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## EXECUTIVE SUMMARY



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## MAPS

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

ES-1 Surface Management

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# EXECUTIVE SUMMARY

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## ES. I INTRODUCTION

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

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

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

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

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

## **ES.2 PURPOSE OF AND NEED FOR THE PROPOSED ACTION**

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

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

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

## **ES.3 PLANNING ISSUES AND MANAGEMENT CONCERNS IDENTIFIED DURING SCOPING**

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

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

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

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

## **ES.4 ALTERNATIVES**

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

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

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

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

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

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

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

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

<sup>1</sup> The unavailable acres include the lands south of I-8 closed in the Proclamation

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

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

### **ES.4.1 ALTERNATIVE A (NO ACTION)**

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

### **ES.4.2 ALTERNATIVE B**

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

### **ES.4.3 ALTERNATIVE C**

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

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

#### **ES.4.4 ALTERNATIVE D**

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

#### **ES.4.5 ALTERNATIVE E (PROPOSED RMP)**

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

### **ES.5 PUBLIC INVOLVEMENT**

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

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

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

## **ES.6 AFFECTED ENVIRONMENT**

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

### **ES.6.1 RESOURCES**

#### **ES.6.1.1 Air Resources**

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

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

#### **ES.6.1.2 Cave Resources**

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

#### **ES.6.1.3 Cultural and Heritage Resources**

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

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

### **ES.6.1.4 Paleontological Resources**

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

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

### **ES.6.1.5 Soil Resources**

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

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

### **ES.6.1.6 Vegetation Resources**

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

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

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

### **ES.6.1.7 Visual Resources**

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

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

### **ES.6.1.8 Water Resources**

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

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

### **ES.6.1.9 Wild Horse and Burro Management**

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

### **ES.6.1.10 Wilderness Characteristics**

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

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

### **ES.6.1.11 Wildland Fire**

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

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

### **ES.6.1.12 Wildlife and Special Status Species**

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

## **ES.6.2 RESOURCE USES**

### **ES.6.2.1 Lands and Realty**

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

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

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

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

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

### **ES.6.2.2 Livestock Grazing**

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

### **ES.6.2.3 Minerals Management**

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

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

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

### **ES.6.2.4 Recreation Management**

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

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

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

### **ES.6.2.5 Travel Management**

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

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

### **ES.6.2.6 Special Designations**

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

### **ES.6.2.7 Hazardous Materials and Public Safety**

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

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

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

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

### **ES.6.3 SOCIAL AND ECONOMIC CONDITIONS**

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

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

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

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

### **ES.7 ENVIRONMENTAL CONSEQUENCES**

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

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

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

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

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

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

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

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

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

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

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

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

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