water yield results from reduced infiltration and faster runoff, which are a function of increased impervious surfaces with urban growth. This is generally an undesirable effect, as faster runoff causes problems with erosion, water quality, aquatic habitat, and groundwater recharge, though these impacts were not quantified (Bagstad et al. 2013).

ARIES results are not directly comparable to those obtained using InVEST. ARIES quantified theoretical changes in water yield, independent of actual hydrologic flows, which it calculates as the reduction in infiltration and evapotranspiration under the urban-growth scenarios. ARIES quantified a decrease in theoretical (flow-independent) infiltration and evapotranspiration of 2.3 percent under the constrained development scenario and 2.7 percent under the open development scenario. Although the sign of the change is opposite of the InVEST results (which quantified increased water yield), they quantify the same type of change—reduced infiltration and evapotranspiration in the case of ARIES and increased water yield due to the reduced infiltration and evapotranspiration in the case of InVEST. In both the models, the predicted changes result largely from reduced infiltration, an undesirable change in a groundwater-driven system (Bagstad et al. 2013).

Using InVEST, annual water yield of 0.3 to 0.8 percent was found for the mesquite management scenario (valued at .3 to 1.2 million in 2011 dollars; Bagstad et al. 2012). This result was expected, given the lower evapotranspiration typical of grasslands, relative to mesquite, as demonstrated by Nieetal (2012), using similar scenarios as modeled by the soil and water assessment tool (Arnold and Fohrer 2005).

As modeled by ARIES, mesquite management similarly reduced annual evapotranspiration on the SPRNCA by 0.3 percent. The finding that grasslands promote greater surface and groundwater flows and lower evapotranspiration, benefitting nearby riparian ecosystems, is theoretically consistent with field studies and disciplinary hydrologic models (Bagstad et al. 2013).

Viewshed

The InVEST viewshed model quantified a substantial increase in the number of visual blight across the landscape, with an 89 percent increase in the constrained development scenario and a 275 percent increase in the open development scenario; however, these results tell only part of the story, as they do not comprehensively account for the locations of viewers, visual blight, and visually valued views.

ARIES mapped the theoretical source (i.e., view-source quality, independent of the location of users) and actual use (depending on user presence and ecosystem service flows via lines of sight) for viewsheds. There was a decrease in theoretical viewshed quality of 0.04 to 0.1 percent, as land-cover types with greater visual appeal were replaced by development. Actual viewshed use increased by 240 to 555 percent. Greater changes occurred in the open than in the constrained development scenario because of the higher population growth associated with the former (Bagstad et al. 2013).

The ARIES viewshed results illustrate a case of how landscape quality can decline, while becoming more valuable, as ecosystem-service use increases with more beneficiaries on the landscape, in both the urbanization scenarios. This shows how rising demand for ecosystem services can increase their value, even as ecosystems are being degraded; thus, it is important that rising ecosystem service values not always be equated to improvements in ecosystem quality (Bagstad et al. 2013).

T.I.6 Environmental Justice

Executive Order 12898, Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations, requires that federal agencies identify and address any disproportionately high and adverse human health or environmental effects of their programs, policies, and activities on minority, low-income, and tribal populations. Analyzing environmental justice impacts therefore requires two steps: (1) an initial screening to identify minority and low-income populations and (2) identifying any impacts that disproportionately and adversely affect these populations, compared to non-minority and middle- and upper-income populations.

According to the Council on Environmental Quality's (CEQ) Environmental Justice Guidelines for National Environmental Policy Act (NEPA; 1997), "minority populations should be identified where either the minority population of the affected area exceeds 50 percent or where the minority population percentage of the affected area is meaningfully greater than the minority population percentage in the general population or other appropriate unit of geographic analysis."

Minorities are defined as individuals who are members of the following population groups:

- American Indian or Alaska Native
- Asian or Pacific Islander
- Black, not of Hispanic origin
- Hispanic

Further, CEQ states that in identifying minority communities, agencies may consider as a community either of the following:

- A group of individuals living in geographic proximity to one another
- A geographically dispersed/transient set of individuals, where either type of group experiences common conditions of environmental exposure or effect

A minority population also exists if there is more than one minority group present and the minority percentage, as calculated by aggregating all minority persons, meets one of the above-stated thresholds.

Low-income populations are defined as persons living below the poverty level, based on total income of \$12,071 for an individual and \$24,008 for a family of four for 2014 data (US Census Bureau 2014a). The BLM, CEQ, and EPA guidance do not provide a quantitative threshold (e.g., a limit on the percent of persons in poverty) for determining whether a population should be considered low income. Typically, the percent of persons in poverty in the study area is compared with that in another area, such as the state.

Low-Income Populations

Cochise County as a whole has a slightly smaller population of individuals below the poverty line (17.5 percent) than the State of Arizona, which is at 18.2 percent. Due to the low population in the census tracks around the planning area, poverty data was not examined by census tract; however, communities in the socioeconomic study were examined.

Sierra Vista has the smallest population in poverty, at 12.6 percent of individuals, while Benson is slightly above state levels, with 21.3 percent. Tombstone (25.0 percent) and Bisbee (25.7 percent) have poverty levels more than 5 percentage points above that of the state and is considered for further environmental justice impacts (see **Table T-8**).

Table T.8

Socioeconomic Study Area Poverty (2014)								
	Sierra Vista	Benson	Bisbee	Tombstone	Cochise County	Arizona		
Families below the poverty level	8.7%	16.9%	20.9%	23.2%	13.1%	13.3%		
Individuals below poverty level	12.6%	21.3%	25.7%	25.0%	17.5%	18.2%		

Source: US Census Bureau 2014b

Minority Populations

Based on 2010–2014 data, approximately 56.9 percent of Arizona's population was identified as White, not Hispanic or Latino. The remaining 43.1 percent identified as ethnic or racial minorities or both. People of Hispanic or Latino descent (of any race) were the largest minority group and accounted for 30.1 percent of the total state population (US Census Bureau 2014b) (see **Table T-9**).

Cochise County is slightly less diverse than the state. In Cochise County, approximately 57.3 percent of the population was identified as White, non-Hispanic or Latino, and the remaining 42.7 percent were ethnic or racial minority or both. The largest minority groups were those of Hispanic/Latino descent

(see **Table T-9**). All communities in the planning area were less diverse than the comparison population of Concise County or the state, except for Bisbee, which was slightly above that of the County, at 43.7 percent combined minority population. As a result, no populations were identified for further consideration.

While Native Americans do not currently represent a substantial portion of the local area population, they have occupied the region for more than 12,000 years, using lands in the planning area for hunting, fishing, plant gathering, trade and exchange, and other cultural, social, and religious activities (see **Section 3.5.3**). The potential for impacts on Native American populations are considered in the environmental justice impacts analysis.

Population	Sierra Vista	Benson	Bisbee	Tombstone	Cochise County	Arizona	United States
Hispanic or	9,997	1,174	2,140	527	43,777	1,977,026	53,070,096
Latino	22%	23.1%	39.1%	31.5%	29.7%	30.1%	16.9%
ethnicity of							
any race							
White alone	33,755	4,406	4,629	١,378	104,360	5,174,082	231,849,713
_	74.4%	86.8%	84.5%	82.3%	79.8%	78.9%	73.8%
Black or	3,378	15	70	0	5,148	274,380	39,564,785
African	7.4%	0.3%	1.3%	0	3.9%	4.2%	12.6%
American							
alone							
American	653	113	71	0	۱,599	290,780	2,565,520
Indian or	1.4%	2.2%	1,3%	0	1.2%	4.4 %	0.8%
Alaska							
Native alone							
Asian alone	1,671	19	48	3	2,266	191,071	15,710,659
	3.7%	0.4 %	0.9%	0.2%	1.7%	2.9%	5.0%
Native	178	19	0	0	200	12,638	535,761
Hawaiian	0.4%	<.1%	0	0	0.2%	.2%	0.2%
and Other							
Pacific							
Islander							
alone							
Some other	2,118	270	483	86	9,948	418,033	14,754,895
Race	4.7%	5.3%	8.8%	5.1%	7.6%	6.4%	4.7%
Two or	3,612	252	174	207	7,286	200,532	9,125,751
more races	8.0%	5.0%	3.2%	12.4%	5.6%	3.1%	2.9%
Combined minority population	38.7%	26.6%	43.7%	35.5%	42.7%	43.1%	37.2%

Table T-9 Study Area Populations by Race/Ethnicity

Source: US Census Bureau 2014b

Note: The combined minority population is calculated by total population, minus those who reported as White, non-Hispanic. American Community Survey estimates are based on data collected over 5 years. The estimates represent the average characteristics of populations between January 2010 and December 2014 and do not represent a single point in time. Multiple federally recognized tribes in the region continue to recognize and use the public lands and resources of the SPRNCA in their traditional practices and beliefs.

T.2 ECONOMIC IMPACTS METHOD

This section describes the method and data used to model the quantitative economic impacts of public land management decisions on communities surrounding federal lands. The inputs required to run the IMPLAN model are described in the following narrative and tables. The resulting estimates from the IMPLAN model, by alternative, can be found in *Economic Conditions* in **Chapter 3**.

IMPLAN is a widely accepted model commonly used for estimating regional economic contribution and analyzing economic impacts. This model provides a mathematical representation of the local economy, which enables the flow of money, goods, and services to be tracked and reported in terms of regional jobs and income. IMPLAN models the way a dollar injected into one sector is spent and re-spent in other sectors of the local economy, creating a ripple effect. This effect, also called the multiplier effect, reflects changes in economic sectors that may not be directly affected by management actions but are linked to industries that are directly affected. In IMPLAN, these ripple effects are termed indirect impacts (for changes in industries that sell inputs to the industries that are directly affected) and induced impacts (for changes in household spending as household income increases or decreases due to the changes in production).

The analysis conducted for this RMP/EIS used IMPLAN (2016). Before the model was run, cost and price data were converted to a consistent dollar year (2017), using the Bureau of Economic Analysis Consumer Price Index calculator. (The values in this appendix are expressed in year 2017 dollars so that the earnings and employment estimates can be easily compared to baseline data.) The IMPLAN production coefficients were modified to reflect the interaction of producing sectors in the study area. Key variables in the IMPLAN model use data specific to the region, including employment estimates, labor earnings, and total industry output. Data on resource use levels (e.g., from recreation visits and animal unit month [AUMs]) were collected from BLM subject-matter specialists, as detailed below.

T.2.I Grazing

Economic impacts associated with livestock grazing on BLM-administered lands in the planning area were estimated based on the produced value of livestock and the level of BLM forage needed to produce livestock.

Forage was measured in AUMs; one AUM is the amount of forage needed to feed a cow-calf pair for one month. For this analysis the total permitted AUMs per alternative were determined to represent a maximum level of potential impacts.

The value for produced livestock was determined based on 2016 data from the University of Arizona College of Agriculture and Life Sciences Cooperative Extension Program. Data were used for the southeastern region cow/calf budget "high" scenario (Teegerstrom and Tronstad 2016). Converted to 2017 dollars, the total budget was \$818. The assumption was that an average of 12 AUMs was required to produce marketable livestock, resulting in average spending of \$68.17 per AUM. The total economic value of livestock production, which was used as the direct impact input to the IMPLAN, was calculated for each alternative based on the number of permitted AUMs. This amount was broken into component parts for entry into the IMPAN model, in the following categories:

- Sector 2_Grains
- Sector II_Beef cattle ranching and farming
- Sector 19 Agricultural support activities
- Sector 63 Maintenance, repair, and construction of nonresidential structures
- Sector 57 Newly constructed commercial structures, including farms
- Sector 395 Wholesale trade
- Sector 411 Truck transportation services
- Sector 433 Non-depository credit intermediaries
- Sector 437 Insurance
- Sector 445 Equipment leasing and rental
- Sector 459 Veterinary services
- Not Applicable Labor

The economic contributions of current recreation visits and those anticipated under alternative management actions were modeled in IMPLAN. This was done to estimate the indirect and induced effects on the local economy of recreation-related spending under the different alternatives.

T.2.2 Recreation

On their way to the planning area, and once they arrive, visitors to the SPRNCA spend money on goods and services, such as gas, food, lodging, and souvenirs. In contrast to many other resource and land uses, economic activity associated with outdoor recreation is not captured in any one industrial sector; instead, spending associated with recreation stimulates economic activity in a wide range of economic sectors associated with accommodations and food service, arts and entertainment, passenger transportation, and retail trade.

This analysis examined economic impacts of spending by visitors from outside Cochise Count only, as their recreation-related spending constitutes "new dollars" being injected into the local economy. Economic impacts from recreation is used because, in the absence of recreation opportunities on the SPRNCA, spending by local recreationists would likely be shifted to other sectors of the local economy or a substitute local recreation area would be selected.

Outdoor recreationists participating in activities on public lands have unique spending profiles. Analyses of expenditures reported by national forest visitors have shown that the primary factor determining the amount of money spent on a recreational visit to public lands is the type of trip taken rather than the specific activity the visitor intends to participate in (White 2017). Based on this assumption, visits to BLM-administered lands on the SPRNCA reported by the Recreation Management Information System were segmented into day and overnight trips. Percentages of day and overnight visitors were determined based on Ore and Colby (2002), a local study of recreation use. The distribution residents or visitors is estimated, based on the percentage of residents and visitors, as recorded at the San Pedro House visitor register (BLM 2017). This analysis assumes 13 percent of visitors are from Cochise County, and the remaining 87 percent are from outside the area.

Visitation data were collected from the BLM's Recreation Management Information System. Based on the proposed management activities, the variation in visitation was estimated by alternative, based on the BLM recreation specialist's professional expertise.

Baseline visitation levels for each alternative are displayed in **Table T-10**. In addition, recreation levels are assumed to increase over the planning period. Based on trends observed in Recreation Management Information System data, a rate of 2 percent increase per year was estimated. Projected visitation levels of three time points in the planning period, 2017, 2027, and 2028, are shown in the table.

Detailed visitor spending profiles developed by the National Visitor Use Monitoring Program were determined to represent the best available data for recreation spending profiles and were applied to SPRNCA visitation. Average National Visitor Use Monitoring visitor spending profiles were used, converted to 2017 dollars. (See **Table T-II** for spending profiles.)

Table T-10	
Estimated Recreation Visits by Alternat	ive

	A and D	В	С
2017	,3 8	9,88	112,807
2027	135,696	191,415	143,381
2037	165,412	233,334	174,780

Sources: RMIS 2017; BLM Recreation Specialist input

	Visitor Overnight	Visitor Day Trip
Lodging	\$140.17	\$0
Restaurants	\$70.71	\$13.27
Groceries	\$68.68	\$9.31
Gas	\$86.13	\$30.32
Other transport	\$3.43	\$1.00
Entry fees	\$15.01	\$\$5.07
Recreation and entertainment	\$18.55	\$5.28
Sporting goods	\$15.94	\$3.17
Souvenirs	\$19.88	\$2.42
Other retail	\$438.5	\$69.83

Table T-11 Recreation Spending Profiles

Source: based on White 2010

Total spending represents per-party totals, so visit numbers were converted to party numbers using an assumption of 2.5 people per party of day visitors and 2.2 for overnight visitors, based on White (2010). Total local recreation-related spending was estimated by applying National Visitor Use Monitoring spending profiles to estimated numbers in SPRNCA parties.

The economic contributions of current recreational visits and those anticipated under each alternative were modeled in IMPLAN to estimate the indirect and induced effects on the local economy of recreation-related spending.

REFERENCES

- Arizona Bureau of Geology and Mineral Technology. 1985. Index of Mining Properties in Cochise County, Arizona. Bulletin 187. February 18, 1985. Internet website: http://repository.azgs.az.gov/ sites/default/files/dlio/files/nid1009/b187_index_of_mining_properties_cochise_cty.pdf.
- Arizona Department of Administration. 2012. Office of Employment and Population Statistics. Internet website: https://laborstats.az.gov/.
- Arnold, J., and N. Fohrer. 2005. SWAT2000. "Current capabilities and research opportunities in applied watershed modeling." *Hydrologic Processes* 19(3): 563-572
- Bagstad, K. J., Darius Semmens, Rob Winthrop, Delilah Jaworski, and Joel Larson. 2012. Ecosystem Services Valuation to Support Decision-Making on Public Lands—A Case Study of the San Pedro River Watershed, Arizona. US Geological Survey Scientific Investigations Report 2012–5251.
- Bagstad, K. J., D. J. Semmens, and R. Winthrop. 2013. "Comparing approaches to spatially explicit ecosystem service modeling: A case study from the San Pedro River, Arizona." *Ecosystem Services 5* (September 2013): 40–50.
- BLM (US Department of the Interior, Bureau of Land Management). 2017. San Pedro House visitor register data 2015–2016. Unpublished data. Tucson, Arizona.
- Brown, T. C, J. C. Bergstrom, and J. B. Loomis. 2007. "Defining, valuing, and providing ecosystem goods and services." *Natural Resources Journal* Vol. 47, Spring 2007.
- CEQ (Council on Environmental Quality). 1997. Environmental Justice Guidance Under the National Environmental Policy Act. December 10, 1997. Internet website: http://www.whitehouse .gov/CEQ/.
- Cochise College. 2013. Sierra Vista Economic Outlook. 2013. January 7, 2014. Sierra Vista, Arizona.
- Cochise County. 2014. 2014–2015 adopted budget. Internet website: https://www.cochise.az.gov/ finance/annual-county-budget.
- Costanza, R., R. d'Arge, R. de Groot, S. Farber, M. Grasso, Bruce Hannon, K. Limburg, S. Naeem, R. V. O'Neill, J. Paruelo, R. G. Raskin, P. Sutton, and M. van den Belt. 1997. The value of the world's ecosystem services and natural capital. Nature. Vol 387. May 15, 1997
- Daily, G. C., S. Alexander, P. Ehrlich, and L. Goulde. 1997. "Ecosystem services: Benefits supplied to human societies by natural ecosystems." *Ecological Society of America* Number 2, Spring 1997.
- Haynes, C. V., and B. B. Huckell (editors). 2007. "Murray Springs—A Clovis site with multiple activity areas in the San Pedro Valley, Arizona." Anthropological papers of the University of Arizona, No. 71. University of Arizona Press, Tucson.
- Headwaters Economics. 2016. Economic Profile System Data for Cochise County. Internet website: http://headwaterseconomics.org/tools/economic-profile-system/.

- IMPLAN. 2016. IMPLAN Group Version 3.1 Software. 2016 dataset for Cochise County. Internet website: http://www.implan.com/.
- Jaefer, W. K. 2006. "The effects of land-use on property values." *Environmental Law* 36: 105. Oregon State University, Corvallis.
- Kline, J. D. 2013. "Applying the ecosystem services concept to public land management." Agricultural and Resource Economics Review 42(1): 139–158.
- Millennium Ecosystem Assessment 2005. Ecosystems and Human Well-Being. Synthesis. Island Press, Washington, DC.
- Sierra Vista Economic Development 2016. Community Overview. Spring 2016. Internet website: http://www.sierravistaaz.gov/wp-content/uploads/2018/01/2016-Sierra-Vista-Community-Overview-Booklet-v.2-April-2016-Update-WEB.pdf
- Nie, W., T. Yuan, W. Kepner, C. Erickson, and M. Jackson. 2012. "Hydrological impacts of mesquite encroachment in the Upper San Pedro watershed." *Journal of Arid Environments* 82: 147–155.
- Orr, P., and B. Colby. 2002. Nature-Oriented Visitors and Their Expenditures: Upper San Pedro River Basin. Agricultural and Resource Economics. University of Arizona, Tempe.
- Seymour, D. 2011. "1762 On the San Pedro: Reevaluating Sobaípuri-O'odham abandonment and new Apache raiding corridors." *The Journal of Arizona History* 52(2): 169–188.
- Sierra Vista Economic Development 2016. Community Overview. Spring 2016. Internet website: http://www.sierravistaaz.gov/wp-content/uploads/2018/01/2016-Sierra-Vista-Community-Overview-Booklet-v.2-April-2016-Update-WEB.pdf
- Teegerstrom, T., and R. Tronstad. 2016. Arizona Ranching Budgets. University of Arizona Cooperative Extension Service. Publication AZ1734. Internet website: https://extension.arizona.edu/sites/ extension.arizona.edu/files/pubs/az1734-2017.pdf.
- US Census Bureau (US Department of Commerce, Census Bureau). 2000. Decennial census. Summary File I, DPI. Internet website: http://factfinder.census.gov/faces/nav/jsf/pages/index.xhtml.
- _____. 2010. Decennial census. Summary Files I and 3. Internet website: http://factfinder.census .gov/faces/nav/jsf/pages/index.xhtml.
- _____.2014b. American Community Survey 2010-2014. Community Population. Internet website: http://factfinder.census.gov/faces/nav/jsf/pages/index.xhtml.
- _____.2015. American Community Survey 2011-2015. Community Population. Internet website: https://factfinder.census.gov/faces/tableservices/jsf/pages/productview.xhtml?pid=ACS_15_SPT_B 01003&prodType=table

_.2016. 2011-2015. American Community Survey. Cochise County. Internet website: http://factfinder.census.gov/faces/nav/jsf/pages/index.xhtml.

- US Department of Commerce, Bureau of Economic Analysis 2014. Regional Economic Information System, Washington, DC. Table CA25N.
- _____. 2017. Consumer Price Index inflation calculator. Internet website: https://www.bls.gov/ data/inflation_calculator.htm.
- US Department of the Interior. Payment in lieu of taxes fiscal year 2014 data. Internet website: http://www.doi.gov/pilt/county-payments.cfm?renderforprint=1&term=county&state_code.
- Western Mining History. 2016. Bisbee. Internet website: https://westernmininghistory.com/towns/ arizona/bisbee/
- White, E. M. 2017. Spending patterns of outdoor recreation visitors to national forests. Gen. Tech. Rep. PNW-GTR-961. USDA Forest Service, Pacific Northwest Research Station. Portland, Oregon.
- White, E. M., and D. J. Stynes. 2010. Updated Spending Profiles for National Forest Recreation Visitors by Activity. USDA Forest Service Pacific Northwest Research Station and Oregon State. University. Internet website: http://Www.fsl.orst.edu/lulcd/Publicationsalpha_files/White_ Stynes_NVUM2010b.pdf.