

CHAPTER 3.0

Affected Environment

3.1 Introduction

The Planning Area spans a portion of the eastern escarpment of Southern California's Peninsular Ranges. It is a land of remarkable diversity, encompassing a range of environments from pine forests and flowing streams to palm oases overlooking shimmering desert basins. As early Spanish, Mexican, and American pioneers and settlers traversed the region on their way to developing coastal population centers, they encountered small bands of Kumeyaay and Mountain Cahuilla Indians. Except for cattlemen who established isolated ranches in order to graze their stock in the grassy valleys and shrub-covered hills, few of the newcomers settled here. Today, much of the region remains wild and uncrowded in spite of the steady growth of the urban society only a short distance to the west.

Scattered in a north–south band along the mountain front are 103,303 acres of public land under the administration of the BLM. Most of the higher land to the west is a part of the Cleveland National Forest, while the low desert country to the east is included in the Anza-Borrego Desert State Park. Cuyamaca Rancho State Park and a number of small Indian reservations are interspersed with national forest lands. The Riverside County and Mexican border mark the northern and southern boundaries of the unit (see Figure 1-1).

Chapter 3 describes the environmental components of BLM-administered lands in the Planning Area that would potentially be affected by implementation of the DRMP. This chapter is organized by resources, resource uses, special designations, public health and safety, social and economic considerations, and environmental justice conditions. Resources include air, soil, water, vegetative communities, wildlife, special status species, wildland fire ecology and management, and cultural, paleontological, and visual resources. Resource uses include livestock grazing management, minerals, recreation management, transportation and public access, and lands and realty. Special designations include ACECs, National Scenic Trails, WAs, and WSAs.

3.1 Introduction

Information sources and analysis data utilized to write this chapter were obtained from the 1981 Management Framework Plan, Plan Amendments, and various other management planning documents from BLM. Information and data were also collected from many other related planning documents and research publications prepared by various federal and state agencies as well as from private publications pertaining to the resources found within the Planning Area, key resource conditions, and resource uses. The purpose of this chapter is to provide a description of key resources found within the existing environment of the Planning Area, which will be used as a baseline to evaluate and assess the impact of the five resource management alternatives. Descriptions and analyses of the impacts themselves are presented in Chapter 4, Environmental Consequences.

3.2 Air Resources

3.2.1 Climate and Weather

The Coast/Peninsular Ranges extend from north to southeast through the Planning Area. Along the western side of the Peninsular Ranges the climate is dominated by the Pacific Ocean. Warm winters, cool summers, small daily and seasonal temperature ranges, and a high relative humidity are characteristic of this area. With increasing distance from the ocean the maritime influence decreases. The mountainous areas, which are well protected from the ocean, experience warmer summers and winters cold enough to allow snowfall. In the areas east of the mountains, a continental desert regime prevails.

Summer is a dry period over most of the state. With the northward migration of the semi-permanent Pacific high pressure center (Pacific high) during summer, most storm tracks are deflected far to the north. California seldom receives precipitation from Pacific storms during this time of year. Occasionally, however, moist air drifts northward during the warm months from the Gulf of Mexico or the Gulf of California. At such times, scattered, locally heavy showers occur, mostly over the desert and mountain portions of the state.

A dominating factor in the weather of California is the semi-permanent high pressure area of the northern Pacific Ocean. This pressure center moves northward in summer, holding storm tracks well to the north, and as a result California receives little or no precipitation from this source during that period. In winter, the Pacific high decreases in intensity and retreats southward permitting storm centers to swing into and across California. These storms bring widespread, moderate precipitation to California at low elevations and snow at high elevations. Some of them travel far enough to the south to spread moisture beyond the Mexican border. When changes in the circulation pattern permit storm centers to approach the California coast from a southwesterly direction, copious amounts of moisture are carried by the northeastward streaming air. This results in heavy rains and often produces widespread flooding during the winter months.

3.2 Air Resources

During the winter under certain weather conditions, “Santa Ana Winds” occur where winds flow out of the Great Basin into the Central Valley, the Southeastern Desert Basin, and the South Coast. The air is typically very dry. The winds are strong and gusty, sometimes exceeding 100 miles per hour (mph), particularly near the mouth of canyons oriented along the direction of airflow. It is a situation that occasionally leads to serious fire suppression problems and often results in the temporary closing of sections of main highways to campers, trucks, and light cars (Western Regional Climate Center 2006).

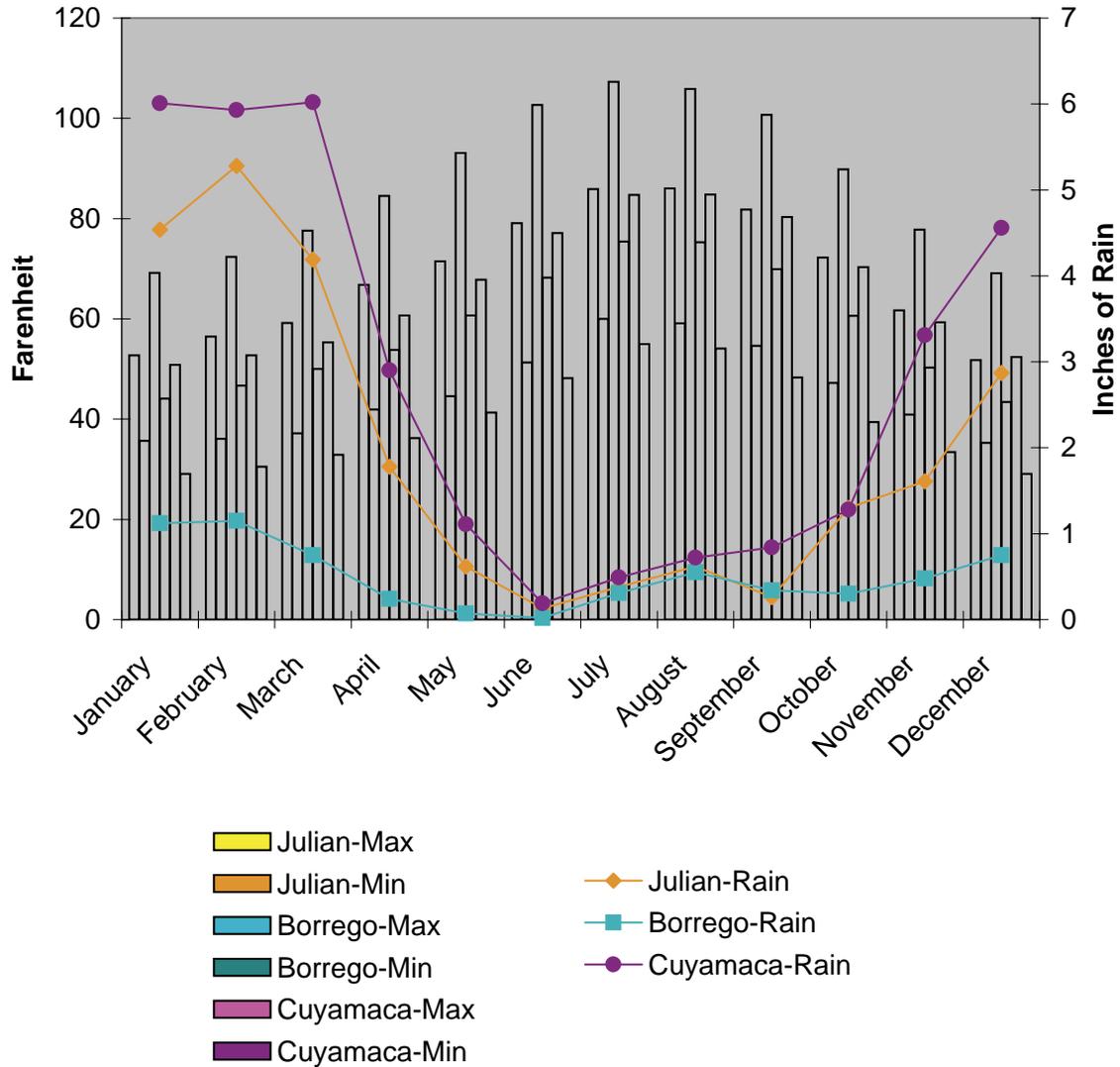
Temperature and rainfall data were obtained from Julian, Cuyamaca, and Borrego Desert Park, and are shown in Figure 3-1. Temperature data from Julian show average annual monthly temperatures ranging between maximums of 52° to 86° and minimums of 35° to 60° Fahrenheit. Temperature data from the Borrego Desert Park show average annual monthly temperatures ranging between maximums of 69° to 107° and minimums of 44° to 75° Fahrenheit. Temperature data from Cuyamaca show average monthly temperatures ranging between maximums of 51° to 85° and minimums of 29° to 55° Fahrenheit. The average annual precipitation is 24, 6, and 33 inches at Julian, Borrego Desert Park, and Cuyamaca, respectively. The majority of rain falls from November to March (Western Regional Climate Center 2006).

3.2.2 Air Quality

The Environmental Protection Agency has established primary and secondary National Ambient Air Quality Standards (NAAQS) for seven pollutants (carbon monoxide, nitrogen dioxide, particulate matter less than 10 microns [PM_{10}], particulate matter less than 2.5 microns [$PM_{2.5}$], ozone, sulfur dioxide, and lead). Primary standards are adopted to protect public health, and secondary standards are adopted to protect public welfare. States are required to adopt ambient air quality standards which are at least as stringent as the federal NAAQS; however, the state standards may be more stringent. California has adopted standards more stringent than federal standards for some pollutants (Table 3-1).

Section 176 of the CAA requires any action on the part of a federal agency in a non-attainment area that does not meet one or more of the NAAQS for the criteria pollutants designated in the CAA to conform to the state’s efforts to attain and maintain these standards. San Diego County is a basic non-attainment area for ozone (O_3) under federal standards and is classified as a serious non-attainment area under state standards. San Diego County is also a non-attainment area for $PM_{2.5}$ and PM_{10} under state standards. San Diego County is listed as unclassifiable/attainment for the federal PM_{10} and $PM_{2.5}$ standards.

Temperatures and Rainfall in the Planning Area



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FIGURE 3-1: Temperature and Rainfall Data in the Planning Area

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**TABLE 3-1
AMBIENT AIR QUALITY STANDARDS**

Pollutant	California Standards	Federal Standards	
	Concentration	Primary	Secondary
Ozone (O ₃)	0.09 ppm (180 µg/m ³)	–	Same as Primary Standard
	0.070 ppm (137 µg/m ³)	0.08 ppm (157 µg/m ³)	
Respirable Particulate Matter (PM ₁₀)	50 µg/m ³	150 µg/m ³	Same as Primary Standard
	20 µg/m ³	50 µg/m ³	
Fine Particulate Matter (PM _{2.5})	No Separate State Standard	35 µg/m ³	Same as Primary Standard
	12 µg/m ³	15 µg/m ³	
Carbon Monoxide (CO)	Concentration	Primary	Secondary
	9.0 ppm (10 mg/m ³)	9 ppm (10 mg/m ³)	None
	20 ppm (23 mg/m ³)	35 ppm (40 mg/m ³)	
Nitrogen Dioxide (NO ₂)	6 ppm (7 mg/m ³)	–	–
	–	0.053 ppm (100 µg/m ³)	Same as Primary Standard
0.25 ppm (470 µg/m ³)	–		
Sulfur Dioxide (SO ₂)	–	0.030 ppm (80 µg/m ³)	–
	0.04 ppm (105 µg/m ³)	0.14 ppm (365 µg/m ³)	–
	–	–	0.5 ppm (1300 µg/m ³)
	0.25 ppm (655 µg/m ³)	–	–
Lead	1.5 µg/m ³	1.5 µg/m ³	Same as Primary Standard
Visibility Reducing Particles	Extinction coefficient of 0.23 per kilometer—visibility of 10 miles or more (0.07–30 miles or more for Lake Tahoe) due to particles when relative humidity is less than 70 percent. Method: Beta Attenuation and Transmittance through Filter Tape.		No Federal Standards
Sulfates	25 µg/m ³	No Federal Standards	
Hydrogen Sulfide	0.03 ppm (42 µg/m ³)	No Federal Standards	
Vinyl Chloride	0.01 ppm (26 µg/m ³)	No Federal Standards	

ppm = parts per million
µg/m³ = micrograms per cubic meter.

There are no air monitoring stations within the Planning Area. The nearest air monitoring station is the Alpine-Victoria Drive station approximately 10 miles west of the western Planning Area boundary.

On November 30, 1993, the EPA promulgated its rules for determining general conformity of federal actions with state air quality implementation plans, as required by Clean Air Act Section 176(c). To demonstrate conformity with a local State Implementation Plan (SIP), a project must clearly demonstrate that it does not

- cause or contribute to any new violation of any standard in the area;
- interfere with provisions in the applicable SIP for maintenance or attainment of air quality standards;
- increase the frequency or severity of any existing violation of any standard; or
- delay timely attainment of any standard, any interim emission reduction, or other milestones included in the SIP for air quality.

The Environmental Protection Agency (EPA) has developed specific procedures for conformity determinations for federal actions, which include preparing an assessment of emissions associated with the project based on the latest and most accurate emissions estimating techniques.

Activities in the Planning Area that generate air pollutants include motorized and non-motorized recreational use; vehicle travel; fires (including wildfire and prescribed burns); fire suppression with heavy equipment; construction and maintenance of facilities and roads (including by Border Patrol); mining activities; remedial earthwork and revegetation; helicopters monitoring transmission lines; and the Carrizo railroad.

3.2 Air Resources

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3.3 Soil Resources

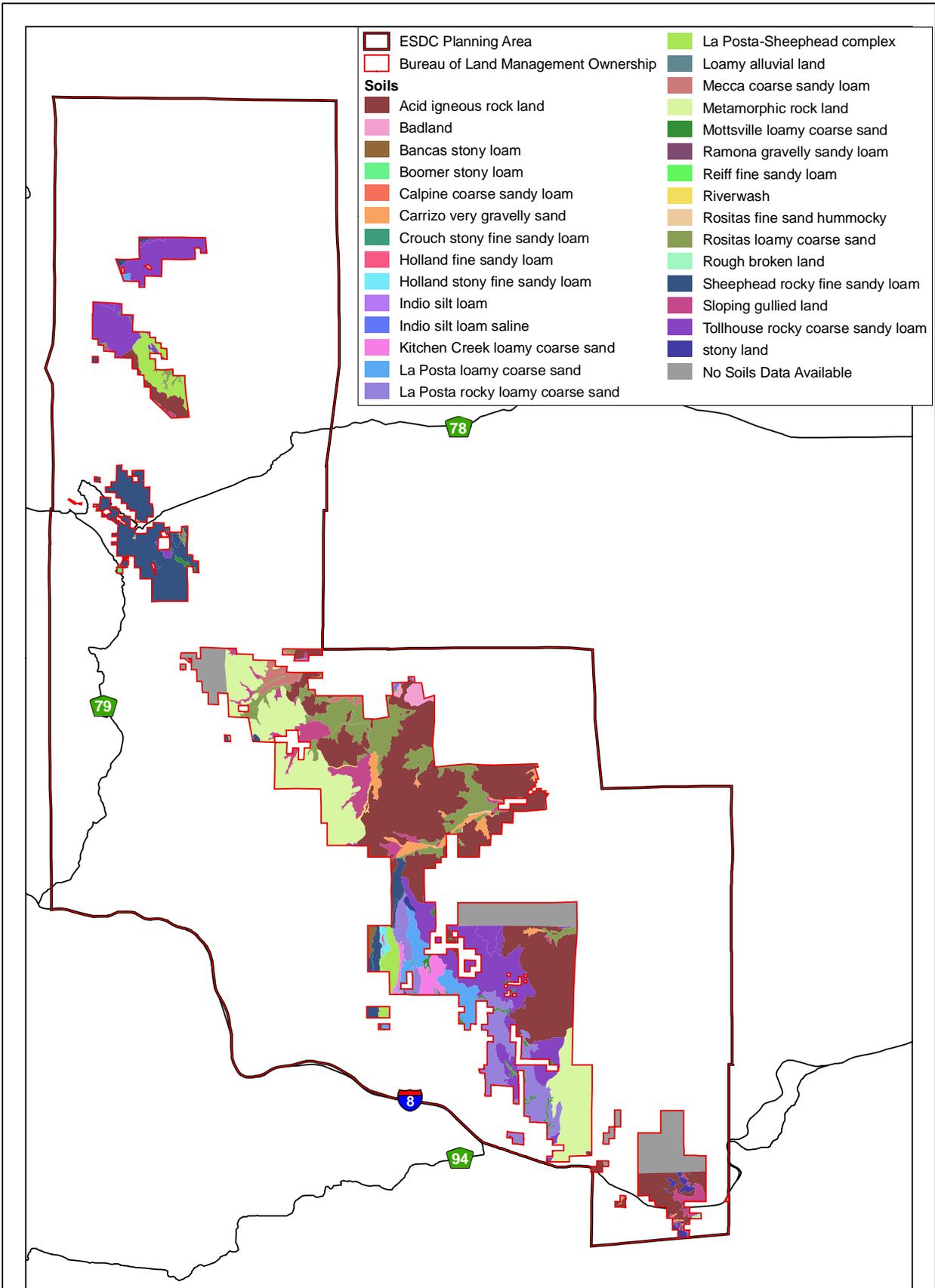
The Planning Area contains a wide variety of soil types, as might be expected in a zone which spans the transition from low desert to coastal mountains. This variety of types is the result of diversity in parent material, relief, climate, living organisms, and age of the soils. A discussion of the major soil groups in the region can be found in the grazing and wilderness EIS for the Planning Area.

The majority of the Planning Area falls in a moderate erosion class. Approximately 40 percent of the land consists of slope of 50 percent or greater. Despite the high incidence of steep slopes, soil loss due to water erosion is not of major significance because of low annual surface runoff and the high percent of ground cover, which averages 48 percent throughout the Planning Area. This percentage of ground cover is much higher than that of the adjacent desert, because the rain pattern in the surrounding desert is scarce and sporadic. This limits the presence and growth of perennials and limits coverage by annual plant species to years when rain is plentiful. In comparison to this adjacent land, a ground cover of 48 percent by chaparral vegetation communities in the Planning Area is considered high. Most erosion problems are the result of human disturbances associated with use of the land for grazing and recreation.

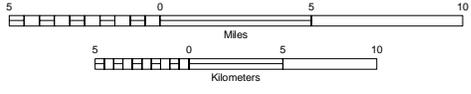
Twenty-four soil series composed of thirty different soil types are found on BLM-administered lands in the Planning Area (USDA 1973). Figure 3-2 shows the soil types on BLM-administered lands in the Planning Area. The following is a brief description of the soil types shown in Figure 3-2.

Acid Igneous Rock Land is rough broken terrain. Large boulders and rock outcrops of granite, granodiorite, tonalite, quartz diorite, gabbro, basalt, or gabbro diorite cover 50 to 90 percent of the total area of this soil type in San Diego County. The soil material is loamy to coarse sand in texture and is very shallow over decomposed granite or basic igneous rock.

Badland consists of areas of essentially barren, eroded, soft shale. The terrain is broken by numerous intermittent drainage channels that have cut into the soft shale. Runoff is very rapid, and the erosion hazard is very high. Also, sediment yield is very high.



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FIGURE 3-2: Soil Types

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Bancas Series (Bancas stony loam) consists of well-drained stony loam with a clay loam subsoil. The soils are underlain by quartz diorite and mica schist.

Boomer Series (Boomer stony loam) consists of well-drained, moderately deep to deep stony loams that have a stony clay loam subsoil. The surface layer is dark-brown and reddish-brown, slightly acid stony loam about 8 inches thick. The subsoil is strong-brown and yellowish-red, medium acid stony loam, and stony clay loam about 38 inches thick. The substratum is deeply weathered gabbro.

Calpine Series (Calpine coarse sandy loam) consists of well-drained, very deep coarse sandy loams that formed in granitic alluvium. These soils are on alluvial fans and have slopes of 2 to 15 percent. In a representative profile the surface layer is dark grayish-brown, neutral to medium acid coarse sandy loam about 12 inches thick. The subsoil is brown, slightly acid, coarse sandy loam about 22 inches thick. The substratum is brown, neutral, stratified fine gravelly sandy loam to fine gravelly loamy coarse sand. It extends to a depth of more than 60 inches.

Carrizo Series (Carrizo coarse sandy loam) consists of excessively drained, very deep, and very gravelly sands. These soils were derived from granitic alluvium.

Crouch Series (Crouch stony fine sandy loam) consists of well-drained, deep to moderately deep coarse sandy loams that formed in material weathered from acid igneous rock and micaceous schist.

Holland Series (Holland fine sandy loam and Holland stony fine sandy loam). The Holland series consists of well-drained, moderately deep, and deep fine sandy loams that formed in material weathered from micaceous schist. These soils are on mountainous uplands and have slopes of 2 to 60 percent. In a representative profile the surface layer is brown and yellowish-brown, medium acid, micaceous fine sandy loam about 20 inches thick. The subsoil is brown, medium acid, micaceous sandy clay loam. This layer extends to a depth of about 35 inches. The substratum is brownish-yellow, highly weathered mica schist. In some areas the soil is stony and cobbly throughout.

3.3 Soil Resources

Indio Series (Indio silt loam and Indio silt loam saline) consists of well drained and moderately well drained, very deep silt loams that formed in alluvium derived from acid, igneous and micaceous rocks. Runoff is very slow, and the erosion hazard is none to slight.

Kitchen Creek Series (Kitchen Creek loamy coarse sand) consists of somewhat excessively drained, deep to moderately deep loamy coarse sands. These soils formed in material derived from granodiorite.

La Posta Series (La Posta loamy coarse sand, La Posta rocky loamy coarse sand, and La Posta–Sheephead complex) consists of somewhat excessively drained loamy coarse sands that formed in material weathered from granodiorite.

Loamy Alluvial Land consists of somewhat poorly drained, very deep, very dark brown to black silt loams and sandy loams.

Mecca Series (Mecca coarse sandy loam) consists of well-drained, very deep coarse sandy loams derived from granitic alluvium.

Metamorphic Rock Land occurs as excessively drained, hilly to mountainous areas. Numerous areas are covered with rock outcrops and angular stones and cobblestones; exposed rock covers 50 to 90 percent of the entire acreage of this soil in San Diego County. Runoff is rapid to very rapid.

Mottsville Series (Mottsville loamy coarse sand) consists of excessively drained, very deep, loamy coarse sands that in some areas formed in sandy sediments transported from granitic rock, and in others in material weathered in place from granitic rock.

Ramona Series (Ramona gravelly sandy loam) consists of well-drained, very deep sandy loams that have a sandy clay loam subsoil. These soils formed in granitic alluvium.

Reiff Series (Reiff fine sandy loam) consists of well-drained, very deep fine sandy loams that formed in alluvium derived from granitic rock.

Riverwash soils occur in intermittent stream channels and typically consist of sand, gravel, or cobble. Riverwash soil may be devoid of vegetation in many places or may contain sparse patches of shrubs and forbs. These soils are rapidly permeable and excessively drained.

Rositas Series (Rositas fine sand hummocky and Rositas loamy coarse sand) consists of somewhat excessively drained, very deep loamy coarse sands derived from granitic alluvium.

Rough Broken Land is made up of well-drained to excessively drained, steep and very steep land dissected by many narrow V-shaped valleys and sharp tortuous divides. Areas of exposed raw sediments are common, and there are a few areas of very shallow soils. Runoff is rapid to very rapid, and erosion is very high. The vegetation is a sparse cover of low woody shrubs.

Sheephead Series (Sheephead rocky fine sandy loam) consists of well-drained, shallow fine sandy loams that formed in material weathered from micaceous schist and gneiss. Rock outcrop covers about 10 percent of the area.

Sloping Gullied Land occurs in the desert on alluvial fans adjacent to mountains. It consists of a wide variety of material derived from igneous, sedimentary, and metamorphic rocks. The texture ranges from clay loam to gravelly, cobbly sand. Limy material has been exposed where gullies have dissected areas of old alluvium. Drainage is good to somewhat excessive. Runoff is medium to very rapid, and the erosion hazard is moderate to high.

Tollhouse Series (Tollhouse rocky coarse sandy loam) consists of excessively drained, shallow to very shallow coarse sandy loams that formed in material weathered from granodiorite.

3.3 Soil Resources

Stony Land occurs at the base of cliffs or below steep rocky slopes. It is strongly sloping to very steep. The material consists of many stones, boulders, and cobblestones, and some finer material. In many places there are large boulders three to six feet in diameter on the surface.

3.4 Water Resources

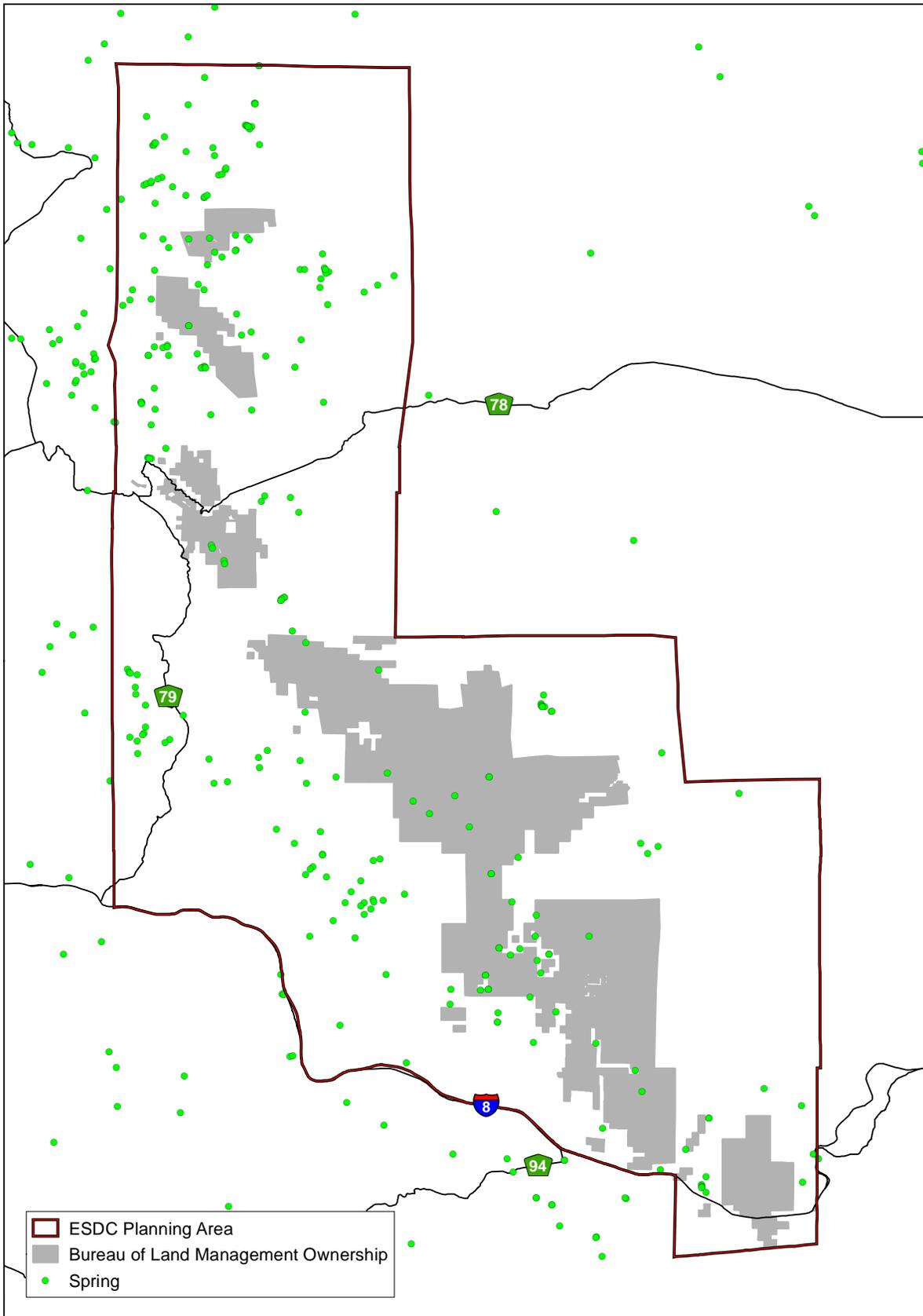
3.4.1 Surface Water

There are no major lakes or reservoirs in the Planning Area. However, there are several small retention dams, built for the purpose of supplying water to livestock and wildlife. There are several springs in the Planning Area, which produce intermittent flow. Figure 3-3 shows the springs in the Planning Area.

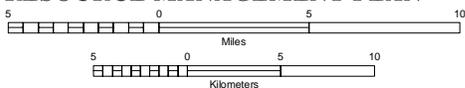
3.4.2 Groundwater

The Planning Area falls within portions of the South Coast and the Colorado River Hydrologic Regions. There are several groundwater basins within the Planning Area; however, they are considered to be “low use basins” (SWRCB 2003). Figure 3-4 shows the groundwater basins in the Planning Area. As seen in Figure 3-4, the majority of the area covered by groundwater basins is on non-BLM-administered lands. The primary groundwater basins located on BLM-administered lands are the Vallecito-Carrizo Valley Basin (#7-28) and the Canebrake Valley Basin (#7-46)(see Figure 3-4). Mineral analyses of the Vallecito-Carrizo Valley Basin indicate that the quality is marginal for domestic use because of elevated levels of fluoride (Department of Water Resources [DWR] 2003). The total storage capacity of the Vallecito-Carrizo Valley Basin is 2,500,000 acre-feet with the amount of stored water unknown; however, the majority of this basin’s coverage is outside the Planning Area. For the Canebrake Valley Basin, the storage capacity is unknown, as is the groundwater quality pertaining to domestic use (DWR 2003).

The state agencies that implement groundwater-related monitoring programs are the State Water Resources Control Board (SWRCB) and Regional Water Quality Control Boards (RWQCBs), DWR, Department of Health Services (DHS), Department of Toxic Substances Control (DTSC), and Department of Pesticide Regulation (DPR). These agencies are represented on the Interagency Task Force. Federal agencies that implement groundwater-related monitoring programs include the EPA, Bureau of Reclamation, and the United States Geological Survey (USGS). The DWR requires that water from newly constructed wells be sampled and the water quality assessed. The County of San Diego’s Department of Environmental Health Land Use Program regulates the design, construction, maintenance, and destruction of water wells throughout San Diego County to protect San Diego County’s groundwater resources.



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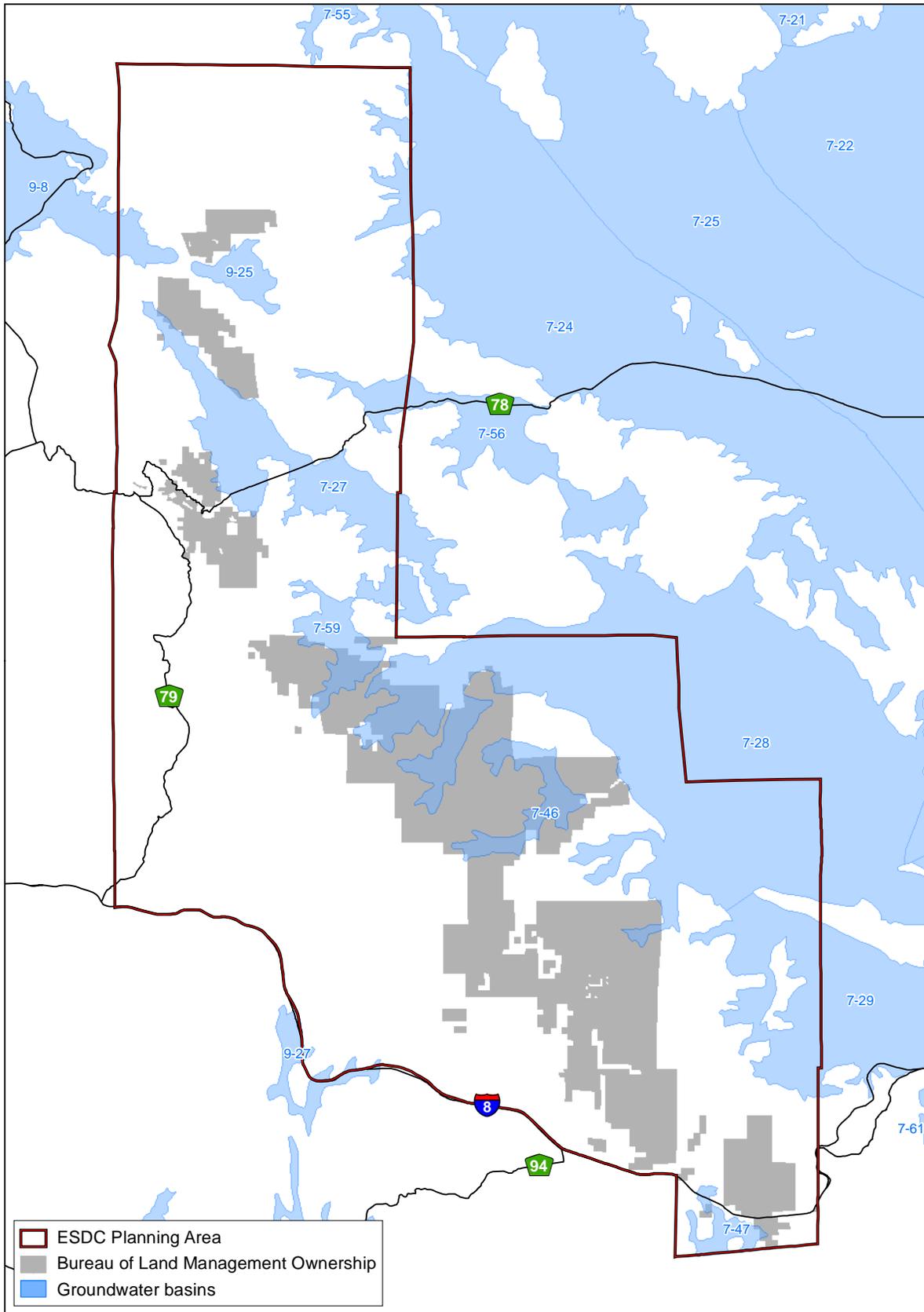


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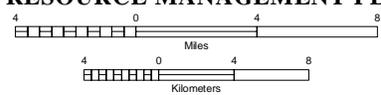


FIGURE 3-3: Springs

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FIGURE 3-4: Groundwater Basins

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3.4 Water Resources

The laws and regulations applicable to the public supply wells establish numerical water quality criteria for these contaminants, called Maximum Contaminant Levels (MCLs), to protect public health.

3.4.3 Watershed Basins and Hydrologic Units

The Planning Area is located within the San Diego (Region 9) and the Colorado River (Region 7) watershed basins. The boundary between the two watersheds is within the Peninsular Range Mountains, as seen in Figure 3-5. Within these watersheds, smaller hydrologic units are defined.

3.4.4 Water Use

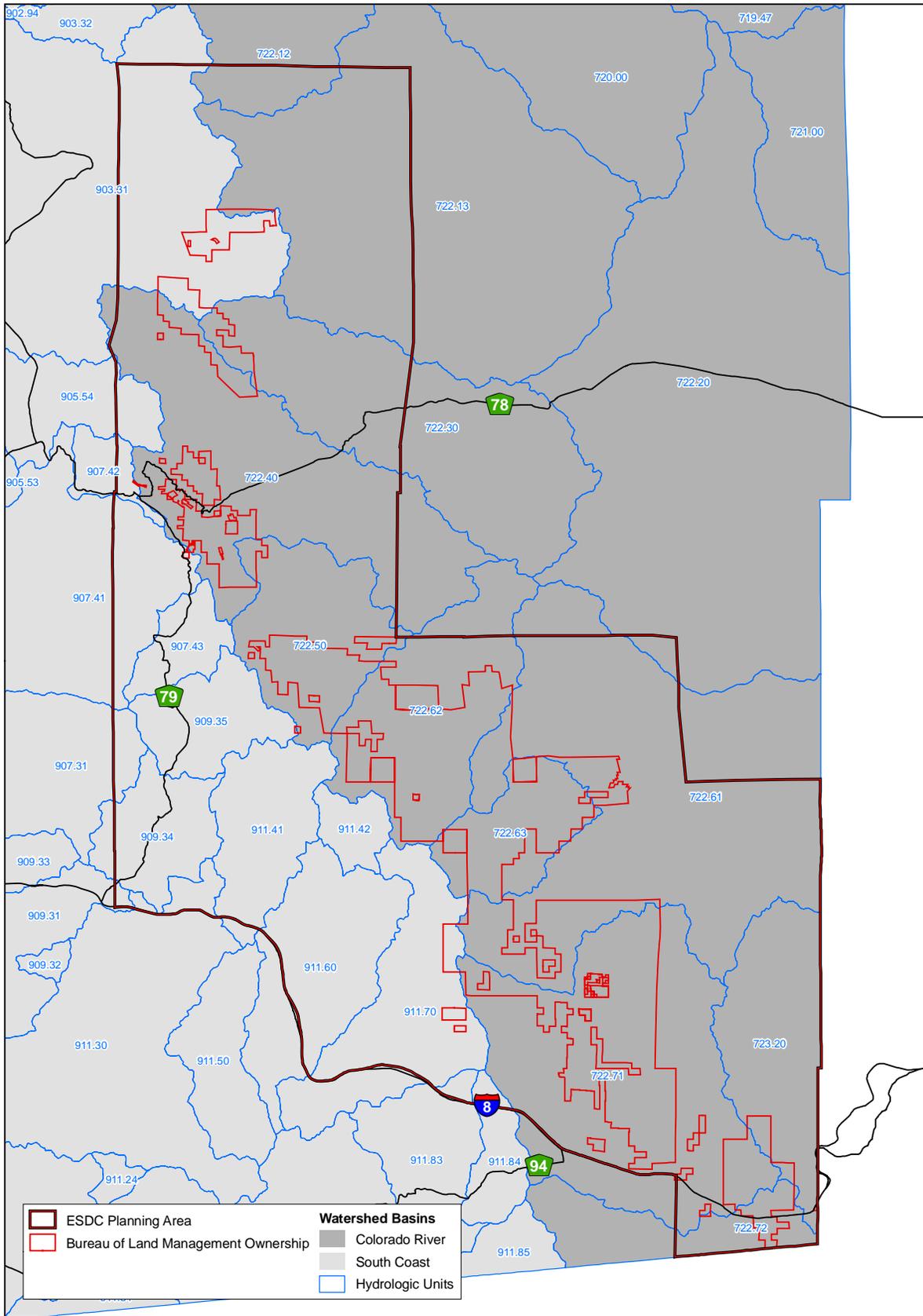
Water use on BLM-administered lands in the Planning Area consists of wildlife, livestock, and campground use. The natural springs and some developed springs are important sources of water for wildlife, including both game and non-game animals. Grazing on the McCain Valley Allotment is not occurring at this time since the springs are currently dry. The campgrounds have several water spigots which are supplied by groundwater pumped by windmill.

3.4.5 Regulatory Setting

Clean Water Act. The objective of the Federal Water Pollution Control Act (CWA; PL 92-500, as amended; 33 USC §§ 1251 et seq.) is to restore and maintain the chemical, physical, and biological integrity of the nation's waters (Section 101a). Under Sections 401 and 404, the Clean Water Act regulates point- and non-point-source pollution and, along with EO 11990 titled Protection of Wetlands, impacts to wetlands.

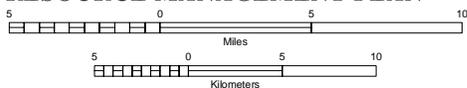
The CWA has three major approaches to water pollution control:

1. Construction grants for reducing municipal discharges;
2. National Pollutant Discharge Elimination System (NPDES) permits for control of point source (storm water and waste water) discharges; and



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**FIGURE 3-5: Watershed Basins
and Hydrologic Units**

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3.4 Water Resources

3. Water quality management planning for non-point-source (NPS) control from diffuse natural origins such as sediment.

In 1972 Congress adopted a “zero-discharge” goal and a focus on “preventable causes of pollution” to emphasize the source of contamination rather than controls at the outfall or water body itself. Water quality “standards” include a legal designation of the desired use for a given body of water and the water quality criteria appropriate for that use. The “criteria” are specific levels of water quality which are expected to make a water body suitable for its desired use. “Effluent limitations” are restrictions on quantities, rates, and concentrations in wastewater discharges measured at the discharger’s outfall pipe.

Administration of Section 401 of the act is delegated to the State Water Resources Control Board (SWRCB) in California and, locally, to the San Diego Regional Water Quality Control Board (RWQCB) and the Colorado River RWQCB. The boundary between the two RWQCBs is within the Peninsular Range Mountains. The RWQCBs are responsible for setting water quality standards and criteria for water bodies in their respective regional plans, and for issuing and enforcing NPDES permits. A NPDES permit is currently not required for BLM activities in the Planning Area. The 401 Water Quality Certification application is available on the internet (<http://www.swrcb.ca.gov>).

Section 13241 of the California Water Code provides that each Regional Water Quality Control Board shall establish water quality objectives for the waters of the state (i.e., ground and surface waters) which, in the Regional Board’s judgment are necessary for the reasonable protection of beneficial uses and prevention of nuisance. Section 303 of the Clean Water Act requires the state to adopt water quality objectives for surface waters. The San Diego RWQCB and the Colorado River RWQCB have established surface and ground water quality objectives and water quality standards for contaminants (California RWQCB, San Diego Region 1994; California RWQCB, Colorado River Basin 2005).

Data collected in 1978 showed that four springs (Black Water, Diablo, Cimarron, and Carrizo) were in excess of or approaching the recommended limits of chloride and/or sulfate concentrations for livestock and wildlife consumption (DOI BLM 1980). More recent data are not available.

The DWR is the primary state agency mandated to address water quantity (water supply) information (DWR 2005).

3.4.6 Federal Reserved Water Rights for Designated Wilderness Areas

“Today, federal reserved water rights can be asserted on most lands managed by the federal government. Reserved rights are, for the most part, immune from state water laws and therefore, are not subject to diversion and beneficial use requirements and cannot be lost by non-use. The federal government, however, is required to submit all reserved water rights claims to the state’s adjudication process, limited by the ‘primary purpose’ and ‘minimal needs’ requirements. In addition, federal reserved water rights are nontransferable. By law, these rights can only exist on lands owned by the federal government. If a land transfer occurs, any existing federal reserved water right becomes invalid.” (DOI BLM 2006b).

“Wilderness designations can be considered the most restrictive of the federal land management designations. Reserved water rights are set aside pursuant to the Wilderness Act of 1964 (16 USC Section 1131). Development within Wilderness Areas is restricted, and these restrictions extend to the development of water supplies. The Wilderness Act reserves the amount of water within the Wilderness Area necessary to preserve and protect the specific values responsible for designation of the area and to provide for public enjoyment of these values. Only the minimum amount of water necessary to fulfill the primary purpose of the reservation may be asserted as a reserved right.” (DOI BLM 2006b).

In addition, federal reserved water rights for the two wilderness areas were explicitly established by statute at Section 707 of the California Desert Protection Act of Act. As of 1997, no claims had been filed for water rights within wilderness areas in the Planning Area.

3.4 Water Resources

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3.5 Vegetative Communities

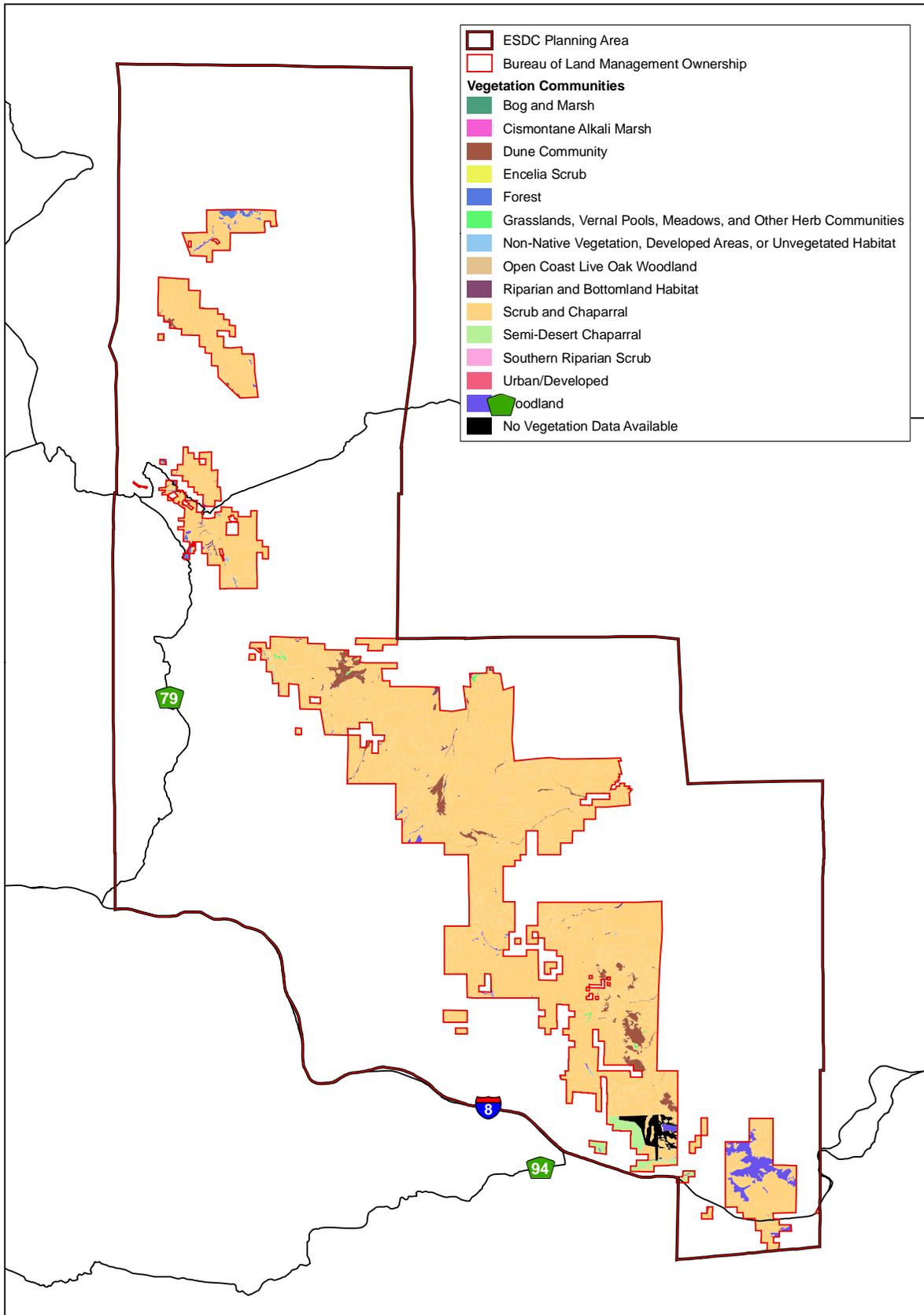
The Planning Area is bordered by the Colorado Desert on the East and by the coniferous forest of the Laguna Mountains on the west. Elevation escalates dramatically from east to west in the Planning Area. These sharp elevation changes make the Planning Area a highly diverse area for plant life.

BLM lands within the Planning Area harbor many different types of vegetation communities: mixed riparian woodland, oak woodland, desert wash, semi-desert chaparral, desert fan palm oasis, mixed conifer woodland, and enriched desert scrub. Figure 3-6 illustrates the vegetation communities on the BLM-administered lands within the Planning Area.

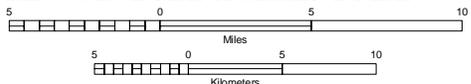
Mixed riparian woodlands occur along most water drainage systems within the Planning Area. A total of approximately 96.9 acres of riparian woodlands occur within the Planning Area. These areas are found in Upper Bow Willow Canyon, Pepperwood Canyon, Storm Canyon, and Buck Canyon, to name a few. These riparian woodlands comprise cottonwoods (*Populus* spp.), willow (*Salix* spp.), California bay (*Umbellularia californica*), and sycamore (*Platanus* spp.). Many of the riparian woodlands found within the Planning Area are infested with the invasive tamarisk (*Tamarix* spp.). Some areas have a small infestation, while others have a large infestation that could, if left untreated, turn into a monoculture of tamarisk, and a loss of native riparian vegetation.

Oak woodlands are also found within the Planning Area and make up a unique plant community. Oak woodlands occupy less than 1 percent of the Planning Area, but they are an important community for many types of animals that call Eastern San Diego County home. Oak groves are found in McCain Valley, Chariot Canyon, Buck Canyon and Oriflamme Canyon. The oak woodlands are made up of coast live oaks (*Quercus agrifolia*).

The desert wash plant community is common in the lower elevation areas of the Planning Area. This plant community is comprised of several species, including cheese bush (*Hymenoclea salsola*), desert willow (*Chilopsis linearis*), mesquite (*Prosopis* spp.), and indigo bush (*Psoralea argemone*). In years with sufficient rainfall, many annuals may be found within the desert wash plant community. A few of the more common



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FIGURE 3-6: Vegetation Communities

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annuals found in this community include birdcage evening primrose (*Oenothera deltoides*), desert sand verbena (*Abronia villosa*), and cryptantha (*Cryptantha* spp.). Most years, regardless of rainfall, Sahara mustard (*Brassica tournefortii*) sprouts and flowers in most desert wash communities within the Planning Area. This invasive species competes with native annuals for water and nutrients.

Semi-desert chaparral is another widespread plant community found within the Planning Area. This plant community consists mostly of buckwheat (*Eriogonum* spp.), California juniper (*Juniperus californica*), mountain mahogany (*Cercocarpus betuloides*), desert apricot (*Prunus fremontii*), sumac (*Rhus* spp.), sage (*Salvia* spp.), Mormon tea (*Ephedra trifurca*), and catclaw acacia (*Acacia greggii*). Many annuals also make up this plant community on a seasonal basis, such as California poppy (*Eschscholzia californica*) and Coulter's lupine (*Lupinus sparsiflorus*).

Desert fan palm oases occur sporadically throughout Eastern San Diego County, in elevations ranging from 500 to 1000 feet. There are a few found on BLM lands near springs and seeps, but they are fairly rare. These oases normally comprise California fan palm (*Washingtonia filifera*). The California fan palm is native to California and occurs in moist soils near springs and seeps and also in shaded or partially shaded desert canyons.

Mixed conifer woodlands found within the Planning Area consist mainly of pine (*Pinus* spp.) and big cone spruce (*Pseudotsuga macrocarpa*).

Enriched desert scrub and alluvial desert scrub are found at slightly higher elevations than the desert wash and creosote scrub plant communities. The dominant species found in this type of plant community include, but are not limited to brittlebush (*Encelia farinosa*), burro bush (*Ambrosia dumosa*), agave (*Agave* spp.), catclaw acacia (*Acacia greggii*), range ratany (*Krameria parvifolia*), and creosote (*Larrea tridentata*). Sahara mustard (*Brassica tournefortii*) is also common in this plant community after rainfall events.

Also common to the lower elevation sections of the Planning Area is the creosote bush scrub plant community. This plant community is quite widespread and comprises mostly creosote bush (*Larrea tridentata*) and burro bush (*Ambrosia dumosa*). Common annuals found in the creosote scrub include birdcage evening primrose (*Oenothera deltoides*), desert sand verbena (*Abronia villosa*), and cryptantha (*Cryptantha* spp.). Sahara

3.5 Vegetative Communities

mustard (*Brassica tournefortii*) is also common in this plant community after rainfall events.

The chamise chaparral plant community is also common within the Planning Area. This plant community consists mostly of chamise (*Adenostoma fasciculata*), redshank (*Adenostoma sparsifolia*), scrub oak (*Quercus* probably *berberidifolia*), sagebrush (*Artemisia* spp.) and California lilac (*Ceanothus* spp.). This plant community is also prone to infestation from the non-native Sahara mustard (*Brassica tournefortii*).

3.5.1 Mixed Riparian Woodland Inventory

An inventory was conducted by BLM biologists in 2005 to map all riparian areas within the BLM-administered lands within the Planning Area.

Riparian ecosystems act as ecotones between aquatic and terrestrial environments. They have unique biotic, biophysical and landscape characteristics, and they are important pathways for the flow of energy, matter and organisms through the landscape. A riparian area can occur along lotic systems such as the banks of rivers and streams, or lentic systems such as lakes and ponds.

Riparian vegetation accomplishes an assortment of essential ecosystem functions, including stream bank stabilization, thermal regulation of water, filtering and retention of nutrients, and provision of wildlife habitat. Riparian vegetation usually has a deep binding root mass that protects stream banks from erosion by trapping sediments. Without riparian plants, a stream bank may easily deteriorate, since upland vegetation may not hold sediments together as efficiently under high flow conditions.

Riparian zones are often the ecosystem-level component that is most sensitive to changes within the surrounding environment. Human activities such as cattle grazing, mining, transportation and camping may lead to denuded soils and degradation of riparian ecosystems through soil compaction. One key disturbance linked to human activities is the invasion of non-native plant species, such as tamarisk (*Tamarix* spp.). While invasive species can reproduce and spread on their own, human activities can increase the rates of spread. Species such as tamarisk and non-native grasses have root systems that provide little or no soil stabilization and can lead to quick erosion. Non-native species also out-compete native species for space and water resources.

Based on water conditions, riparian areas can be classified as perennial, intermittent, wet meadow and spring. Perennial streams have water flowing year-round. Intermittent streams have visible water in some areas, but water remains below the surface of the ground in other areas. In this case, water may appear above ground only in response to precipitation. A wet meadow has saturated soils, but no standing water. Wet meadows are often dominated by herbaceous riparian obligates instead of woody obligates. A spring or seep is a type of groundwater discharge. Springs typically display a higher flow rate than seeps.

Several wildlife species of concern utilize the riparian areas found within the Planning Area for food, shelter and water. These species include Peninsular bighorn sheep (*Ovis canadensis*), arroyo toad (*Bufo californicus*), least Bell's vireo (*Vireo bellii pusillus*), and the southwestern willow flycatcher (SWFL; *Empidonax traillii extimus*).

There are 32 riparian areas were mapped on BLM-administered public lands within the Planning Area. These 32 riparian areas cover an area of approximately 96.90 acres (39.2 hectares) and range in size from less than 1 square foot (1 square meter) to 655,867 square feet (60,932 square meters) (DOI BLM 2005e). Table 3-2 lists the riparian areas by name with their respective areas.

Several native riparian obligate woody plant species are found within the Planning Area. These species are willow (*Salix* spp.), California fan palm (*Washingtonia filifera*), Fremont cottonwood (*Populus fremontii*), sycamore (*Platanus* spp.), alder (*Alnus rhombifolia*), ash (*Fraxinus* spp.), and arrow weed (*Pluchea sericea*).

Several desirable native herbaceous riparian obligates can also be found within the Planning Area: rush (*Juncus* spp.), sedge (*Carex* spp.), horse tail (*Equisetum* spp.), nettle (*nettle* spp.), and cattail (*Typha* spp.).

**TABLE 3-2
RIPARIAN AREAS WITHIN BLM-ADMINISTERED LANDS IN THE PLANNING AREA**

Riparian Area Name	Total Acreage	Acreage Burned	Assessment Post-fire	Tamarisk Coverage (percent of total)
Banner	0.37	0.37	NF	0
Bow Willow LR	6.04	0	PFC	<1%
Bow Willow north UR	5.34	0	PFC	1-15%
Bow Willow south UR	5.72	0	PFC	1-15%
Buck Canyon LR	2.84	2.84	FAR	0
Buck Canyon UR	3.90	3.90	FAR	0
Burnt Trunk	0.37	0	PFC	1-15%
Campbell Spring	0.25	0	PFC	>15%
Chariot Canyon LR	4.95	4.95	FAR	<1%
Chariot Canyon MR	11.63	11.63	PFC	<1%
Chariot Canyon UR	5.26	5.26	NF	<1%
Cottonwood Campground LR	0.91	0	PFC	0
Cottonwood Campground UR	0.42	0	FAR	0
Cottonwood Canyon	4.92	4.92	FAR	<1%
Cottonwood Spring	0.005	0	NF	0
Desert Agave	0.25	0.25	FAR	>15%
Desert Queen	0.007	0.007	FAR	0
Dome Tributary #1	0.23	0.20	PFC	0
Dome Tributary #2	0.05	0.05	PFC	1-15%
End of McCain	0.06	0	PFC	0
Foundation	0.17	0.17	FAR	0
Four Frogs LR	2.50	0	PFC	<1%
Four Frogs UR	1.64	0	PFC	<1%
Jacumba Jim	6.56	0	PFC	<1%
Lone Willow	0.03	0.03	PFC	0
Oriflamme Canyon LR	4.43	4.43	FAR	<1%
Oriflamme Canyon UR	0.81	0.81	PFC	<1%
Pepperwood LR	7.89	0	PFC	<1%
Pepperwood UR	4.09	0	PFC	0
Red Water	0.20	0.20	FAR	0
Rusty Pipe	0.0002	0.0002	NF	0
Storm Canyon	15.06	15.06	PFC	<1%
Total	96.90	55.11		

LR = lower reach
MR = middle reach
UR = upper reach
PFC = proper functioning condition
FAR = functional at risk
NF = nonfunctional

Five invasive species (other than *Tamarix* spp.) have been found in riparian areas within the Planning Area: rip gut (*Bromus diandrus*), cheatgrass (*Bromus tectorum*), black mustard (*Brassica nigra*), spiny sowthistle (*Sonchus asper*), and Mediterranean mustard (*Hirschfeldia incana*).

Eighteen out of the 32 riparian areas found within the Planning Area were burned in 2002 covering a total of 55.11 acres (see Table 3-2). Of the eighteen burned riparian areas, six were assessed in 2005 as being in proper functioning condition. Nine of the burned areas were assessed as functional at risk level, and three areas as non-functional.

Tamarix spp. was found in 17 out of 32 riparian areas in the Planning Area during the 2005 field season (see Table 3-2). Of these seventeen areas, two areas were more than 15 percent covered. Three areas had 1 to 15 percent coverage and 12 areas had less than 1 percent coverage. *Tamarix* spp. invasion is a real threat to riparian ecosystems within the Planning Area. The ECFO currently removes *Tamarix* spp. using the following methods: mechanical (loppers, chainsaws, and handsaws) chemical, and in some cases, by hand as funding and man-power are available. As of 2006, the BLM has removed approximately 90 acres of *Tamarix* spp. infestations.

3.5.2 Invasive and Noxious Weed Species

Throughout southern California, native vegetation has been altered by the introduction—and in many cases dominance—of non-native plant species, some of which can change ecosystem dynamics dramatically. These invasive and noxious weed species may outcompete natives for water, nutrients, or sun; disrupt processes such as soil nitrogen cycling or pollination relationships; or predispose an area to wildfire by providing excess fuel in areas that would normally have supported lower fuel loads. Several non-native species have the ability to completely change the structure of the vegetation, making it unsuitable to most native wildlife species. Special status wildlife and plant species are particularly at risk from these invasive weed species.

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Some non-native plants that occur in very low numbers or seem innocuous for years may expand their range dramatically and become a difficult pest weed under the right environmental conditions. These conditions might be brought about by a year with very late rains or a flood that results in heavy sedimentation of drainages leading to the establishment of riparian weeds.

EO 13112 was signed in February 1999 directing federal agencies to identify and manage invasive species. The order stipulates that actions will be taken to prevent the introduction of invasive species, monitor for their presence, and respond rapidly to eliminate them.

An effective way to implement these actions is through the Federal Noxious Weed Act of 1975 that requires federal land managers to develop a management program to control undesirable plants on federal lands under the agency's jurisdiction and to cooperate with state and federal agencies to manage undesirable plants.

The BLM maintains a federal list of noxious weeds of concern. In addition, the State of California and California Invasive Plant Council (Cal-IPC) also maintain lists that focus particularly on California. All three lists are included in Appendix C.

3.5.3 Priority Plant Species

Priority plant species are rare, unusual, or key species that are not BLM sensitive or listed as threatened and endangered. They are worthy of special treatment and indicate ecological health, biological diversity, and unique habitats. A number of priority plant species are either known or suspected to occur on BLM-administered lands within the Planning Area based on direct observations or presence of the species within the vicinity of BLM lands (Table 3-3).

**TABLE 3-3
PRIORITY PLANT SPECIES**

Scientific Name	Common name	Family	CNPS Status	Occurrence Known or Suspected
<i>Agave deserti</i> (Engelm.) Gentry	Desert agave	Liliaceae	--	Known
<i>Arctostaphylos peninsularis</i> var. <i>peninsularis</i>	Peninsular manzanita	Ericaceae	List 2	Suspected
<i>Eucnide rupestris</i>	Rock nettle	Loasaceae	List 2	Suspected
<i>Ferocactus viridescens</i> (Torrey & A. Gray) Britt. & Rose	Coast barrel cactus	Cactaceae		Known
<i>Geraea viscida</i>	Sticky geraea	Asteraceae	List 2	Known
<i>Hesperocaulus unguulate</i>	Desert lily	Liliaceae		Known
<i>Hulsea mexicana</i>	Mexican hulsea	Asteraceae	List 2	Known
<i>Ipomopsis tenuifolia</i>	Slender-leaved Ipomopsis	Polemoniaceae	List 2	Known
<i>Linanthus bellus</i>	Desert beauty	Polemoniaceae	List 2	Known
<i>Lycium parishii</i>	Parish's desert thorn	Solanaceae	List 2	Suspected
<i>Malperia tenius</i>	Brown turbans	Asteraceae	List 2	Suspected
<i>Mentzelia hirsutissima</i>	Hairy stickleaf	Loasaceae	List 2	Known
<i>Nolina bigelovii</i>	Beargrass	Liliaceae		Known
<i>Fouquieria splendens</i> Engelm. ssp. <i>splendens</i>	Ocotillo	Fouquieriaceae	--	Known
<i>Opuntia wolfii</i>	Wolf's cholla	Cactaceae	List 4	Suspected
<i>Opuntia</i> spp.	Cholla and cactus	Cactaceae		Known
<i>Quercus agrifolia</i>	Coast live oak	Fagaceae	--	Known
<i>Quercus chrysolepis</i>	Canyon live oak	Fagaceae	--	Known
<i>Quercus kelloggii</i>	California black oak	Fagaceae	--	Known
<i>Quercus wislizeni</i>	Interior live oak	Fagaceae	--	Known
<i>Senecio aphanactis</i>	Rayless ragwort	Asteraceae	List 2	Suspected
<i>Yucca schidigera</i> K.E. Ortgies	Mohave yucca	Liliaceae	--	Known

CNPS = California Native Plant Society

List 2 = Species rare, threatened, or endangered in California but which are more common elsewhere. These species are eligible for state listing.

List 3 = Species for which more information is needed. Distribution, endangerment, and/or taxonomic information are needed.

List 4 = A watch list of species of limited distribution. These species need to be monitored for changes in the status of their populations.

3.5 Vegetative Communities

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3.6 Wildlife

3.6.1 General Wildlife Habitat

The Planning Area is bordered by the Colorado Desert on the east and by coniferous forest of the Laguna Mountains on the west and precipitation shows a pronounced increase from south to north. Because of its transitional situation, the area shows a complex vegetation pattern that has also been modified by fire exclusion, flood, drought, and grazing. The vegetative pattern is sparse and open along the southern limits of the area, while the pattern in the north is very dense. This provides a complex variety of wildlife habitats throughout the Planning Area. An abundance of wildlife exists within the Planning Area including several sensitive and federally threatened species (see Section 3.7). The area serves as a migratory corridor for numerous species of neotropical migrant birds.

3.6.2 Wildlife Habitat Improvements

CSFG in coordination with Quail Unlimited maintains a number of artificial water sources (wildlife waters) for wildlife in the McCain Valley and Table Mountain areas. These wildlife waters consist of an underground concrete tank with a concrete apron at the opening (20 feet long) to funnel rainwater in. Many of these wildlife waters were constructed in the 1940s and 50s, and there is no clear record of their locations. Quail Unlimited continually maps the locations of unknown wildlife waters and provides the locations to BLM and the CDFG.

3.6.3 Priority Wildlife Species Habitat

The priority wildlife identified by the BLM for management includes raptors, non-game migratory birds, bats, and game animals. The following provides a brief description of the basic needs of each of these wildlife categories.

Raptors. Raptors require a variety of foraging and nesting/roosting habitat. Most raptor species in the Planning Area require large open, primarily grassland areas in which to hunt for small mammals. Most raptors nest in tall trees, though some raptor species in the Planning Area nest on cliffs or on the ground in grasslands.

3.6 Wildlife

Non-game migratory birds. Non-game migratory birds include neotropical migrants, which are an important component of the ecosystem. They have a wide variety of habitat needs for food, water, cover, and nesting and are a good environmental indicator of overall ecosystem health.

Bats. Bats have specialized roosting and breeding habitat requirements, often establishing colonies in caves/mines, rock outcrops, bridges, tree cavities, abandoned buildings, or other enclosed protected places. These species are nocturnal and will exit the roosting location in the evenings to forage for food within the vicinity of the colony.

Game animals. BLM is required to manage for the habitat of all game animals that occur on their administered lands within the Planning Area. Habitat features include ensuring there is sufficient food/forage, water, and cover/nesting locations. Mule deer and quail occur in the semi-desert, mixed, and chamise chaparral communities. Hunting is popular in the McCain Valley area where these species occur. Much of the mixed chamise chaparral is overgrown and has limited the structure and diversity of the understory, which has an impact on the quality of forage that is available for game species.

3.7 Special Status Species

There are a number of special status plant and wildlife species that are known from the Planning Area. Table 3-4 lists all species that are listed by the federal or state government as threatened or endangered or are listed as sensitive by BLM. Table 3-4 also provides an assessment regarding occurrence on BLM-administered lands in the Planning Area.

3.7.1 Federally Listed Species

USFWS has identified ten federally listed species as occurring within the Planning Area: Peninsular bighorn sheep, least Bell's vireo, SWFL, arroyo toad, quino checkerspot butterfly, Laguna Mountains skipper, unarmored threespine stickleback, Mexican flannelbush, Nevin's barberry, and San Bernardino blue grass. Species accounts are presented below for the ten listed species identified in this section as possibly occurring in the Planning Area. Pertinent aspects of the status, distribution, life history, and habitat requirements of these species have been extracted from a variety of sources, including the proposed and final rules to list these species; the proposed and final rules to designate critical habitat, recovery plans, scientific journal articles, and other relevant documents. Records of occurrence for the Planning Area are based on BLM file documents and field notes; published literature sources, technical reports, and the California Natural Diversity Database (CDFG 2006).

3.7.1.1 Peninsular Bighorn Sheep

Species

The Peninsular Ranges population of bighorn sheep (*Ovis canadensis*) was listed as an endangered species in March 1998 in response to population declines associated with habitat loss, disease, predation, low recruitment, and adverse behavioral responses to residential and commercial development, among other factors (USFWS 1998). The range of the listed population extends from the San Jacinto Mountains in Riverside County to the Mexican border. Most of the population lives along east facing slopes of the Peninsular Ranges at elevations ranging from 300 to 4,000 feet on the northwestern edge of the Sonoran Desert. Their distribution, particularly during the summer, tends to be concentrated around permanent water sources. The Peninsular Ranges population was recently estimated to contain 335 animals, distributed among eight known ewe groups. Sexually mature females in good health typically produce one lamb per year and

**TABLE 3-4
SPECIAL STATUS SPECIES**

Scientific Name	Common Name	Federal Status	State Status	BLM Status	Occurrence Known or Suspected
Plant Species					
<i>Astragalus douglasii</i> var. <i>perstrictus</i>	Jacumba milkvetch			Sensitive	Known
<i>Clarkia delicata</i>	Delicate clarkia			Sensitive	Suspected
<i>Deinandra floribunda</i>	Tecate tarplant			Sensitive	Suspected
<i>Fremontodendron mexicanum</i>	Mexican flannelbush	FE	SR		Not expected
<i>Heuchera brevistaminea</i>	Laguna Mountains alumroot			Sensitive	Suspected
<i>Hulsea californica</i>	San Diego sunflower			Sensitive	Known
<i>Lupinus excubitus</i> var. <i>medius</i>	Mountain Springs bush lupine			Sensitive	Known
<i>Machaeranthera asteroides</i> var. <i>lagubnensis</i>	Laguna Mountains aster		SR		Suspected
<i>Berberis nevadensis</i>	Nevadensis barberry	FE	SE		Not expected
<i>Poa atropurpurea</i>	San Bernardino blue grass	FE			Not expected
<i>Streptanthus campestris</i>	Southern jewelflower			Sensitive	Known
<i>Tetracoccus dioicus</i>	Parry's tetracoccus			Sensitive	Suspected
Wildlife Species					
<i>Euphydryas editha quino</i>	Quino checkerspot butterfly	FE			Suspected
<i>Pyrgus ruralis lagunae</i>	Laguna Mountains skipper	FE			Not expected
<i>Gasterosteus aculeatus williamsoni</i>	Unarmored three-spined stickleback	FE	SE		Not expected
<i>Bufo californicus</i>	Arroyo toad	FE			Not expected
<i>Coleonyx switaki</i>	Barefoot gecko		ST	Sensitive	Known
<i>Buteo swainsoni</i>	Swainson's hawk		ST		Known
<i>Empidonax traillii extimus</i>	SWFL	FE	SE	Sensitive	Suspected
<i>Vireo vicinior</i>	Gray vireo			Sensitive	Known
<i>Vireo bellii pusillus</i>	Least bell's vireo	FE	SE	Sensitive	Known
<i>Myotis ciliolabrum</i>	Small footed myotis				Known
<i>Myotis evotis</i>	Long-eared myotis				Suspected
<i>Plecotus townsendii</i>	Townsend's western big-eared bat				Known
<i>Ovis canadensis nelsoni</i>	Peninsular bighorn sheep	FE	ST		Known

FE = federally listed endangered
 SE = state-listed endangered
 ST = state-listed threatened
 SR = state-listed rare

have a gestation period of five to six months. Lambing occurs between January and June, with most lambs being born between February and May. Lambs are precocial and within a day or two are able to climb nearly as well as the ewes. Ewes and lambs frequently occupy steep terrain that provides a diversity of slopes and exposures for escape cover and shelter from excessive heat. Lambs are able to eat native grass within two weeks of birth and are weaned between one and seven months of age. By their second spring, bighorn sheep lambs are independent of the ewes and, depending upon physical condition, may attain sexual maturity during the second year of life.

Habitat

Peninsular bighorn sheep inhabit hot, dry regions of the desert that possess key habitat characteristics relating to topography, visibility, water availability, and forage quality and quantity. Alluvial fan areas are used for breeding and feeding activities. Steep topography is required for lambing and rearing habitat and for escaping from predators. Open terrain with good visibility is needed because bighorn sheep rely primarily on their sense of sight to detect predators. Caves and other forms of shelter (e.g., rock outcrops) are used during inclement weather. Lambing areas are associated with ridge benches or canyon rims adjacent to steep slopes or escarpments. On BLM-administered lands within the Planning Area, the only known lambing areas are in designated WAs. Summer concentration areas are associated primarily with dependable water sources, which have sufficient vegetation nearby to meet their forage requirements. The primary constituent elements of critical habitat, as stated in the final rule (USFWS 2001) include: "...space for the normal behavior of groups and individuals; protection from disturbance; availability of the various native desert plant communities found on different topographic slopes, aspects, and landforms, such as steep slopes, rolling foothills, alluvial fans, and canyon bottoms; a range of habitats that provide forage, especially during periods of drought; steep, remote habitat for lambing, rearing of young, and escape from disturbance and/or predation; water sources; suitable linkages allowing individual bighorn to move freely between ewe groups, and maintain connections between subpopulations within the Peninsular Range metapopulation; and other essential habitat components to accommodate population expansion to a recovery level."

Occurrence in the Planning Area

Four of the eight recognized ewe groups (subpopulations) occur within the Planning Area: Carrizo Canyon, Vallecito Mountains, South San Ysidro Mountains, and North San Ysidro Mountains (USFWS 1999b). The Carrizo Canyon and Vallecito Mountain subpopulations occur primarily on BLM-administered land, while the North and South San Ysidro Mountain subpopulations occur primarily within Anza-Borrego State Park. Of

3.7 Special Status Species

the 846,618 acres of critical habitat for Peninsular bighorn sheep, approximately 53,000 acres (6.3 percent of the total) overlap with BLM-administered lands in the Planning Area (Figure 3-7). Most of the overlap is within the Carrizo Gorge Wilderness. Much of the Carrizo Gorge Wilderness also overlaps with the In-Ko-Pah Mountains ACEC. Thus, BLM's bighorn sheep management responsibilities in the Planning Area pertain mainly to the Carrizo Canyon and Vallecito Mountain subpopulations and that component of critical habitat within the Carrizo Gorge Wilderness.

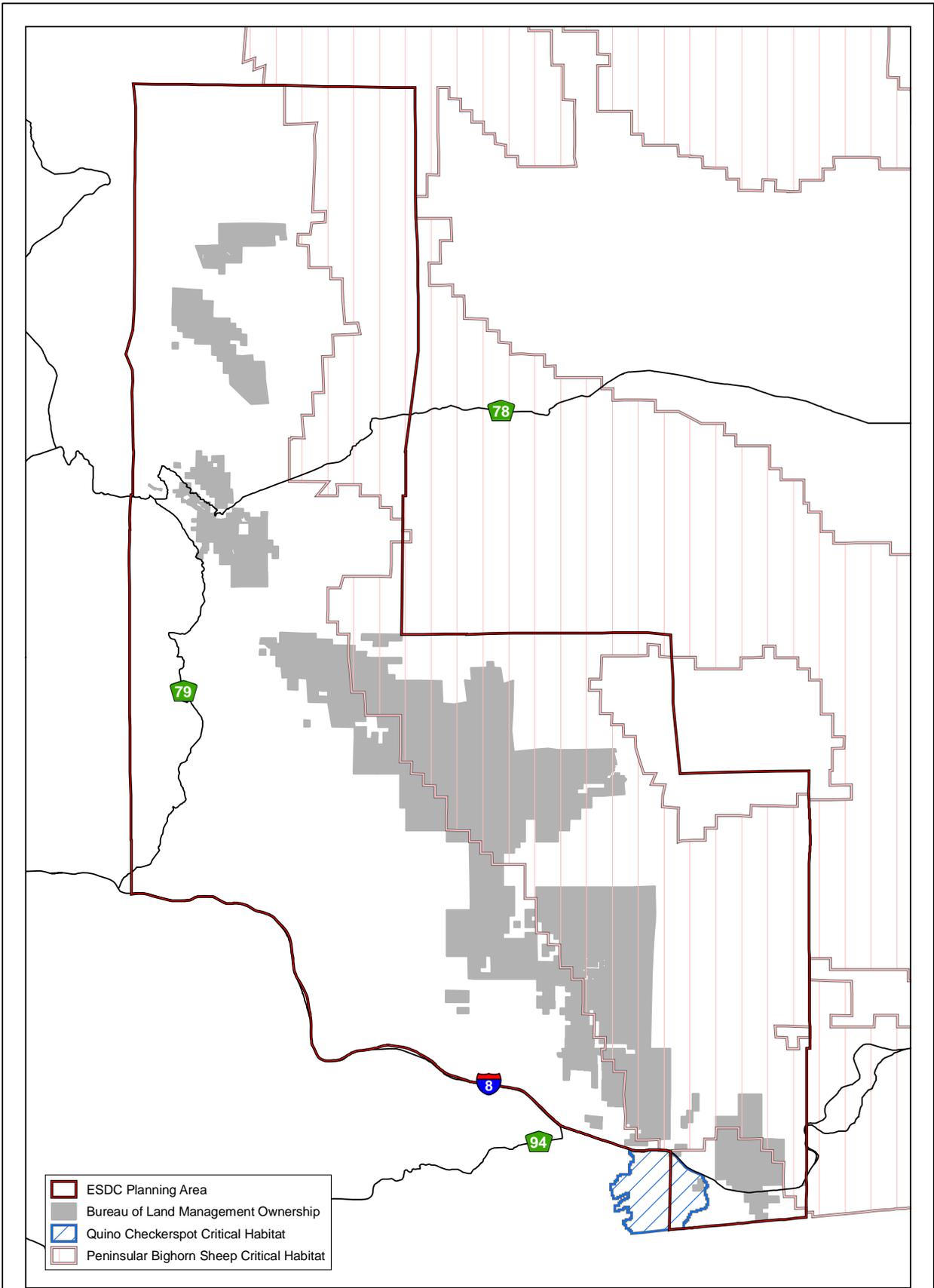
3.7.1.2 Least Bell's Vireo

Species

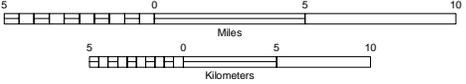
The least Bell's vireo (*Vireo bellii pusillus*) was listed as an endangered species in May 1986 in response to population declines associated with urban development, water diversion, flood control projects, grazing, riparian habitat loss, and brood-parasitism by the brown-headed cowbird (USFWS 1986). The historical distribution of this species extended from Tehama County, California, to northern Baja California, Mexico. The surviving populations occur seasonally in the United States and are concentrated in San Diego, Santa Barbara, and Riverside Counties. Least Bell's vireos generally begin to arrive from their wintering range in southern Baja California by mid- to late March and establish breeding territories soon thereafter. Most breeding least Bell's vireos depart the breeding grounds by the third week of September. Very few winter in California or the United States. Least Bell's vireos typically occupy home ranges that vary in size from 0.5 to 7.5 acres. At the time of listing, there were approximately 300 breeding pairs in the United States. The distribution and abundance of this bird has increased somewhat in recent years in response to brown-headed cowbird control programs and riparian habitat restoration efforts. The overall population estimate for 1997 was 2000 pairs, about half of which occurred at Camp Pendleton.

Habitat

Least Bell's vireo nesting habitat consists of well-developed overstories and understories, with low densities of aquatic and herbaceous cover. The understory frequently contains dense shrub or subshrub thickets, often dominated by willows. Important overstory species include mature arroyo willows and black willows. Occasionally, cottonwoods and western sycamore are included among the overstory habitats used by vireos and in some cases coast live oak may be locally important. Most least Bell's vireo nest sites are in willow stands between five and ten years of age. It appears that the structure of the vegetation is more important than species composition, age of the stand, or other factors. Critical habitat was designated for the least Bell's vireo



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FIGURE 3-7: Critical Habitat

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3.7 Special Status Species

in February 1994 (USFWS 1994a). It consists of ten separate stream reaches in southern California encompassing about 38,000 acres in Santa Barbara, Ventura, Los Angeles, Riverside, San Bernardino, and San Diego Counties. The primary constituent elements of designated critical habitat are “riverine and floodplain habitats (particularly willow-dominated riparian woodland with dense understory vegetation maintained, in part, in a non-climax stage by periodic floods or other agents) and adjacent coastal sage scrub, chaparral, or other upland plant communities.”

Occurrence in the Planning Area

There are small amounts of potential habitat present in remote canyons that have dense understory vegetation. Surveys conducted by Anza-Borrego Desert State Park have found least Bell's vireo in Carrizo Gorge Wilderness and the species is documented as breeding along Bow Willow Canyon on state park land which originates in the Carrizo Gorge Wilderness (Wells and Kus 2001). One of the designated critical habitat units for this species, Coyote Creek, occurs in the Planning Area on lands managed by the California Department of Parks and Recreation. However, there is no overlap of least Bell's vireo critical habitat with BLM-administered public lands.

3.7.1.3 Southwestern Willow Flycatcher

Species

The SWFL (*Empidonax traillii extimus*) was listed as an endangered species in February 1995 in response to population declines associated with habitat loss (resulting primarily from urban and agricultural development, water diversion and impoundment, livestock grazing, and altered hydrological conditions) and nest depredation and brood parasitism by the brown-headed cowbird (USFWS 1995). The breeding range of this species extends from southern California to western Texas, including portions of southernmost Nevada and Utah, and northernmost Sonora and Baja California. Nesting begins in late May and early June and young are fledged from late June through mid-August. Currently only about 70 nesting pairs of SWFLs remain in southern California. These individuals are found in ten nesting groups, of which only two are considered to be stable or increasing. Recent increases in these two nesting groups are believed to have occurred because of brown-headed cowbird control efforts. SWFLs typically forage within and above the canopy of riparian vegetation, taking insects on the wing or gleaning them from vegetation. Nesting occurs in even-aged thickets of trees and shrubs approximately 13 to 23 feet tall, which have a high percentage of canopy cover and dense foliage from ground level up to about 13 feet above the riparian floor.

Habitat

Suitable breeding habitat for the SWFL consists of dense riparian vegetation near water or saturated soil. The dominant plant species, size and shape of habitat patches, canopy structure, and other habitat variables vary from monotypic to mixed-species stands and from simple to complex vegetation structures. In different parts of its range, breeding habitat is comprised of dense high-elevation willow stands; mixtures of native broadleaf shrubs and trees (willow, cottonwood, box elder, ash, alder, and buttonbush); monotypic closed-canopy stands of tamarisk or Russian olive; or a mix of native shrubs and exotic species. Narrow linear riparian patches only one or two trees deep that do not have the potential to increase in depth are not considered breeding habitat, although they can be used by SWFLs during migration. Critical habitat was originally designated for the SWFL in July 1997. As a result of a lawsuit, this was set aside in 2001 by the 10th Circuit Court of Appeals. Critical habitat was subsequently reevaluated and redesignated in 2005 (USFWS 2005b). Five Recovery and 15 Management Units were designated in California, Arizona, New Mexico, Nevada, Colorado, and Utah. Of the 737 miles of stream and river corridors designated as critical habitat, about 195 miles are in California. The primary constituent elements (PCE) of critical habitat identified in the final rule (USFWS 2005b) are:

- 1) Riparian habitat in a dynamic successional riverine environment (for nesting, foraging, migration, dispersal, and shelter) that comprises:
 - (a) Trees and shrubs that include Goodding's willow (*Salix gooddingii*), coyote willow (*Salix exigua*), Geyers willow (*Salix geyerana*), arroyo willow (*Salix lasiolepis*), red willow (*Salix laevigata*), yewleaf willow (*Salix taxifolia*), pacific willow (*Salix lasiandra*), box elder (*Acer negundo*), tamarisk (*Tamarix ramosissima*), Russian olive (*Eleagnus angustifolia*), buttonbush (*Cephalanthus occidentalis*), cottonwood (*Populus fremontii*), stinging nettle (*Urtica dioica*), alder (*Alnus rhombifolia*, *Alnus oblongifolia*, *Alnus tenuifolia*), velvet ash (*Fraxinus velutina*), poison hemlock (*Conium maculatum*), blackberry (*Rubus ursinus*), seep willow (*Baccharis salicifolia*, *Baccharis glutinosa*), oak (*Quercus agrifolia*, *Quercus chrysolepis*), rose (*Rosa californica*, *Rosa arizonica*, *Rosa multiflora*), sycamore (*Platanus wrightii*), false indigo (*Amorpha californica*), Pacific poison ivy (*Toxicodendron diversilobum*), grape (*Vitus arizonica*), Virginia creeper (*Parthenocissus quinquefolia*), Siberian elm (*Ulmus pumila*), and walnut (*Juglans hindsii*).

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- (b) Dense riparian vegetation with thickets of trees and shrubs ranging in height from 2 meters to 30 meters (6 to 98 feet). Lower-stature thickets (2 to 4 meters or 6 to 13 feet tall) are found at higher elevation riparian forests and tall-stature thickets are found at middle- and lower- elevation riparian forests;
 - (c) Areas of dense riparian foliage at least from the ground level up to approximately 4 m (13 feet) above ground or dense foliage only at the shrub level, or as a low, dense tree canopy;
 - (d) Sites for nesting that contain a dense tree and/or shrub canopy (the amount of cover provided by tree and shrub branches measured from the ground) (i.e., a tree or shrub canopy with densities ranging from 50 percent to 100 percent);
 - (e) Dense patches of riparian forests that are interspersed with small openings of open water or marsh, or shorter/sparser vegetation that creates a mosaic that is not uniformly dense. Patch size may be as small as 0.1 hectare (0.25 acre) or as large as 70 hectares (175 acres); and
- (2) A variety of insect prey populations found within or adjacent to riparian floodplains or moist environments, including: flying ants, wasps, and bees (Hymenoptera); dragonflies (Odonata); flies (Diptera); true bugs (Hemiptera); beetles (Coleoptera); butterflies/moths and caterpillars (Lepidoptera); and spittlebugs (Homoptera).

The discussion above outlines those physical and biological features essential to the conservation of the SWFL and presents the rationale as to why those features were selected. The primary constituent elements described above are results of the dynamic river environment that germinates, develops, maintains, and regenerates the riparian forest and provides food for breeding, non-breeding, dispersing, territorial, and migrating SWFLs. Human activities and actions such as dams, irrigation ditches, or agricultural field return flow can assist in providing conditions that support flycatcher habitat. Because the flycatcher exists in disjunct breeding populations across a wide geographic and elevation range, and is subject to dynamic events, critical habitat river segments described below are essential for the flycatcher to maintain metapopulation stability, connectivity, gene flow, and protect against catastrophic loss. All river segments designated as SWFL Critical Habitat are within the geographical area occupied by the species and contain at least one of the primary constituent elements. It is important to recognize that the PCEs are present throughout the river segments selected (PCE 1a and 2), but the specific quality of riparian habitat for nesting (PCE 1b, 1c, 1d, 1e), migration (PCE 1), foraging (PCE 1 and 2), and shelter (PCE 1) will not remain constant in their condition or location over time due to succession (i.e., plant germination and growth) and the dynamic environment in which they exist.

Occurrence in the Planning Area

Surveys conducted by California Partners in Flight have not detected recent use of the Planning Area by breeding SWFLs. Critical habitat has been designated for this species along San Felipe Creek, adjacent to the San Felipe Hills WSA, but there is no overlap of BLM-administered land with critical habitat. It is possible that SWFLs might make transitory use of secluded riparian areas that have dense understory vegetation, but it is doubtful that any of the BLM-administered public lands in the Planning Area currently possess the suite of habitat features needed to support a breeding population. A search of the California Natural Diversity Database (State of California 2006) revealed no occurrence records for the SWFL on public lands in the Planning Area.

3.7.1.4 Arroyo Toad

Species

The arroyo toad (*Bufo californicus*) was listed as an endangered species in December 1994 in response to population declines associated with urbanization, stream channelization, water development, predation, habitat fragmentation, and other human influences (USFWS 1994b). The arroyo toad is one of three members of the southwestern toad (*B. microscaphus*) complex, in the family of true toads, Bufonidae (USFWS 1999). Arroyo toads were historically found in many coastal drainages from Monterey County to San Diego County and at a few inland sites in Los Angeles, San Bernardino, Riverside, San Diego, and Imperial Counties. They have been extirpated from approximately 75 percent of their historic range and now survive as small isolated headwater populations in only a score or so of the watersheds they once occupied (USFWS 1999). At the time of listing, only eight of the surviving populations were considered to be viable.

Habitat

Arroyo toads require a mosaic of habitats for breeding, foraging, sheltering, and living space, as well as for migration and dispersal corridors. Adult toads excavate shallow burrows on terraces, which they use for daytime shelter during the “damp” season and for much longer periods during the dry season. Breeding occurs from late March until mid-June in low-gradient streams that have sandy or fine gravel substrates. Eggs are deposited and larvae develop in shallow pools with minimal current and little or no emergent vegetation. After metamorphosis occurs in June or July, the juvenile toads remain on the adjacent gravel bars until the pools no longer persist. Dispersal habitats consist of alluvial terraces and valley bottomlands that have loose, sandy soils (usually

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within a mile of the stream course and no more than 80 feet above the elevation of the stream channel) where adult toads can burrow underground. A total of approximately 4,733 hectares (11,695 acres) is designated as critical habitat in Santa Barbara, Ventura, Los Angeles, San Bernardino, and Riverside Counties in California, (USFWS 2005a). Critical habitat identifies specific areas that are essential to the conservation of a listed species and, with respect to areas within the geographic range occupied by the species, which may require special management considerations or protection. USFWS identified the primary constituent elements required by the arroyo toad when designating critical habitat (USFWS 2005a). These are:

- 1) rivers or streams with a hydrologic regime that supplies sufficient flowing water of suitable quality and sufficient quantity and at the appropriate times to provide space, food, and cover needed to sustain eggs, tadpoles, metamorphosing juveniles, and adult breeding toads;
- 2) low-gradient stream segments (typically less than 6 percent) with sandy or fine gravel substrates that support the formation of shallow pools and sparsely vegetated sand and gravel bars for breeding and rearing of tadpoles and juveniles;
- 3) a natural flooding regime or one sufficiently corresponding to a natural regime that will periodically scour riparian vegetation, rework stream channels and terraces, and redistribute sands and sediments, such that breeding pools and terrace habitats with scattered vegetation are maintained;
- 4) riparian and adjacent upland habitats (e.g., alluvial scrub, coastal sage scrub, chaparral, and oak woodlands, but particularly alluvial streamside terraces and adjacent valley bottomlands that include areas of loose soil where toads can burrow underground) to provide foraging, aestivation, and living areas for subadult and adult arroyo toads;
- 5) stream channels and adjacent upland habitats allowing for migration between foraging, burrowing, or aestivating sites, dispersal between populations, and recolonization of areas that contain suitable habitat.

Arroyo toads are not distributed uniformly throughout the critical habitat units. Arroyo toad breeding habitat is patchily distributed along the stream courses, and the same is true of appropriate upland habitat. Some areas primarily provide for migration and dispersal between breeding and foraging habitats or allow for dispersal to additional breeding pools that will accommodate expanding populations. Habitat conditions within streams can change rapidly in response to streamflows and other factors, such as the

development and shifting of sand and gravel bars, and creation and disappearance of pools. Terrace and upland habitats, although more stable than streambed and riparian habitats, may change as a result of rainfall, earthquakes, fires, and other natural events. These factors may cause the habitat suitability of given areas to vary over time, thus affecting the distribution of toads.

Occurrence in the Planning Area

The Arroyo Toad Recovery Plan identifies three recovery units, northern, southern, and desert (USFWS 1999). The Planning Area falls within the southern recovery unit, however, none of the critical habitat units are located within the Planning Area or within San Diego County. The recovery plan does identify two historic arroyo toad collection localities within the Planning Area: San Felipe Creek (Country Club at Borrego on July 25, 1950) and Vallecitos Creek (10 miles southeast of Vallecito Stage Station on April 12, 1954). The former collection record is from private land; the latter locality is within Anza-Borrego Desert State Park. It is possible that suitable habitat for the arroyo toad may exist in one or more isolated canyons in the Planning Area. However, there are only 97 acres of riparian woodland in the Planning Area and the stream reaches that flow through public land do not appear to possess the suite of habitat features needed to support all life stages of the arroyo toad. A search of the California Natural Diversity Database (State of California 2006) revealed no occurrence records for the arroyo toad on BLM-administered lands in the Planning Area.

3.7.1.5 Quino Checkerspot Butterfly

Species

The quino checkerspot butterfly (*Euphydryas editha quino*) was listed as an endangered species in January 1997 in response to population declines associated with: (1) loss, degradation, and fragmentation of habitat due to grazing, urban development, and fire management practices; (2) over-collection and other human disturbance; and (3) naturally occurring events such as fire and weather extremes (USFWS 1997). Historically, the geographic range of the quino checkerspot butterfly extended from Point Dume in Los Angeles County to northern Baja California. At the time of listing, there were only seven or eight known extant populations in the United States. The surviving U.S. populations occur in southwestern Riverside and north-central San Diego Counties. The life cycle of the quino checkerspot butterfly, as summarized in the final rule, includes the following key stages. The adult flight season occurs from mid-January to late April and peaks between March and April. The eggs hatch in about 10 days and the larvae begin to feed immediately. They feed until summer, when their primary host plant, dot-

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seed plantain (*Plantago erecta*), dies. The larvae undergo diapause during the dry season and the winter. The larvae develop through four instars, then pupate and emerge as adults in early spring of the following year. The adults live from 4 to 8 weeks.

Habitat

The quino checkerspot butterfly prefers open grassland and sunny openings within chaparral and coastal sage shrublands that contain its larval host plant and adult nectar sources. The principal larval host plant is dot-seed plantain. However, the larvae may also use desert Indian wheat (*Plantago ovata*), Coulter's snapdragon (*Antirrhinum coulteri*), and exserted Indian paintbrush (*Castilleja exserta*). These plants grow in or near grasslands, and may extend into upland shrub communities of sparse chaparral and coastal sage scrub. In the chaparral and coastal sage scrub habitats where this species survives, it is most likely to be found at sites where high densities of the host plants occur. Within such areas, the quino checkerspot butterfly may preferentially select sites where exposure to winter sun is the greatest. The elevational distribution of this butterfly historically ranged from near sea level to about 3,000 feet.

Approximately 13,770 hectares (34,025 acres) is designated as critical habitat in San Diego and Riverside Counties in California (USFWS 2002b). Critical habitat identifies specific areas that are essential to the conservation of a listed species and, with respect to areas within the geographic range occupied by the species, which may require special management considerations or protection. USFWS identified the primary constituent elements required by the quino checkerspot butterfly when designating critical habitat (USFWS 2002b). These are: 1) grassland and open-canopy woody plant communities, such as coastal sage scrub, open red shank chaparral, and open juniper-woodland, with host plants or nectar plants; 2) undeveloped areas containing grassland or open-canopy woody plant communities within and between habitat patches utilized for quino checkerspot butterfly mating, basking, and movement; 3) prominent topographic features, such as hills and/or ridges, with an open woody or herbaceous canopy at the top. Prominence should be determined relative to other local topographic features.

Threats

As stated in the recovery plan (USFWS 2003), the reasons for the decline and current threats to the species include:

1) urban and agricultural development; 2) invasion by non-native species; 3) off-road vehicle use; 4) grazing; 5) fire management practices; 6) enhanced nitrogen deposition; 7) elevated atmospheric carbon dioxide concentrations; and 8) climate change.

Of these, “urban development poses the greatest threat and exacerbates other threats” (USFWS 2003). It is believed that more than 90 percent of the species previous known range has been lost due to conversion of loss of habitat (D. Murphy pers. comm. as cited in USFWS 2003).

Non-native grasses and other annual herbaceous plant species have invaded much of the historical habitat which can result in loss of dot-seed plantain (*Plantago erecta*), the primary host plant for the butterfly larva. Invasion of these non-natives can occur following fire or other disturbances.

Off-road vehicles can degrade or destroy suitable habitat through soil compaction, destruction of host plants, increase in erosion and fire frequency, destruction of eggs and larva, and ground surface disturbance which can facilitate invasion by non-native plants. However, off-road vehicle use can also temporarily increase the amount of suitable habitat if new trails open up the canopy for use by the butterfly.

Grazing impacts vary based on the timing, duration, and intensity of the activity.

Increased fire frequency can result in a loss of native plant communities, and thus a correlated decline in quino populations. Fires become more frequent as the human population increases and through the increase in habitat fragmentation which exposes a larger amount of flammable non-native plants to the interface between urban and undeveloped lands. Studies have indicated that intervals of 5 years or less create a larger conversion of shrubland to grassland, which enhances the invasion of non-native grasses (USFWS 2003).

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Occurrence in the Planning Area

The only known extant quino checkerspot butterfly population on BLM-administered lands occurs outside the Planning Area in Riverside County. A known quino population exists in the Jacumba area on private land. A search of the California Natural Diversity Database (State of California 2006) revealed no occurrence records for the quino checkerspot butterfly on BLM-administered lands in the Planning Area. According to quino checkerspot habitat assessments conducted in spring 2005, suitable habitat is present in some of the chaparral and shrubland habitats particularly on Table Mountain and on Round Mountain (DOI BLM 2005d; Osbourne 2006).

3.7.1.6 Laguna Mountains Skipper

Species

The Laguna Mountains skipper is federally listed as endangered (USFWS 1997). It is a rare subspecies of the widespread two-banded skipper that is endemic to San Diego County and is restricted to Mt. Palomar and the Laguna Mountains.

Habitat

The Laguna Mountains skipper inhabits large open meadows in pine forests. The primary host plant of the larvae is Cleveland's horkelia (*Horkelia clevelandii*). Adults will nectar on goldfields (*Lasthenia* spp.), pentachaetas (*Pentachaeta* sp.), buttercups (*Ranunculus* spp.), and checkers (*Sidalcea* sp.). The Laguna Mountains skipper is a bivoltine species, having two full generations per year. The two adult flight seasons are from early April to late May and late June to late July; the pupa of the second generation diapause until the following flight season. First-generation adults prefer locations with less than 50 percent vegetative cover, and open and rocky areas are important for thermoregulation. Threats to this extremely rare species seem to be cattle grazing, active fire management, and parasitism (Faulkner and Klein 2001).

Critical habitat has been proposed for this species (USFWS 2005c). There are two critical habitat units, Palomar Mountain and Laguna Mountain, which are further divided into seven subunits. The PCEs for critical habitat have been defined by USFWS (2005c) as follows:

- 1) The host plants, Cleveland's horkelia or sticky cinquefoil (*Potentilla glandulosa*), in meadows or forest openings needed for reproduction.
- 2) Nectar sources suitable for feeding by adult Laguna Mountains skipper, including goldfields, golden-rayed pentachaeta (*Pentachaeta aurea*), buttercups, and checkers found in woodlands or meadows.
- 3) Wet soil or standing water associated with features such as seeps, springs, or creeks where water and minerals are obtained during the adult flight season.

This proposed critical habitat designation is designed for the conservation of PCEs necessary to support the life history functions. Because not all life history functions require all the PCEs, not all proposed critical habitat will contain all the PCEs. Each of the areas proposed in this rule have been determined to contain sufficient PCEs to provide for one or more of the life history functions of the Laguna Mountains skipper.

Occurrence in the County Planning Area

The Laguna Mountain Critical Habitat Unit is centered on Laguna Mountain and occurs partially within the Planning Area; however, the unit is located on U.S. Forest Service lands and private property and is not located on any of the BLM-administered lands. There is no known suitable montane meadow habitat for this species on BLM-administered lands within the Planning Area.

3.7.1.7 Unarmored Threespine Stickleback

Species

The unarmored threespine stickleback (*Gasterosteus aculeatus williamsoni*) was listed as an endangered species in October 1970 in response to population declines associated with habitat loss, competition, predation, and hybridization with other stickleback subspecies (USFWS 1970). Unarmored threespine sticklebacks were historically distributed in coastal streams throughout southern California. At the time the recovery plan was prepared, the distribution was restricted to the upper Santa Clara River and its tributaries in Los Angeles and Ventura Counties, Canada Honda and San Antonio Creeks on Vandenberg Air Force Base, Shay Creek in San Bernardino County, and San Felipe Creek in San Diego County. The San Felipe Creek population, if it persists, is an introduced population (USFWS 1985). Genetic studies involving the

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Vandenberg populations and the Shay Creek population indicate that these populations are not *G. a. williamsoni*.

Habitat

Unarmored threespine sticklebacks occupy the slow moving reaches and quiet backwaters of their currently occupied range. Favorable habitats include stream reaches shaded by dense riparian vegetation and open stream reaches that contain algal mats and barriers, such as rocks or fallen logs. Critical habitat was proposed for the unarmored threespine stickleback in 1980 for three stream reaches in Santa Clara River basin and one reach of San Antonio Creek (USFWS 1980). The primary constituent elements of these habitat areas were considered to be “quality and quantity of water flow in the streams, presence of aquatic vegetation and other biological resources on which the species depends, and isolation of the watercourses as regards predator and competitor species.” A final rule was never published designating critical habitat for this species.

Occurrence in the Planning Area

The only known record of unarmored threespine sticklebacks in the Planning Area is from a privately owned reach of San Felipe Creek near Scissors Crossing. The San Felipe Creek population, if it persists, is a transplanted population (USFWS 1985). BLM does not manage any of the aquatic habitat along San Felipe Creek in the Planning Area. The public lands that BLM does manage along San Felipe Creek are more than 20 miles downstream in San Sebastian Marsh, where habitat conditions are drastically different from the Colorado Desert Region where the climate is much hotter and dryer.

3.7.1.8 Mexican Flannelbush

Species

Mexican flannelbush is listed as an endangered species by the USFWS (1998) and a rare species by the State of California (2000). Mexican flannelbush is known from fewer than fifteen occurrences, though only observed at two locations in recent years; fewer than 100 plants were estimated to remain as of 1993.

Habitat

This evergreen perennial shrub or small tree in the cacao family (Sterculiaceae) may grow to 23 feet tall, and produces showy orange flowers from March to June. The historical range of this species is the Peninsular Ranges in Orange, San Diego, and southwestern Imperial Counties and northern Baja California, Mexico (Hickman 1993). Mexican flannelbush has been reported in chaparral and closed cone coniferous forest at elevations below 1500 feet on gabbroic, metavolcanic or serpentine soils (CNPS 2001). The only known extant native population in the United States is on Otay Mountain, where it grows in canyon bottoms (State of California 2000, USFWS 1998). The closely related California flannelbush also occurs in the Peninsular Range, but at elevations higher than 3000 feet.

Mexican flannelbush is considered to be declining. The plant is susceptible to increased fire frequency that could lower its potential for reproduction. No specific management plan is in place for this species (State of California 2000).

Occurrence in the Planning Area

The Mexican flannelbush is not known from the Planning Area.

3.7.1.9 Nevin's Barberry

Species

Nevin's barberry was listed as endangered species by the state in 1987 (State of California 2005) and by the federal government in 1998 (USFWS 1998b). There are currently more than 30 occurrences of this species but less than 1,000 individuals (State of California 2005). The largest population, containing more than 200 individuals, occurs in Riverside County from the Vail Lake/Oak Mountain area.

Habitat

This evergreen shrub in the barberry family (Berberidaceae) has prickly compound leaves, can grow 15 feet tall, and bears yellow flowers in March and April (Munz 1974). The species grows in alluvial scrub, coastal sage scrub, chaparral, cismontane woodland and riparian scrub habitats below 2000 feet elevation. Within these

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communities Nevin's barberry occurs in sandy or gravelly places, the margin of dry washes, and steep north-facing slopes (State of California 2005, CNPS 2001). Nevin's barberry is considered to be declining due to loss of habitat and lack of reproduction and recruitment at most sites.

Occurrence in the Planning Area

Nevin's barberry occurs in localized populations in the foothills of the Transverse and Peninsular Ranges in Los Angeles, San Bernardino and Riverside Counties (State of California 2000, CNPS 2001). No extant native populations of Nevin's barberry are known in San Diego County though it may occur in the foothills of the Agua Tibia Wilderness or in Anza-Borrego near Ranchita (Reiser 2001).

3.7.1.10 San Bernardino Blue Grass

Species

San Bernardino blue grass is federally listed as an endangered species (USFWS 1998a). This tufted perennial grass (Poaceae family) grows from creeping rhizomes to a height of about two feet, with leaves in the lower third, and flowering spikes appearing in May and June (Munz 1974). This species is found only around Big Bear in the San Bernardino Mountains, San Bernardino County, and Palomar Mountain and the Laguna Mountains in San Diego County (USFWS 1998a).

Habitat

It occurs in meadows and seeps at elevations of 6,000 to 7,500 feet (CNPS 2001), preferring the drier edge of montane meadows surrounded by coniferous forest (Reiser 2001). San Bernardino blue grass has both male and female plants, and can be distinguished from other blue grasses in its range by its contracted, oblong inflorescence with short lowered branches (Munz 1974).

Occurrence in the Planning Area

This species is known from a few locations within the Planning Area, primarily to the west of the Sawtooth Mountain Wilderness; however, there are no known current

locations on the BLM-administered lands as the public lands do not support meadow habitat surrounded by coniferous forest.

3.7.2 State Listed Species

There are six state listed species found within the Planning Area: barefoot gecko, Swainson's hawk, Laguna Mountains aster, SWFL, least Bell's vireo, Peninsular bighorn sheep (see Table 3-4). The latter three are also federally listed species and discussed above.

3.7.2.1 Barefoot Gecko

The barefoot gecko is state listed as threatened. Its known range occurs along the eastern face of the Peninsular Ranges in San Diego and Imperial Counties and little information is known about its extended range or abundance. Habitat for the barefoot gecko is found in rock cracks and crevices in areas of massive rock formations and outcrops at canyon heads (Murphy 1974). The banded gecko is insectivorous; little else regarding the life history of the banded gecko is known. This species is known to occur on BLM-administered lands within the Planning Area.

3.7.2.2 Swainson's Hawk

Swainson's hawk is state listed as threatened. This raptor formerly nested throughout most of the state and was once described as the most common breeding hawk in the coastal lowlands. Its breeding range in the state is currently limited to the Central Valley, the Modoc Plateau in Modoc County, and small isolated patches of the high desert. Swainson's hawk nests in sycamores and cottonwoods in riparian areas. Swainson's hawk is a migrant in San Diego County in the spring and fall (Unitt 1984). A springtime migration route for Swainson hawks, turkey vultures, and other raptors was discovered about five years ago. A hawkwatch site was established in Borrego Valley and has operated since 2003, utilizing standardized count methods. Totals ranging from 2,300 to 5,200 Swainson's hawks were recorded between 2003 and 2005. Night roost locations have also been identified in Borrego Valley (Cohen and Jorgensen 2006).

The migration count site is twenty miles east of the nearest BLM-administered lands in the Planning Area, but the entire east edge of the Peninsular Ranges is most likely

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utilized as a flyway. The flight path of these hawks is not well known, but it is logical to assume that the birds fly over Table Mountain, the In-Ko-Pah Mountains, and the Sawtooth Mountains during migration. Incidental observations have detected smaller numbers of Swainson's hawks migrating through the San Felipe Valley in both spring and fall. This area is bordered by public lands in the San Felipe Hills and the Banner Canyon area.

Food items include caterpillars, grasshoppers, crickets, mice, rabbits, lizards, frogs, toads, and occasionally game birds (Alsop 2001). The main threat to Swainson's hawk populations is pesticide use in agricultural fields.

3.7.2.3 Laguna Mountains Aster

Laguna Mountains aster was listed as Rare Plant in 1979 by the State of California (2005). This biennial to perennial plant in the sunflower family (Asteraceae) has stout grayish stems that grow to three feet tall and blooms with large blue-purple flowers in July and August (Hickman 1993, Munz 1974). Habitat for Laguna Mountains aster is in lower coniferous forest and cismontane woodlands between 2600 and 8000 feet elevation (CNPS 2001); on Mount Laguna it occurs in relatively open Jeffrey pine (*Pinus jeffreyi*) forest on coarse sandy loam soil (Reiser 2001). It is reported in San Diego County and Baja California, Mexico (CNPS 2001), although reports from Baja California are not verified (Reiser 2001). In San Diego County, it is reported from the Mount Laguna area and near Jacumba (State of California 2006). This species may be threatened by grazing and recreational activities (CNPS 2001). It is not known from BLM-administered lands in the Planning Area and is unlikely to occur.

3.7.3 BLM Sensitive Species

BLM sensitive plant species identified in the Planning Area are Jacumba milk-vetch (*Astragalus douglasii* var. *perstrictus*), delicate clarkia (*Clarkia delicata*), Tecate tarplant (*Deinandra floribunda*), Laguna Mountains alumroot (*Heuchera brevistaminea*), San Diego sunflower (*Hulsea californica*), mountain springs bush lupine (*Lupinus excubitus* var. *medius*), southern jewelflower (*Streptanthus campestris*), and Parry's tetracoccus (*Tetracoccus dioicus*). BLM sensitive wildlife species identified within the Planning Area are chuckwalla (*Sauromalus obesus*), gray vireo (*Vireo vicinior*), small-footed myotis (*Myotis ciliolabrum*), long-eared myotis (*Myotis evotis*), and Townsends's western big-eared bat (*Plecotus townsendii*) (see Table 3-4).

3.7.3.1 Jacumba Milkvetch

Jacumba milkvetch is a perennial herb in the Fabaceae family that inhabits chaparral and montane woodlands between 2,900 and 4,500 feet (CNPS 2001).

3.7.3.2 Delicate Clarkia

Delicate clarkia is an annual herb in the Onagraceae family that inhabits chaparral and montane woodlands between 750 and 3,200 feet in elevation. It is threatened by development and road widening (CNPS 2001).

3.7.3.3 Tecate Tarplant

Tecate tarplant is an annual herb in the Asteraceae family. It blooms from August to October and can be found in chaparral and coastal scrub habitat ranging in elevation from 200 to 4,000 feet. Tecate tarplant is threatened by development (CNPS 2001).

3.7.3.4 Laguna Mountains Alumroot

Laguna Mountains alumroot is a perennial rhizomatous herb that blooms from April to September. It inhabits broadleaved upland forests, chaparral, montane woodlands, and riparian scrub habitats from 4,400 to 6,500 feet in elevation. There are no identified threats for this species; however, it is known from fewer than ten occurrences, which indicates a vulnerability to loss (CNPS 2001).

3.7.3.5 San Diego Sunflower

San Diego sunflower is a perennial herb in the Asteraceae family that blooms from April to June. It can be found in chaparral and lower montane coniferous forest habitats from elevations of 3,000 to 9,500 feet. This species is threatened by the spread of invasive weed species (CNPS 2001).

3.7.3.6 Mountain Springs Bush Lupine

Mountain springs bush lupine is a shrub that inhabits pinyon and juniper woodlands, as well as Sonoran desert scrub habitats. It is a member of the Fabaceae family. It is normally found in areas with elevation ranging from 1,400 feet above sea level up to 4,500 feet above sea level. Mountain springs bush lupine may be threatened by vehicles (CNPS 2001).

3.6.3.7 Southern Jewelflower

Southern jewelflower is a perennial herb in the Brassicaceae family that blooms from May to July. It inhabits chaparral, lower montane coniferous forest, and pinyon and juniper woodland habitats ranging in elevation from 2,900 to 7,500 feet. There are no identified threats to this species; however, it is known in California from fewer than twenty occurrences, which indicates a vulnerability to loss (CNPS, 2001).

3.7.3.8 Parry's Tetracoccus

Parry's tetracoccus is a deciduous shrub in the Euphorbiaceae family that blooms from April to May. It can be found in chaparral and coastal scrub habitats ranging in elevation from 500 to 3,300 feet. This species is threatened by agriculture and development (CNPS, 2001).

3.7.3.9 Gray Vireo

Gray vireos breed in chaparral and pinyon–juniper woodland habitats in the mountains of southern California. They depend on dense stands of mature chamise or redshank (Calpif 2004). It is the rarest breeding bird of the chaparral habitat of San Diego County (Unitt 2004). The southern population of the vireo is most dense south of Laguna Mountain near Buckman Springs; scattered individuals have been found in McCain Valley near Sacatone Springs. Historical range data are incomplete, but it is suspected that brown-headed cowbird nest parasitism has limited the vireo to large, undisturbed tracts of mature chaparral, away from cowbird foraging habitat. Because gray vireo populations are so localized, they are very susceptible to fire. The vireo is likely to avoid low chaparral from frequent fires; likewise catastrophic fires resulting from fire suppression can also eliminate large tracts of habitat (Unitt 2004). This species is known to occur on BLM-administered lands in the Planning Area.

3.7.3.10 Small-footed Myotis

Small-footed myotis (*Myotis leibii*) is the smallest member of the genus *Myotis*, barely reaching 3 inches (76 mm) in length and having a wingspan of less than 9 inches (229 mm). As its name implies, in addition to being small, this bat has especially small feet relative to its body size. Small-footed myotis use a variety of roost sites throughout the year. In winter, most are found in caves but many may occur in rock shelters and fissures in cliffs, and there are several records of them using old mines and quarries (Bat Conservation International 2006). They are usually found singly, wedged back into a recessed area in the rock. Despite their small size, these bats seem to prefer cold sites that reach temperatures just above freezing as hibernation sites. The small-footed myotis is an insectivore, and will often feed near forest edges. Sometimes the small-footed myotis will catch insects with a pouch-like compartment in its tail membrane (Bat Conservation International 2006). This species is known to occur on BLM-administered lands within the Planning Area (San Diego Natural History Museum 2006).

3.7.3.11 Long-eared Myotis

Long-eared myotis (*Myotis evotis*) are found predominantly in coniferous forests, typically only at higher elevations in southern areas (between 7,000 and 8,500 feet). They roost in tree cavities and beneath exfoliating bark in both living trees and dead snags. Long-eared myotis capture prey in flight, but also glean stationary insects from foliage or the ground. Their main diet appears to consist of moths (Bat Conservation International 2006). This species is suspected to occur on BLM-administered lands within the Planning Area.

3.7.3.12 Townsend's Western Big-eared Bat

The Townsend's western big-eared bat occurs in the coastal regions of California. It is found in a variety of communities including coastal conifer and broadleaf woodlands, grasslands, deserts, and meadows. Throughout most of its geographic range, it is most common in mesic sites (Kunz and Martin 1982; Williams 1986). In San Diego County, the Townsend's western big-eared bat is most commonly found in the foothills and mountain canyon areas in oak woodland, pine-oak woodland, juniper woodland, and chaparral habitats. Townsend's western big-eared bat roosts in caves, mines, tunnels, buildings, or other human-made structures and may use different locations as day roosts, night roosts, maternity roosts, and for hibernation. Their diet consists mainly of small moths, but they also will prey upon beetles and soft-bodied insects (Harris 1983). The decline of the Townsend's western big-eared bat is attributed to roost abandonment brought on by human activities. This species is known to occur on BLM-administered lands within the Planning Area.

3.7 Special Status Species

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3.8 Wildland Fire Ecology and Management

When the Planning Area Fire Management Plan (FMP) was approved in 1981, fire management objectives and strategies were not given much consideration. The document fails to give any attention to fire management issues other than the use of prescribed fire for range and wildlife habitat improvement.

The current FMP for the California Desert District (CDD) was developed in 1998. The FMP was designed around a “fire management zone” (FMZ) concept based on distinct vegetation communities and the strategies for fire suppression within each of those fuel types. The intent was that Land Use Plans decisions for resource protection would be the driving factor to identify objectives and constraints for fire suppression activities.

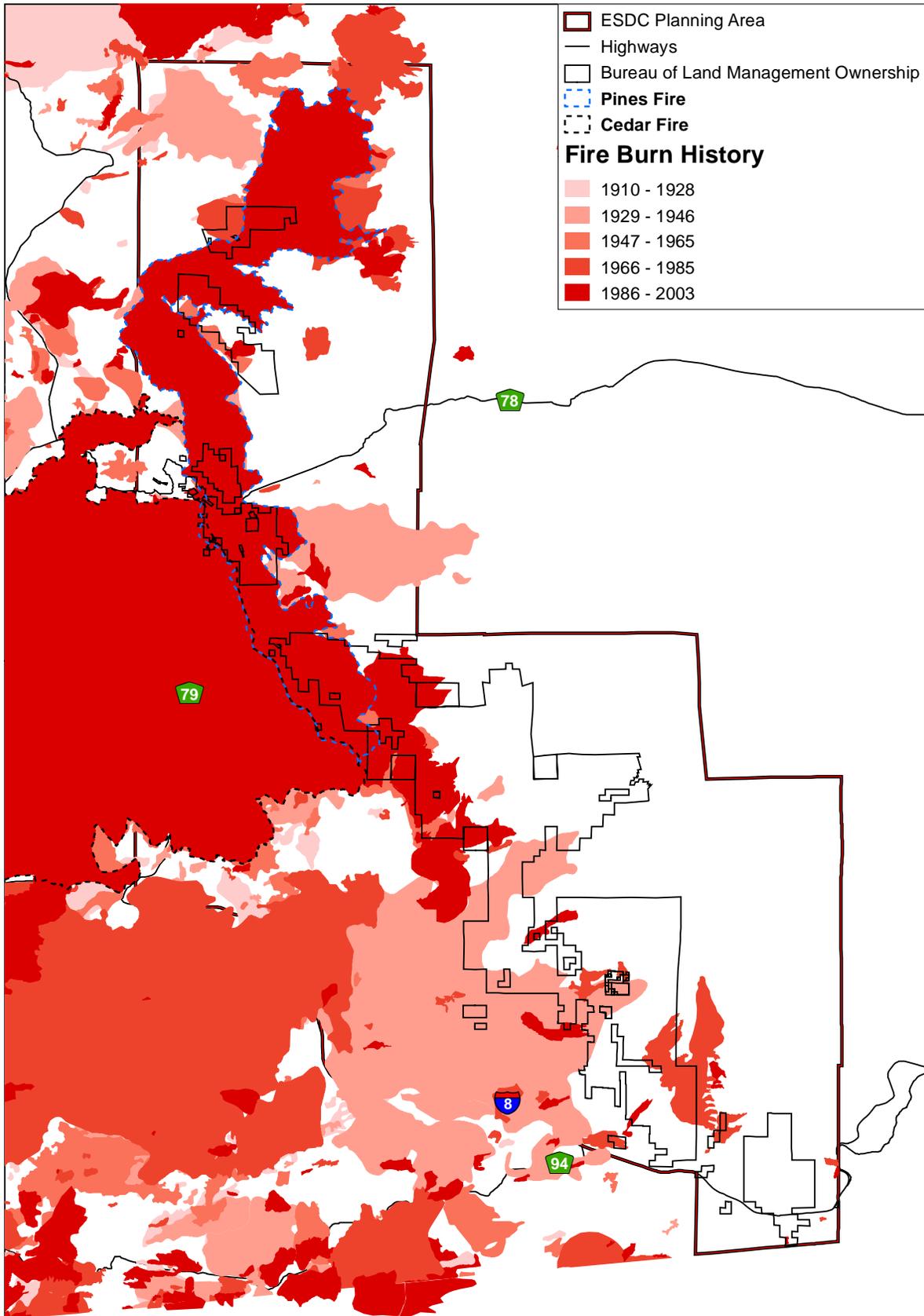
The FMP categorized Planning Area as FMZ 6, which is a California Department of Forestry (CDF) Direct Protection Area (DPA). This means that CDF is the primary fire protection agency for BLM-administered lands in the Planning Area. Their aggressive fire policy objective is to suppress all vegetation fires of 10 acres or less upon initial attack, based on “assets at risk analysis” which favors protection of structures in the urban interface. CDF and BLM operate under a Cooperative Fire Protection Plan which states that CDF is to consider BLM’s resource protection standards to select the least cost/least damaging suppression strategy. On all vegetation fires within the Planning Area, BLM is required to send a resource advisor to work directly with the CDF incident commander to ensure resource values are fully protected or at least mitigated.

The Planning Area is situated in a transition zone between two highly flammable fuel types (chamise/semi-desert chaparral and desert scrub communities). Combined with a scattered heavy grass component and dry climatic conditions, this fuel type is characterized by extreme fire behavior potential throughout most of the year. The potential for large fire occurrence is a constant threat for private communities in the area. Past fire history has shown that vegetation fires that become well-established in the heavier chaparral fuel types under strong west wind conditions can usually make significant runs down into the desert canyons. An example was the Pines Fire in 2002. It was the largest west-wind driven fire in San Diego County history, at the time, and consumed over 61,000 acres, burning numerous homes in Julian and Ranchita, and 15,000 acres of BLM land. A trend in fire starts due to increased urbanization along the Interstate 8 corridor, in McCain Valley and the Julian/Banner Grade area is a major concern to fire agencies. The mountain ranges in eastern San Diego County are

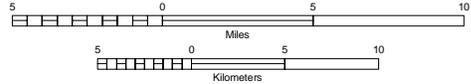
3.8 Wildland Fire Ecology and Management

continually hit with lightning during the summer months when monsoonal flows move up from Mexico. Figure 3-8 shows the fire burn history within the Planning Area including the location of the Pines Fire.

The BLM and CDF have recently developed fuels treatment plans along travel corridors and adjacent to communities in McCain Valley and Julian. Both agencies work together under Community Wildfire Protection Plans (CWPP) to collaborate with private landowners for a protection strategy for the wildfire.



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FIGURE 3-8: Fire Burn History

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3.8 Wildland Fire Ecology and Management

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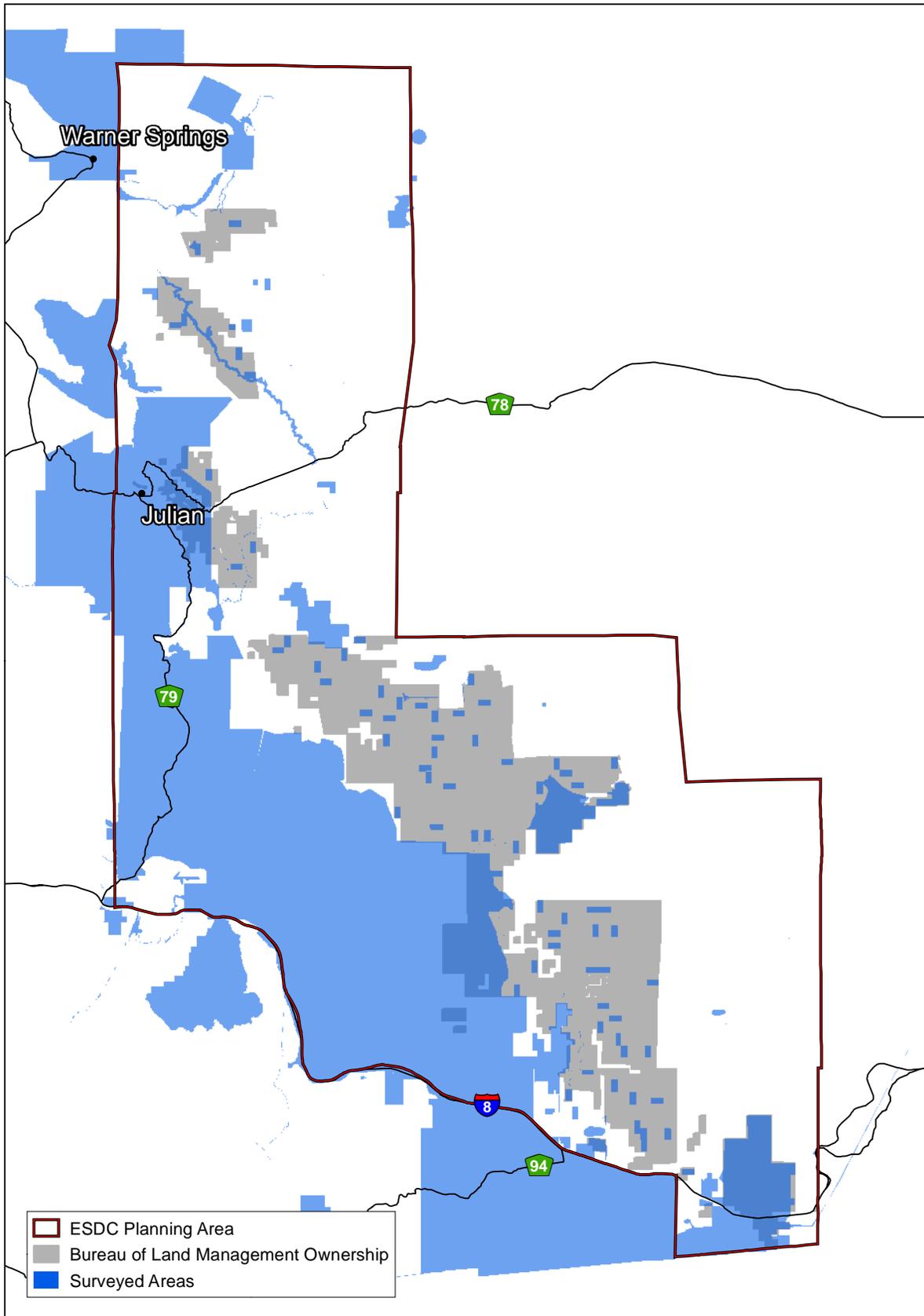
3.9 Cultural Resources

Figure 3-9 depicts areas within the Planning Area that have been surveyed for cultural resources. It shows that most of the Planning Area has not been surveyed. It is likely that there are numerous sites in this area that have not been identified. Table 3-5 summarizes the cultural resources recorded within the entire Planning Area. Appendix G provides more detail on the recorded cultural resources identified on the BLM-administered lands within the Planning Area in terms of site characteristics, date of recordation, and National Register of Historic Places eligibility status.

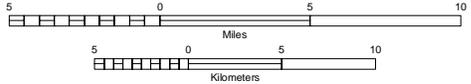
**TABLE 3-5
SUMMARY OF CULTURAL RESOURCES WITHIN THE PLANNING AREA**

Site Attributes	BLM Total Sites (653)*	CA Dept. of Parks & Rec. Total Sites (1,588)*	Cleveland National Forest Total Sites (259)*	Local Government Total Sites (2)*	Other Total Sites (1122)*
Bedrock milling	243	889	219	2	524
Ceramic	318	523	107	1	383
Lithic	363	494	122	0	482
Ground Stone	149	267	42	0	159
Cairn	31	43	1	0	23
Rock Ring	6	53	2	0	21
Rock Shelter	90	85	7	0	44
Rock Alignment	11	22	5	0	16
Cleared Circle	1	72	0	0	2
Rock Art	22	32	1	0	6
Hearth	187	301	3	0	136
House pit	2	29	5	0	5
Human Remains	9	13	3	0	6
Historic	33	137	20	0	111
Other	57	119	5	0	59

* Some sites have multiple attributes and thus may be counted more than once in the table.



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FIGURE 3-9: Areas Surveyed for Cultural Resources

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3.9.1 Site Significance

Under the NHPA, site significance and eligibility to the NRHP need to be evaluated in terms of a historic context that identifies geographic area, period of significance, historical themes or research questions, and Native American values. The historical context describes significant broad patterns of prehistory or history based on cultural themes and their geographical and chronological context. Site-specific contexts should include time period of occupation, identification of occupants, and function. Historic themes may include agriculture, transportation, ranching, mining, exploration, and the military. Prehistoric themes may include settlement system, economy, spirituality, and so on. Native American land use areas of concern may include rock art, cremation sites, and traditional cultural areas. Traditional cultural areas include traditions, beliefs, lifeways, arts, crafts, and social institutions of any community, not just Native American communities (Parker and King 1998; Parker 1985). The historical context is sometimes used to generate research questions needed to evaluate individual sites.

All sites identified within the BLM-administered lands should be evaluated for eligibility for inclusion to the NRHP. Eligibility is based on the following: “The quality of significance in American history, architecture, archeology, engineering, and culture is present in districts, sites, buildings, structures, and objects that possess integrity of location, design, setting, materials, workmanship, feeling, and association; and:

- A) that are associated with events that have made a significant contribution to the road patterns of our history; or
- B) that are associated with the lives of persons significant in our past; or
- C) that embody of distinctive characteristics of a type, period, or method of construction, or representation of the work of a master, or that possess high artistic values, or that represent a significant and distinguishable entity whose components may lack individual distinction; or
- D) that have yielded, or may be likely to yield, information important in prehistory or history.”

(36 CFR 60.4)

3.9 Cultural Resources

A NRHP eligible site must meet one or more of the above criteria and have integrity appropriate to the criteria. In most cases, prehistoric sites qualify under Criterion D; Historic Period properties often qualify for listing under Criterion A, B, or C. Integrity varies in terms of the criterion under which the site is evaluated. For example, an archaeological site evaluated under Criterion D would need to have the potential to provide meaningful scientific research data. If the site has been disturbed or damaged to the extent it cannot do this, it would lack integrity. Historic buildings, on the other hand, typically need to be in their original location and be relatively unmodified or restorable to have integrity under Criterion A, B, or C.

Under special consideration, some heritage resources not otherwise eligible may be considered eligible. These include religious properties, moved properties, birthplaces and graves, cemeteries, reconstructed properties, commemorative properties, and properties less than 50 years old. These special considerations include:

- a) A religious property deriving primary significance from architectural or artistic distinction or historical importance; or
- b) A building or structure removed from its original location but which is significant primarily for architectural value, or which is the surviving structure most importantly associated with a historic person or event; or
- c) A birthplace or grave of a historical figure of outstanding importance if there is no appropriate site or building directly associated with his productive life; or
- d) A cemetery which derives its primary significance from graves of persons of transcendent importance, from age, from distinctive design features, or from association with historic events; or
- e) A reconstructed building when accurately executed in a suitable environment and presented in a dignified manner as part of a restoration master plan, and when no other building or structure with the same association has survived; or
- f) A property primarily commemorative in intent if design, age, tradition, or symbolic value has invested it with its own exceptional significance; or
- g) A property achieving significance within the past 50 years, if it is of exceptional importance.

Prehistoric and historic resources should be evaluated in order to:

- a) Determine site or structure type, appropriate criteria of eligibility and level of integrity so that an appropriate treatment plan can be developed;
- b) Determine the horizontal and vertical surface extent of each site, as well as information regarding internal variability; and
- c) Determine, which sites are significant and warrant protection and consideration in the planning process.

Until site significance is determined, all prehistoric and historic resources on BLM-administered lands should be managed under the assumption that they are eligible for the NRHP. A preliminary level of significance may be assigned for a site based on surface observations. Confirmed level of significance is assigned, when the appropriate evaluation program, e.g., such as surface artifact collection or subsurface testing, has been completed. Evaluation of historic structures and historic archaeological sites typically requires archival research, including a literature review and historic maps (see Parker 1985).

3.9.2 Prehistoric Context

The prehistory of eastern San Diego County, California may be divided into four major temporal periods: Early Man, Paleoamerican, Archaic, and Late Prehistoric. These time periods have regional expression through various regional archaeological complexes or archaeological cultures. These time periods and archaeological complexes are outlined below.

3.9.2.1 Early Man

A very early time of human occupation is posited for the Greater Southwest. The archaeological complex associated with this time frame is called the Malpais Complex. The term Malpais was first coined by Malcolm Rogers to refer to very heavily patinated and weathered artifacts that he reasoned were quite old. Rogers later dropped the term and reclassified these materials as San Dieguito I (Rogers 1939). The term was later resurrected by Julian Hayden to refer to assemblages of very heavily varnished choppers, scrapers, and other core-based tools typically found on old desert pavement

3.9 Cultural Resources

areas. Malpais materials are posited to predate the San Dieguito materials and some scholars argue for a date as old as 50,000 years before present (B.P.)(Hayden 1976).

3.9.2.2 Paleoamerican Period

The earliest part of the Paleoamerican Period in the region is occupied by the Fluted Point Tradition. The Fluted Point Tradition in the far West contains many of the artifact types found in the assemblage of the San Dieguito/Lake Mojave Complex: flaked stone crescents, graters, perforators, scrapers, and choppers (Moratto 1984:93). Fluted Point Tradition sites are typically found along fossil streams and lakeshores in California. While Fluted Point sites are associated with big-game hunting on the Great Plains and Southwest, in California, they appear to be generalized hunting and gathering sites (Moratto 1984:81).

The San Dieguito-Lake Mojave Complex is thought to have existed approximately 10,000 to 7,000 years ago during a time of greater effective moisture than the present in southeastern California (Warren and Crabtree 1986). The assemblage consists of heavy percussion, core and flake-based tools: domed and keeled choppers, planes, and scrapers. One also finds light-percussion flaked spokeshaves, flaked-stone crescentics, and leaf-shaped projectile points. In the Mojave Desert, one also finds the distinctive Lake Mojave and Silver Lake stemmed projectile points. Fluted points are also occasionally found on Lake Mojave-San Dieguito surface sites (Moratto 1984).

3.9.2.3 Archaic Period

The Archaic period is characterized by two archaeological complexes. The earliest is the Pinto complex (7000 to 4000 B.P.); the other is known as the Amargosa or Gypsum complex (4000 to 1500 B.P.).

Beginning with the Pinto complex, there is an apparent shift to a more generalized economy and a gradually increased emphasis on the exploitation of plant resources. Metates are frequently found for the first time in the cultural sequence (Amsden 1935:33). The groundstone artifacts associated with this complex are typically thin slabs with smooth, nearly flat, highly polished surfaces. They do not have the distinct basin typical of somewhat later times (Amsden 1935:33). Projectile points are still relatively abundant in the Pinto complex suggesting a continued dependence on big game

hunting. The mixed core-based tool assemblage of the Pinto complex may indicate a range of adaptations to a more diversified set of plant and animal resources brought about by a generalized desiccating trend in the West, occasionally punctuated by more mesic times.

The following Gypsum complex is characterized by the presence of fine, pressure-flaked Elko and Humboldt series and Gypsum-type projectile points. The assemblage also contains leaf-shaped points; rectangular-based knives; flake scrapers; T-shaped drills; and occasional large scraper-planes, choppers, and hammerstones. Manos and basin metates become relatively common and the mortar and pestle were introduced late in the complex (Warren 1984:416). The fluorescence of tool types and the refinement of milling equipment suggest a more generalized and effective adaptation to desert conditions in the Greater Southwest. From the Great Basin and the Mojave Desert, one finds pictographs of mountain sheep and rabbits and especially in the Grand Canyon area, one there are spit-twig figurines of mountain sheep suggesting a widespread hunting ritual complex from these times.

3.9.2.4 Late Prehistoric Period

The Late Prehistoric period in the Colorado Desert begins at approximately 1500 B.P. (A.D. 500) and is referred to as the Patayan Pattern. Along the southern California coast, the period is characterized by the Cuyamaca Complex. They are closely related. Both are characterized by marked changes in economic and settlement systems. Paddle and anvil pottery was introduced, probably from Mexico by way of the Hohokam culture of the middle Gila River area (Schroeder 1975, 1979; Rogers 1945). Along the Colorado River a shift from hunting and gathering to floodplain horticulture took place in this period. Smaller projectile points occur, heralding the appearance of the bow and arrow at about 1300 B.P. (A.D. 700) (Heizer and Hester 1978). During this period, burial practices also shifted from inhumations to cremations. Other culture traits generally associated with this period include increasingly elaborate kinship systems; increased rock art, including the famous geoglyphs or ground figures found along the Colorado River; and expanded trading networks (Warren 1984). The greatly increased number of Late Period archaeological sites suggests an expansion of population.

3.9.3 Ethnographic Context

The people whose traditional territory occurred, at least in part, within the Planning Area include the Cahuilla, the Kumeyaay, and the Luiseño. Short descriptions of their individual ethnographic context are outlined below.

3.9.3.1 The Cahuilla

Traditional Cahuilla territory encompassed the northern portion of the Planning Area. Their territory covered the northern half of the Salton Sink, from the vicinity of the Riverside/Imperial County line northwest to the vicinity of Riverside. It encompassed the San Jacinto, Santa Rosa, and Orocopia Mountains, the southwestern slope of the San Bernardino Mountains, and the northeastern foothills of the Palomar Mountains (Bean 1978:575-576; Kroeber 1925:693-694). The Cahuilla language belongs to the Cupan subgroup of the Takic family of the Uto-Aztecan Stock (Bean 1978:575; Shipley 1978).

The Cahuilla consist of three subgroups: the Mountain, the Pass (or Western), and the Desert divisions (Bean 1972; Hooper 1920:316; James 1960; Strong 1929). The Desert Cahuilla lived in the Lower Sonoran Life Zone, an arid environment ranging from foothill areas of about 3,500 feet to below sea level near the northern shore of the Salton Sea (Bean and Saubel 1972:11-12; Hooper 1920:316). Oral tradition seems to suggest that some of these people migrated to the desert from foothill and mountain areas (Strong 1929:38). Legends also tell of a time of flooding of the entire Salton Sink, which drove their ancestors up into the mountains. This was probably what we now call Lake Cahuilla (Strong 1929:37). After the lake dried up, the Desert Cahuilla moved back down to their present localities (Strong 1929:37).

Permanent villages were located in places that provided convenient access to water and subsistence resources (Bean 1972:73, 1978:575; Bean and Saubel 1972; Strong 1929:38,43). Settlements would have to be moved from time to time because of changes in water availability, flash floods, or intergroup strife (Bean 1972:35,78; Strong 1929:38). Cahuilla subsistence focused on gathering plant foods. The most important desert subsistence plants included cactus fruits, palm dates, agave root, seeds from sages, grasses and other plants, and the pods of screwbean and mesquite. Stalks and heads of agave were harvested in spring. Baked in rock-lined pits, agave was highly nutritious and had a sweet taste reminiscent of molasses (James 1960:57). Screwbean and mesquite pods, the most important staples, were harvested in late summer (Hooper 1920:356). Acorns were harvested in fall. The preferred species, black oak (*Quercus*

kellogii), was called *qwinyily*. In southern California, it grows from about 3,000 feet to 8,000 feet in elevation. Acorns were dried, then ground in stone mortars, sometimes with basketry hoppers. To leach the bitter tannic acid out, meal was placed in large shallow baskets and warm water was repeatedly poured over it.

Hunting contributed to the diet in a minor way. It was focused on small game, primarily rabbits. These were taken with bow and arrow or rabbit stick (*macana*). Bows were made of mesquite or desert willow. Arrows were made of carrizo or wood. Some were tipped with stone points for hunting big game (Hooper 1920:358-359; James 1960:58; Kroeber 1908:58). Deer and bighorn sheep were taken by stalking and the use of hunting blinds.

Cahuilla cosmology like that of other southern California Shoshoneans, focused on a concept that would translate as knowledge/power/energy. It was called in Cahuilla *ava* (Bean 1972:161, 1978:582). This *ava* was in itself, neither good nor evil, but it was unstable, so that one had to exercise caution in somewhat unpredictable cosmic and natural environments. People have *ava*, and so do many plants, animals, and other natural phenomena like wind, stars, springs, and mountains. One could acquire more *ava* by respecting tradition; leading a careful, orderly life; and conducting ritual properly. Many natural places contain spirit beings. These are active participants in traditional Cahuilla life. Special places such as springs, certain mountains, certain rocks, etc. have special spiritual significance (Bean 1972:170).

3.9.3.2 The Kumeyaay

It is useful to think of the Kumeyaay as three closely related groups based on differences in dialects and environment (Langdon 1970, 1975; Luomala 1978; Spier 1923) and geography (Barker 1976; Gifford 1931). These are the northern Kumeyaay or Ipai, the southern Kumeyaay or Tipai, and the Desert Kumeyaay or Kamia. The northern and southern Kumeyaay were subjugated by the Franciscan missionaries and Spanish imperial forces at San Diego, so they were formerly known as Diegueño. They occupied mountain and coastal areas of what is now San Diego County. The term Kamia, like Kumeyaay, has been used to refer to all three divisions (e.g., Forbes 1965) but now is most commonly used to refer only to the desert division. Traditional Ipai-Tipai territory extended over the southern two-thirds of San Diego County, from Agua Hedionda (south of Carlsbad) south to some 20 miles below Ensenada, Baja California Norte. On the west, their territory started at the Pacific Ocean and extended to the mountains of the Peninsular Range and into the desert just beyond (Cline 1984; Gifford 1931:1-2; Spier

3.9 Cultural Resources

1923:298). Most of the Planning Area is in traditional Tipai territory. Ipai territory was north of a line from northern San Diego Bay that extended east-northeast, passed just south of the community of Julian through Banner. From there it followed approximately where Highway 78 is today and ended near San Felipe Creek (Luomala 1978:593). The Ipai, Tipai, and Kamia speak languages of the Yuman family of the Hokan stock. These languages are very closely related to Quechan and other River Yuman languages (Shipley 1978).

Subsistence for mountain and valley people focused on gathering plant foods. Acorns were particularly important. These became ripe in September and fell to the ground in October (Luomala 1978:600; Spier 1923:334). They were stored until February at which time they were dry enough to pound into meal. Seeds from sages, grasses, and other plants were also dietary staples. Agave (mescal) was also an important food found along the arid eastern slopes of the Peninsular Range. Hunting contributed to the diet in a minor way. It was focused on small game, primarily rabbits. These were taken with bow and arrow or rabbit stick (*macana*). Hunting of large game was somewhat less important, with deer and bighorn sheep taken on occasion.

Some Kumeyaay lived in two seasonal settlements during the year. For example, the *Kwamai* (or *Kwaaymii*) clan spent their summers in the Laguna Mountains and their winters in the desert to the east a few miles (viz. Mason Valley, Vallecito Creek, Carrizo Creek)(Cline 1984:12-19; Spier 1923:306). This bi-polar settlement system did not occur in the southern portion of the Planning Area, e.g., Jacumba, Manzanita, Campo, where the terrain consists of chaparral-covered hills rather than distinct mountain and desert environments.

People residing in the Peninsular Mountains (e.g., the *Kwamai*) would often travel to Kamia villages in Imperial Valley to trade (Cline 1984; Gifford 1931; Spier 1923). Coastal groups traded salt, dried seafood, dried greens, and abalone shells to inland and desert groups for products such as acorns, agave, mesquite beans, and gourds (Almstedt 1982:10; Cuero 1970:33; Luomala 1978:602).

The Kumeyaay consisted of autonomous bands; they had no tribal organization, tribal name, or band names. People identified themselves by clan names (which were also the surnames of clan women) and by places that clans traditionally occupied (Cline 1984; Luomala 1978; Spier 1923).

3.9.3.3 The Luiseño

Traditional Luiseño territory covered the northern one third of San Diego County. This was north of a line from Agua Hedionda on the coast running east-northeast passing north of Lake Henshaw and continuing along the east fork of the San Luis Rey River.. East of Cañada Aguanga, the Planning Area is in Cahuilla territory. The Luiseño are the most southwesterly of the Shoshonean or Uto-Aztecan speakers. They are members of the Takic branch of this large language family. Takic, after the word for person, also includes Cahuilla, previously discussed and a number of other tribes in southern California (Bean and Smith 1978:588; Kroeber 1925; Shipley 1978; Sparkman 1908:189; Strong 1929:274).

The Luiseño lived in semi-sedentary, politically autonomous villages or rancherías. Most rancherías were the seat of a clan, although it is thought that aboriginally some clans lived at more than one ranchería and some rancherías contained more than one clan. The most basic social and economic unit among the Luiseño was the patrilocal extended family. The extended family unit is still important today, even in the face of massive social and economic change. Within the family, there was a basic division of labor based upon gender and age, but it was not rigid. Women made pottery, basketry, gathered plant resources, ground seeds and acorns, prepared meals, and so on. Men hunted, fished, helped collect and carry acorns and other heavy tasks, and made tools for the hunt. Old women were active in teaching and caring for children while younger women were busy with other tasks. Older men were involved in politics; ceremonial life; teaching young men; and making nets, stone tools, and ceremonial paraphernalia (Bean and Shipek 1978:555).

Their settlement system typically consisted of two or more seasonal villages with temporary camps radiating away from these central places. Padre Boscana writing at San Juan Capistrano in 1813, describe the bipolar settlement system: "In the winter they resided in one place, and in summer in another. This was general among them, excepting in the case of those tribes located on the sea coast who seldom moved because their maintenance was derived from the sea." (Hanna [Boscana 1813] 1933:65).

A wide range of tools were made of locally available and imported materials. A simple shoulder-height bow was utilized for hunting. Arrows had either fire-hardened wood or flaked stone points. Numerous other flaked stone tools were made including scrapers, choppers, flake-based cutting tools, and biface knives. Preferred stone types were

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locally available metavolcanics, cherts, and quartz. Obsidian was imported from the deserts to the north and east.

Groundstone objects include mortars and pestles typically made of locally available, fine-grained granite. Simple basin metates and cobble manos were also used for grinding grass seeds and other items. Shaped trough metates were not known until the arrival of the Spanish. Mortars and pestles were primarily used for processing acorns (Kroeber 1925:653; Sparkman 1908:208).

As previously described, acorns, the most important staple among inland groups, are quite bitter with tannic acid, and must go through a labor-intensive leaching/grinding process before they can be eaten. Game was a major source of protein. In addition, animals provided sinew and bone for tools, skins and, in particular, rabbit fur for blankets. Among groups right along the coast, seafood was a major protein source (Bean and Shipek 1978; White 1963). Deer were both stalked and driven. Small game was taken with a curved throwing stick (the Spanish term *macana* is often used); nets were utilized for rabbit drives. Deadfall and spring-pole traps were utilized for small game as well (Bean and Shipek 1978; Sparkman 1908).

3.9.4 Historic Context

The first Spanish exploration of southern California began when Alarcón sailed up the Colorado River, probably to the confluence of the Gila or the Yuma area in August of 1540 (Forbes 1965:88). In September 1540, Melchior Diaz marched from Sonora, Mexico, to the confluence of the Colorado and Gila Rivers (Lawton 1976:46). Cabrillo sailed up the Pacific coast in 1542 and discovered San Diego Bay, which he called San Miguel. In 1605, Juan de Oñate, the governor of New Mexico, reached the Colorado River by way of the Bill Williams Fork about 15 miles north of present-day Parker. He proceeded south and reached the vicinity of Yuma. Almost a century later, the Jesuit Father Eusebio Kino left Sonora to visit the Yuma area in 1701 and returned to Yuma in 1702.

In 1769, the first European settlement of Alta California occurred with the founding of the mission and presidio at San Diego. Plans were made for a chain of other missions in Alta California, so an overland route linking Sonora with Alta California took on imperial significance. The Franciscan Padre Francisco Garcés began his first journey from San

Xavier del Bac near Tucson in 1771 following Padre Eusebio Kino's old trail. He explored the Colorado River delta area, then headed north to become the first European to see what we now call the Colorado Desert. Garcés, aware of Juan Bautista de Anza's interest in opening an overland route to Alta California, contacted Anza upon his return (Forbes 1965; Pourade 1971:12-13; Lawton 1976:46).

The Spanish mission system used forced Native American labor to produce goods and provide services needed for European settlement. The mission system introduced horses, cattle, sheep, and agricultural goods and implements and provided new construction methods and architectural styles (Hurtado 1988). Also with the arrival of the Spanish came devastating epidemics and very high death rates. According to available mission records, the worst year was 1806 when a measles epidemic hit southern California. An estimated 33.5 percent of the Indian population along the coast died (Cook 1976:424).

The first Spanish explorer to actually enter the Imperial Valley was Pedro Fages, who rode along the northwestern edge of the Colorado Desert while looking for deserters from San Diego in 1772. This would have been in the Planning Area. It is difficult to trace his route from his account, but he apparently entered the desert on an Indian trail he discovered which led through Oriflamme Canyon to Carrizo Creek and the desert floor (Bolton 1931:214; Lawton 1976:47; Pourade 1961:53-54).

The first Anza expedition (guided by Padre Francisco Garcés) set out from Tubac, Sonora, in January 1774 and arrived at Yuma a month later. Avoiding the Algodones Dunes west of Yuma, the expedition headed south to Laguna de Merced, then west to what is now Imperial Valley west of Signal Peak. Anza's route then went to what he called Santa Rosa de las Lajas (Yuha Spring). From there the expedition continued north and went through what is now the community of Borrego Springs and north to San Gabriel (Forbes 1965). Northwest of Borrego Springs, the Anza route briefly entered the Planning Area. On October 23, 1775, the second Anza expedition set out from Tubac and utilized the same general route through Borrego Springs and went on to found what became San Francisco. Over the next few years, a number of parties of Spanish pioneers utilized this route, but in 1781 the Quechan rose in revolt against the two recently established Spanish settlements near Yuma. Garcés and most of the soldiers and settlers were killed (Forbes 1965:201-205). The route was abandoned. In the 1820s, Mexicans began using the route again, and it became known as the Sonora Road.

3.9 Cultural Resources

In 1782, returning from a failed military campaign to subdue the Quechan after the revolt, Fages again used this trail through Oriflamme Canyon, this time to reach San Diego without having to go around by way of Warner Springs (Pourade 1961:52-54). In 1785, Fages also explored a southern pass through the mountains from Jacumba down to the desert (Forbes 1965:222-224; Pourade 1961:62-54).

In 1823, the route between Yuma and the coast was reopened after a hiatus of 40 years. In 1824-1825, Santiago Arguello discovered a shortcut on the Yuma Route via the Carrizo corridor (Warren *et al.* 1981:85) and Warner's Pass (Wirth Associates, Inc. 1978:84). The route was used as a mail route in the 1820s, and by Mexican immigrants and fur trappers in the 1830s (Wirth Associates, Inc. 1978:84).

Cattle ranching dominated the economy during the Mexican Period and the development of the hide and tallow trade with New England merchant ships increased during the early part of the Mexican Period. Native American communities continued to decline, particularly those close to the coast, while Indians moved to inland areas, such as the Planning Area, to avoid contact with the Californios. However, some Native Americans found jobs as *vaqueros* (buckaroos), laborers, gardeners, and housekeepers. While the nineteenth-century West has been depicted by Hollywood as cowboys versus Indians, in California, the cowboys were the Indians (Rolle 1998:57). Don Juan Warner apparently paid his Cupeño and Luiseño cowboys poorly and subjected them to frequent floggings (National Park Service 2004).

By 1829, U.S. President Andrew Jackson tried unsuccessfully to purchase territories of the American Southwest from Mexico. In the 1830s and 1840s an increasing number of Americans were settling in Texas, California, and other parts of the Southwest, and the United States continued to look with interest on the region. Tensions between Americans and Mexicans grew, and in Texas, there were military skirmishes in the late 1820s and the 1830s until, in 1836, Texas declared its independence. Mexico did not recognize the independence of Texas, and armed disputes continued (Texas State Historical Association 2004).

In February 1846, Texas was annexed by the United States, which ended the Republic of Texas and triggered the Mexican-American War (Texas State Historical Association 2004). Americans in northern California revolted and declared an independent California

Republic. The Republic ended only three weeks later, when U.S. naval forces took Monterey on July 7, 1846.

During the Mexican-American War, American military forces in 1846 to 1847, guided by Kit Carson and commanded by General Stephen Kearney, followed the Yuman Route, going by the Carrizo Corridor and Vallecito (Warren *et al.* 1981:86). When the Mormon Battalion passed through, they widened Box Canyon for wagons (Wirth Associates, Inc. 1978:91). Notwithstanding the considerable military success of the *Californios* in southern California under Andres Pico, brother of the Mexican governor, the California part of the war ended in Los Angeles on January 13, 1848. The military conflict in California was largely irrelevant to the outcome of the war, however. The U.S. military had landed deep in Mexico at Vera Cruz in 1847 and in a few months captured Mexico City. The treaty of Guadalupe Hidalgo was signed on February 2, 1848. Ironically, much of the Spanish and Mexican conquest of the American Southwest had been in fruitless quest of gold. However nine days prior to the signing of the Treaty of Guadalupe Hidalgo, one of the largest discoveries in the world was made in central California, but was kept secret for almost two months.

With the advent of the California Gold Rush in 1849, thousands of gold seekers traveled on the Yuma Route through the Carrizo Corridor, San Felipe Valley, and Warner's Pass and were assisted along the way by U. S. military escorts and temporary camps established at important water sources along the trail. In 1854, the U.S. Army located a supply depot at Vallecito; a relay station for semi-monthly mail service was operated there by Swacaffer and Warnock of San Diego; in 1857, a stop on the San Antonio and San Diego mail line was there; and from 1858 to 1865 a stop on the Butterfield route was located there (Wirth Associates, Inc. 1978:91; Warren and Roske 1981:7-8).

In 1854, the Oriflamme Canyon route pioneered by Pedro Fages in 1772 was used as the main route between San Diego and the east. It was used as a mail route by Swycaffer and Warnock beginning in 1857 and by the San Antonio and San Diego Mail Line also known as the "Jackass" mail," in the same year.

What was known as the Hay Route for Lassiter's Ranch in Vallecito was constructed to climb rugged Oriflamme Canyon between Vallecito and Mason Valley to the west. Hay for stagecoach and wagon teams was thus available for Lassiter's station on the

3.9 Cultural Resources

Butterfield Stage Route. The Hay Route extends west from the trail between Box Canyon and Mason Valley, which is also the so-called "Jackass Mail Route".

Another branch of the Yuma Route went to San Diego via Mountain Springs. In 1873, a military telegraph line was installed from San Diego to Fort Yuma running through Mountains Springs paralleling a pack route which had been in use since 1851. A military road was constructed parallel with the telegraph road. Warren and Roske (1981:9) provided information which indicates the telegraph line and two routes went through the Table Mountain ACEC.

Small ranches were established throughout the eastern mountains of San Diego County beginning in the late-1860s. During this period Native Americans produced a significant proportion of San Diego County's total agricultural output. They also contributed much of the labor on the ranches and farms (Wirth and Associates, Inc. 1978:94).

The first McCain Ranch was established in 1868. Although predominantly cattle ranchers, the McCains also produced grain for feed and dairy products to supply the Julian Gold Rush (ASM, Affiliates 1985:85). The arid climate of eastern San Diego County necessitated that cattle be wintered in Mason Valley, Vallecito, and Canebreak Canyon, and driven up the mountains of Cuyamaca and Laguna in the summer months. James Mason, Chatham Helm, and Paul Sentenac settled during the 1880s and engaged almost exclusively in cattle ranching. Other cattle ranchers were Ralph Benton, Archie Chillwell, Bert Moore, and Sam Thing. Native American trails over the mountains were the routes used for taking cattle into the Colorado Desert (Wirth Associates, Inc. 1978:105). The Taylor Grazing Act of 1934 authorized leasing of public land for grazing, and Robert Crawford leased public lands in Canebrake Canyon (Wirth Associates, Inc. 1978:111).

In 1869 placer gold was discovered at Julian, and in 1870 the first lode mines were discovered there. Some of the mines were owned by corporations, like the Chariot Mining and Milling Corporation. Most of the gold in the Julian and Banner districts was mined between 1870 and 1875, with production peaking in 1872-1873 (Wirth Associates, Inc. 1978: 95). Mining has been practiced sporadically or on a small scale since the major Julian gold rush of the 1870s.

Toll roads were built to improve the transportation of machinery and supplies to the mines. The Wilcox Toll Road was built from Julian to Banner and then extended to San Felipe Valley in 1871. At the same time, a toll road was authorized between San Diego and the Colorado River via Mountain Springs (Wirth Associates, Inc. 1978:95).

Mining for sand and gravel, feldspar, and semi-precious gems were extracted from Table Mountain early in the 20th century and as late as the 1940s.

San Diego and Arizona Railway Company with the aid of Southern Pacific built a connection between San Diego and Yuma via Carrizo Gorge (Jacumba Pass), which was completed in 1919 ending an 11-year construction period. Never a commercial success, the line was washed out by a flash flood in 1976 (Wirth Associates, Inc. 1978:108).

The Small Tract Act of 1938 authorized the sale or lease of not more than five acres of public lands. This legislation resulted in the privatization of small parcels and use of some for retirement communities.

3.9.5 Historically Significant Trails System

There are a number of historic trails within the Planning Area. These include nationally recognized trails that are designated under the National Trails System Act of 1968, as well as other trails that have historic and/or cultural significance. Within the Planning Area, there is one National Scenic Trail, one National Historic Trail, and one National Recreational Trail. In addition, there are two other travel routes/trails of historic and/or cultural significance within the Planning Area that are not part of the National Trails System. These trails are discussed in more detail below.

The Pacific Crest National Scenic Trail. This trail spans 2,650 miles from Mexico to Canada through California, Oregon and Washington. It begins at the Mexican Border near Campo in southeastern San Diego County and enters the Planning Area in the vicinity of Boulder Oaks Campground along Interstate 8. It exits the Planning Area north of Warner Springs and west of the Los Coyotes Indian Reservation in northeastern San Diego County. Through the Planning Area, it passes along the crest of the east San

3.9 Cultural Resources

Diego County mountains through chaparral in the south, and conifer forests in the Mount Laguna and Julian areas. The route was first explored in the late 1930s. Clinton Clarke and Warren Rogers led the effort to secure a border-to-border trail corridor. The trail system was created one piece at a time over the years, largely by hiker and equestrian volunteers. It was only completed in 1993, however, it may qualify for the NRHP because of its history. Approximately 15 miles of the Pacific Crest NST occur on BLM-administered lands within the Planning Area.

Noble Canyon National Recreation Trail. This 10 mile trail begins in the north portion of Pine Valley and proceeds east to Laguna Meadows in the Laguna Mountain Recreation Area of Cleveland National Forest. Portions of the trail were established by miners and ranchers in the late 1800s. The trail is approximately five miles long and occurs completely within the Planning Area. It may be eligible to the NRHP.

The San Diego-San Antonio Mail Route. The mail contract was awarded to the San Diego-San Antonio Mail Company over a southern route linking San Antonio, Texas with San Diego on June 22, 1857. The first mail left San Antonio, Texas on July 9, 1857. The route entered the Planning Area in the south approximately where the community of Ocotillo is today. It went north following the basic route that Highway S-2 uses today. S-2 is also named the Great Southern Overland Stage Route of 1849. At Oriflamme Canyon, the route left S-2 and proceeded up the mountains to Cuyamaca and on to San Diego. The entire route is Passengers dismounted from the stages for this portion of the route and proceeded on to San Diego. The fact that the company used mules to pull its coaches and for its packtrain through Oriflamme Canyon led to the nickname, "Jackass Mail." This little known operation was the first transcontinental mail system.

Cleveland National Forest has a small interpretive display and picnic area commemorating this stage line. Called Pioneer Mail, this area is near in the north of the Mount Laguna Recreation Area on County Road S-1. Portions of this old mail route may be eligible to the NRHP.

The Butterfield Overland Mail Route. A mail contract was awarded to Butterfield Overland Stage Company a few months after the San Diego-San Antonio Mail. The new line was to go through Fort Smith, Arkansas, then southwest through Texas to El Paso, west to Fort Yuma, California and then northwest to San Francisco. Termed the ox bow route, it was longer by some 600 miles than the existing central routes, but only southern routes could be traversed in winter. Butterfield Overland Stage began rolling on

September 15, 1858. The Butterfield followed the Jackass Mail route in the southern portion of the Planning Area. At Oriflamme Canyon, southwest of Julian, the Butterfield stage continued north to Warner Spring and on to Los Angeles, whereas the Jackass Mail went west up Oriflamme Canyon to San Diego.

3.9.6 California Historic Landmarks

The California Historic Landmark (CHL) program is designed to recognize places of California heritage significance with stone monuments and bronze plaques along roadways. CHLs are buildings or sites that have been approved for designation by the local county board of supervisors or city council and recommended by the State Historical Resources Board.

To be eligible for designation as a Historic Landmark, a property must be:

- The first, last, only, or most significant of its type in the state or within a large geographic region (Northern, Central, or Southern California).
- Associated with an individual or group having a profound influence on the history of California.
- A prototype of, or an outstanding example of, a period, style, architectural movement or construction or is one of the more notable works or the best surviving work in a region of a pioneer architect, designer or master builder.

There are eight CHLs in the Planning Area. These are listed below:

Number 304, Vallecito State Station. Originally constructed in 1852, the Vallecito Stage Station was reconstructed in 1934. It was an important stop on the first transcontinental mail route, the San Diego-San Antonio ("Jackass") mail line (1857-1859). The Butterfield Overland Stage Line (1858-1861), and numerous the southern emigrant parties and wagon trains also used this station. This landmark is located at Vallecito Stage Station County Park, on County Road S-2 (Post Mile [P.M.] 34.7), 3.7 miles northwest of Agua Caliente Springs.

Number 412, Town of Julian. Following the discovery of gold nearby during the winter of 1869-70, this valley became the commercial and social center of a thriving mining district. Ex-Confederate soldier Drury D. Batley laid out the town on his farmland and named it for his cousin and fellow native of Georgia, Michael S. Julian. By 1906 most mines were unprofitable. Since then the area has become a prosperous tourist destination. There are two historic landmarks commemorating the town of Julian. A private one is located in Julian Memorial Park, at the intersection of Washington and Fourth Streets. The official California Historic Landmark Number 412 is in front of the Julian Town Hall.

Number 472, Box Canyon. The old pack trail, known as the Sonora, Colorado River, or Southern Emigrant Trail and later as the Butterfield Overland Mail Route, traversed Box Canyon in the desert east of Oriflamme Canyon and the Cuyamaca Mountains. On January 19, 1847, the Mormon Battalion under the command of Lieutenant Colonel Philip St. G. Cooke, using hand tools, chiseled a passage through the rocky walls of the narrow gorge for their wagons and opened the first wagon road into southern California. This landmark is located on County Road S-2 (P.M. 25.7), 8.6 miles south of State Highway 78, in Anza-Borrego Desert State Park.

Number 634, El Vado. This landmark is on the de Anza route opened by Captain Juan Bautista de Anza and Father Francisco Garcés in 1774. Anza's expedition of 1775, a group of 240 soldiers and settlers coming from Sonora to found San Francisco, encamped near El Vado (The Ford) for three days and two nights, December 20-22, 1775. This landmark is located six miles northwest of Borrego Springs on Borrego Springs Road, in Anza -Borrego Desert State Park.

Number 647, Butterfield Overland Mail Route (Blair Valley). This pass, called La Puerta, lies between the desert and the cooler valleys to the north. It was an old Indian trail, used later by the Mormon Battalion, Kearny's Army of the West, the Butterfield Overland Mail stages (1858-1861), and numerous emigrants who eventually settled California. This landmark is located at Blair Valley, 0.5 miles east of County Road S-2 (P.M. 23.0), 5.8 mi S of State Highway 78, in Anza-Borrego Desert State Park.

Number 785, Santa Catarina. This spring was named by Captain Juan Bautista de Anza when his overland exploration party camped here on March 14, 1774, on the journey that opened the Anza Trail from Sonora into Alta California. Anza's colonizing

expedition of 1775, consisting of 240 persons and over 800 head of livestock, camped here the night of December 23. This landmark is located at Santa Catarina Springs, 10 miles northwest of Borrego Springs, in Anza-Borrego Desert State Park.

Number 793, San Felipe Valley and Stage Station. Several ancient travel routes of Kamia, Cahuilla, Kumeyaay, and Luiseño Indians and their predecessors intersected near here. Working for the Butterfield Stage Line, Warren F. Hall built and operated the San Felipe Stage Station in this vicinity. After the Butterfield line ceased operation on the southern route in 1861, the station was used by Banning Stages and by the military during the Civil War. This landmark is located on County Highway S-2 (P.M. 15.9), 0.9 miles northwest of intersection of State Highway 78, near Anza-Borrego Desert State Park.

Number 858, Pedro Fages Trail. On October 29, 1772, headed east from San Diego in search of army deserters, Colonel Pedro Fages made the first entry by a European into Oriflamme Canyon. From there, Fages and his men traveled north through Cajón Pass, and on to the southern San Joaquin Valley. The trail through Oriflamme Canyon was used by the “Jackass Mail” in 1857. This landmark is located 1.7 miles southeast on Sunrise Highway (County Road S-1, P.M. 36) from intersection with Highway 79 (P.M. 14.5), 8 miles southeast of Julian.

3.9 Cultural Resources

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3.10 Paleontological Resources

Paleontological resources are the fossilized evidence of past life found in the geologic record. Despite the tremendous volume of sedimentary rock deposits preserved worldwide and the enormous number of organisms that have lived through time, preservation of plant or animal remains as fossils is an extremely rare occurrence. Because of the infrequency of fossil preservation, fossils—particularly vertebrate fossils—are considered to be nonrenewable resources. Because of their rarity and because of the scientific information they can provide, fossils are highly significant records of ancient life. They can provide information about the interrelationships of living organisms, their ancestry, development, and change through time, and their former distribution. Progressive morphologic changes observed in fossil lineages may provide critical information on the evolutionary process itself—that is, the ways in which new species arise and adapt to changing environmental circumstances. Fossils can also serve as important guides to the ages of the rocks and sediments in which they are contained and may prove useful in determining the temporal relationships of rock deposits from one area to another and the timing of geologic events. Time scales established by fossils provide chronologic frameworks for geologic studies of all kinds.

All lands within the Planning Area are classified, as follows, based on their potential to contain vertebrate fossils or noteworthy occurrences of invertebrate or plant fossils. These classifications are based on existing maps.

Class 1 (low sensitivity). Igneous and metamorphic geologic units and sedimentary geologic units where vertebrate fossils or uncommon non-vertebrate fossils are unlikely to occur.

Class 2 (moderate sensitivity). Sedimentary geologic units that are known to contain or have unknown potential to contain fossils that vary in significance, abundance, and predictable occurrence.

Class 3 (moderate sensitivity). Areas where geologic units are known to contain fossils, but have little or no risk of human-caused adverse impacts and/or low risk of natural degradation, or because of their geographic location or topographic position.

3.10 Paleontological Resources

Class 4 (high sensitivity). Areas where geologic units regularly and predictably contain vertebrate fossils and/or uncommon non-vertebrate fossils, and are at risk of natural degradation and/or human-caused adverse impacts.

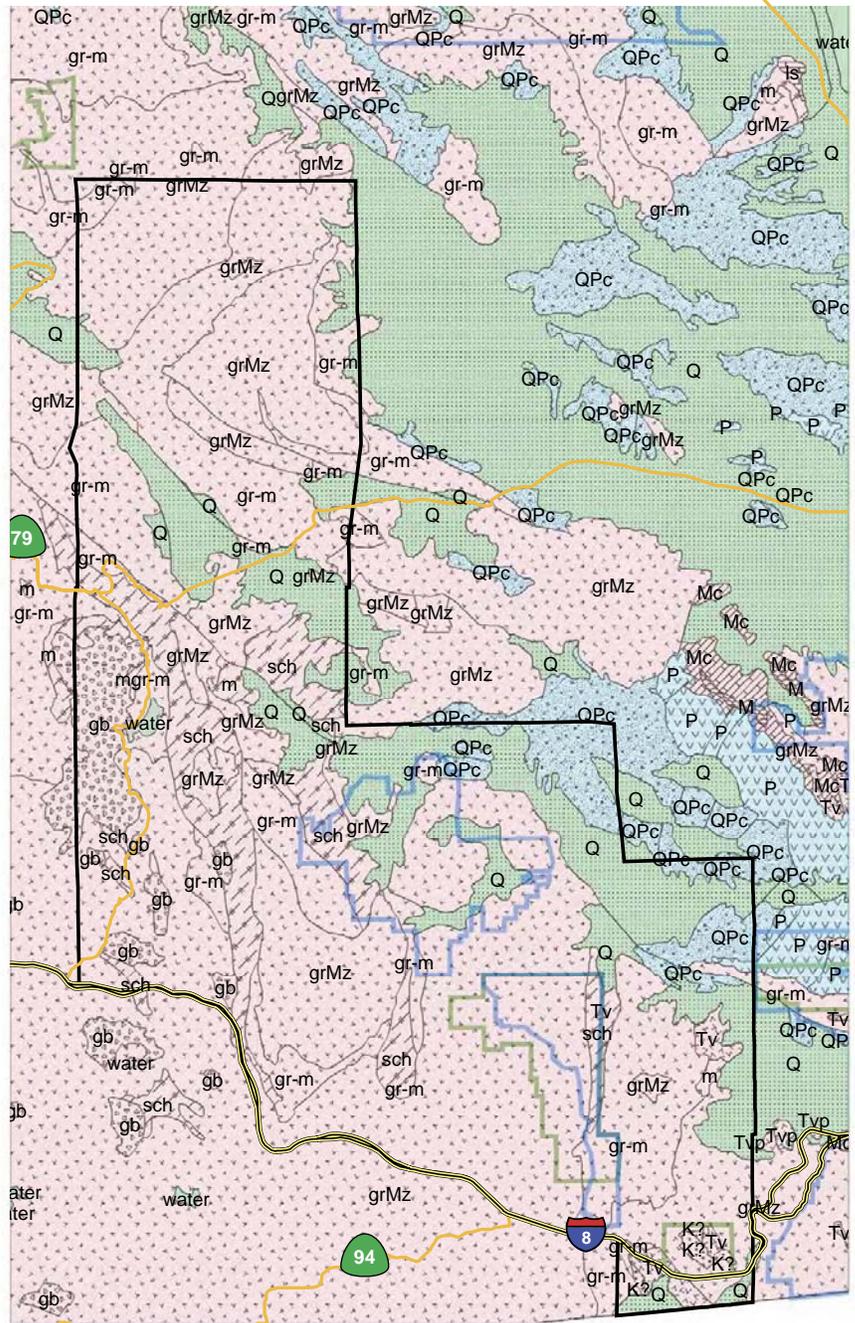
Table 3-6 summarizes the acreages of Class 2 and 3 lands. Figure 3-10 shows the paleontological resources in the Planning Area. Classes 1 through 3 occur in the Planning Area, with most of the Class 2 and 3 areas located on state-owned lands.

Within the Planning Area are several rock units having high probability of paleontological resource occurrence, several rock units having moderate probability of paleontological occurrence, and several rock units having low probability of paleontological resource occurrence. The majority of the units having high probability of paleontological resource occurrence occur on State Parks land and BLM designated wilderness. Therefore, although the occurrence for resources is high, there is little or no risk of human-caused adverse impacts, and these units are mapped as Class 3 (moderate sensitivity). Similarly, units having moderate and low probability of paleontological resource occurrence are mapped as Classes 2 and 1, respectively.

**TABLE 3-6
PALEONTOLOGIC SENSITIVITY**

Land Division/Ownership	Lands with Class 3 Sensitivity (Acres)	Lands with Class 2 Sensitivity (Acres)
Planning Area	20,561	85,969
BLM-Administered	349	11,367
ACEC	0	15
Wilderness	348	9,676
Private	4	25,765
State	20,207	48,797
Other Federal	0	0

Class 3 formations: QPc, P
Class 2 formation: Q



- Eastern San Diego Planning Bound
- BLM Wilderness
- BLM ACECs
- Faults

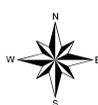
Paleontological Resource Sensitivity

- Class 1 (low sensitivity).** Igneous and metamorphic geologic units and sedimentary geologic units where vertebrate fossils or uncommon non-vertebrate fossils are unlikely to occur.
- Class 2 (moderate sensitivity).** Sedimentary geologic units that are known to contain or have unknown potential to contain fossils that vary in significance, abundance, and predictable occurrence.
- Class 3 (moderate sensitivity).** Areas where geologic units are known to contain fossils, but have little or no risk of human-caused adverse impacts and/or low risk of natural degradation, or because of their geographic location or topographic position.

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NO SCALE

FIGURE 3-10: Paleontological Resources



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3.10 Paleontological Resources

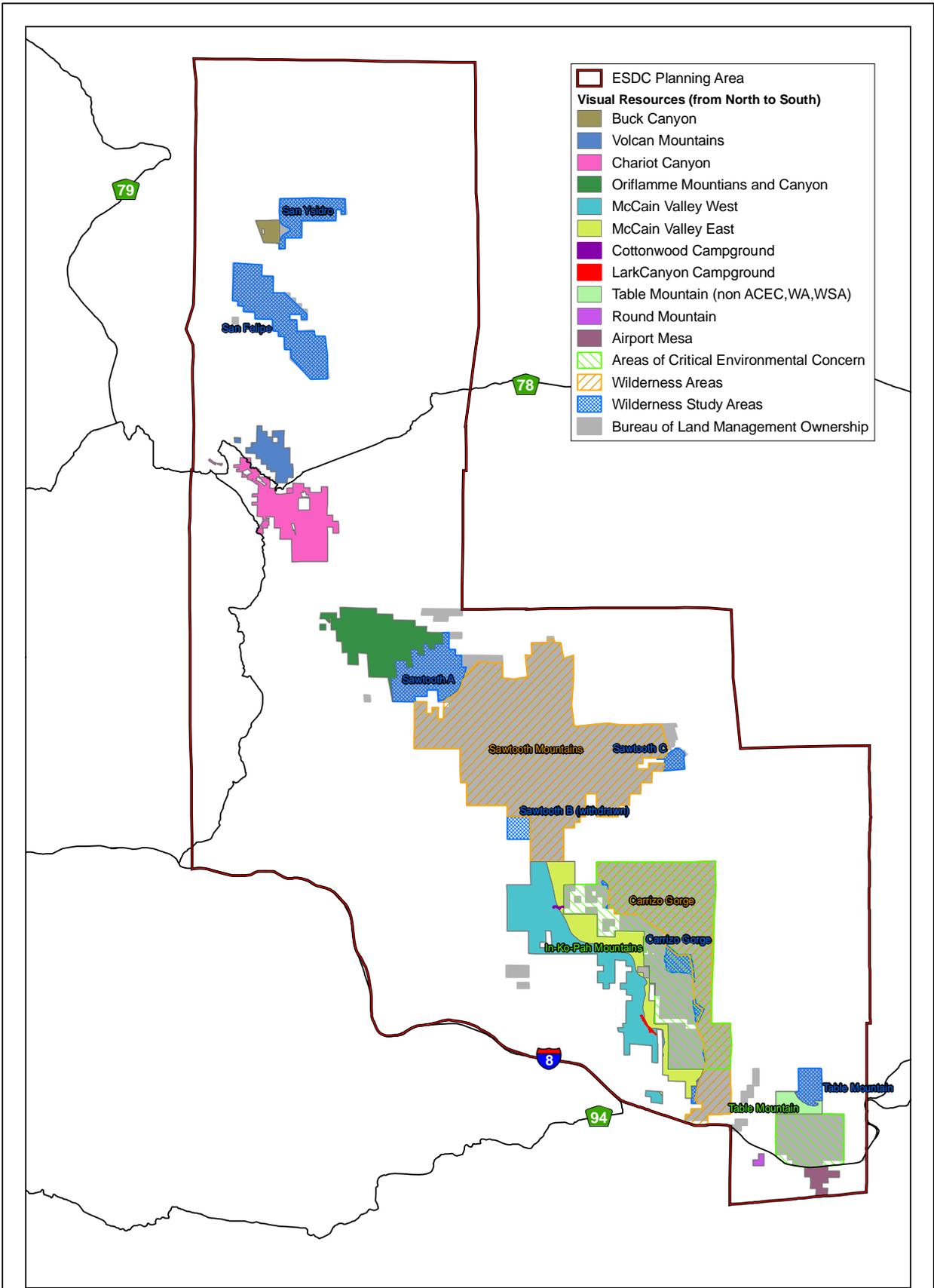
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3.11 Visual Resources

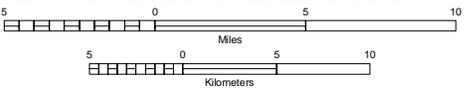
The Federal Land Policy and Management Act of 1976 (FLPMA) requires BLM to protect the quality of scenic values on public lands (43 U.S.C. 1701). BLM has developed an analytical process that identifies, sets, and meets objectives for maintaining scenic values and visual quality. The Visual Resource Management (VRM) system functions in two ways. First, BLM conducts an inventory that evaluates visual resources on all lands under its jurisdiction (Inventory/Evaluation). Once inventoried and analyzed, lands are given relative visual ratings (Management Classifications). Class designations are derived from an analysis of Scenic Quality (rated by landform, vegetation, water, color, influence of adjacent scenery, scarcity, and cultural modification), a determination of Viewer Sensitivity Levels (sensitivity of people to changes in the landscape), and Distance Zones (visual quality of a landscape, as well as user reaction, may be magnified or diminished by the visibility of the landscape). Management Classes describe the different degrees of modification allowed to the basic elements of the landscape (form, line, color, texture). Classes are defined as follows:

- **Class I.** To preserve the existing character of the landscape. The level of change to the characteristic landscape should be very low and must not attract attention.
- **Class II.** To retain the existing character of the landscape. The level of change to the characteristic landscape should be low.
- **Class III.** To partially retain the existing character of the landscape. The level of change to the characteristic landscape should be moderate.
- **Class IV.** To provide for management activities that require major modification of the existing character of the landscape. The level of change to the characteristic landscape can be high.

Under the existing management situation the two WAs are managed as VRM Class I. Similarly, and in accordance with 2000 IM 2000-096, the five WSAs are managed as Class I. Most other BLM-administered lands in the Planning Area are currently managed as Class II. Two areas (Buck Canyon and an area north of the Sawtooth Mountains Wilderness Area) are currently managed as Class III Existing Visual Resources are shown in Figure 3-11. The visual resource management classification process included an identification of landscape character, an assessment of scenic quality, a visual sensitivity evaluation, identification of KOPs, the identification of cultural modifications in the landscape, and an evaluation of the effects of those modifications on character and



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FIGURE 3-11: Visual Resources

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quality. The trend in scenic quality was relatively stable and unchanging in terms of landscape character and scenic quality. This was ascribed to the amount of rough terrain throughout the Planning Area, coupled with lack of water, which were seen to be hindrances to development. However, OHV use had been increasing and the resulting effects were seen to be proliferating in the McCain Valley area and were expected to continue to increase. Much of this visual resource assessment work was done in 1979 (DOI BLM 1979).

In the past twenty-five years, OHV and other visitor use has increased and the degree of cultural modification (particularly surface area disturbance) has been observed to increase. ECFO determined that the scenic quality of certain areas may have been reduced as a result of the cultural modifications. The five areas for which a VRM re-evaluation was considered warranted as part of this DRMP/EIS process include Buck Canyon in the San Ysidro Mountains, San Felipe Hills WSA, Volcan Mountains and Chariot Canyon, McCain Valley (including the Lark Canyon OHV Use Area and the Cottonwood Campground), and Airport Mesa, south of Table Mountain. A brief discussion of these areas follows.

Buck Canyon, San Ysidro Mountains. This area is located to the west/southwest of the San Ysidro WSA. It was classified by the MFP as Class III. Rugged terrain restricts casual use and its use for OHV is limited. Scenic quality is high. The existing character of the landscape is mostly retained and the level of visual contrast is moderate to low. The low level of surface disturbance and this area's adjacency to the San Ysidro WSA (Class I) are valid reasons for reconsideration of this area's management as VRM Class II rather than III.

San Felipe Hills WSA. This set of hills is located south of Buck Canyon and the San Ysidro Mountains WSA. Although the MFP Visual Resource Management Map did not assign a VRM Class to this area, as a WSA it would be managed as Class I.

Volcan Mountains and Chariot Canyon. These areas are located near the Town of Julian, to the north and south of Banner Canyon Road. They were classified by the MFP as VRM Class II. Scenic quality is moderate to high, and very minimal impact (i.e., surface disturbance or other visual contrast) is visible from primary viewing routes. Existing conditions warrant retention of the Class II designation.

McCain Valley (including Lark Canyon OHV Use Area and the Cottonwood Campground). The entire land area of McCain Valley, which is located north of I-8 and west of the Carrizo Gorge Wilderness, was classified by the MFP as Class II. The increased use of this area for OHV use and camping warrant reconsideration of its VRM classification. The level of surface disturbance, loss of vegetative cover and resulting visual contrast are valid reasons for reclassifying the highest use areas as VRM Class III.

Airport Mesa. This area is located south of Interstate Highway 8 and the Table Mountain area, in the southeastern portion of the Planning Area. The MFP classified this area as Class II. (The townsite of Jacumba, which is not under BLM management or administration, was identified as VRM Class III.) Reclassification as III or IV may be warranted for several reasons. This area abuts the International Border and portions of it receive moderate to heavy vehicular and other traffic associated with U.S. Border Patrol and other law enforcement activities that are not expected to decrease in the near future.

The alternative classifications of these and other areas within the Planning Area would vary by Alternative, and are described in Chapters 2 and 4.

3.12 Special Designations

Figure 3-12 shows the Special Designations in the Planning Area.

3.12.1 Wilderness Areas

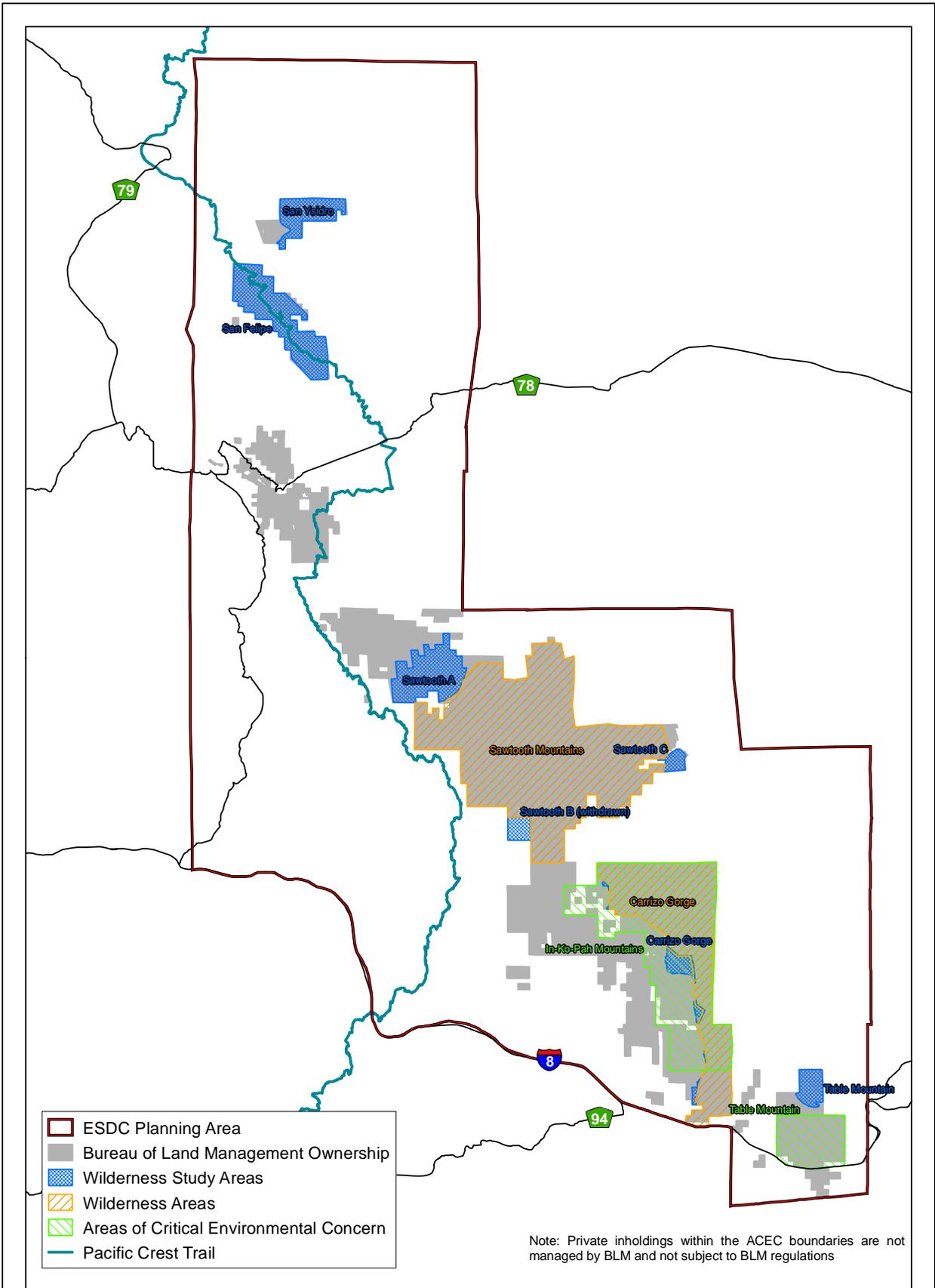
WAs are congressionally designated. BLM manages designated wilderness areas within the Planning Area consistent with the California Desert Protection Act (CDPA) of 1994, the administrative instruments (regulations, policies, etc.) from that statute, and other applicable federal statutes. These instruments identified management direction for these lands with respect to specific uses that may occur within wilderness, as well as overall goals for lands designated. Of particular importance is the clear Congressional intent that wilderness designations not lead to the creation of “buffer zones” around wilderness boundaries. In and of themselves, non-wilderness activities visible or audible from wilderness are not to be precluded up to such boundaries. The FLPMA management standard for WAs is that there is no unnecessary or undue degradation, which is largely defined by the CDPA and Wilderness Act.

The Planning Area contains two designated WAs administered by the BLM. Carrizo Gorge Wilderness and Sawtooth Mountains Wilderness total approximately 48,333 acres.

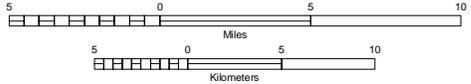
Travel in WAs is limited to foot or equestrian conveyance. Motorized vehicles, bicycles, or any other form of mechanized equipment are prohibited in these areas to protect the solitude and primitive nature of these special places.

3.12.1.1 Carrizo Gorge Wilderness

The Carrizo Gorge Wilderness is located in the southeastern portion of the Planning Area on the lower east slope of the In-ko-pah Mountains. The watershed drains into the contiguous Anza-Borrego State Park to the north and east. The boundary on the west crosses several drainages and is difficult to locate on the ground. The wilderness area is approximately 15,700 acres and is located on the Jacumba, Sombrero Peak, and Sweeney Pass 7.5-minute quadrangle maps prepared by USGS. The legal description of this wilderness area is in Appendix H.



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FIGURE 3-12: Special Designations

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Wilderness Values:

- Naturalness. The area has few developments, most of which are associated with grazing use. The area as a whole provides a sense of natural undeveloped lands. Unauthorized and inappropriate OHV use continues to be a problem on the northeast boundary.
- Solitude. The rugged terrain provides limited vistas to the northwest and south east and panoramic vistas to the east over remote portions of Anza-Borrego State Park.
- Primitive Recreation. The area is lightly used for recreation, in conjunction with use in Anza-Borrego State Park.

3.12.1.2 Sawtooth Mountains Wilderness

The Sawtooth Mountains Wilderness is located in the central portion of the Planning Area on the northeast slope below and contiguous to the Cleveland National Forest. The boundary is well defined and easy to locate on the ground. The wilderness area is approximately 35,080 acres and is located on the Agua Caliente Springs, Monument Peak, and Mount Laguna 7.5-minute quadrangle maps prepared by USGS. The legal description of this wilderness area is in Appendix H.

Wilderness Values

- Naturalness. The area has few developments, most of which are associated with grazing use. The area as a whole provides a sense of natural undeveloped lands.
- Solitude. The isolation of the area from developed lands and the many deep washes provides a sense of spaciousness and isolation.
- Primitive Recreation. The area is lightly used for recreation, primarily due to lack of public access. While arduous, there is some primitive recreation use from McCain Valley to the south.

3.12.2 Wilderness Study Areas

BLM manages designated WSAs within the Planning Area consistent with the CDPA of 1994, the administrative instruments (regulations, policies, etc.) from that statute, and other applicable federal statutes.

3.12 Special Designations

The Planning Area contains five WSAs administered by the BLM. Table Mountain WSA, Carrizo Gorge WSA, Sawtooth Mountains “A” WSA, Sawtooth Mountains “C” WSA, San Felipe Hills WSA, and San Ysidro WSA total approximately 13,963 acres.

The five WSAs were administratively identified under the authority of sec 603[a] or 201/202 of FLPMA in the December 1979 “Final Intensive Inventory—Public Land administered by BLM CA Outside of the CDCA.” Subsequently, portions of two [Carrizo Gorge and Sawtooth Mountains] of those five WSAs and Public Land outside of those WSAs were designated by the California Desert Protection Act of 1994 as wilderness. However, that Act did not release the residual portions of those two WSAs from the non-impairment management standard. For convenience, those residual portions of the WSAs are referred to as WSAs by the same name. FLPMA mandates that WSAs should be managed so that there is no unnecessary or undue degradation AND no impairment of their suitability for preservation as wilderness.

3.12.2.1 Sawtooth Mountains WSA (A)

This is the most distinct of the residual WSAs. The Sawtooth Mountains WSA (A) is located approximately 35 miles south of Borrego Springs. It is separated from the Sawtooth Mountains WSA (B) by a road and private land (DOI BLM 1990b). The WSA is approximately 3,883 acres. A portion of the WSA is contiguous to the Cleveland National Forest on the west. The boundary is well defined and easy to locate on the ground.

Wilderness Values:

- Naturalness. The area has virtually no developments and would appear natural to a visitor.
- Solitude. The isolation of the area from developed lands and the rugged terrain form the main ridge of the Sawtooth Range, which provide surprisingly numerous opportunities for a sense of remoteness. However, periodic military aircraft overflights result in visual and noise intrusions creating periodic temporary effects on solitude.

- Primitive Recreation. The area is lightly used for recreation, primarily due to lack of public access. Most primitive recreation use is probably from hunting or side trips from the Pacific Crest National Scenic Trail of the Cleveland National Forest to the west.

3.12.2.2 Sawtooth Mountains WSA (B)

Sawtooth WSA (B) was transferred to the Cuyapaipe Band of Mission Indians on December 27, 2000 (Public Law 106-568 Title IX California Indian Land Transfer, 114 Statute 2869).

3.12.2.3 Sawtooth Mountains WSA (C)

The Sawtooth Mountains WSA (C) is located approximately 45 miles south of Borrego Springs. This WSA is a narrow strip of land located between Canebrake Road and private property on the north, and Anza-Borrego Desert State Park on the east, south, and west. The wilderness boundary is 30 feet from the centerline of the road in the west and considerably further in the east, so the WSA is as narrow as 30 feet. Nevertheless, it is subject to the non-impairment standard. This is generally not a major concern, due to the small size and limited access along the road. The upper portion of the adjacent road has been closed to motor vehicles; the lower portion of the road is on private property, and provides gated access to residences in Canebrake Canyon. The WSA is approximately 600 acres (DOI BLM 1990b).

Wilderness Values:

- Naturalness. Although the northern boundary coincides with Canebrake Canyon, which contains an improved dirt road, there is almost no evidence of human activity in the WSA. On the south the WSA borders the Anza–Borrego Desert State Park.
- Solitude. Although the area is small, opportunities for solitude exist because of extremely low visitation. However, the proximity of a private residential area, visible from much of the WSA, reduces the perception of remoteness. Periodic military aircraft overflights result in visual and noise intrusions creating periodic temporary effects on solitude.

3.12 Special Designations

- Primitive Recreation. Opportunities are limited, primarily due to lack of legal access by motor vehicle and the small size of the WSA. Most primitive recreation use is probably side trips from the Anza–Borrego Desert State Park.

3.12.2.4 Carrizo Gorge WSA

The Carrizo Gorge WSA is located in southeastern San Diego County. The WSA was approximately 15,408 acres (DOI BLM 1990c) prior to most of it being designated as wilderness. The remaining WSA is approximately 1,012 acres and is composed of several roadless areas contiguous to the western boundary of the Carrizo Gorge Wilderness. The northern and eastern boundaries are Anza–Borrego Desert State Park. The southern boundary is private lands bordering on Interstate 8. The remaining boundaries are generally public or private lands. The very western boundary is irregular and has been drawn to avoid scattered parcels of private property and public lands lacking wilderness characteristics. The WSA contains many of the upper drainages that flow east through the Carrizo Gorge Wilderness and Anza–Borrego Desert State Park.

Wilderness Values:

- Naturalness. The area has virtually no developments; most of the WSA is in pristine condition. The few human imprints within the WSA are located primarily along its western edge, and are substantially unnoticeable within the area as a whole.
- Solitude. Topographic relief, winding canyons, and low level of visitation provide many opportunities for solitude. This is enhanced by the presence of the Carrizo Gorge Wilderness to the east.
- Primitive Recreation. The area offers many opportunities for primitive forms of recreation in conjunction with the Carrizo Gorge Wilderness to the east. Movement within the study area is confined only by the steepness of the terrain and the ability of the recreationist.

3.12.2.5 San Felipe Hills WSA

The San Felipe Hills WSA is approximately 5,325 acres on the ridge of the San Felipe Hills in the northern portion of the Planning Area. The WSA is two miles west of the unincorporated community of Ranchita. The boundary is well defined and easy to locate on the ground (DOI BLM 1990b).

Wilderness Values:

- Naturalness. The dominant characteristic of the WSA is the Pacific Crest NST which runs along the ridge. Motorized vehicles and mountain bikes are not allowed on the Pacific Crest NST. The tread is approximately 3 feet wide. There are bulldozer scars, partially reclaimed, associated with the Pines Fire of 2002. The area as a whole provides a sense of natural undeveloped lands; however, the vistas off of the ridge, particularly to the west, encompass considerable rural development.
- Solitude. There is a sense of spaciousness when traveling the Pacific Crest NST. However, because of the WSA's small size it is difficult to escape outside sights and sounds, which reduce the feeling of remoteness. The area is also periodically overflown by military aircraft.
- Primitive Recreation. The area is lightly used for recreation, almost exclusively along the Pacific Crest NST.

3.12.2.6 San Ysidro Mountain WSA

The WSA is approximately 2,125 acres at the south end of ridge which comprises San Ysidro Mountain. The area is contiguous with Anza-Borrego Desert State Park to the east and Los Coyotes Indian Reservation to the north (DOI BLM 1990b).

Wilderness Values:

- Naturalness. The area consists of the pine forested upper drainages of Cherry and Buck Canyons. While considerable reclamation work has been done in the last two decades (most notably the removal of summer homes in occupancy trespass) there are still has considerable signs of historic mining.
- Solitude. The vegetative cover can provide a sense of remoteness and solitude remarkable for such a small area.
- Primitive Recreation. The area is lightly used for recreation and then almost exclusively for day use.

3.12.2.7 Table Mountain WSA

The Table Mountain WSA is located three miles north of Interstate 8 in southeastern San Diego County. The northern and eastern boundaries are Anza–Borrego Desert State Park. The western boundary is a State section outside of Anza–Borrego Desert State Park. The southern boundary was drawn to exclude those public lands lacking wilderness characteristics. The WSA is approximately 1,018 acres (DOI BLM 1990c).

Wilderness Values:

- Naturalness. The area has virtually no developments; the only evident alterations to the natural environment are a few small, unobtrusive abandoned mining prospects.
- Solitude. Opportunities for solitude are limited by the area's small size and the proximity of roads. The south boundary abuts public land containing a small mine, a quarry, and numerous prospects served by primitive roads which also carry OHV traffic. Periodic military aircraft overflights result in visual and noise intrusions creating periodic temporary effects on solitude. However, solitude can still be found, particularly in the northern third of the WSA which adjoins Anza–Borrego Desert State Park.
- Primitive Recreation. Opportunities for primitive recreation are limited by the area's small size. In conjunction with Anza–Borrego Desert State Park, the area provides recreation opportunities.

3.12.3 National Scenic Trails

The Pacific Crest NST is a congressionally designated trail for hiking and equestrian use. The trail was designated through the National Trails Systems Act (Public Law 90-43; October 2, 1968) and is managed in accordance with a comprehensive plan developed by the USFS (USDA 1982) and a subsequent MOU with the BLM. Approximately 68 miles of the Pacific Crest NST occur in the Planning Area, 15 miles of which occur on BLM-administered lands within Chariot and Rodriguez Canyons and the San Felipe Hills WSA. Motorized vehicles and mountain bikes are not allowed on the Pacific Crest NST. Figure 3-12 depicts the location of the Pacific Crest NST.

3.12.4 Areas of Critical Environmental Concern

The Federal Land Policy and Management Act defines an ACEC as an area within the public lands where special management attention is required to protect and prevent irreparable damage to important historic, cultural, or scenic values; fish and wildlife resources; or other natural systems or processes; or to protect life and safety from natural hazards. Within the Planning Area, there are two ACECs designated for cultural as well as wildlife resource values, Table Mountain ACEC and In-Ko-Pah Mountains ACEC, both of which were designated in 1981 (Table 3-7). Management plans were written for both ACECs in the early 1980s.

**TABLE 3-7
AREAS OF CRITICAL ENVIRONMENTAL CONCERN IN THE PLANNING AREA**

ACEC	Total Acres
In-Ko-Pah	22,186
Table Mountain	4,293

3.12.4.1 In-Ko-Pah ACEC

In-Ko-Pah ACEC, located in southeastern San Diego County, California, was designated by the Eastern San Diego County Management Framework Plan (DOI BLM 1981) in recognition of its wildlife and cultural resource values. The In-Ko-Pah ACEC is 22,186 acres and is composed of both public lands and private land in-holdings. The ACEC abuts the Anza-Borrego Desert State Park to the north and east, and other BLM-managed public lands to the south and west.

Five plant communities are located within the In-Ko-Pah Mountains ACEC: semi-desert chaparral, desert scrub, desert fan palm oasis, desert wash, and riparian woodland. Semi-desert chaparral occurs on 5 to 65-percent slopes between elevations of 2,800 and 5,000 feet. Desert wash areas have very little slope and range from 1,000 to 1,300 feet in elevation. Riparian woodland community occurs specifically within upper Bow Willow Canyon between 3,400 and 5,000 feet in elevation. Desert scrub communities occur from 500 to 1,200 feet in elevation. Fan palm oases occur from 500 to 1,000 feet in elevation.

3.12 Special Designations

The In-Ko-Pah ACEC falls within the ethnographic territory of the Kumeyaay Indians. Native American values within the ACEC are poorly documented.

Relevance. The In-Ko-Pah ACEC contains substantial heritage resources. There are very numerous agave roasting pits and several spectacular habitation sites containing features, ceramics, stone tools, and subsurface deposits. There are an estimated 22 sites per square mile in some areas. Aboriginal rock art sites are reported in the ACEC, although the existence of these pictographs has not been verified. Based on existing records, it appears that many sites within the ACEC are likely eligible for inclusion in the NRHP. The ruggedness of the landscape including precipitous mountainous slopes adds to the scenic value of this ACEC.

The In-Ko-Pah ACEC and adjacent portions of the Anza–Borrego Desert State Park support the Peninsular bighorn sheep, which is listed as threatened by the State of California and as endangered by the USFWS. The southern portion of the In-Ko-Pah Mountains ACEC falls within the quino checkerspot butterfly recovery area. Several other special status plant and wildlife species occur or have the potential to occur within the ACEC.

Importance. The richness of cultural resources present gives the In-Ko-Pah ACEC special worth. Rock art within the ACEC is fragile, sensitive, rare, irreplaceable, and vulnerable to adverse change. Bow Willow and Rockhouse Canyons are likely eligible for inclusion in the NRHP and should be listed. Protection of this area is applicable to FLPMA mandates for natural and cultural resources.

The Peninsular bighorn sheep habitat and other special status species are resources that have more than local significance. The Carrizo Gorge Ewe Group of Peninsular bighorn sheep lives within the In-Ko-Pah ACEC. The Swainson's hawk has also been observed in the ACEC. This species is listed as threatened by the State of California and is known to migrate through the ACEC. Other special status species have the potential to occur in the ACEC including grey vireo, barefoot gecko, least Bell's vireo, and mountain springs bush lupine.

3.12.4.2 Table Mountain ACEC

The Table Mountain ACEC, located in southeastern San Diego County, California, was designated by the Eastern San Diego County Management Framework Plan (DOI BLM 1981) because of its abundant array of cultural resources (DOI BLM 1984). The Table Mountain ACEC is 4,293 acres. The mountain itself holds sacred significance to the Kumeyaay Indians of southern and Baja California. These people also consider other areas within the ACEC sensitive.

The area supports diverse fauna populations. Noteworthy species include the Peninsular bighorn sheep, the golden eagle, and mule deer. Magic gecko and the San Diego horned lizard are also expected. There are historic records of the quino checkerspot butterfly on Table Mountain. Habitat assessments in 2005 and 2006 indicated that there is potential for this species to still occupy the area (DOI BLM 2005d; Osbourne 2006).

The region is relatively pristine except for several roads and sporadic evidence of historic mining. An unobtrusive power line crosses the ACEC and services two communications sites. Several upland game wildlife waters also exist throughout the ACEC.

Current impacts to Table Mountain arise mostly from recreation activity and off-road vehicle travel. The possibility of disturbance from mining activity exists, since several claims are present.

Relevance. The Table Mountain ACEC contains an abundant array of cultural resources suggesting an unparalleled focal point for prehistoric use. The mountain itself holds sacred significance to the Kumeyaay Indians of southern and Baja California. These people also consider other areas within the ACEC sensitive.

There are historic accounts of quino checkerspot butterfly inhabiting the area. The habitat is still suitable, and the entire ACEC is located within the designated recovery area for this species. There are historic and existing golden eagle nest sites within the Table Mountain ACEC. The northern extent of the ACEC includes a portion of the Peninsular Ranges bighorn sheep critical habitat. Several other special status plant and wildlife species occur or have the potential to occur within the ACEC.

3.12 Special Designations

Importance. The Table Mountain ACEC contains distinctive cultural resources. The wealth of prehistoric properties suggests that Table Mountain constituted an unparalleled focal point for prehistoric use. Within this ACEC is a mixture of base camps, temporary camps, quarries, roasting pits, and other aboriginal features. Consequently, Table Mountain archaeology and Native American resources provide an unusual opportunity to enrich the understanding of our prehistoric heritage. A total of 1,796 acres of the ACEC are listed on the NRHP (DOI BLM 1982).

3.13 Public Health and Safety

3.13.1 Abandoned Mines

California has a long and distinguished mining history and a legacy of abandoned mines.

Currently there are at least 48 abandoned or inactive mine openings in the Planning Area. The majority of these sites are located in the vicinity of Julian and McCain Valley.

Several informational brochures regarding abandoned mines have been produced. These publications emphasize the safety hazards associated with abandoned and inactive mines and the precautions that should be utilized around these sites. Abandoned mine hazards include, but are not limited to, open shafts and adits, open pits and quarries, high and steep walls of pits and trenches, potential for the presence of explosives, the presence of contaminated air or gas in underground workings and the presence of unstable buildings or structures. Recommended precautions include, but are not limited to, never working alone around abandoned mines, never entering underground workings or unstable structures, and being aware of snakes and other animals that may live in mine workings.

3.13.2 Hazardous Materials Management

Hazardous materials within the Planning Area consist of materials within municipal and informal dumping sites, and mining-related hazardous materials. Each is described in more detail below.

3.13.2.1. Landfills

Operating, closed, and informal landfills have the potential to cause environmental impacts to BLM-administered land. Chemical leachate from landfills has the potential to contaminate soil and reach surface water or groundwater. Local law enforcement is responsible for enforcing laws and regulations that prohibit illegal dumping in landfills found on lands that are not managed by BLM. The only known landfill near BLM-administered lands within the Planning Area is the Julian Solid Waste Transfer Station. BLM leased the parcel of land to the County of San Diego for use as a public refuse

disposal site in 1968. At that time, refuse disposal at the site was by means of weekly burning of trash confined to metal cages. The cages were then cleaned out and the ashes compacted and covered with soil. When subsequent rulings outlawed burning, the county converted the site to a transfer station where all refuse is deposited into bins and hauled to appropriate facilities. In 1999, the 40-acre site was patented to the County of San Diego under authority of the Recreation and Public Purposes Act of June 14, 1926, as amended and supplemented (43 U.S.C. 869, et seq.).

3.13.2.2 Mining and Milling Waste

Hazardous mining waste consists of mineralized waste rock, ore stockpiles, and mill tailings. Metallic minerals that occur in the rock have the potential to contaminate soil and water down gradient of the mining waste. Mill tailings may contain traces of metals as well as other chemical constituents, such as acids. Further, mine workings and mine dumps containing sulfide mineralization can create acid mine drainage when exposed to oxygen and water. The potential for this type of hazardous material occurs at abandoned mines on and adjacent to BLM administered land. Abandoned mines and associated features and structures, if 50 years old or older, are considered potential historic resources and are subject to provisions of the NHPA and other heritage preservation mandates. There are two historic mines mapped in Buck Canyon in 1979. One is identified as Montezuma Mine and includes a shaft, tailings, concrete foundations, and metal scatter. When mapped, the mine was assumed to have been active within the last eighty years (since the 1900s), although there were no references regarding this mine in the standard San Diego County histories. The other site record included a prospect shaft with a wooden and metal platform covering it and was assumed to have been related to mining activity within the last fifty years (since the 1930s).

3.13.3 Border Issues

The Planning Area has extensive illegal immigration and other International Border issues with Mexico, including transient populations and illegal dumping activities. In conjunction with resource issues, these International Border issues create challenging management decisions for the BLM and cooperating agencies. Undocumented immigrants (UDI) are known to travel through the Planning Area.

3.13.4 Unexploded Ordnance

Although there are no known occurrences within the Planning Area, there is a low potential for UXOs on public lands to be present as a result of military maneuvers. Given the amount of aircraft used on the various military facilities in the Planning Area, there is a low possibility that a military aircraft could crash and be a source of UXO.

3.13 Public Health and Safety

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3.14 Livestock Grazing

BLM's objectives for rangeland management are to carry out the intent of the Taylor Grazing Act of 1934, as amended and supplemented, the Federal Land Policy and Management Act of 1976, and the Public Rangelands Improvement Act of 1978. The objectives are: 1) to periodically and systematically inventory public lands, their resources, and their present and future use projected through land use planning processes; 2) to manage public lands on the basis of multiple use and sustained yield; 3) to manage public lands in a manner that will protect the quality of scientific, scenic, historical, ecological, environmental, air and atmospheric, water resource, and archaeological values; 4) where appropriate, to preserve and protect certain public lands in their natural condition; 5) to provide food and habitat for fish and wildlife and domestic animals; 6) to provide for outdoor recreation and human occupancy and use; and 7) to manage, maintain, and improve the condition of the public rangelands so that they become as productive as feasible for all rangeland values in accordance with management objectives and the land use planning process.

The Code of Federal Regulations (CFR) allow for implementation of the various acts listed above as they relate to livestock grazing on public lands. The regulations in 43 CFR 4100 address grazing administration. These regulations require, among other things, the implementation of standards and guidelines for grazing administration to achieve fundamentals of rangeland health.

The Taylor Grazing Act of 1934 (TGA) provides for two types of authorized use: (1) a grazing permit, which is a document authorizing the use of the public lands within an established grazing district; and (2) a grazing lease, which is a document authorizing the use of the public lands outside an established grazing district. A grazing district is the specific area within which the public lands are administered in accordance with Section 3 of the Taylor Grazing Act. Public lands outside grazing district boundaries are administered in accordance with Section 15 of the TGA.

A permit or lease would include:

1. The number and kind of livestock
2. The period(s) of use

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3. The allotment(s) to be used and
4. The amount of use, in Animal Unit Months (AUMs).

The regulations at 43 CFR 4100 require that permits and leases include terms and conditions that do not preclude BLM from achieving the approved Rangeland Health Standards for the Planning Area.

Other terms and conditions may be specified in grazing permits or leases and their associated site-specific NEPA documents, which would assist in achieving management objectives, provide for proper range management, or assist in the orderly administration of the public rangelands. Some of these terms and conditions, which are not all inclusive, are contained at 43 CFR 4130.3. The other terms and conditions

Terms and conditions for grazing permits and leases must be in conformance with resource and management objectives and program constraints, as identified in land use plans.

BLM allotments in California are classified as Perennial, Ephemeral, or Perennial–Ephemeral. These classifications correspond to the following types of designated rangelands:

- Perennial. Rangeland which consistently produces perennial forage to support a year-round livestock operation.
- Ephemeral. Rangelands that do not consistently produce enough forage to sustain a year-round livestock operation, but may briefly produce unusual volumes of forage to accommodate livestock grazing. There is a Special Rule for Ephemeral Ranges, which is when BLM grants an application for temporary and nonrenewable use, or use on annual or ephemeral ranges. This indicates that BLM has evaluated the merits of the application and has determined that such use would be consistent with achieving resource management objectives specified in land use plans.

- Perennial–Ephemeral. Rangelands which produce perennial forage each year and also periodically provide additional ephemeral vegetation. In a year of abundant moisture and favorable climatic conditions, annual forbs and grasses add materially to the total grazing capacity.

3.14.1 Background

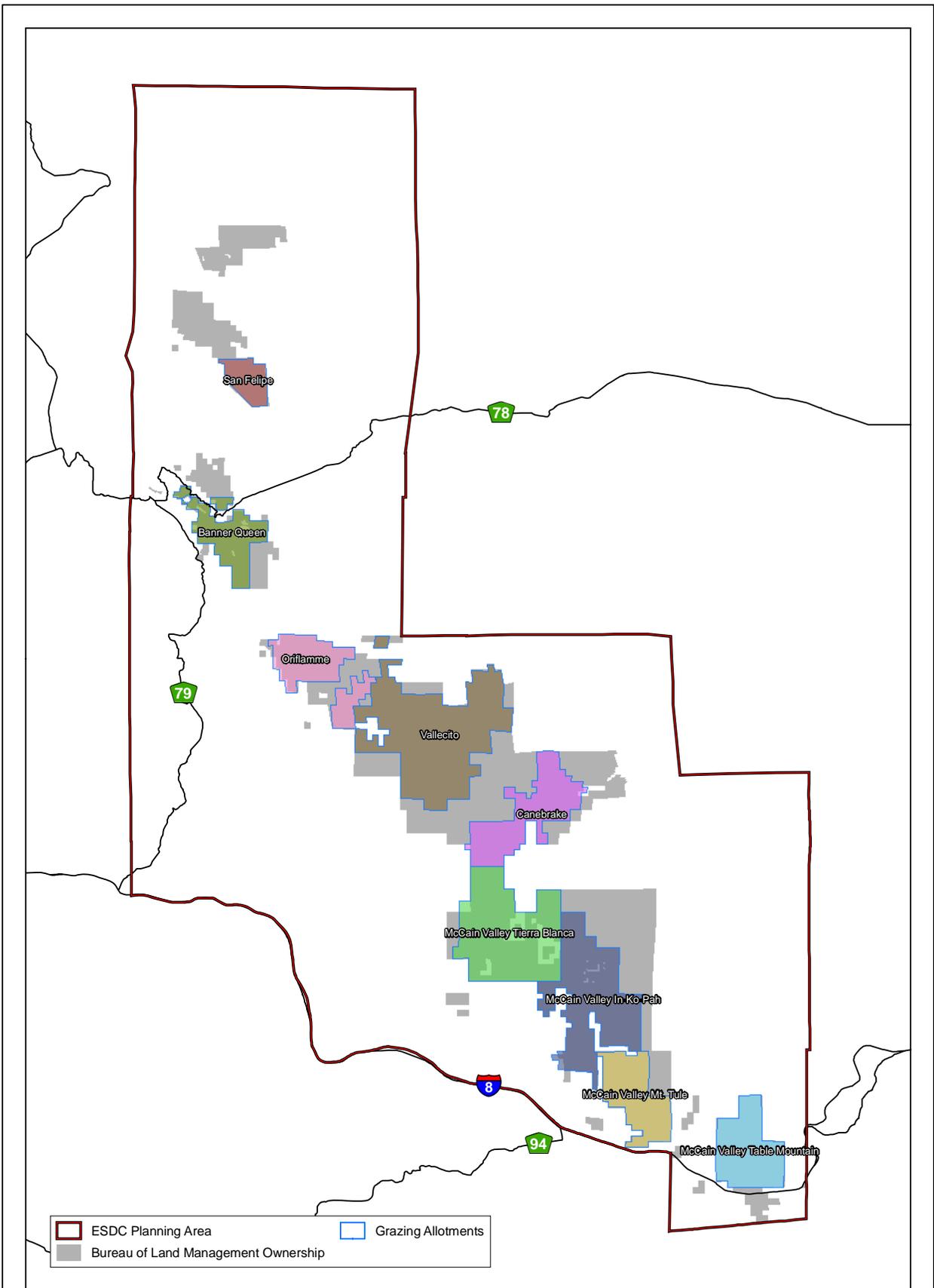
Livestock grazing has occurred for many years in the Planning Area. There are currently nine separate livestock grazing allotments in the Planning Area, as shown in Figure 3-13. These livestock grazing allotments are: Banner Queen (4,131 acres), Canebrake (6,820 acres), McCain Valley – In-Ko-Pah (10,704 acres), McCain Valley – Mt. Tule (5,305 acres), McCain Valley – Table Mountain (5,679 acres), McCain Valley (Tierra Blanca (9,793 acres), Oriflamme (5,281 acres), Vallecitos (15,985 acres) and San Felipe Hills (1,845 acres) (DOI BLM 2005c).

Of these grazing allotments, two are currently actively grazed: McCain Valley – In-Ko-Pah and McCain Valley – Tierra Blanca (DOI BLM 2005c). The Canebrake grazing allotment is currently undergoing the grazing permitting process (DOI BLM 2005c).

A total of 65,543 acres of land are assigned as grazing allotments under jurisdiction of the BLM in Eastern San Diego County (DOI BLM 2005c). Of these 65,543 acres, 34,346 acres are located within Peninsular Bighorn Sheep Critical Habitat (DOI BLM 2005c). Banner Queen and San Felipe Hills are not within Peninsular Bighorn Sheep Critical Habitat. However, Canebrake (6,356 acres within critical habitat), McCain Valley – In-Ko-Pah (6,999 acres within critical habitat), McCain Valley – Mt. Tule (4,015 acres within critical habitat), McCain Valley – Table Mountain (2,051 acres within critical habitat), McCain Valley – Tierra Blanca (1,326 acres within critical habitat), Oriflamme (522 acres within critical habitat), and Vallecitos (13,077 acres within critical habitat) are all located within Peninsular Bighorn Sheep Critical Habitat (DOI BLM 2005c).

3.14.2 Grazing Allotments

Table 3-8 illustrates the current grazing activity which occurs only in the McCain Valley Allotment. The following is a description of all of the grazing allotments within the Planning Area.



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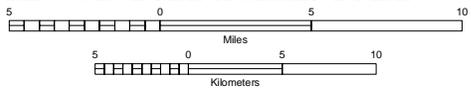


FIGURE 3-13: Grazing Allotments



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**TABLE 3-8
CURRENT LIVESTOCK GRAZING**

Allotment		Acres	Grazing Preference (AUMs)		
Number	Name		Active	Suspended	Total
Perennial/Ephemeral					
07002	McCain Valley – In-Ko-Pah	10,704	1023	0	1023
07002	McCain Valley – Tierra Blanca	9,793	89	0	89
07002	McCain Valley – Mt. Tule	5,305	0	0	0
07002	McCain Valley – Table Mountain	5,679	0	0	0
07018	Banner Queen	4,132	0	0	0
07020	Canebrake	6,820	0	0	0
07037	Oriflamme	5,281	0	0	0
07045	Vallecito	15,985	0	0	0
07015	San Felipe	1,845	0	0	0
Total:		65,544*	1,112		

*Acreage total may be slightly different elsewhere in the document due to differences in acreage calculations in GIS applications.

3.14.2.1 McCain Valley Allotment

The McCain Valley Allotment (including In-Ko-Pah, Mt. Tule, Table Mountain and Tierra Blanca sub-allotments) covers 31,481 acres of grazeable land. The topography of the area varies from the rocky, steep slopes of the In-Ko-Pah Mountains to gently sloping uplands. Elevation on the McCain Valley Allotment ranges from about 2,800 feet on the east side of the allotment to nearly 4,500 feet on the west side of the allotment. Of the 31,481 acres of grazeable land found on the McCain Valley Allotment, 14,931 acres are located within the critical habitat for the Peninsular bighorn sheep.

There are seven recognized riparian areas found within the McCain Valley grazing allotment. There are four riparian areas found in the Tierra Blanca section of the allotment and three riparian areas found in the In-Ko-Pah section of the allotment: Cottonwood Spring, Cottonwood Campground upper reach, Cottonwood Campground lower reach, end of McCain, upper reach of Four Frogs, lower reach of Four Frogs, and Jacumba Jim. Cottonwood Spring, Cottonwood Campground upper and lower reaches, Cottonwood Campground lower reach, and end of McCain are all found in the Tierra

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Blanca section of the allotment. The upper and lower reaches of Four Frogs and Jacumba Jim are found in the In-Ko-Pah section of the allotment.

Cottonwood Spring supports a mixed willow and Sonoran cottonwood/willow riparian forest (DOI BLM 2005c). The Cottonwood Campground upper reach supports potential habitat for the federally endangered arroyo toad as well as a Sonoran cottonwood/willow riparian forest (DOI BLM 2005c). The Cottonwood Campground lower reach supports potential habitat for the federally endangered SWFL and least Bell's vireo, as well as a Sonoran cottonwood/willow riparian forest (DOI BLM 2005c). The end of McCain riparian area supports potential habitat for the federally endangered SWFL and least Bell's vireo, as well as a mixed willow and Sonoran cottonwood/willow riparian forest (DOI BLM 2005c).

The upper reach of Four Frogs supports good quality habitat for the federally endangered Peninsular bighorn sheep as well as desert fan palm oasis (BLM 2005). The lower reach of the Four Frogs riparian area supports good quality habitat for the Peninsular bighorn sheep, as well as a desert fan palm oasis (DOI BLM 2005c). The Jacumba Jim riparian area supports potential habitat for the federally endangered SWFL and Peninsular bighorn sheep. Jacumba Jim also supports desert fan palm oasis (DOI BLM 2005c).

Soils found within the McCain Valley Allotment consist of the Rositas–Carrizo Association of drained loamy coarse sands to highly gravelly sands on alluvial fans. Also found within this allotment is the Rock Land Association consisting of dominantly exposed bedrock and very large boulders.

The most abundant annual species of importance to grazing include foxtail fescue (*Festuca megalura*), red brome (*Bromus rubens*), soft chess (*Bromus mollis*), and wild oat (*Avena fatua*) as well as various forbs such as filaree (*Erodium cicutarium*) and clover (*Trifolium* spp.) (DOI BLM 2005c).

The key shrubs present on the allotment are: mountain mahogany (*Cercocarpus betuloides*), buckwheat (*Eriogonum fasciculatum*), scrub oak (*Quercus dumosa*), and chamise (*Adenostoma fasciculatum*). The key forbs present on the allotment are deer

weed (*Lotus scoparius*) and filaree (*Erodium cicutarium*). The key grasses on the allotment are as follows: needlegrass (*Stipa cernua*) and wheat grass (*Agropyron parishii*).

3.14.2.2 Vallecitos Allotment

The Vallecitos Allotment covers 15,985 acres of grazeable land. Of these 15,985 acres, 13,077 acres occur within critical habitat for the Peninsular bighorn sheep (DOI BLM 2005c).

The topography and elevation of the Vallecitos Allotment varies greatly, from the almost sheer rocky cliffs of the Sawtooth range, to the almost horizontal alluvial fans that spread out from the Potrero and Storm Canyon drainages. Elevation of the Vallecitos Allotment ranges from 1,500 feet in the northeast corner of the allotment to approximately 4,900 feet in the southwest corner of the allotment.

There are three recognized riparian areas found on the allotment: Burnt Trunks, Campbell Springs, and Storm Canyon. The Burnt Trunks riparian area supports an arrowweed riparian community (DOI BLM 2005c). The Campbell Springs riparian area supports potential habitat for the federally endangered SWFL and least Bell's vireo, as well as a desert fan palm oasis woodland (DOI BLM 2005c). Storm Canyon supports migratory habitat for the federally endangered SWFL and the federally endangered least Bell's vireo, Peninsular bighorn sheep and arroyo toad (DOI BLM 2005c). Storm Canyon also houses a mixed willow and Sonoran cottonwood/willow riparian forest (DOI BLM 2005c).

Soils found in the Vallecitos Allotment consist mainly of the Rositas–Carrizo association of drained loamy coarse sands to highly gravelly sands on alluvial fans in the north central portion and the Rock Land association of dominantly exposed bedrock and very large boulders in the remainder of the allotment (DOI BLM 1982).

The vegetation within the allotment is primarily semi-desert chaparral and enriched desert scrub vegetative types. Dominant species include creosote bush (*Larrea tridentata*), desert sunflower (*Viguieria deltoidea parishii*), desert buckwheat (*Eriogonum*

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spp.), cheese bush (*Hymenocloa salsola salsola*), burro bush (*Ambrosia dumosa*), brome grass (*Bromus spp.*), galleta grass (*Pleuraphis rigida*) as well as numerous annual herbaceous plants and some annual grasses.

3.14.2.3 Canebrake Allotment

The Canebrake Allotment covers 6,820 acres of grazeable land. Of the 6,820 acres comprising the allotment, 6,356 acres occur within Peninsular Bighorn Sheep Critical Habitat.

The topography of the allotment varies from rocky mountain ranges to gently sloping drainages. The elevation on the Canebrake allotment ranges from approximately 1,000 feet above sea level, up to nearly 5,000 feet above sea level.

There are two riparian areas found within the Canebrake Allotment. These riparian areas are the upper and lower reaches of Pepperwood (DOI BLM 2005c). The upper reach of the Pepperwood riparian area supports a black willow and Sonoran cottonwood/willow riparian forest (DOI BLM 2005c). The lower reach of the Pepperwood riparian area supports potential habitat for the federally endangered SWFL, as well as a black willow and Sonoran cottonwood/willow riparian forest (BLM 2005).

Soils found on the allotment consist mainly of the Rositas–Carrizo association of drained loamy coarse sands to highly gravelly sands on alluvial fans. The Rock Land association of dominantly exposed bedrock and very large boulders is also found on the allotment (DOI BLM 1982).

The vegetation within the allotment consists mainly of semi-desert chaparral and enriched desert scrub. Some of the key species found on the allotment are: mountain mahogany (*Cercocarpus betuloides*), burro bush (*Ambrosia dumosa*), four wing saltbush (*Atriplex polycarpa*), California buckwheat (*Eriogonum fasciculatum*), and jojoba (*Simonsia chinensis*).

3.14.2.4 Oriflamme Allotment

The Oriflamme Allotment covers 5,281 acres of grazeable land. Of these 5,281 acres, 522 are within Peninsular Bighorn Sheep Critical Habitat.

The topography of the Oriflamme Allotment is generally very mountainous, with a few plateaus and alluvial lowlands (DOI BLM 1982). Elevation on the allotment ranges from 4,648 feet in the southeast corner down to 2,200 feet in the extreme northeast corner (DOI BLM 1982).

The allotment contains seven designated riparian areas, Oriflamme upper reach, Oriflamme lower reach, Cottonwood Canyon, Lone Willows, Dome Tributary 1, Dome Tributary 2 and Desert Agave (DOI BLM 2005c). The Oriflamme lower reach supports potential habitat for the federally endangered SWFL, least Bell's vireo, and arroyo toad, as well as a mixed willow and Sonoran cottonwood/willow riparian forest (DOI BLM 2005c). The Oriflamme upper reach supports a mixed willow and Sonoran cottonwood/willow riparian forest as well (DOI BLM 2005c). The Cottonwood Canyon riparian area supports potential habitat for the federally endangered SWFL, least Bell's vireo, and Peninsular bighorn sheep (DOI BLM 2005c). The Cottonwood Canyon riparian area supports a Fremont cottonwood community and a Sonoran cottonwood/willow riparian forest (DOI BLM 2005c). The Lone Willows riparian area supports a mixed willow and Sonoran cottonwood/willow riparian forest (DOI BLM 2005c). The Dome Tributary 1 riparian area supports potential habitat for the federally endangered least Bell's vireo, as well as a mixed willow and Sonoran cottonwood/willow riparian forest (DOI BLM 2005c). The Dome Tributary 2 riparian area supports a Fremont cottonwood and Sonoran cottonwood/willow riparian forest (DOI BLM 2005c). The Desert Agave riparian area supports a Fremont cottonwood and Sonoran cottonwood/willow riparian forest (DOI BLM 2005c).

Soils within the Oriflamme Allotment are granitic and volcanic in origin and are moderately fertile under good moisture conditions, and are relatively coarse and well-drained (DOI BLM 1982). The major soil association found on the allotment is the Sheep head association of well-drained, fine sandy loams over broken mica schists (DOI BLM 1982).

The vegetation found within the Oriflamme Allotment consists mostly of semi-desert chaparral and chamise and mixed chaparrals. Dominant and important species found on

3.14 Livestock Grazing

the allotment include: desert needle grass (*Stipa speciosa*), galleta grass (*Pleuraphis rigida*), wheat grass (*Agropyron spp.*), buckwheats (*Eriogonum spp.*), burro bush (*Ambrosia dumosa*), cup leaf ceanothus (*Ceanothus greggii*), mountain mahogany (*Cercocarpus betuloides*), ratany (*Krameria grayi*), brittle bush (*Encelia farinosa*), cat claw (*Acacia greggii*), chamise (*Adenostoma fasciculatum*), oaks (*Quercus spp.*), creosote bush (*Larrea tridentata*), and many annual grasses and herbaceous plants (DOI BLM 1982).

3.14.2.5 Banner Queen Allotment

The Banner Queen Allotment covers 4,131 acres of grazeable land. None of the Banner Queen Allotment is located within the Peninsular Bighorn Sheep Critical Habitat.

The topography of the allotment is mostly mountainous, with some plateaus and one canyon (Chariot Canyon) found in a roughly northwest to southeast direction through the middle of the allotment (DOI BLM 1982). Elevations range from about 4,560 feet above sea level near Inspiration Point down to 2,680 feet above sea level near the Banner trading post (DOI BLM 1982).

Eight recognized riparian areas are found within the allotment: Chariot Canyon upper reach, middle reach and lower reach, as well as Red Water, Banner, Rusty Pipe, Foundation and Desert Queen.

The Chariot Canyon upper reach riparian area supports good quality habitat for the federally endangered SWFL and arroyo toad. The upper reach of Chariot Canyon also supports potential habitat for the federally endangered Peninsular bighorn sheep and least Bell's vireo, as well as a Sonoran cottonwood/willow riparian forest (DOI BLM 2005c). The middle reach of Chariot canyon supports potential habitat for the federally endangered Peninsular bighorn sheep and good quality habitat for the federally endangered arroyo toad, as well as a Sonoran cottonwood/willow riparian forest (DOI BLM 2005c). The lower reach of Chariot Canyon supports potential habitat for the federally endangered arroyo toad, as well as a Sonoran cottonwood/willow riparian forest (DOI BLM 2005c). The Red Water riparian area supports potential habitat for the federally endangered SWFL and least Bell's vireo, as well as a Fremont cottonwood and Sonoran cottonwood/willow riparian forest (DOI BLM 2005c). The Rusty Pipe riparian area contains the following species: ripgut grass (*Bromus diandrus*), cheat grass

(*Bromus tectorum*), black mustard (*Brassica nigra*), and sycamore (*Platanus* spp.). The Foundation riparian area contains a mixed willow and Sonoran cottonwood/willow riparian forest (DOI BLM 2005c). The Desert Queen riparian area contains a Fremont cottonwood and Sonoran cottonwood/willow riparian forest (DOI BLM 2005c). The Banner riparian area contains potential habitat for the federally endangered SWFL, least Bell's vireo, and Peninsular bighorn sheep, as well as a Fremont cottonwood and Sonoran cottonwood/willow riparian forest (DOI BLM 2005c).

Soils within the Banner Queen Allotment mostly comprise material derived from mica schist, gabbro, granodiorite, and quartz diorite. These soils are only moderately fertile under moist soil conditions and are relatively coarse and well-drained (DOI BLM 1982).

The native vegetation within the allotment is primarily semi-desert chaparral, mixed chaparral, chamise chaparral, and riparian woodland vegetative communities. Dominant and important species include: desert needle grass (*Stipa speciosa*), chamise (*Adenostoma fasciculatum*), cup leaf ceanothus (*Ceanothus greggii*), buckwheats (*Eriogonum* spp.), oaks (*Quercus* spp.), mountain mahogany (*Cercocarpus betuloides*), jojoba (*Simmondsia chinensis*), saltbush (*Atriplex canescens*), and holly leaf cherry (*Prunus ilicifolia*) (DOI BLM 1982).

3.14.2.6 San Felipe Hills Allotment

The San Felipe Hills Allotment encompasses 1,845 acres of grazeable land. The San Felipe Hills Allotment does not fall within the critical habitat for the Peninsular bighorn Sheep (DOI BLM 2005c).

The topography of the allotment varies from gently sloping alluvial fans to rough, steep hillsides. The southwestern half of the allotment is quite steep, averaging a 40 percent slope. The elevation on the allotment ranges from 2,675 feet above sea level in the southwestern corner up to 3,880 feet above sea level (DOI BLM 1982).

The main soil groups found within the allotment are the Rosita series (loamy, coarse sand), the La Posta sheep head complex (loamy, coarse sand and cobbly fine sandy loam), acid igneous rockland complex (loamy, coarse sand) and sloping gullied land complex (gravelly sand) (DOI BLM 1982).

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The predominant vegetation on the San Felipe Hills Allotment is that of the chamise chaparral type. Chamise chaparral covers approximately 63 percent of the allotment, mixed chaparral covers about 19 percent of the allotment and semi-desert steep chaparral covers about 18 percent of the allotment (DOI BLM 1982).

The most important perennial species found on the San Felipe Hills Allotment are chamise (*Adenostoma fasciculatum*), mountain mahogany (*Cercocarpus betuloides*), sugar bush (*Rhus ovata*), and desert needle grass (*Stipa speciosa*) (DOI BLM 1982). Important annual species found on the allotment include filaree (*Erodium cicutarium*), six-week fescue (*Festuca octoflora hirsuta*), soft chess (*Bromus mollis*), and foxtail (*Festuca megalura*).

3.15 Lands and Realty

BLM manages a diverse combination of land and resources in the Planning Area, including land use for utility corridors, communication sites, land tenure issues, land use authorizations, withdrawals, and renewable energy. Table 3-9 provides the existing situation for lands and realty within the Planning Area.

**TABLE 3-9
EXISTING ENVIRONMENT FOR LANDS AND REALTY**

Resource Use	Existing Environment
Miscellaneous ROWs	
Roads/Ditches & Canals	1.61 miles (5.81 acres)
Oil and Gas, other energy pipelines	0
Electrical/Telephone Lines	26.02 miles (336.80 acres)
Non-energy pipelines/other linear	0.37 miles (4.40 acres)
Renewable Energy ROWs	
Wind Energy-testing facility (3-yr interim)	17,000 acres, 4 met towers
Wind Energy Potential (excluding WAs and WSAs)	12,764 acres
Permanent Facilities	0
Solar Energy ¹	0
Land Tenure	
Available for Disposal	1,715
Communication Sites	
Table Mountain	2
Banner Grade	1
Land Use Permits	
Apiary	3 permits (8 sites, 840 hives)
Film permits	No permits in last 18 years issued in Planning Area
Existing Withdrawals	
WAs (withdrawn from all forms of land entry)	48,333
PLO 2460 - McCain Valley National Cooperative Land and Wildlife Management Area	20,293 ²
PLO 2693 - Jacumba National Cooperative Land and Wildlife Management Area	6,403 ²

¹ Solar potential likely discounted due to lack of large open flat spaces, topography, vegetative cover, boulders, and/or excluded areas due to critical habitat, and VRM classes.

² These lands are withdrawn from application under certain non-mineral public land laws and from disposition under the homestead, desert land and scrip selection laws. The above acreage removes any overlap with the WAs.

3.15.1 Utility Corridors and Communications

Figure 3-14 shows the location of the utility corridor and communications sites.

3.15.1.1 Utility Corridors

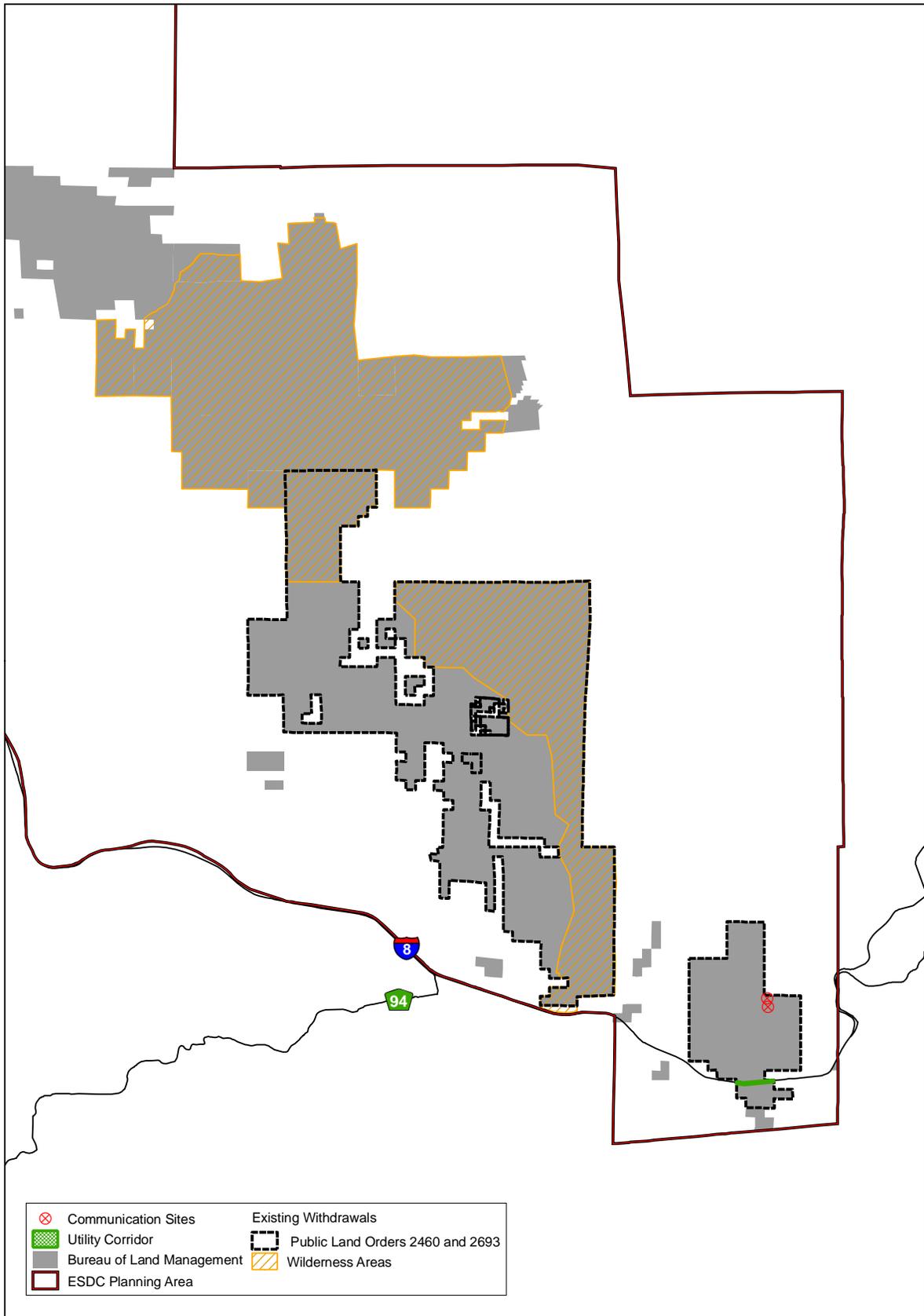
A joint use utility corridor was established by the 1981 MFP across 1.5 miles of public land south of Table Mountain. This corridor is an extension of Corridor N described in the California Desert Conservation Area (CDCA) Plan. The CDCA Plan assigned Corridor N a width of 2 to 5 miles. In the Planning Area, however, a maximum of a 2-mile wide corridor can be assumed, since public lands in the area are limited. Therefore, the corridor encompasses approximately 1,920 acres. There were no existing facilities within the corridor at the time of designation. Since designation, a 500-kV transmission line and several buried fiber optic networks and telephone lines have been constructed within the corridor.

The *Western Regional Corridor Study* (1993) has identified one potential east-west corridor which traverses the Planning Area. This proposed corridor corresponds to the existing corridor described above. A number of new transmission line proposals are under consideration by local groups and industry. One such alternative includes a new 500 kV transmission line from the Salton Sea area west to San Diego. The route has not been identified, but would likely cross some public lands within the Planning Area. In addition, potential development of renewable energy resources within the Planning Area would likely require new transmission facilities and/or upgrading of existing distribution lines.

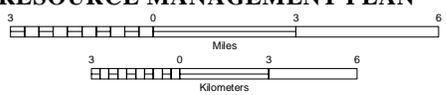
Designation of additional east–west corridors will be difficult since any corridors to the north would have to cross Anza–Borrego Desert State Park, which in the past has refused to consider corridors. The International Boundary precludes a corridor further to the south.

3.15.1.2 Communication Sites

There is one established communication site at Table Mountain, currently occupied by two facilities, the USBP and a commercial cellular site with several customers (non-commercial users). Although the 1981 MFP provides for expansion of this site, such



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FIGURE 3-14: Communication Sites, Existing Withdrawal, and Utility Corridor

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action has been problematic. The USBP has expressed concern that certain types of uses would cause interference with their equipment, which could potentially endanger the lives of their agents. In addition, the area contains sensitive cultural and wildlife resources. A second communication site is located in the vicinity of Banner Grade. The only occupant at this time is the County of San Diego, with one facility on the site. There are no communication site management plans for these sites. Demand for additional communications capabilities is expected to result in requests to establish new sites in the future.

3.15.2 Land Tenure

3.15.2.1 Access (Easement) Acquisition

Access refers to the physical ability and legal right of the public, agency personnel, and authorized users to reach public lands. The lands and realty program primarily assists in the acquisition of easements to provide for legal access where other programs have identified a need.

Access to the public lands within the Planning Area is an issue of concern to both agency personnel and the public. The existing fragmented ownership pattern of BLM lands intermingled with private, state, and other federal lands complicates the access situation.

The 1981 MFP provides planning guidance with respect to access. Some progress has been made in improving access to public lands; however there are still areas within the Planning Area that lack legal access. Generally speaking, access is acquired from willing adjacent landowners on a case-by-by case basis and as needs or opportunities arise. To date, no easements across private lands within the Planning Area have been purchased; however, there is one easement on the Cottonwood Canyon property that was donated to BLM.

3.15.2.2 Land Status and Jurisdiction

Public lands within the Planning Area consist primarily of five distinct blocks scattered diagonally from the northwest to the southeast. Land ownership within the Planning Area is composed of federal, state, Indian reservations, and private. The public lands within

the Planning Area come under the jurisdiction of the El Centro Field Office, located in El Centro, California.

Privately-owned lands occur widely throughout the Planning Area. The majority of the larger private land blocks tend to occur in the valleys where the land is more fertile and water is available for agricultural production, primarily in the form of cattle grazing. In addition, there are a few small residential communities and rural home sites intermingled throughout.

Two state parks occur within the Planning Area. Cuyamaca Rancho State Park is situated in the southwestern part of the Planning Area and Anza-Borrego Desert State Park along the eastern side. Cleveland National Forest lands are situated in the southwestern part of the Planning Area. These lands are managed primarily for recreation. There are five Indian reservations located in the northwest corner and south-central part of the Planning Area.

3.15.2.3 Public/Private Interface

Along with private inholdings, a number of small communities are located within the Planning Area. The most urban development has occurred in and around the towns of Julian and Pine Valley. There are several other small communities elsewhere in the Planning Area, such as Jacumba, Boulevard, Descanso, Mount Laguna, Guatay, Whispering Pines, and Ranchita.

All of these communities are experiencing an increase of population. Construction of both primary and second homes has been rapidly taking place in the mountainous areas. In addition to agricultural, recreational uses and tourism has become a primary source of income in these areas.

Generally, the Planning Area does not have a public/private land interface problem. There are situations throughout the area where public and private lands intermingle and create property boundaries which do not conform to logical natural topographic features. This occasionally complicates management of activities and resources such as prescribed burns, livestock grazing, access, and key wildlife habitat. Through 2000-2004, persistent drought fueled several devastating fires resulting in the loss of life and

property in Southern California areas. The BLM's National Fire Plan and California Fire Plan emphasize protection of private property and the need for land management agencies to work closely with the local communities to promote fire safety.

3.15.2.4 Land Tenure Adjustment

Land tenure (or land ownership) adjustment refers to those actions that result in the disposal of BLM lands or the acquisition of nonfederal lands or interests. The 1981 Eastern San Diego County Management Framework Plan (MFP) identified certain non-federal land parcels for acquisition to facilitate management of critical resource values. BLM has acquired, through purchase and donation, a number of non-federal parcels of land in the In-Ko-Pah ACEC, McCain Valley Wildlife Management Area, Sawtooth Mountains Wilderness, and Cottonwood Canyon. The majority of the acquisitions consist of Land and Water Conservation Fund (LWCF) purchases of non-federal parcels within congressionally-designated wilderness areas. Upon availability of additional LWCF or compensation funds, additional acquisitions of the remaining identified private inholdings, especially within the McCain Valley, Carrizo Gorge and Table Mountain areas, is desirable to aid in the protection of wildlife and archaeological resources and to facilitate recreation programs.

On July 25, 2000, the Federal Land Transaction Facilitation Act (FLTFA), referred to as the "Baca Bill", became Public Law 106-248. The Baca Bill allows BLM to utilize funds from land sales and exchange equalization payments to acquire lands, if such acquisition is found to be in the public interest. Prior to the Baca Bill, receipts from land sales went primarily to the U.S. Treasury and were not available to BLM. To meet the criteria for disposal under the Baca Bill, public lands must have been identified for disposal through a management plan approved prior to July 25, 2000 when FLTFA became law. FLTFA will expire in 2010 unless amended through legislation.

The 1981 Eastern San Diego County MFP suggested that there may be some merit in adjusting boundaries between Anza-Borrego Desert State Park and BLM lands. For example, the San Ysidro Mountain area is small enough and distant enough from BLM offices that management by the Park might be more effective. Conversely, areas in the southern end of the park could be managed by BLM. The park, however, appears to be more interested in acquiring additional areas rather than adjusting boundaries. The State of California has not exhausted its in-lieu selections, so should the state wish to use its in-lieu selections to acquire lands within this Planning Area that meet the criteria for disposal, that is its privilege. No other major disposals to the state should be made under

the R&PP Act, unless they are a part of a boundary adjustment with BLM acquiring state land adjacent to major BLM parcels (see below for a discussion of R&PP leases).

The current lands identified for disposal in the Eastern San Diego County MFP are shown on Figure 3-15.

3.15.3 Land Use Authorizations

Land use authorizations include various authorizations and agreements to use BLM-administered land, such as ROW grants, leases, and temporary use permits under several different authorities. BLM analyzes requests for land use authorizations on a case by case basis.

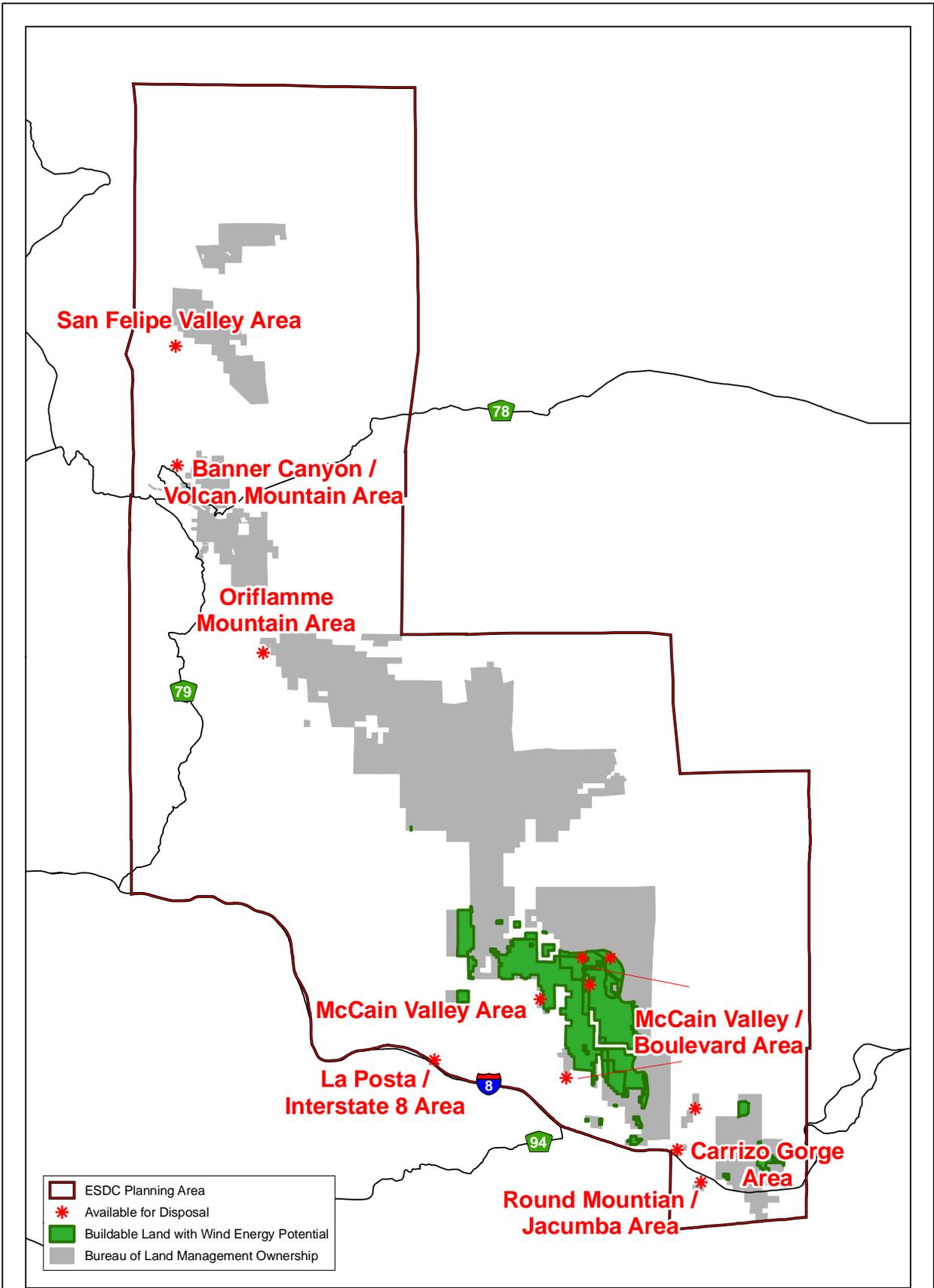
3.15.3.1 Land Use Permits

BLM administers several temporary permits involving less than three acres of land. These permits are issued for a term of up to three years and are for the temporary use of public lands. The only long-term permits in the Planning Area are three apiary permits, which include a total of eight sites, each approximately 0.25 acre in size. These permits allow for the annual servicing of bee hives at several sites scattered throughout the Planning Area.

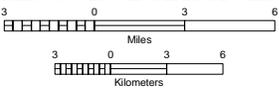
There was one R&PP Lease in the Planning Area, a sanitary landfill near Julian. The landfill has since been patented out of Federal ownership to the County of San Diego. There is one existing R&PP lease (Mineral Springs lease) in the Planning Area. Aqua Caliente Springs is leased to San Diego County for use as a park.

3.15.3.2 Rights-of-Way

Existing grants are for a myriad of different facilities and are held by private individuals and groups, as well as by various business and government entities. Roads, power transmission and distribution lines, and telephone lines are the most common facilities to be granted for ROWs. Examples of additional types of ROW facilities include water and gas pipelines, communication sites, ditches, railroads and fiber optic lines.



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FIGURE 3-15: Lands Available for Disposal and Wind Energy Potential

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Interstate 8 is the major east-west highway and traverses the Planning Area from the southeast and proceeds to the west for about seven miles where it becomes the southern boundary of the Planning Area. The San Diego and Arizona Eastern Railroad meanders through Carrizo Gorge in the southern part of the Planning Area. The railroad was not used from 1976 through 2003 due to severe damage to the track and trestles. Carrizo Gorge Railway, Inc. has reopened the line and is currently operating for cargo only.

As previously described, there is one major utility ROW corridor presently traversing the Planning Area. The corridor runs east/west across approximately 1.5 miles of public land south of Table Mountain near Interstate 8. The corridor currently contains one 500 kV transmission line that originates in San Diego and crosses the Colorado River into Arizona, and several buried fiber optic networks and telephone lines.

There are no ROW exclusion or avoidance areas in the existing MFP, although specially designated areas (i.e., designated wilderness and WSAs) do restrict such development under their own regulatory or policy provisions.

Revised Statute 2477 (R.S. 2477)

In 1976, Revised Statute (R.S.) 2477 was repealed by the Federal Land Policy and Management Act of 1976 (FLPMA), 43 U.S.C. § 1701 et seq. Pub. L. No. 94-579 § 706(a), 90 Stat. 2743. FLPMA did not, however, terminate valid rights of way that had been established under R.S. 2477 prior to its repeal. Instead, Congress specified that any valid R.S. 2477 ROWs existing as of the date FLPMA was approved (October 21, 1976), would continue in effect.

The most recent Departmental guidance on R.S. 2477 was issued on March 22, 2006. The guidance document was issued after the 10th Circuit court of appeals issued a decision in *Southern Utah Wilderness Alliance v. Bureau of Land Management*, 425 F. 3d 735 (10th Cir. 2005). The Department revoked the previous policy guidance from January 22, 1997 and December 7, 1988.

R.S. 2477 is a complex and controversial issue with far-reaching implications for the management of federal lands throughout the West. R.S. 2477 was enacted in 1866,

3.15 Lands and Realty

during a period when the federal government promoted settlement of the West. It was a primary authority under which many state and county highways were constructed over federal lands in the West. By its general wording, "[T]he right-of-way for the construction of highways over public lands, not reserved for public uses, is hereby granted" the act minimized the administrative burden on the federal government to authorize the construction of each highway across the largely undeveloped lands in the West. While the act accomplished its goal of facilitating development, the general wording and a lack of documentation of R.S. 2477 rights continue to be sources of disagreement and controversy.

Although FLPMA repealed R.S. 2477, it did not terminate existing R.S. 2477 ROWs. Section 701 of FLPMA states that nothing "...shall be construed as terminating any valid lease, permit, patent, right-of-way, or other land use authorization existing on the date of approval of this Act."

Some paved roads, which serve as major transportation routes, have no ROW documented in public land records. Many routes, claimed as R.S. 2477 ROW, came into existence with no documentation in public land records. National parks, national monuments, national preserves, national forests, national wildlife refuges, national conservation areas, other special areas (e.g., designated wilderness areas), and military bases were reserved after 1866. Generally, these areas were reserved subject to valid existing rights (rights established before the reservation). Some public lands were conveyed out of federal ownership after 1866, also subject to valid existing rights. Under R.S. 2477, routes which came into existence after 1866 may be existing rights, but they must have been established: (1) before reservation for a public purpose, withdrawal, patent, mining claim, or transfer out of federal ownership; and (2) before the passage of FLPMA (October 21, 1976). Holders of existing rights retain a right of access associated with those rights without an R.S. 2477 ROW. However, BLM approval is required prior to driving on any closed route.

BLM decisions about which routes are designated open or limited and which are designated closed are based on resource management concerns and legal mandates (such as in designated wilderness) in a process called "route designation." Routes will be designated during this planning process as implementation actions, in conformance with the plan decisions which designate areas open, closed or limited.

A route designated “open” does not mean that BLM believes the route to be an R.S. 2477 ROW. Conversely, a route not designated as open does not reflect a belief that an R.S. 2477 ROW does not exist. The closure of a route does not modify or extinguish any R.S. 2477 ROW that may exist. Holders of valid ROWs, retain a right of access without an R.S. 2477 ROW. However, BLM approval is required before driving on any closed route. Closed routes outside WAs will remain closed until R.S. 2477 assertions are processed or until the routes are opened using the route designation process.

3.15.3.3 Realty Trespass

Realty trespass, specifically unauthorized occupancy and use, is not a significant problem in the Planning Area. Unauthorized occupancies are typically encroachments of buildings or yards onto public land and have usually existed for many years. These situations are most often discovered in the course of surveying projects. Unauthorized ROW situations generally involve negligence. Resolution of such situations depend upon individual circumstances and may include issuance of temporary land use permits, leases or ROWs, disposal of the land either by sale or exchange, or removal of the unauthorized use.

3.15.4 Withdrawals

The existing withdrawals in the Planning Area are described below and illustrated on Figure 3-14.

Public Land Order 2460 (1961). PLO 2460 established the McCain Valley National Cooperative Land and Wildlife Management Area. The PLO withdrew approximately 39,000 acres of public lands from application under certain non-mineral public land laws and from disposition under the homestead, desert land and scrip selection laws. Scrip is a certificate which allowed the owner to acquire a certain number of acres from vacant, unappropriated public lands. These land bounties were offered by the federal government prior to the Civil War as an incentive to recruits who joined the army and navy. The lands are managed by the BLM for the development, conservation, utilization and maintenance of their natural resources, including their recreation and wildlife resources.

3.15 Lands and Realty

Public Land Order 2693 (1963). PLO 2693 established the Jacumba National Cooperative Land and Wildlife Management Area. The PLO withdrew approximately 6,400 acres of public lands from application under certain non-mineral public land laws and from disposition under the homestead, desert land and scrip selection laws. They are managed by the BLM for the development, conservation, utilization and maintenance of their natural resources, including their recreation and wildlife resources.

In 1994 the California Desert Protection Act (1994) designated two Wilderness Areas within the Planning Area withdrawing them from all forms of land entry: Carrizo Gorge and Sawtooth Mountains. Consequently, most BLM land with resources that need to be protected by withdrawals already has such protection in place.

In addition, an International Boundary Reservation established by the Presidential Proclamation of May 27, 1907, restricts use within sixty feet of the international boundary between the United States and the Republic of Mexico, within the State of California and the Territories of Arizona and New Mexico. The Proclamation reserves all public lands within this 60' wide strip, from entry, settlement or other form of appropriation under the public land laws. This area is to be kept free from obstruction as a protection against smuggling between the U.S. and Mexico. This reservation affects approximately one mile of BLM-administered public lands within the Planning Area, roughly seven acres.

3.15.5 Renewable Energy

Renewable energy includes solar power, wind, biomass, and geothermal resources. As demand has increased for clean and viable energy to power the nation, consideration of renewable energy sources available on public lands has come to the forefront of land management planning.

In cooperation with the National Renewable Energy Laboratory (NREL), an agency of the Department of Energy has developed a Renewable Resource Assessment Project. The findings of this project are contained in a 2003 report entitled, *Assessing the Potential for Renewable Energy on Public Lands*. The report identified criteria that are considered in establishing potentials for various types of renewable energy. It also summarizes these potentials and identifies the top 25 BLM Planning Areas with the highest potentials for various classes of renewable energy development. The Planning

Area was included in the top 25 planning units with the highest potential for solar (concentrating solar power, photovoltaics) and wind resources.

Areas such as McCain Valley, Oriflamme Mountain and Banner Grade have been identified by NREL as having a moderate to high potential for wind resources. The BLM has received numerous inquiries regarding these areas and others within the Planning Area. One ROW has been issued in the McCain Valley area for wind energy site testing and monitoring. The ROW allows only the installation of met towers. The ROW holder has established no right to development and is required to submit a separate application to BLM for review, analysis, and separate approval for any future wind energy development. Future applications for testing and/or development would be processed in accordance with the policies and best management practices established by the *Final Programmatic Environmental Impact Statement on Wind Energy Development on BLM-Administered Lands in the Western United States* (2005).

To date, there have been no inquiries regarding the development of solar energy within the Planning Area. Demand for renewable energy development, particularly wind, is expected to increase over the planning period, and management actions are necessary to provide for future renewable energy growth while protecting sensitive resource values.

A recent study conducted by PPM Energy (2006) modeled the potential for wind energy on BLM lands within San Diego County. The model excluded cities, water bodies, national and state parks, national forests, military bases, WAs, WSAs, national conservation areas, wild and scenic rivers, military use areas, and tribal lands. The remaining lands were then assessed for wind speed; only areas that supported wind speeds of Class 4 or higher were retained. This was further refined based on accessibility to an existing electrical transmission line, excluding any lands that were further than 20 miles from existing 115-kV or higher transmission lines. BLM refined this further to only include BLM-administered lands within the Planning Area. Based on this analysis, a total of 14,269 acres of land has potential to support wind energy on BLM-administered lands in the Planning Area. This includes ACECs and critical habitat for federally listed species.

3.15 Lands and Realty

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3.16 Mineral Resources

The Planning Area is in the southern section of the Peninsular Ranges province of California. Underlying the Planning Area are series of granitic intrusive rocks ranging in age from Precambrian (600 million years ago) to Cretaceous (65 million years ago). Composition varies from granite to gabbro. Localized within the plutonic rocks are zones and veins of pegmatite rocks. Plutonic rocks comprise and dominate the Volcan and Cuyamaca Mountains along the eastern part of the Planning Area, the Sawtooth and Laguna Mountains in the south part, and a portion of the Santa Rosa Mountains in the north area. Within the granitic rocks are pendants of metasedimentary rock of Cretaceous age. The metamorphic rocks range in composition from mica schist through granite gneiss. Small units of meta-carbonate rocks are located principally in the Jacumba area of the Planning Area.

Within the Planning Area are three areas of known, historic, mineral development. These include the Julian District, the Metal Mountain District (located northwest of McCain Valley), and the Sacatone District located in the Sacatone Spring/Tule Mountain area southeast of McCain Valley). All three mining districts include public land managed by the BLM.

Three areas in the northern, central, and southern portions of the Planning Area have been classified as potentially valuable for geothermal resources because hot springs are present. Two of these areas, centering on Agua Caliente and Jacumba, are located on public lands. The area has no known potential for oil, gas, sodium, or potash.

There are few historic sand and gravel sites present within the Planning Area and currently no commercial activity. This lack of activity may be due to the poor accessibility of the Planning Area. High mineral potential exists in one area of McCain Valley for a rock quarry and the San Diego region has a need for high quality sand, gravel, and rock resources; however, access is limited due to the presence of private in-holdings surrounding this area. In addition, the presence of OHV activities in the Lark Canyon area of McCain Valley precludes the potential for establishing a safe site for a rock quarry.

3.16.1 Mineral Resource Potential

The potential for the accumulation and occurrence of mineral resources are classified according to the BLM's system as described in Manual 3031 (DOI BLM 1985) and Manual 3060. The classification is based on a series of potential ratings, ranging from undefined (U) based on a lack of information, through moderate (M) where geologic conditions and past activity support that the area may contain mineral deposits, to high (H) where geologic conditions, past activity and production, and or sampling show that an occurrence of a mineral deposit is likely to be present. The potential ratings are qualified by an attendant level of confidence based on the availability of supporting information. Appendix I is an explanation of the BLM manual 3030 classification.

BLM completed a classification of the mineral resources within the Planning Area in 2006. The potential ratings were assessed for various management areas such as designated wilderness and WSAs, ACEC, unappropriated BLM-managed lands, and all other lands in the Planning Area. The classification was done by commodity groupings. Potential deposits of gold, tungsten, manganese were grouped as metallic minerals; deposits of limestone, commercial precious and semi-precious gemstones and mineral specimens, gypsum, and silica were grouped as nonmetallic/industrial minerals, and deposits of sand, gravel, clay, dimension and crushed rock and stone used in the building industry and arts were grouped as construction materials.

No California Surface Mining and Reclamation Act (SMARA) classifications have been completed for the Planning Area. A mineral resource potential report, prepared by the USGS, found undiscovered gem-grade minerals (kunzite, aquamarine) in pegmatite dikes in the vicinity of Mount Tule in the western part of the study area (USGS 1987). No oil, gas, coal, geothermal, or other mineral resources or resource potential were identified in either the Sawtooth Wilderness or Carrizo Gorge WSAs (USGS 1987). The Carrizo Gorge WSA has moderate potential for resources.

3.16.2 Locatable (Metallic and Non-metallic) Mineral Potential

3.16.2.1 Potential for Accumulation and Occurrence of Metallic and Non-metallic Minerals

Table 3-10 lists the principal past producers in the Planning Area. Lode gold (quartz vein) operations dominate production. Tungsten and silver deposits were generally

**TABLE 3-10
PAST PRODUCING MINES FOR METALLIC MINERALS WITHIN THE PLANNING AREA**

Name	Type Operation	Commodity	Name	Type Operation	Commodity
Ben Hur Mine	Underground	Silver	Lucky Chuck Mine	Underground	Gold
Carson Ranch Placer Claim	Placer	Gold	Lucky Strike Mine	Underground	Gold
Chieftan Mine	Underground	Gold	Majestic Mine Group	Underground	Gold
Cincinnati Belle Mine	Underground	Gold	Metal Mountain Mine	Underground	Tungsten
Crown Point Mine	Underground	Tungsten	Mica Gem Group	Surface	Tungsten
Desert Star Mining Co	Proc Plant	Tungsten	Montezuma Mine	Underground	Gold
Eagle Mine	Underground	Gold	North Star Mine	Underground	Gold
El Dorado Claim	Unknown	Gold	Oriflamme Mine	Underground	Gold
Elevada And Aguajito Group	Underground	Gold	Owens Mine	Underground	Copper/Silver
Ella Mine Group	Underground	Gold	Padlock Mine	Underground	Gold
Gold Cross Group	Underground	Gold	Payoff Mine	Underground	Tungsten
Gold King Group	Underground	Gold	Ranchito Mine	Underground	Gold
Gold Standard Group	Underground	Tungsten	Ready Relief Mine	Underground	Gold
Golden Gem Group	Underground	Gold	Rose Quartz Mine	Underground	Silver
Granite Mountain Mine	Underground	Gold	San Diego Mine	Surf-Underg	Gold
Grapevine Star Mine	Underground	Gold	Stonewall Mine	Underground	Gold
Harper Ranch Mine	Underground	Gold	The Noble Mines	Surf-Underg	Gold
Helvetia Mine	Underground	Gold	Tom Scott Mine	Underground	Gold
High Peak Mine	Underground	Gold	Van Wert Mine	Surf-Underg	Gold
Kentucky Mine Group	Underground	Gold	Warlock Mine Group	Underground	Gold
Last Dollar Prospect	Surface	Tungsten	Washington Mine	Underground	Gold
Live Oak Group	Surface	Tungsten			

3.16 Mineral Resources

produced as a by-product from scheelite bearing quartz vein gold deposits. Most production was limited to the Julian area.

Though prospecting and some development have occurred from the 1890s to the present, no significant economic deposits have been mined in the region, and there are currently no mines in producing status. A few gold and silver claims are presently being worked as a recreational activity on weekends.

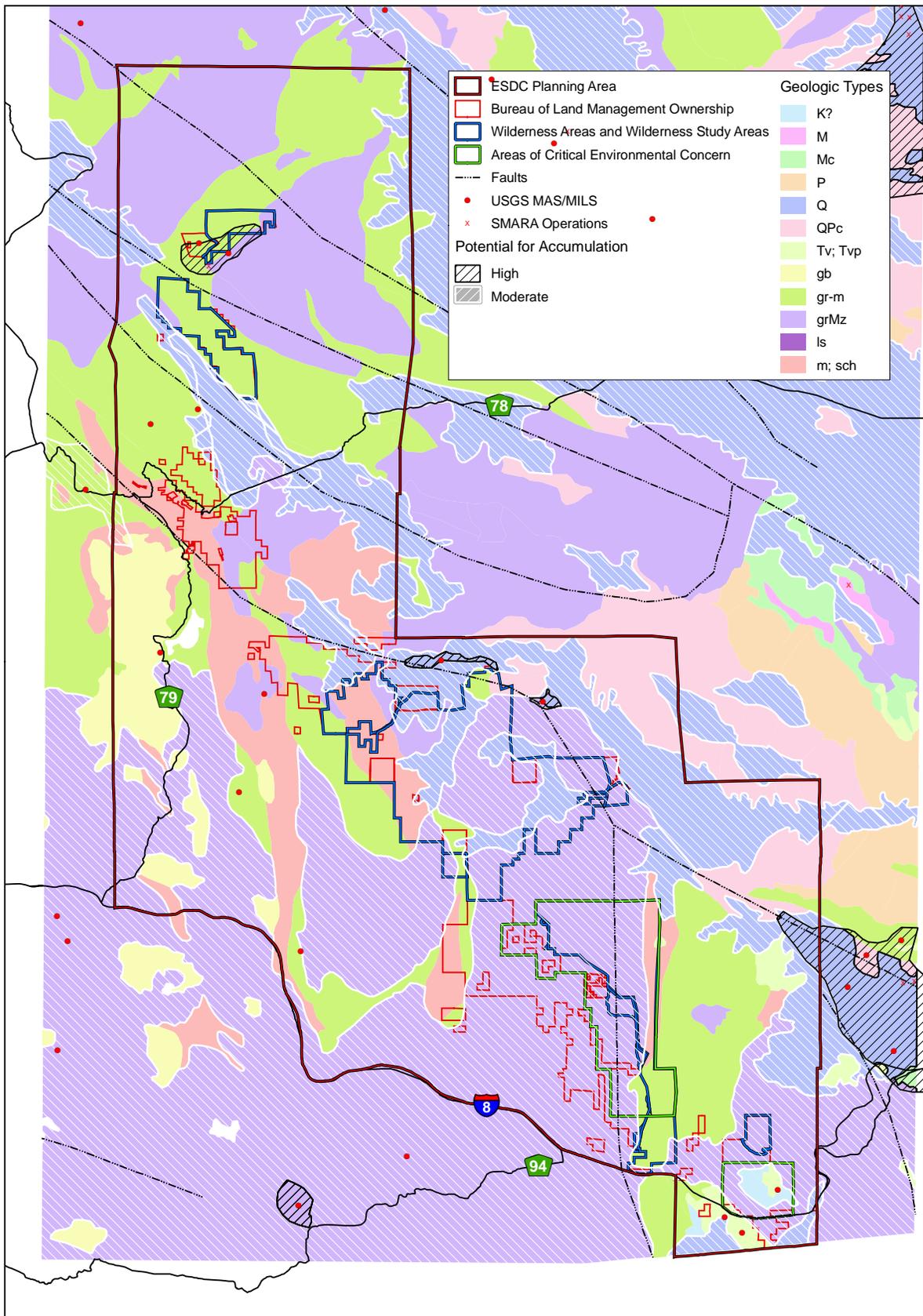
Currently, BLM does not have any active approved plans of operation for metallic mining in the Planning Area. Numerous small “casual use” operations are active in the management area, and five notice level operations have been reviewed by BLM and determined not to be causing unnecessary or undue degradation.

There are 77 mining claims recorded (Table 3-11) with the BLM in the Planning Area, 58 of which are on BLM-administered lands. No mining claims are located in BLM managed WAs or WSAs. The existing claims have been further defined based on location within ACECs and critical habitat for federally listed species (e.g. peninsular bighorn sheep), because these are areas identified as proposed withdrawn from minerals activities.

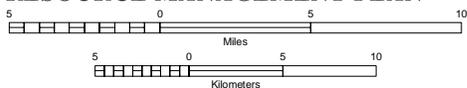
**TABLE 3-11
RECORDED MINING CLAIMS WITHIN THE PLANNING AREA**

	Planning Area	Peninsular Bighorn Sheep	Existing ACEC	Existing ACEC w/ PBHS
BLM	58	9	12	9
USFS	19	0	0	0

BLM has classified 201,720 acres with moderate potential for the occurrence of metallic mineral resources, and 36,050 acres with high potential for metallic locatable minerals within the Planning Area. Of these lands, 53,210 acres of moderate potential and 28,550 acres of high potential are on BLM-administered lands within the Planning Area. Figure 3-16 shows the distribution of potential for locatable (metallic) mineral deposits in the Planning Area, and Table 3-12 shows the distribution by various planning and planning subunits. The existing claims have been further defined based on location within special designation areas and critical habitat for federally listed species (e.g., Peninsular bighorn



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FIGURE 3-16: Potential for Locatable (Metallic) Minerals

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**TABLE 3-12
POTENTIAL FOR THE OCCURRENCE OF METALLIC MINERAL DEPOSITS**

	Planning Area	Peninsular Bighorn Sheep	Arroyo Toad	SWFL	Existing ACEC	Existing ACEC w/ PBHS	WA	WA w/ PBHS	ACEC Not in Wilderness	WSA	WSA w/ PBHS	Quino Checkerspot Butterfly
ACRES												
Total	533,550	210,660	4,120	180	26,480	20,100	50,780	41,150	13,740	14,500	4,813	2,360
Total BLM	103,303	55,080	0	0	24,040	19,230	48,050	40,950	11,450	13,500	4,700	125
High Potential	36,050	7,330	173	0	4,610	4,500	2,990	2,990	1,790	4,813	160	0
Moderate Potential	201,720	68,200	3,080	0	16,880	14,300	23,680	22,340	8,170	8,247	1,640	570
High Potential- BLM	7,500	4,450	0	0	4,330	4,220	2,880	2,880	1,610	4,813	160	0
Moderate Potential- BLM	53,210	30,200	0	0	15,080	13,760	23,570	22,330	6,360	8,037	1,610	0
High Potential- Other	28,550	2,880	173	0	280	280	110	110	180	0	0	0
Moderate Potential- Other	148,510	38,000	3,080	0	1,800	540	110	10	1,810	210	30	570

**TABLE 3-12
POTENTIAL FOR THE OCCURRENCE OF METALLIC MINERAL DEPOSITS
(CONT.)**

	Planning Area	Peninsular Bighorn Sheep	Arroyo Toad	SWFL	Existing ACEC	Existing ACEC w/ PBHS	WA	WA w/ PBHS	ACEC Not in Wilderness	WSA	WSA w/ PBHS	Quino Checkerspot Butterfly
PERCENTAGES												
High Potential	7%	3%	4%	0%	17%	22%	6%	7%	13%	33%	3%	0%
Moderate Potential	38%	32%	75%	0%	64%	71%	47%	54%	59%	57%	34%	24%
High Potential-BLM	1%	2%	0%	0%	16%	21%	6%	7%	12%	33%	3%	0%
Moderate Potential-BLM	10%	14%	0%	0%	57%	68%	46%	54%	46%	55%	33%	0%
High Potential-Other	5%	1%	4%	0%	1%	1%	0%	0%	1%	0%	0%	0%
Moderate Potential-Other	28%	18%	75%	0%	7%	3%	0%	0%	13%	1%	1%	24%

3.16 Mineral Resources

sheep), because these are areas identified as proposed withdrawn from minerals activities.

Most areas classified as having a high potential for occurrence of metallic mineral resources are on patented mining claims located principally in the Julian area.

No significant production of nonmetallic/industrial minerals is known from the Planning Area. Small scale production of nonmetallic/industrial minerals has been limited to specialty minerals produced as a by-product from gem mining. The area is within the Peninsular Ranges of California, a noted locality for semi-precious colored gemstones and specimen minerals associated with pegmatites. Associated minerals such as lithium rich lepidollite, tellurium bearing tellurides ores associated with silver and gold production, and beryllium associated with gem and specimen beryl have been sold in small quantities for the contained elements.

Small deposits of high grade calcium carbonate are known in and around Jacumba. The White Cap operation mined small amounts of white crystalline limestone for crushed stone and poultry grit. Potential for cement-grade ground calcium carbonate are considered moderate based on the existence of known deposits; however, larger calcium carbonate deposits are known in the Coyote and Fish Creek Mountains to the east of the Planning Area. Silica has been produced in small quantities for smelter operations from quartz gold lode deposits in the Julian area. Potential for other uses such as admixture for the production of Portland cement is considered low to non-existent based on the small size and impure quality of those deposits associated with gold vein deposits.

No known activity for nonmetallic/industrial is currently occurring in the Planning Area. There are no BLM approved plans of operations or SMARA pans approved by San Diego County. Table 3-13 shows past producing mines for nonmetallic/industrial minerals in the Planning Area.

BLM has classified 121,180 acres with moderate potential for the occurrence of nonmetallic/industrial mineral resources, and 7,400 acres with high potential for nonmetallic/industrial locatable minerals within the Planning Area. Of these lands, 44,250 acres of moderate potential and 4,530 acres of high potential are on BLM-administered lands within the Planning Area. Figure 3-17 shows the distribution of potential for nonmetallic/industrial mineral deposits in the Planning Area, and Table 3-14 shows the distribution by various planning and planning subunits. The existing claims

have been further defined based on location within special designation areas and critical habitat for federally listed species (e.g. peninsular bighorn sheep), because these are areas identified as proposed withdrawn from minerals activities.

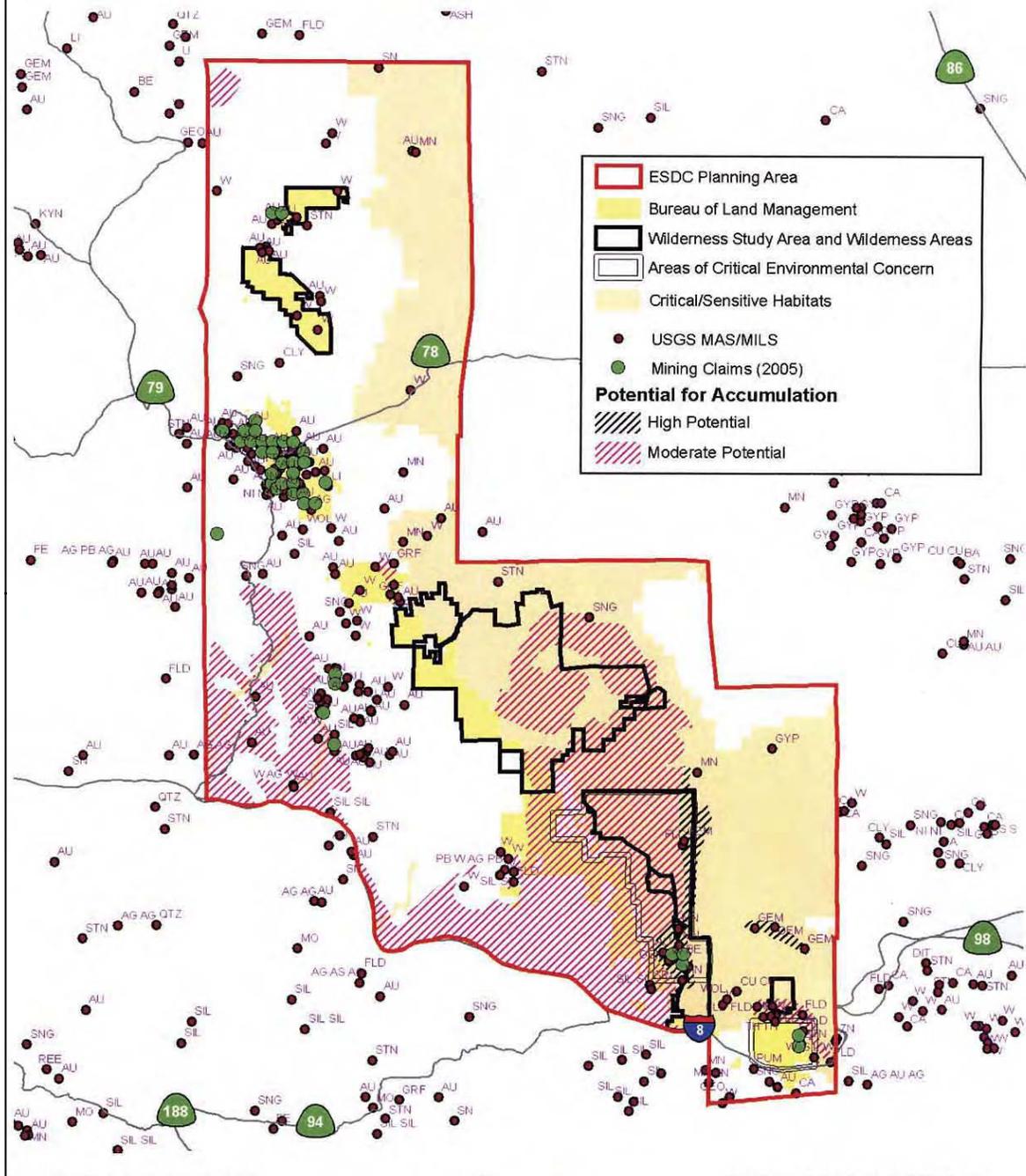
**TABLE 3-13
PAST PRODUCING MINES FOR NONMETALLIC/INDUSTRIAL MINERALS WITHIN THE
PLANNING AREA**

Name	Type Operation	Commodity
Beebe Hole Mine	Surface-underground	gemstones
Buckthorn Deposit	Surface-underground	silica
Golden Chariot Mine	Underground	tellurium
Mica Gem Group	Surface	silica tungsten
Moore Deposit	Surface	fluid
Packrat Mine	Surface-underground	gemstones
Royal Mine	Unknown	lithium
Ruby Group	Surface	beryllium
Ward and Williams Deposit	Surface	silica
White Cap Deposit	Surface	calcium

3.16.2.2 Potential for the Development of Metallic and Non-metallic/Industrial Minerals

Metallic and nonmetallic/industrial minerals have historically been limited to underground mining operations. Potential for large scale open pit metal mines is nonexistent in the Planning Area. The geologic environment is limited to high grade gold lode deposits and pocket semi-precious gemstone deposits in pegmatite veins economically accessible by underground mining methods.

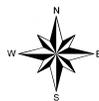
Surface disturbance associated with the level of historical mine activity is less than 10-acres per operation. Most surface disturbance is associated with waste disposal from mining and processing operations, with road construction causing the next highest level of disturbance. Crushed limestone has been developed by small quarry, limited to 30 to 40 acres.



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FIGURE 3-17: Nonmetallic/Industrial Mineral Potential



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**TABLE 3-14
POTENTIAL FOR THE OCCURRENCE OF NON-METALLIC/INDUSTRIAL MINERAL DEPOSITS**

	Planning Area	Peninsular Bighorn Sheep	Arroyo Toad	SWFL	Existing ACEC	Existing ACEC w/ PBHS	WA	WA w/ PBHS	ACEC Not in Wilderness	WSA	WSA w/ PBHS	Quino Checkerspot Butterfly
ACRES												
Total	533,550	210,660	4,120	180	26,480	20,100	50,780	41,150	13,740	14,500	4,813	2,360
Total BLM	103,303	55,080	0	0	24,040	19,230	48,050	40,950	11,450	13,500	4,700	125
High Potential	7,400	7,290	0	0	4,610	4,500	2,990	2,990	1,790	160	160	0
Moderate Potential	121,180	47,936	3,080	0	16,890	14,300	23,680	22,340	8,160	1,670	1,640	0
High Potential- BLM	4,530	4,420	0	0	4,330	4,220	2,880	2,880	1,610	160	160	0
Moderate Potential- BLM	44,250	30,226	0	0	15,080	13,760	23,570	22,330	6,350	1,610	1,610	0
High Potential- Other	2,870	2,870	0	0	280	280	110	110	180	0	0	0
Moderate Potential- Other	76,930	17,710	3,080	0	1,810	540	110	10	1,810	60	30	0

**TABLE 3-14
POTENTIAL FOR THE OCCURRENCE OF NON-METALLIC/INDUSTRIAL MINERAL DEPOSITS
(CONT.)**

	Planning Area	Peninsular Bighorn Sheep	Arroyo Toad	SWFL	Existing ACEC	Existing ACEC w/ PBHS	WA	WA w/ PBHS	ACEC Not in Wilderness	WSA	WSA w/ PBHS	Quino Checkerspot Butterfly
PERCENTAGES												
High Potential	1%	3%	0%	0%	17%	22%	6%	7%	13%	1%	3%	0%
Moderate Potential	23%	23%	75%	0%	64%	71%	47%	54%	59%	12%	34%	0%
High Potential- BLM	1%	2%	0%	0%	16%	21%	6%	7%	12%	1%	3%	0%
Moderate Potential- BLM	8%	14%	0%	0%	57%	68%	46%	54%	46%	11%	33%	0%
High Potential- Other	1%	1%	0%	0%	1%	1%	0%	0%	1%	0%	0%	0%
Moderate Potential- Other	14%	8%	75%	0%	7%	3%	0%	0%	13%	0%	1%	0%

Most historic and current prospecting is limited to the Julian Mining District in the Planning Area. Some limited “recreation” mining for gemstones is occurring in the Jacumba area and east of Julian. Activity is limited to hand cobbing surface exposures of gem pockets. Further activity would require entry by underground methods, or surface excavations exposing new pocket areas.

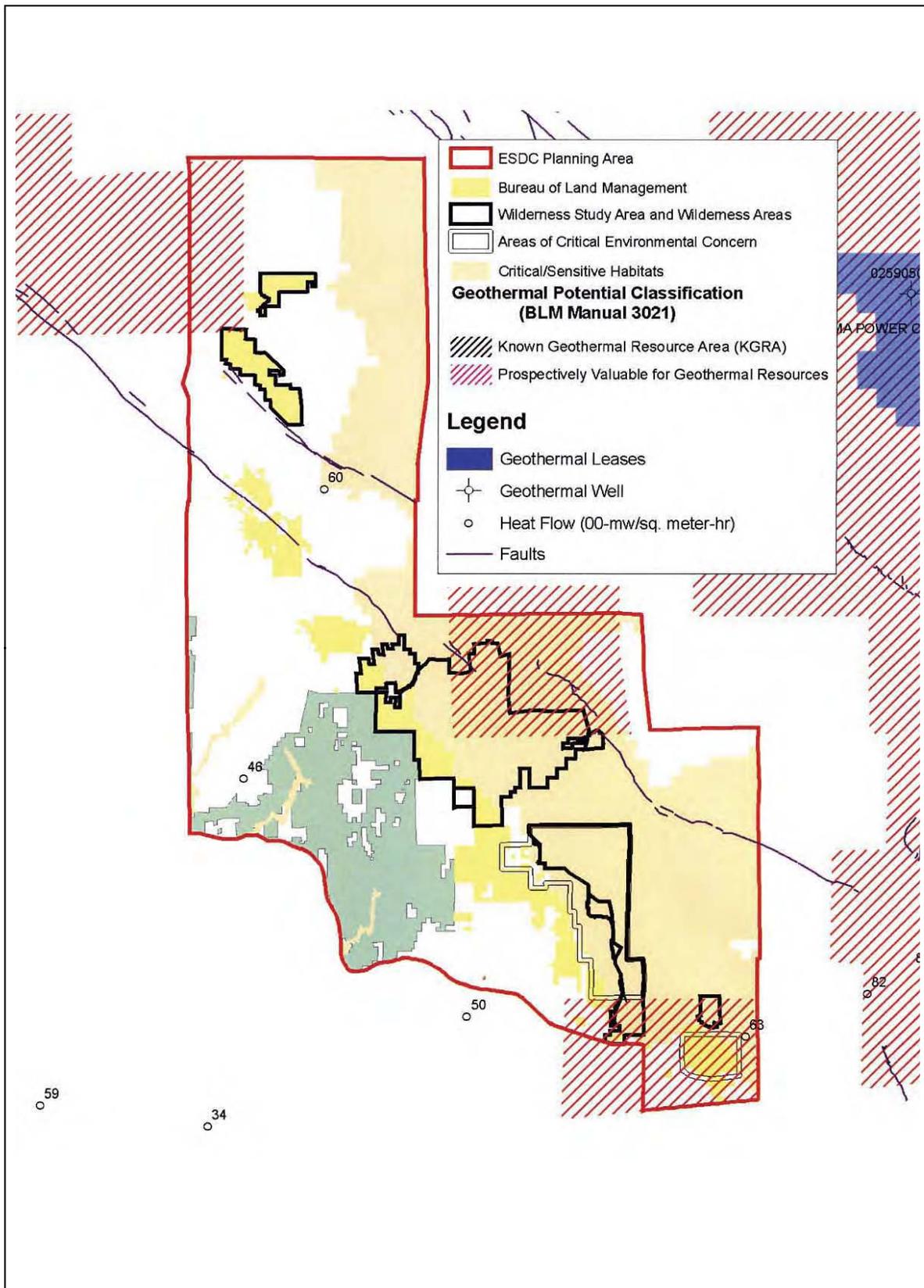
Estimates of significant new mineral development activity within the Planning Area are estimated at one gold mine and one gemstone operation within the next 10 years (mines greater than 10 acres of surface disturbance). This is based on the level of activity within the last 20 years. Operations are expected to employ less than 5 mine personnel with an annual payroll of from \$45,000 to \$180,000, initial capital purchases less than \$100,000, and annual purchases less than \$15,000.

3.16.3 Leasable (Fluid and Solid Energy, and Solid) Minerals

3.16.3.1 Potential for Accumulation And Occurrence Fluid and Solid Energy, and Solid Leasable Minerals.

There is no potential for oil, gas, or coal resources, or other solid leasable minerals in the Planning Area. Three areas are classified as prospectively valuable for geothermal resources. Of these areas, only the Jacumba area is located within an area of thermal springs.

Figure 3-18 shows that a portion of three areas are classified by the BLM as being prospectively valuable for geothermal resources. BLM Manual 3021 provides the criteria for classifying lands as prospectively valuable (PV) for geothermal resources. The BLM Manual at 3021.28 provides the criteria for classifying geothermal resources. In order to be PV, the land must:



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FIGURE 3-18: Geothermal Mineral Potential



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1. Have evidence of late Tertiary or Quaternary volcanic activity, such as caldera structures, cones, and volcanic vents;
2. Have evidence of thermal springs such as geysers, fumaroles, and mud volcanoes or thermal springs with temperatures at least 40° F higher than ambient air temperature; and/or
3. Have a geothermal gradient in excess of two times normal as reflected in deep water wells, oil wells, or other test holes.

While the subject property is located within an area of thermal springs (Jacumba Hot Springs in the southern area and Agua Caliente in the northern area), the area is not within an area of Quaternary volcanic activity. Hot springs appear to be associated with fault activity. Warner Springs Ranch northwest from the Planning Area uses direct space heating from a well averaging 137°F (58°C), with a capacity of 6 million British thermal units (BTUs) per hour (1.8 megawatts [thermal]).

Three heat flow wells have been drilled in the Planning Area. All show heat flow ranging from 50 to 60 milliwatts per square meter, typically at or near the average heat flow for the earth (typical heat flow measurements in the Salton Sea geothermal area range from 100 to 175 mW per square meter-hour).

There are no geothermal leases or applications for leases within the Planning Area. No geothermal exploration activity has been approved by the BLM on public lands for temperature gradient holes in the area.

BLM has classified 80,240 acres classified as prospectively valuable for geothermal resources within the Planning Area. Of these lands, 22,040 acres classified as prospectively valuable for geothermal are present on BLM-administered lands within the Planning Area. Figure 3-18 shows the distribution of potential for geothermal resources in the Planning Area, and Table 3-15 shows the distribution by various planning and planning subunits. The existing claims have been further defined based on location within special designation areas and critical habitat for federally listed species (e.g. peninsular bighorn sheep), because these are areas identified as proposed withdrawn from minerals activities.

**TABLE 3-15
LANDS CLASSIFIED AS PROSPECTIVELY VALUABLE FOR GEOTHERMAL RESOURCES**

	Planning Area	Peninsular Bighorn Sheep	Arroyo Toad	SWFL	Existing ACEC	Existing ACEC w/ PBHS	WA	WA w/ PBHS	ACEC Not in Wilderness	WSA	WSA w/ PBHS	Quino Checkerspot Butterfly
ACRES												
Total	533,550	210,660	4,120	180	26,480	20,100	50,780	41,150	13,740	14,500	4,810	2,360
Total BLM	103,303	55,080	0	0	24,040	19,230	48,050	40,950	11,450	13,500	4,700	125
Prospectively Valuable	80,240	43,650	0	0	4,290	460	13,600	13,310	4,290	1,230	1,100	2,360
Prospectively Valuable-BLM	22,040	16,520	0	0	4,000	460	13,460	13,270	4,000	1,210	1,080	125
Prospectively Valuable-Other	58,200	27,130	0	0	290	0	140	40	290	20	20	2,235
PERCENTAGES												
Prospectively Valuable	15%	21%	0%	0%	16%	2%	27%	32%	31%	8%	23%	100%
Prospectively Valuable-BLM	4%	8%	0%	0%	15%	2%	27%	32%	29%	8%	22%	5%
Prospectively Valuable-Other	11%	13%	0%	0%	1%	0%	0%	0%	2%	0%	0%	95%

3.16.3.2 Potential for the Development of Fluid and Solid Energy, and Solid Leasable Minerals

Geothermal resources can provide kinetic energy to drive steam turbines directly, or through heat exchange with other mediums to provide kinetic energy to drive turbines to create electricity or other work. Temperatures needed for steam turbine applications typically require water in excess of 250° F based on producing wells in the United States. All areas classified as prospectively valuable for geothermal resources do not have wells with temperatures sufficient for direct steam turbine or indirect binary turbine application in the generation of electric power.

Geothermal resources can also be applied to passive heating uses such as thermal energy exchange with water or air to heat space or provide hot water. Heat for residential, industrial, and commercial uses can be provided from geothermal systems with water temperatures ranging from 68°F to 302°F (20°C to 150°C). The model for direct space heating application is Warner Springs Ranch with well temperatures at 137°F (58°C). The differential heat loss on exchange is estimated at 50° F. At 1 BTU per degree per pound of water at atmospheric pressure, each pound of water served to a residence would provide approximately 50 BTUs. Residential demand requires at least 2,700,000 to 15,000,000 BTUs a month for a single residence, with a total requirement of hot water provided to each residence per month of 57,000 to 300,000 pounds (6,500 to 35,000 gallons) of water per month. Production requires a well producing 9 to 120 gallons per minute.

When geothermal resources are used for development of energy, the value of the resource is determined based on the value of the energy sold as electrical energy. When applied to more passive uses such as direct commercial or residential heating, the measure of value is based on the value of other forms of energy 'displaced' when used for the same purposes. The displacement value for commonly used energy in the area is natural gas or electrical power.

Application of prospective geothermal resources in the in the Planning Area may be directly converted to BTU equivalent heating units for the expected thermal applications in the area, space and water heating for residential or industrial facilities. It is estimated that about 80 to 90 percent of natural gas used is for heating space and water during the winter months, and 40 to 80 percent for heating water during the summer months. The displacement value would be based on the thermal equivalent of natural gas used in similar applications. Natural gas is the common energy source used for heating in the

3.16 Mineral Resources

Coachella Valley area, and natural gas is generally one-third the cost of electricity for similar applications.

In southern California, natural gas sold for residential and industrial heating is sold by the "Therm", which is equivalent to 100,000 BTU, or approximately 100 cubic feet of natural gas. Costs for natural gas vary, averaged in southern California at \$14.00 per therm for residential heating (EIA 2006). At 2,700,000 to 15,000,000 BTUs (2,700 to 15,000 cubic feet) a month for a single residence, the cost would be approximately \$40.00 to \$220.00 per month.

It is not anticipated that geothermal resources for direct space heating applications in the Planning Area is possible recognizing the initial high costs for developing residential geothermal resources and operating costs for pumping water to heat exchange units. The alternative renewable energy resources, including passive solar heating, is cheaper per residential unit. Passive solar heating has lower operating costs and higher efficiencies, and renders geothermal space heating an uneconomic alternative. Potential for development of large commercial operations for multi-residential units is also speculative, as there are no large residential communities in the area where geothermal potential is highest.

3.16.4 Salable (Construction Material) Mineral Potential

3.16.4.1 Potential for Accumulation and Occurrence of Construction Materials

The geologic environment within the Planning Area does not support the accumulation of quality sand and gravel deposits typically demanded and commanding a high price in the market. The model for mineralization for these deposits includes areas of coalescing outwash fans draining areas of crystalline rock, and fluvial environments draining these fans and slopewash areas. These models are not present within the Planning Area. Valleys, and basins are too small to allow for the natural accumulation of high grade aggregate deposits.

Within the area and representing a moderate potential for occurrence are deposits of crystalline rock which can be developed as crushed or dimension rock operations, and

decomposed areas of crystalline rock, or accumulations of decomposed rock material which can be developed for low grade aggregate or fill.

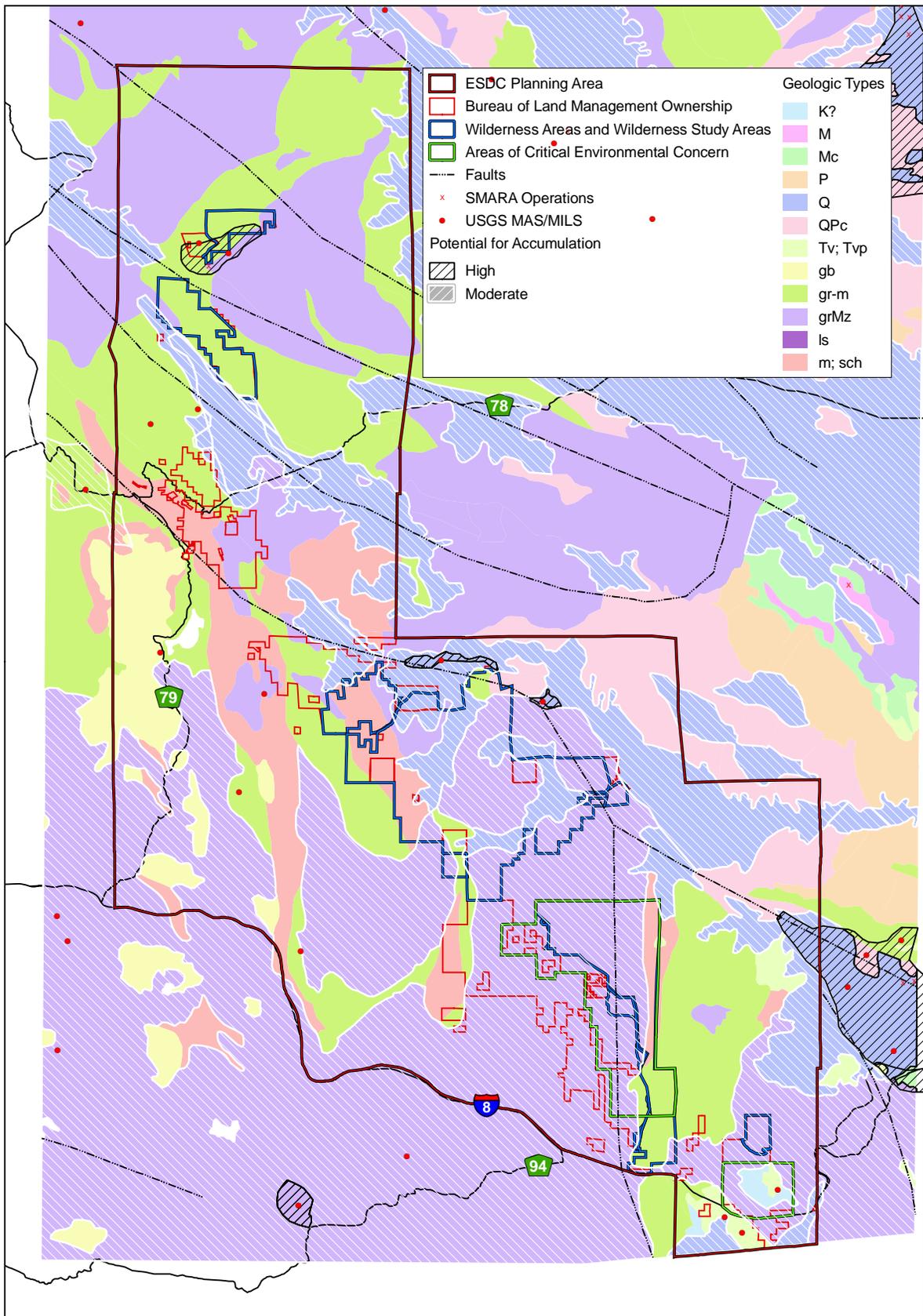
All common variety mineral materials on public land are disposed by sale or permit by the BLM. There are currently no authorizations on public land for mineral materials in the Planning Area. There are only two material sites approved by San Diego County under the SMARA in the Planning Area. These are for two borrow pits producing decomposed granite and fill materials for local consumption. Most high-end aggregate and sand used in the Planning Area for portland concrete, asphalt concrete, plaster, stucco, and road base, is mined from public land contracts and mining claims located in the Ocotillo area of Imperial County, which is east of the Planning Area.

Figure 3-19 shows the distribution of potential for salable (construction) materials deposits in the Planning Area, and Table 3-16 shows the distribution by various planning and planning subunits. The existing claims have been further defined based on location within special designation areas and critical habitat for federally listed species (e.g. peninsular bighorn sheep), because these are areas identified as proposed withdrawn from minerals activities.

3.16.4.2 Potential for the Development of Construction Materials

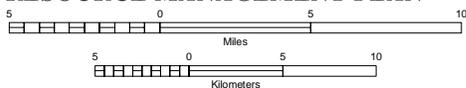
The local needs for construction materials are proportional to expected growth in the Planning Area. Based on annual production, each person in the United States consumes about 10 tons of aggregates per person annually. Each mile of interstate contains 38,000 tons of aggregates; about 400 tons of aggregates are used in construction of the average home (National Stone, Sand & Gravel Association; 2006). In addition, repaving each interstate and highway requires approximately 2,000 tons of aggregate per lane mile.

San Diego Association of Governments (SANDAG) provides estimates of current (2005) and future (2030) population and housing units for the Planning Area and San Diego County. The current population estimate for the Planning Area is 13,742 residents and 8,458 housing units. The population of the Planning Area is expected to increase by 150 percent by 2030 to 34,404 residents. The number of housing units is expected to



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FIGURE 3-19: Potential for Salable (Construction) Minerals

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**TABLE 3-16
POTENTIAL FOR THE OCCURRENCE OF CONSTRUCTION MATERIALS**

	Planning Area	Peninsular Bighorn Sheep	Arroyo Toad	SWFL	Existing ACEC	Existing ACEC w/ PBHS	WA	WA w/ PBHS	ACEC Not in Wilderness	WSA	WSA w/ PBHS	Quino Checkerspot Butterfly
ACRES												
Total	533,550	210,660	4,120	180	26,480	20,100	50,780	41,150	13,740	14,500	4,813	2,360
Total BLM	103,303	55,080	0	0	24,040	19,230	48,050	40,950	11,450	13,500	4,700	125
High Potential	5,820	3,450	0	0	0	0	0	0	0	610	0	0
Moderate Potential	244,720	111,730	3,120	113	19,980	15,430	34,270	32,000	11,220	3,370	2,770	440
High Potential-BLM	960	0	0	0	0	0	0	0	0	590	0	0
Moderate Potential-BLM	59,810	42,840	0	0	17,810	14,720	34,130	31,960	9,060	2,820	2,670	10
High Potential-Other	4,860	3,450	0	0	0	0	0	0	0	20	0	0
Moderate Potential-Other	184,910	68,890	3,120	113	2,170	710	140	40	2,160	550	100	430

**TABLE 3-16
POTENTIAL FOR THE OCCURRENCE OF CONSTRUCTION MATERIALS
(CONT.)**

	Planning Area	Peninsular Bighorn Sheep	Arroyo Toad	SWFL	Existing ACEC	Existing ACEC w/ PBHS	Wilderness Area	Wilderness Area w/ PBHS	ACEC Not in Wilderness	Wilderness Study Area	WSA w/ PBHS	Quino Checkerspot Butterfly
PERCENTAGES												
High Potential	1%	2%	0%	0%	0%	0%	0%	0%	0%	4%	0%	0%
Moderate Potential	46%	53%	76%	63%	75%	77%	67%	78%	82%	23%	58%	19%
High Potential-BLM	0%	0%	0%	0%	0%	0%	0%	0%	0%	4%	0%	0%
Moderate Potential-BLM	11%	20%	0%	0%	67%	73%	67%	78%	66%	19%	55%	0%
High Potential-Other	1%	2%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Moderate Potential-Other	35%	33%	76%	63%	8%	4%	0%	0%	16%	4%	2%	18%

increase by 8,051 units (95 percent) to 16,509 units. The increase of 8,458 housing units in the Planning Area will require approximately 3.4 million tons of sand and aggregate.

Future development of construction materials is limited to areas where available resources are currently being developed. Within the Planning Area, areas having a high potential for development are on private lands where current operations are approved by the SMARA state lead agencies. These operations are mining low-end decomposed granitic rocks or common fill. High end aggregate resources are limited to small, uneconomic deposits that must compete with larger resources along Interstate 8 east of the project area in Imperial County. Identified deposits cannot meet projected needs and will have to be supplied from sources outside the Planning Area.

There are no current or foreseeable markets identified in the Planning Area where graded aggregate and sand could be developed and sold within the local market from public lands. Any potential for development of construction material is limited to areas of moderate potential for crushed rock and decomposed granite within the crystalline rock units. These areas are pervasive within the Planning Area, and adequate resources for these commodities exist within areas that are not subject to withdrawn lands.

3.16 Mineral Resources

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3.17 Recreation Management

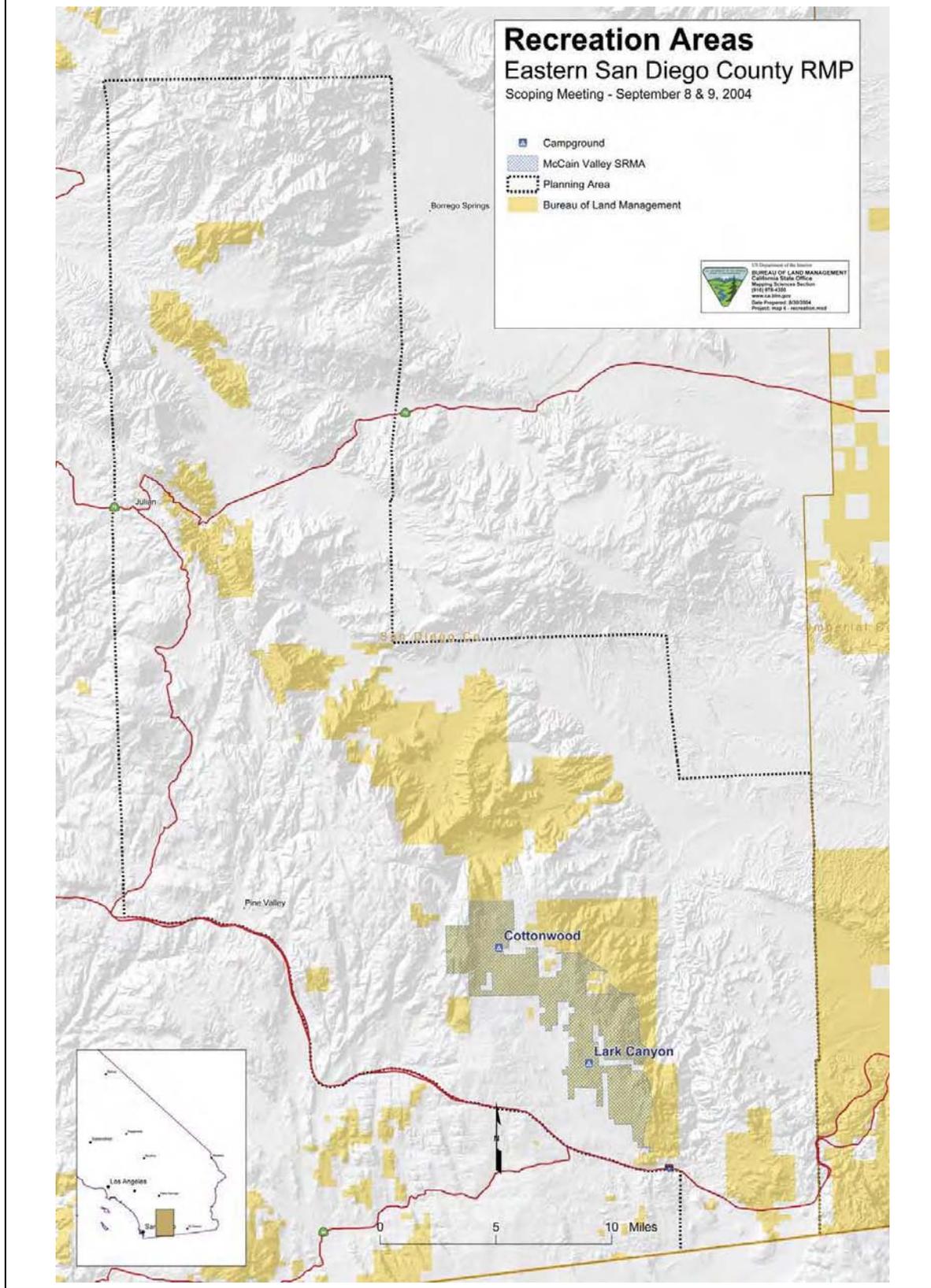
BLM-administered lands in the Planning Area are a popular destination for recreation users drawn to open spaces, diverse landscapes, and freedom from the restrictions of urban areas. Opportunities exist within the Planning Area for a wide variety of recreational uses at low-to-moderate levels of intensity. Activities known to occur in the area include hunting, rock hounding, hiking, backpacking, sightseeing, target shooting, camping, equestrian, four-wheel drive touring, mountain biking, and OHV use.

Visitors that use BLM-administered public lands in the Planning Area for recreational pursuits are primarily from the surrounding communities within San Diego County and from the city of San Diego itself. Visitors who come to utilize the recreational opportunities within the Planning Area are represented by all age groups.

McCain Valley Recreation Area (Figure 3-20), in the southern portion of the Planning Area, receives the most visitation and consists of two developed campgrounds (containing vault toilets, water, picnic tables and fire rings), one OHV area for OHVs that are 40" wide or less, and two scenic overlooks. Target shooting is not allowed within the McCain Valley Recreation Area, however the legal pursuit of game is allowed. Currently only street legal vehicles are allowed on McCain Valley Road and Sacatone Road.

BLM developed the McCain Recreation Area Management Plan (RAMP) (1979) to address the concerns expressed by the public. The purpose of the RAMP was to enable the BLM to gain an acceptable level of control over the previously unrestricted use of the area in order to protect its unique wildlife, archeological, and recreational values.

The Recreation Opportunity Spectrum (ROS) is a tool to inventory the existing recreation situation and provide options for future recreation management on the public lands within the Planning Area. The categories and definitions for ROS are provided in Appendix J.



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FIGURE 3-20: Recreation Areas



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3.17.1 Fee Program

The costs for Recreation Use Permits (RUP) and Special Recreation Permits (SRP) are periodically revised as required and subject to a public review process. The recently passed FLREA has replaced the former Recreational Fee Demonstration Program as the authority for the BLM to collect RUP fees. Additionally, the ECFO collects fees through its SRP program under the authority of FLPMA. The SRP program includes fees collected from competitive, commercial activities and organized group events.

BLM is permitted to retain 100 percent of the new fees collected. The funds generated are used for the operation, maintenance, and any improvements to enhance recreation opportunities and visitor experiences within the subject BLM field office.

Currently, the Planning Area has two RUP fee sites. These sites are the Lark Canyon Campground (upper and lower, with affiliated day use area) and Cottonwood Campground.

3.17.1.1 Lark Canyon Campground (Upper and Lower) and Day Use Area

The Lark Canyon Campground (upper and lower) is located in southeastern San Diego County near the town of Jacumba within the McCain Valley area. The upper and lower portions of the campground support a total of four vault toilets, 15 camp sites, picnic tables, and running water. Additionally there is an established OHV riding area, for OHVs that are 40" wide or less, adjacent to the campground. The Lark Canyon Campground and day-use area is a popular destination for visitors year round.

3.17.1.2 Cottonwood Campground

Cottonwood Campground is located in southeastern San Diego County near the town of Jacumba within the McCain Valley area and is about eight miles North of Lark Canyon Campground along McCain Valley Road. Like the Lark Canyon Campground, the Cottonwood Campground is also a popular destination for visitors. There are 31 camp sites as well as facilities and amenities provided at Cottonwood Campground, such as four vault toilets (two on the east side and two on the west side), potable water, picnic tables, fire rings, and horse corrals (on the east side).

3.17.2 Recreational Facilities

Aside from the campgrounds and day-use areas (OHV trails and horse corrals) described above, the Planning Area supports other recreational facilities, including various trailheads, and the Carrizo Gorge and Sacatone overlooks.

3.17.3 Special Recreation Permits

ECFO issues special recreation permits for special events including the following: trial events, organized group events (including festivals and concerts), equestrian events, Dual Sport Event, Fat Tyre Bicycle Event, and the Sheriff's Run. The trial events are only allowed in Lark Canyon OHV area. The equestrian events occur once or twice a year in the McCain Valley Recreation Area and have an average of 100 participants. The dual sport event is an annual competition that passes through Oriflamme Canyon and Chariot Canyon. The Sheriff's Run is a yearly event that passes through Oriflamme Canyon and Chariot Canyon.

3.17.4 Volunteer Events

ECFO coordinates with volunteer groups. The following are recent and/or recurring volunteer-based events: Annual National Public Lands Volunteer Day; National Recreation Area cleanups of Airport Mesa shooting area (periodic); cleanup/restoration projects by scouts and other volunteers.

3.17.5 Other Non-permitted Events (Events Not Requiring a Permit)

Other non-permitted events (allowed events not requiring a permit) that occur within the Planning Area include: backpacking, mountain bicycling, road bicycling, camping, mountain/rock climbing, driving for pleasure, gathering non-commercial products, hang-gliding/parasailing, hiking/walking/running, horseback riding, nature study, OHV use, photography, picnicking, rock hounding/mineral collecting, target shooting (entire Planning Area except McCain Valley and Table Mountain is currently open to shooting), viewing of wildlife, interpretive exhibits, and other.

3.17.6 California State-permitted Activities

The CDFG is responsible for issuing permits for hunting of big game and upland birds. While BLM does not issue permits for hunting on BLM-administered lands, the agency supports these activities and State of California permit requirements. BLM does not issue hunting guides but does make Desert Access Guides available to the public.

3.17 Recreation Management

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3.18 Transportation and Public Access

Access refers to the physical ability and legal right of the public, agency personnel, and authorized users to reach public lands. Access to the public lands within the Planning Area is an issue of concern to both agency personnel and the public. The existing fragmented ownership pattern of BLM lands intermingled with private, state, and other federal lands complicates the access situation. Generally speaking, access is acquired from willing adjacent landowners on a case-by-case basis, and as needs or opportunities arise.

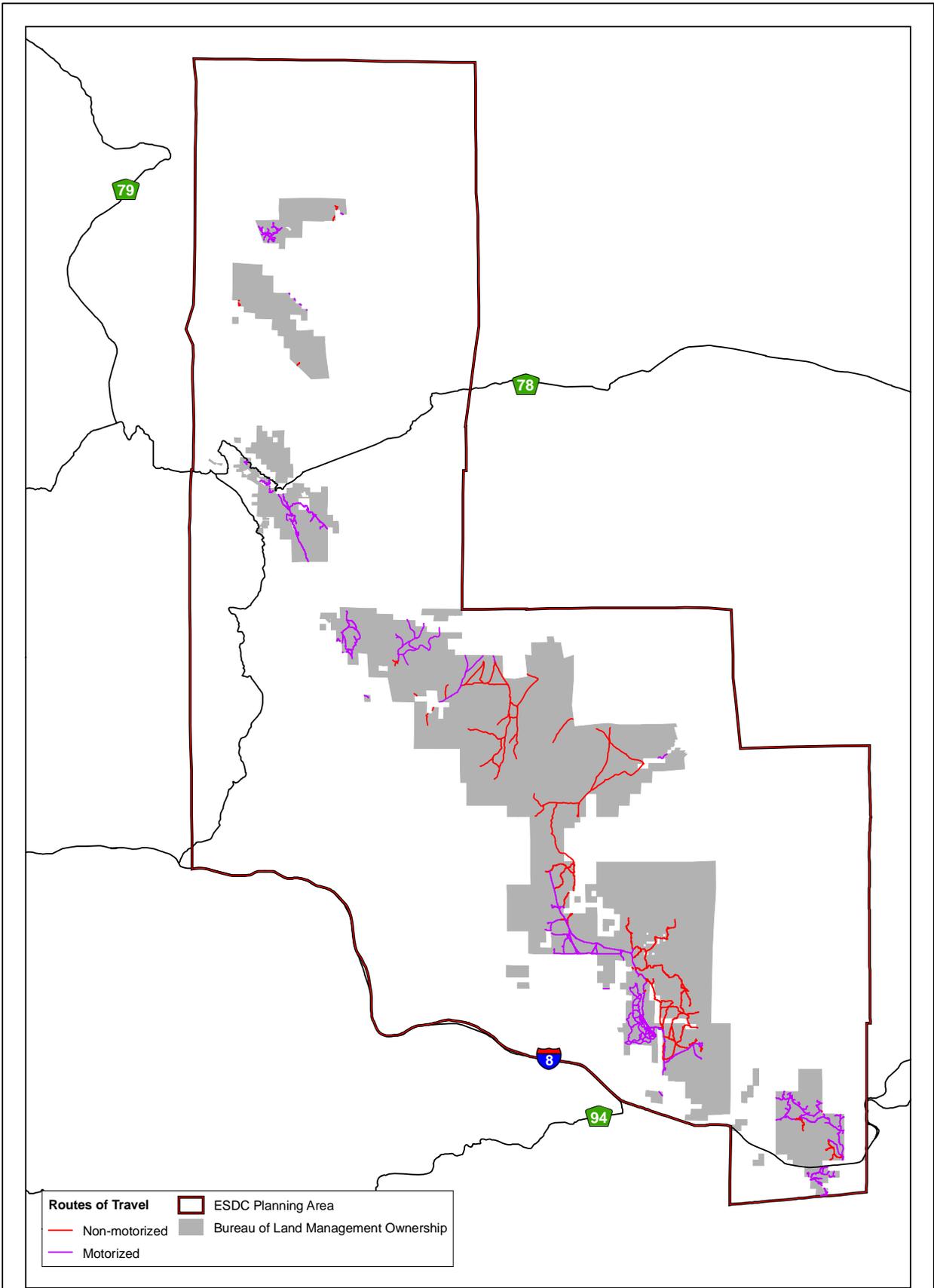
Figure 3-21 shows the existing routes of travel for the Planning Area. Routes are identified as motorized and non-motorized. For a total of 191.20 miles of routes there are currently 108.65 miles of routes identified as motorized and 82.55 miles identified as non-motorized.

3.18.1 Motorized Vehicle Access

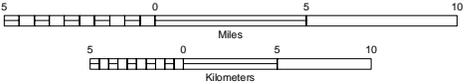
The transportation network within the Planning Area was designed twenty-five years ago to follow the Multiple-Use Class guidelines and further guidance found in the Motorized Vehicle Access Element of the CDCA Plan. The network was intended to improve opportunities for recreational use in the Planning Area while protecting sensitive resource values.

In conjunction with this network, BLM has continued to secure legal public access to landlocked parcels of public land. Until all access is acquired, persons wishing access to landlocked parcels must obtain permission to cross private property directly from the individual landowners. San Diego County requires that this permission be in writing.

The specific routes recommended for approval for vehicle travel during the formal route approval process during plan implementation twenty-five years ago were (all approvals were subject to the acquisition of legal access):



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FIGURE 3-21: Existing Routes of Travel

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- a. Buck Canyon Road
- b. Old Banner Toll Road
- c. Chariot Canyon Road
- d. Rodriguez Canyon Road
- e. Vallecito Valley/Lower Portrero Canyon Road
- f. Simmons Canyon Road
- g. Table Mountain Road

The following routes were previously approved for use under the McCain RAMP (1979):

- h. Sacatone Springs Road
- i. Mt. Tule Road

3.18 Transportation and Public Access

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3.19 Social and Economic

The BLM lands in the Planning Area are distributed across the eastern portion of San Diego County. This is a relatively rugged rural area with a low population density.

3.19.1 Social/Cultural/Economic History

The economic history of the Planning Area begins with the Spanish explorers of the 16th century. Alarcon and Diaz visited the Colorado River, some 90 miles east of the Planning Area, in 1540. Cabrillo sailed into San Diego Bay, about 40 miles west of the Planning Area, in 1543. Oñate, governor of New Mexico, visited the Colorado River in 1605. However it was not until 1769 and the founding of the Franciscan mission and the Spanish military presidio at what is known as Old Town, San Diego, that the region had permanent European settlement (Forbes 1965; Pourade 1960). The lack of a dependable water supply made growing crops there very difficult, and the mission was moved up Mission Valley six miles to its present location in 1774. Padre Dam was constructed upstream from the new mission some six miles in 1815 or 1816. A *zanja* or aqueduct was built to bring water to the new mission and associated fields. Padre Dam and the *zanja* were the first of a continuous stream of water projects in California that continues to this day (Pourade 1961:120). Mission San Luis Rey de Francia, northwest of the city of Oceanside, was founded in 1798 (Pourade 1961:120; Rolle 1998). This is some 40 miles west-northwest of Warner Springs, which is located in the northwestern portion of the Planning Area.

The mission economy was based on small-scale agriculture and large-scale cattle ranching. All mission enterprises functioned by means of more or less forced Indian labor. The Spanish military often went on forays into inland San Diego County to roundup new “converts” and fugitives from the missions. The Planning Area was typical of the places where coastal Indians sought refuge from the Spanish whose settlements were on the coast. The native economy intensified in these backcountry areas with a greater emphasis on acorn processing, while Indian society on the coast crumbled (True 1970:56). The missions and the presidio controlled vast areas for pasturing their cattle and horses herded by Indian cowboys (Rolle 1998:57).

In 1821, Mexico, including Alta California, gained independence from Spain. In 1834, the missions founded by the Mexican government and vast tracts of former mission lands became available for private ownership. The Mexican government was much more open

3.19 Social and Economic

to economic development, and there was a relative boom in the cattle business as hundreds of additional large ranchos were granted to influential *Californios*. There was a very limited market for meat, so cattle were butchered for their hides and tallow, the former becoming known as California banknotes. Hides and tallow were bought by Yankee sea captains visiting the Alta California coast, who traded U.S. manufactured goods. Native American communities continued to decline, particularly those close to the coast. However, some Indians found jobs as *vaqueros* (buckaroos), laborers, gardeners, and housekeepers (Pourade 1961; Rolle 1998:57).

After years of tensions between the Mexican government and Anglo-American Texans, Texas was annexed by the United States in February 1846, which ended the Republic of Texas and triggered the Mexican–American War (Texas State Historical Association 2004). Americans in northern California revolted and declared an independent California Republic. The Republic ended only three weeks later when U.S. naval forces took Monterey on July 7, 1846. War ended with the Treaty of Guadalupe Hidalgo, signed on February 2, 1848.

The treaty of Guadalupe Hidalgo gave Alta California, Arizona, New Mexico, a greatly enlarged Texas, and parts of Colorado, Nevada, and Utah to the United States (Rolle 1998:91; Texas State Historical Association 2004). The treaty guaranteed citizenship to former Mexican citizens if they chose to stay in the new lands of the U.S. and it promised to respect their property. Indians had been granted Mexican citizenship in 1821, but the Americans disregarded their legal claim to citizenship or to property. The subsequent California constitution barred Indians from voting, serving on juries, and testifying in court against Whites (Phillips 1996:60-61). San Diego County at that time was huge and included what is now San Bernardino, Riverside, and Imperial Counties.

On January 24, 1848, before the Treaty of Guadalupe Hidalgo, gold was discovered at Sutter's Fort on the American River in the central Sierra Nevada foothills; however, it was kept secret until an account was published on March 15. The subsequent Gold Rush initially consisted of a great influx of Americans and Europeans into the central Sierra Nevada. Soon this immigrant tide engulfed many of the Spanish and Mexican cultural traditions and eliminated many remaining vestiges of Native American culture. However, in the southern counties, there was a drop in population as people rushed to the goldfields. The region remained a cattle raising area and was slow to attract additional population. However, cattle that were worth about \$2 for their hides and tallow in 1848 were worth as much as \$500 per head in the Mother Lode during the early days of the Gold Rush. Major cattle drives were undertaken from the cow counties to the

Mother Lode. These were the forerunners of the better-known Texas cattle drives of the post-Civil War era. By 1853, Texans were also driving cattle 1500 miles to southern California and on to Sacramento (Pourade 1963:192). San Diego and the other cow counties thrived handsomely for many years by means of these cattle drives to northern California (Pourade 1963:193).

James E. Birch began a stage line to carry mail and passengers from San Antonio, Texas, to San Diego in 1857. His route led north along what is now Highway S2 through the Planning Area. At Oriflamme Canyon it turned west up the steep canyon and over the mountains to San Diego. Passengers were required to ride mules over this section, and Birch's line became known as the "Jackass Mail." The Butterfield Overland Stage began operation in 1858. Bypassing San Diego, the Butterfield line linked Yuma and Los Angeles by passing north through the Planning Area roughly along Highway S2 and joining with Highway 79 in the vicinity of Warner Springs. The Civil War ended the use of this southern route in 1861, but Butterfield resumed business over a northern route after the war. In 1869, the first trans-continental railroad linked Sacramento with the East. While overland stages gradually passed from the scene, short haul stages continued to be vital to rural areas.

In 1862, after the secession of the slave states, Lincoln signed the Homestead Act. Under this act, a homesteader had only to be the head of a household and at least 21 years of age to claim a 160-acre parcel of land. The program was managed by the General Land Office, forerunner of the BLM. Settlement of the relatively arid Diego backcountry in the Planning Area continued to be slow through the post-Civil War years, and the economy consisted of scattered ranches.

In 1870, there was a gold strike in the mountains east of San Diego which greatly altered the economy of the Planning Area for a time. Julian and various other mining camps soon sprung up: Branson City, Eastwood, and Coleman City (Emily City). Banner, located a few miles southwest of Julian, became a sizeable town. Julian soon gained a population about half that of San Diego, and there was an effort to move the county seat there (Crawford 1995). The Native population continued to decline, sometimes helped along by attacks by miners or ranchers. One such incident took place in southern part of the Planning Area called the Jacumba Massacre in which ranchers killed 10 to 15 Indians over some missing cattle. Crime was a problem along the border in the late 19th and early 20th centuries with bandits and rustlers from both sides of the border working the area.

3.19 Social and Economic

In 1870, President Grant attempted to get legislation for California Indian reservations through Congress, but failed. In 1875 by EO, he set aside nine small reservations in eastern San Diego County. In 1880, President Hayes abolished the Cupeño Reservation at Warner Springs and reduced others in size. In the 1890s, other small reservations were established. Today, there are 18 small reservations in San Diego County, more than any other county in the U.S. (Carrico 1987; Stewart 1976).

In 1885, the Santa Fe Railway opened service to San Diego directly connecting it with national markets. The economy accelerated greatly. However, water continued to be a concern. In response, private companies erected six major dams on local rivers between 1887 and 1897 stimulating local agriculture and urban development. In the 1870s and 1880s, there were concerns about wildfires in the backcountry and watershed protection. In response, President Theodore Roosevelt expanded the forest reserves of Trabuco Canyon and San Jacinto to include Palomar Mountain and the Laguna Mountains. Forest reserves were administered by the General Land Office, forerunner of the BLM. In 1905 they were transferred to the Department of Agriculture. In 1907, Forest Reserves were changed to National Forests (Cleveland National Forest 2005).

In 1919, the San Diego-Arizona Railway opened after many years of financial and technical struggle. The line proceeded through the Planning Area in Corrizo Gorge and on to El Centro. This offered a direct line to the east by means of the Southern Pacific line to Yuma (Dodge 2004). In the 1920s and 30s, the popularity of the automobile pressured county and state governments to provide better roads, and many of today's highways were graded and paved in this period. This opened up the San Diego backcountry to visitors and a tourist business began.

The World War I era saw the development of many of San Diego's naval and air facilities. In 1925, Claude Ryan and Benjamin Mahoney began what may be the first regularly scheduled airline operation in the U.S., between San Diego and Los Angeles. In 1927 Charles Lindbergh's Spirit of Saint Louis was built in San Diego's burgeoning aircraft industry at Ryan Aircraft (Tekulsky 2006).

American Indians and women of all ethnicities were finally "given" citizenship with the passage of the Citizenship Act of 1924; however, Indians still could not vote in local elections. Indians would not get full citizenship until 1952, when they were allowed to vote in local elections (Kumeyaay.com 2006).

There was interest in the health and relaxation of hot springs, and some became vacation resorts in the early 20th century. Jacumba, in the southern portion of the Planning Area, became popular for its sulfur springs and by 1930 there was a first class hotel, a large hot spring pool, bars, stores, and a population of more than 5,000. Today, there is only one motel, the spring is capped, and few tourists visit.

In 1927, the Metropolitan Water District (MWD) was chartered by the state to provide water to a number of cities in southern California; San Diego did not join despite ongoing water access problems. In 1941, the Colorado River Aqueduct was completed, bringing Colorado River water to the Los Angeles Basin and providing for the economic growth of the area (Metropolitan Water District 2006).

The World War II era saw a large population expansion and a diversified economy that continues to this day. San Diego County Water Authority (SDCWA) was organized on June 9, 1944 as a public agency to manage the importation of Colorado River water to San Diego (San Diego County Water Authority 2006). In 1946, San Diego belatedly joined the MWD, assuring supplies of Colorado River Water for future growth (MWD 2006). The SDCWA, MWD, and the Navy built the first aqueduct for importing Colorado River water, and water from the river first arrived in San Diego County in November 1947. Today, San Diego County derives as much as 95 percent of its water supplies from the Colorado River (San Diego County Water Authority 2006). Virtually none of this water goes directly to the Planning Area because there is no infrastructure to convey it. However, businesses and residents benefit in indirect ways, as the increase in population and commerce in San Diego County that is supported by this water source, translate into an increase in visitors to the Planning Area.

As the population of San Diego County expanded in the post-World War II era, tourism in the Planning Area, particularly at Julian and Warner Springs, became an important economic activity in the Planning Area, while agriculture and cattle raising declined. Retirees and individuals who do not depend on grazing for a central source of income moved into the area deriving most of their income from outside the Planning Area while maintaining a ranching or rural lifestyle. The socioeconomic characteristics of the Planning Area today will be discussed in some detail below.

3.19.1.1 Demographic and Socioeconomic Characteristics

This section describes the demographic and socioeconomic characteristics of the residents of the Planning Area and compares them with the characteristics of San Diego County residents. The County of San Diego is relatively large encompassing 2,727,000 acres. The Planning Area is generally very rural, sparsely populated with a few small towns or communities, and covers about 533,000 acres located in the eastern quarter of San Diego County (see Figure 1-1).

Within the 533,000-acre Planning Area the BLM has about 100,000 acres under its management. Therefore, the Planning Area represents about one-quarter of San Diego County, and the acreage under BLM's control represents only one-seventh (about 13%) of the Planning Area or about 4 percent of the acreage within San Diego County.

3.19.1.1.1 Demographic Characteristics

Much of the demographic data presented in this report was derived from the 2000 U.S. Census. The Planning Area data were based on aggregated demographic data for 11 Zoning Improvement Plan (ZIP) codes that encompass the Planning Area.¹ Current 2005 demographic estimates and projections for 2030 were also reported for selected characteristics (i.e., population, housing units, and employment) based on data collected from the SANDAG. In general the remote, rural area of the Planning Area was more limited in the amount of socioeconomic data that was available, compared with the level of information that was available for the County of San Diego.

Table 3-17 lists selected demographic data for the Planning Area and San Diego County. Overall, the demographic data indicates that there are very few residents of the Planning Area (13,742), representing about 0.5 percent of the total county population. In general these residents are a little older (44 years of age versus 33 years of age), more likely to be college educated, more likely to be White, and more likely to be retired than residents of the county. Median annual household income was lower for the Planning Area than the countywide median, but per capita income is about equal due to the smaller household size for the Planning Area.

¹ Demographic estimates for the Planning Area were developed by SANDAG for the combined 11 ZIP codes of: 91905, 91916, 91931, 91934, 91948, 91962, 92004, 92036, 92066, 92086, and 92259.

**TABLE 3-17
DEMOGRAPHIC PROFILE OF THE
PLANNING AREA V. TOTAL SAN DIEGO COUNTY**

Characteristic	Planning Area	San Diego County
Total Population		
2000 U.S. Census	13,794	2,813,833
2005 Population Estimate (SANDAG)	13,742	3,051,280
2030 Population Forecast (SANDAG)	34,404	3,855,085
Population percent change (2000-2005)	-0.4%	8.4%
Population percent change (2000-2030)	149.4%	37.0%
Population percent change (2005-2030)	150.4%	26.3%
Gender		
Male	49.0%	50.0%
Female	51.0%	50.0%
Age Distribution (2000 Census)		
Under 18 years	22.8%	25.7%
18 to 24	5.7%	11.3%
25 to 34	8.6%	15.8%
35 to 44	14.4%	16.3%
45 to 54	17.9%	12.5%
55 to 64	12.8%	7.3%
65+	17.8%	11.2%
Median Age (2000 Census)	44.1	33.2
Median Household Income 2005 (SANDAG)	\$54,551	\$64,273
Poverty Level (2000 Census)		
Percent of Families Below Poverty	8.2%	8.4%
Percent of Population Below Poverty	12.6%	12.6%
Population 25+ yrs. College Graduates (2000 Census)		
	35.0%	29.5%
Race (2000 Census)		
American Indian and Alaska Native	2.6%	0.9%
Asian & Pacific Islander	0.6%	9.4%
Black or African American	1.2%	5.7%
White	85.9%	66.5%
Other or Multiple Race	9.6%	17.5%
Hispanic 2005 (SANDAG)	26.0%	28.8%
Language Spoken At Home		
English Only	83.6%	67.0%
Spanish	13.5%	21.9%
Other Language	2.9%	11.1%

* Columns may not add to 100% due to rounding.

Source: 2000 U.S. Census or San Diego Association of Governments (SANDAG) as indicated.

**TABLE 3-17
DEMOGRAPHIC PROFILE OF THE
PLANNING AREA V. TOTAL SAN DIEGO COUNTY
(CONT.)**

Characteristic	Planning Area	San Diego County
Housing Units 2005 (SANDAG)	8,458	1,108,500
Total Occupied Units	5,543	1,061,027
Housing Vacancy Rate	34.5%	4.3%
Owner Occupied Units (2000 Census)	76.2%	55.4%
Renter Occupied Units (2000 Census)	23.8%	44.6%
2030 Housing Unit Forecast (SANDAG)	16,509	1,354,088
Housing Units % Change (2005-2030)	95.2%	22.2%
Housing Unit Type - 2005 (SANDAG)	100.0%	100.0%
Single Family Residence (detached)	67.9%	59.0%
Attached Units	11.2%	32.9%
Mobile Homes and Other	20.9%	3.9%
Persons per Household - 2005 (SANDAG)	2.4	2.8
Median Rent (2000 Census)	\$516	\$711
Median Housing Value (2000 Census)	\$168,376	\$223,363
Year Housing Unit Was Built (2000 Census)	100.0%	100.0%
1990 to 2000	16.0%	13.9%
1980 to 1989	21.5%	21.9%
1970 to 1979	26.1%	26.3%
1960 to 1969	11.1%	15.0%
1950 to 1959	9.3%	12.9%
1940 to 1949	6.3%	4.9%
1939 or earlier	9.7%	5.1%
Labor Force (2000 Census)	6,012	1,399,807
Unemployment Rate	3.2%	5.8%
Total Employment within the Area (2000 Census)	5,209	1,384,676
2030 Employment Forecast (SANDAG)	10,753	1,824,030
Employment % Change (2000-2030)	106.4%	31.7%
Occupation (2000 Census)	100.0%	100.0%
Management, professional, and related occupations	28.0%	37.5%
Service Occupations	24.1%	16.0%
Sales and office Occupations	23.5%	27.3%
Farming, Forestry and Fishing Occupations	1.5%	0.5%
Construction, extraction, and maintenance Occupations	13.2%	8.7%
Production, transportation, and material occupations	9.7%	9.9%

* Columns may not add to 100% due to rounding.

Source: 2000 U.S. Census or San Diego Association of Governments (SANDAG) as indicated.

The current population estimate of 13,742 residents for 2005 represents a small decrease (-0.4%) from the 13,794 residents reported by the 2000 U.S. Census. This decrease in population was probably driven by the massive wildfires experienced in San Diego County in late October 2003. In comparison, the current population of San Diego County is 3,051,280 and represents an increase of 8.4 percent from the 2000 U.S. Census. The population of the Planning Area is expected to experience a significant increase during the 25-year period of 2005-2030, jumping 150 percent to 34,400 by 2030. In contrast, a relatively modest 26-percent population increase is forecast for the county.² This is described in more detail below.

The number of households in the Planning Area as of January 2005 was 5,543, about 0.5 percent of the 1,061,027 households in San Diego County. Residents of the Planning Area are about evenly divided between female and male (49% v. 51%, respectively). The county population is 50 percent female and 50 percent male.

Based on the 2000 U.S. Census data, the median household size for residents of the Planning Area was significantly smaller than that of the county (2.4 people v. 2.8 people, respectively). Median household income in the Planning Area was less than that of the county (\$54,500 v. \$64,300). However, the per capita income was about equal for residents of the Planning Area and the county due to the smaller household size for the Planning Area. Overall poverty rates for families in the Planning Area and the county were about equal (8.2% v 8.4%). The proportion of all residents in poverty was equal for the Planning Area and the county (12.6% v 12.6%, respectively).

The median age of residents in the Planning Area was 44.1 years, as reported in the 2000 U.S. Census. This is significantly older than the median age of 33.2 years for residents of the county.

A substantial proportion of the Planning Area population was reported as White (86%). In addition, 10 percent were reported as multiple race, 3 percent American Indian or Alaskan Native, and 1 percent Black or African American (2000 U.S. Census). This is significantly different than the population of the County which was reported as 67

² Final 2030 Cities/County Forecast, San Diego Association of Governments, December 2003.

3.19 Social and Economic

percent White, 18 percent multiple race, 9 percent Asian, 6 percent Black or African American, and 1 percent American Indian.

The proportion of the Planning Area population that was reported as Hispanic origin was similar to the countywide population (26% v. 29%, respectively). However, English only speaking households are much more predominate in the Planning Area than the county (84% v. 67%, respectively).

Housing vacancy rates are much higher in the Planning Area than the county (34.5% v. 4.3%). This is largely due to the significant number of vacation/second homes. Within the Planning Area most of the residences are single-family detached units (68%) compared to 59 percent detached dwelling units for the county. Multi-family attached dwelling units represented only 11 percent of the housing in the Planning Area; however mobile home units represented 21 percent of the housing units.

A significant proportion of the housing units within the Planning Area are owner-occupied (76%), compared to 55 percent reported for the county. The median home value in the Planning Area as reported in the 2000 U.S. Census was \$168,000, compared to \$223,000 for the county. Significant housing appreciation was experienced throughout the county during the 2000–2005 period. However, the relative housing values for the county and the Planning Area have likely been maintained.

Compared with all residents of the county, the Planning Area residents are employed more often in construction (13% v. 9%) and services (24% v. 16%). Eastern San Diego County residents are less likely to be employed in professional and management positions than countywide residents (28% v. 38%).

Population and Employment Forecast. Substantial population growth is forecast for the Planning Area. Over the 30 year period of 2000 to 2030 the population of the Planning Area is expected to increase about 150 percent compared with a 37 percent increase in the population of the county. Employment growth for residents of the Planning Area is also expected to be very strong over the period rising 106 percent compared with a more modest 32 percent increase in employment within the county.

It should be noted that the nominal amount of employment and population growth that is forecast for the Planning Area is relatively modest compared with the county. Total population growth for the period of 2000-2030 is expected to be 20,600 for the Planning Area compared with 1,041,000 for the county. Total employment growth for the period of 2000-2030 is expected to be 5,500 for the ESDC compared with 439,000 for the county.

However, the rural character and feel of the Planning Area will be impacted by the addition of 20,600 residents. These new residents will be younger and the household size will be larger than the existing population. This population growth will be a consequence of the continued pressure of high housing costs in the suburban areas of the county and the push of new housing development into outlying areas of the county.

3.19.1.1.2 Economic Characteristics

The BLM and the Sonoran Institute have developed a very sophisticated economic profiling system (EPS) that enables very detailed analyses of economic and demographic trends, primarily at the county level and for larger areas. However, it has been clearly demonstrated in the preceding demographic discussion that the Planning Area represents a fairly small portion of the county in terms of land area, population and employment. The same is true for the economic value of the goods and services that are produced with the Planning Area.

As a very general overview, the Planning Area may be defined as containing about 0.5 percent of the countywide population. It also generates about 0.25 percent of the jobs within the county and about 0.2 percent of the county's regional product. The Planning Area is very rural and the economy is relatively stagnant compared with the densely populated and dynamic economy of San Diego County. Therefore, it was determined by CIC Research, Inc. that the EPS database would be somewhat misleading and inappropriate for general application in the analysis for the Eastern San Diego County DRMP.

To produce the estimates of employment and the value of regional product, CIC developed a regional input-output (I-O) model for the Planning Area and for San Diego County. The regional I-O model was based on software and data provided by Impact Analysis for Planning (IMPLAN)/Pro. The value of the IMPLAN/Pro system coupled with CIC's experience and knowledge of the Planning Area was to provide a basis for measuring the size of key economic sectors of the Planning Area in terms of output,

income, and employment. The I-O system also provided the ability to model the expected impact of exogenous changes in the Planning Area economy based on planning alternatives for the proposed regional master plan. The economic impacts (direct, indirect, and induced) were determined for each of the BLM proposed planning alternatives for the Eastern San Diego County DRMP and are presented in Chapter 4.

The economic impact definitions listed below explain the terms that will be used in the following paragraphs and tables:

Output is a measure of the sales generated within the local economy (the Planning Area). The total output of the economy has three sub-components: the direct sales impact, the indirect sales impact, and the induced sales impact.

1. Direct sales impacts occur when a recreational visitor to the Planning Area purchases a meal in a local area restaurant.

2. Indirect sales impacts occur when businesses make purchases from other businesses, (e.g., a Planning Area restaurant purchasing supplies [e.g., from food wholesalers] or services [e.g., linen cleaning services]). In turn each of the indirect businesses must also make purchases from their suppliers.

3. Induced sales are generated by the purchases of employees and owners of the businesses with direct, indirect, and induced sales. The employees and owners spend their incomes from the compensation for labor and ownership that was required to produce the direct output, as well as all indirect and induced output required by the direct sales.

Employment is a measure of the amount of full and part-time annual average employment, including self employed proprietors, generated within the Planning Area economy.

Value-Added is a measure of the amount of value created within the economy. In this study it is the amount of value created within the Planning Area economy. There are four sub-components of value-added.

1. Employee compensation includes the wages and salaries of workers who are paid by employers, as well as the cost of benefits such as health and life insurance, retirement payments, and non-cash compensation.

2. Proprietary income consists of payments received by self-employed individuals as income from the private businesses they own. This includes income received by many private business owners ranging from a lawn care service or a dry-cleaning business, as well as doctors, attorneys, consultants and other professionals that own their business.

3. Other property type income consists of payments for interest, rents, royalties, and dividends. Payments to individuals in the form of rents received on property, royalties from contracts, and dividends paid by corporations are included here as well as corporate profits earned by corporations.

4. Indirect business taxes consist of excise taxes, property taxes, fees, licenses, and sales taxes paid by businesses. These taxes occur during the normal operation of businesses but do not include taxes on profit or income.

Economic Characteristics of the Planning Area. The Planning Area economy generates about \$215 million in gross regional product as measured by value added. The total output (sales) of the Planning Area is approximately \$379 million and the total employee income is \$135 million. The \$379 million in output within the Planning Area supports approximately 4,400 jobs (Table 3-18). The total value added per job is approximately \$48,900.

The largest sector of the Planning Area economy in terms of employment is Animal Production with a reported 564 jobs. Approximately 12 percent of the employment for the Planning Area is in Animal Production. Transportation & Warehousing was the second largest employment sector with a reported 349 jobs.

Rounding out the top five sectors of the Planning Area economy were Eating and Drinking Places (340 jobs), and Retail Trade (310 jobs) and State and Local Education (276) (Figure 3-22). The top five sectors comprise nearly half of the total employment in the Planning Area. As previously discussed, there is significant employment growth forecast for the Planning Area over the next 25 years. By 2030, employment within the Planning Area is expected to increase by more than 100 percent, adding more

**TABLE 3-18
THE EASTERN SAN DIEGO COUNTY ECONOMY
(DOLLAR AMOUNTS IN \$MILLIONS)**

Industry	Industry Output	Employment	Employee Compensation	Proprietor's Income	Other Property Income	Indirect Business Tax	Total Value Added	Percent of Total Value Added	
Agriculture Farming	\$ 2.66	38	\$ 0.34	\$ 0.36	\$ 0.89	\$ 0.08	\$ 1.67	0.8%	
Animal Production	\$ 5.68	564	\$ 2.59	\$ 0.69	\$ 4.89	\$ 0.63	\$ 8.79	4.1%	
Forestry, Fish & Hunting	\$.13	111	\$ 2.39	\$ 1.27	\$ 0.05	\$ 0.24	\$	1.8%	
Mining	\$ -	0	\$ -	\$ -	\$ -	\$ -	\$ 3.85	0.0%	
Construction	\$ 2.97	264	\$ 10.48	\$ 3.50	\$ 2.35	\$ 0.20	\$ 16.53		
Utilities	\$ 3.19	22	\$ 1.39	\$ 0.14	\$ 0.93	\$ 0.09	\$ 2.55	7.7%	
Manufacturing	\$ 54.27	187	\$ 7.35	\$ 1.04	\$ 4.34	\$ 0.42	\$ 13.15	6.1%	
Wholesale Trade	\$ 3.59	26	\$ 1.35	\$ 0.18	\$ 0.61	\$ 0.59	\$ 2.73	1.3%	
Transportation & Warehousing	\$ 28.81	349	\$ 13.35	\$ 3.80	\$ 1.37	\$ 1.92	\$	9.5%	
Retail trade	\$ 20.30	310	\$ 7.99	\$ 1.64	\$ 2.48	\$ 2.83	\$ 20.43	14.9%	
Information	\$ 8.13	15	\$ 1.68	\$ 0.30	\$ 2.10	\$ 0.65	\$ 4.73	6.9%	
Finance & Insurance	\$ 15.04	127	\$ 5.01	\$ 1.61	\$ 2.86	\$ 0.24	\$ 9.72	2.2%	
Real estate & rental	\$ 18.21	94	\$ 1.17	\$ 1.67	\$ 7.41	\$ 2.27	\$ 12.52	5.8%	
Prof.-Scientific & Tech. Svcs.	\$ 11.18	95	\$ 4.87	\$ 1.09	\$ 0.92	\$ 0.08	\$ 6.96	3.2%	
Admin. & Waste Services	\$ 4.68	73	\$ 1.83	\$ 0.18	\$ 0.48	\$ 0.11	\$	1.2%	
Educational Services	\$ 5.83	174	\$ 4.17	\$	\$ 0.00	\$ 0.01	\$ 2.60	2.0%	
Health & social services	\$ 12.62	164	\$ 5.38	\$ 1.22	\$ 1.15	\$ 0.09	\$ 4.32	3.6%	
Arts - Entertainment & Rec.	\$ 0.98	15	\$ 0.26	\$ 0.09	\$ 0.01	\$ 0.01	\$ 7.84	0.2%	
Other Amuse., Gambling, & Rec.	\$ 3.02	41	\$ 0.92	\$ 0.14	\$ 0.61	\$ 0.24	\$ 1.91	0.9%	
Hotels & Motels	\$ 16.14	223	\$ 5.94	\$ 0.57	\$ 3.33	\$ 1.61	\$ 0.36	11.44	5.3%
Other Accommodations	\$ 17.65	203	\$ 4.32	\$ 0.28	\$ 2.78	\$ 0.66	\$ 8.03	3.7%	
Eating and Drinking Places	\$ 16.61	340	\$ 5.54	\$ 0.33	\$ 1.53	\$ 0.85	\$	3.8%	
Other Services (bus./personal)	\$ 10.39	262	\$ 5.03	\$ 0.77	\$ 0.43	\$ 0.34	\$ 6.56	3.1%	
Government Enterprises	\$ 9.41	53	\$ 3.52	\$ -	\$ 0.14	\$ 0.01	\$ 8.24	1.7%	
State & Local Education	\$ 12.73	276	\$ 11.46	\$ -	\$ 1.28	\$ -	\$ 12.73	5.9%	
State & Local Government	\$ 15.63	225	\$ 13.87	\$ -	\$ 1.76	\$ -	\$ 3.67	15.63	7.3%
Federal Military	\$ -	0	\$ -	\$ -	\$ -	\$ -	\$ -	-	0.0%
Federal Government	\$ 13.16	150	\$ 12.97	\$ -	\$ 0.19	\$ -	\$	6.1%	
Totals	\$ 379.00	4,402	\$ 135.15	\$ 20.99	\$ 44.90	\$ 14.15	\$ 13.46	15.07	100.0%

than 5,000 jobs. Most of this growth is expected in the retail, restaurants (food services), and construction sectors.

3.19.2 Livestock Grazing: Baseline Economic Conditions

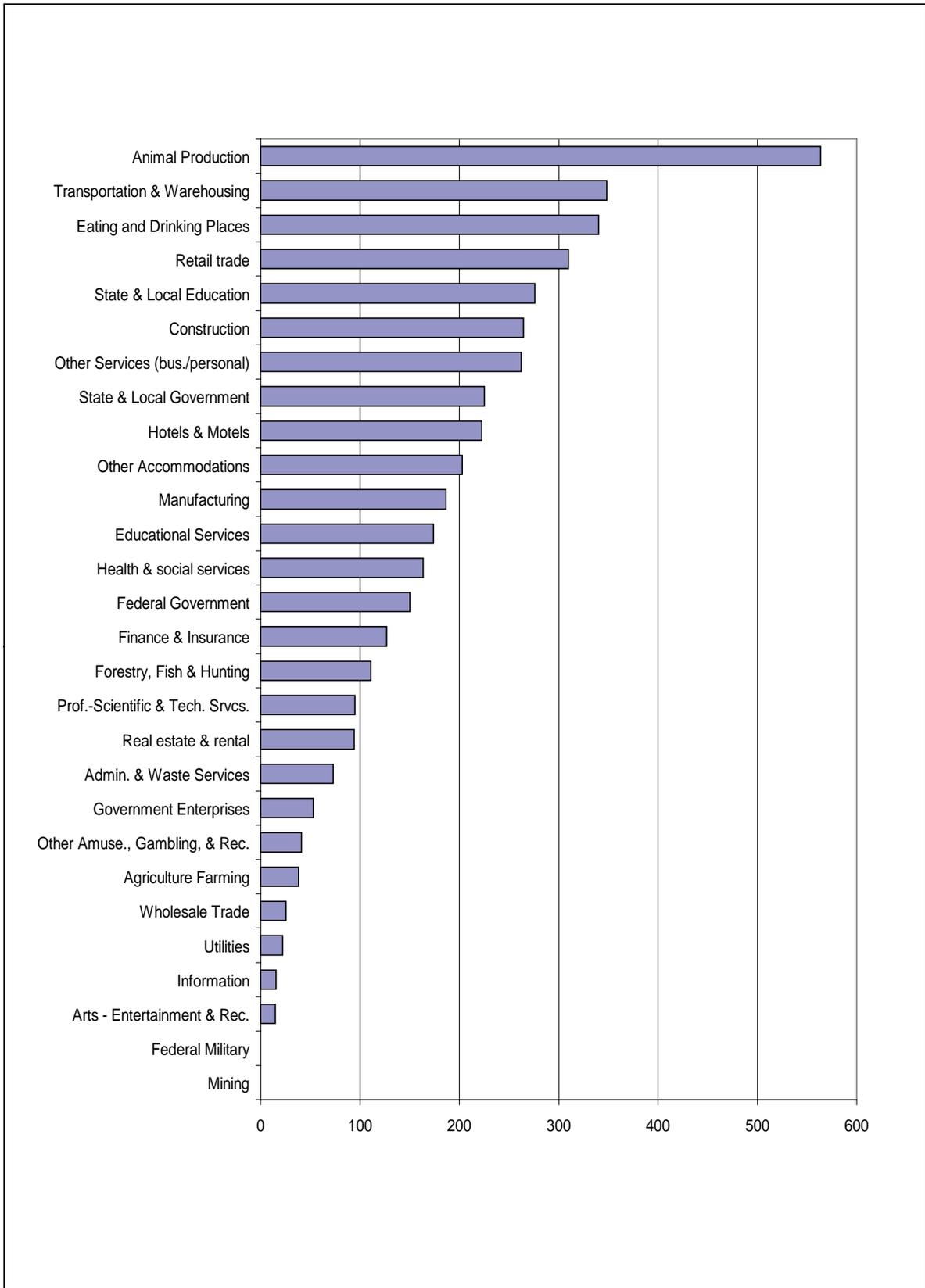
There are approximately 63,880 acres of land available for grazing under lease in Eastern San Diego County on BLM lands. This grazing land is located in McCain Valley and there are a total of 131 head in cow/calf grazing operations. Over the most recent five year period the total income from the BLM grazing leases was \$3,666.62 or an average of about \$733 per year. There are no feedlots located on BLM-administered lands within the Planning Area.

The 63,879 acres of grazing land with 131 head equals 488 acres per head. The 131 head would be expected to yield 23 head per year from the cow/calf operations (an expected average of 175 calves per 1,000 head).

Based on information published in Livestock News (September 28, 2005), the five-year rolling average for calf weaning weights was 588 pounds. Based on an average weight yield of 558 pounds per calf and market value of \$0.99 per pound the total annual output (sales) for the cow/calf operations would be about \$12,705.

In 2004 there were 28,000 head of cattle and calves in San Diego County delivered to market representing 210,000 hundred weight (cwt) and \$19.1 million total market value. The grazing activity on BLM lands in the Planning Area is generating a very small percentage of the total countywide value of cattle and calves delivered to market each year. Using the IMPLAN regional input-output model for ESDC, the overall economic baseline value of livestock grazing for the Planning Area is as follows in Table 3-19.³ The economic value generated by grazing activities on BLM lands in ESDC is very small in relation to the total value of cattle operations within the county.

³ County of San Diego, Dept. of Agriculture, Weights & Measures, *2004 Crop Statistics & Annual Report*.



DRAFT
EI CENTRO FIELD OFFICE
RESOURCE MANAGEMENT PLAN



U.S. DEPARTMENT OF THE INTERIOR
 Bureau of Land Management
EI Centro Field Office
 February 2007



FIGURE 3-22: The Eastern San Diego County Economy
(Employment Ranked by Sector)

The Bureau of Land Management makes no warranties, implied or expressed, with respect to information shown on this map.

The \$12,705 in annual direct sales (output) generated on BLM lands in the Planning Area represent an infinitesimal 0.07 percent of the \$19.1 million in countywide output of cattle and calves. The \$12,705 in direct sales in the Planning Area generated a total impact (direct, indirect, and induced) of \$23,281 in output, including \$6,199 in total value added. The total value added within the Planning Area included \$2,802 in labor income (wages and salaries) and a total of 0.18 jobs (about one-fifth of a job).

**TABLE 3-19
BASELINE ECONOMIC CONDITION FOR LIVESTOCK GRAZING**

Economic Baseline Condition - 63,879 Acres Averaging 131 Head					
Category	Direct	Indirect	Induced	Total	
Dollar Value	\$ 12,705	\$ 9,625	\$ 951	\$ 23,281	
Employment	0.10	0.07	0.01	0.18	
Labor Income	\$ 646	\$ 1,875	\$ 281	\$ 2,802	
Property Income	\$ 910	\$ 1,466	\$ 238	\$ 2,613	
Tax Revenue	\$ 363	\$ 335	\$ 66	\$ 764	
Value Added	\$ 1,367	\$ 4,246	\$ 586	\$ 6,199	

Source: MIG IMPLAN/Pro and CIC Research, Inc. (2006)

3.19.3 Lands and Realty

3.19.3.1 Baseline Economic Conditions

Economic baseline condition for the lands and realty program focuses on authorizations for communication sites, renewable energy sites, and other ROWs.

Communication Sites. BLM has 1.29 acres of communication sites within the Planning Area and in FY2005-2006 received \$1,601.35 in rent. There are two current communication sites consisting of three facilities. The communication sites are 0.04 acre and one acre in size and are situated on mountain tops in order to provide good signal reception and transmission. The Table Mountain site houses two facilities. The U.S. Border Patrol has one and a commercial entity controls the other for cellular usage. The second site is located near Banner Grade and has one 800 megahertz radio communication facility operated by the County of San Diego.

BLM communication sites require roughly \$10,000 per year per facility for maintenance. Thus, the three existing facilities require \$30,000 in maintenance cost on an annual basis. The annual economic value generated by BLM communication facilities is an insignificant portion of the ESDC economy. Using the IMPLAN model for Eastern San Diego County, the baseline economic costs of the annual maintenance for the existing communication facilities are as follows in Table 3-20.

**TABLE 3-20
BASELINE ECONOMIC CONDITION OF COMMUNICATION SITES AND FACILITIES FOR
THE PLANNING AREA**

Economic Baseline Condition - 3 Communication Facilities					
Category	Direct	Indirect	Induced	Total	
Dollar Value	\$ 30,000	\$ 5,255	\$ 5,421	\$	40,676
Employment	0.24	0.04	0.05		0.33
Labor Income	\$ 12,653	\$ 1,716	\$ 1,602	\$	15,971
Property Income	\$ 2,202	\$ 630	\$ 1,361	\$	4,193
Tax Revenue	\$ 183	\$ 220	\$ 377	\$	780
Value Added	\$ 15,038	\$ 2,566	\$ 3,340	\$	20,944

Source: MIG IMPLAN/Pro and CIC Research, Inc. (2006)

The two BLM communications sites with a total of three facilities require \$30,000 of direct output within the Planning Area for annual maintenance. The \$30,000 in annual direct sales generated a total impact (direct, indirect, and induced) of \$40,676 in output, including \$20,944 in total value added. The total value added within the Planning Area included \$15,971 in labor income, \$4,193 in property income, \$780 in tax revenue, and a total of 0.33 job (about one-third of a job).

Rights of Way (ROW). BLM issues ROWs within the 103,303 acres of BLM lands in the Planning Area. These ROW grants are generally for communication and utility corridors that cross BLM land, although ROWs are granted for other types of uses as well. For FY2005-2006, \$14,670 was expected in rent, with an average of about \$42.25 per acre and 347 acres are in right of ways, based on 28 miles of ROWs with a maximum average width of 100 feet. Pursuant to 43 CFR 2806.14, Federal, state, and local governments, or their agent or instrumentality, are exempt from paying rent unless the facility, space, or any part of the ROW is used for commercial purposes.

The majority of annual economic costs for ROWs are associated with the maintenance of paved and unpaved roadways. The average annual cost per mile of maintained ROW is approximately \$4,000 per mile. Applying this figure to the 28 miles of BLM right of way in the Planning Area yields an annual maintenance cost of \$112,000. The annual economic value generated by BLM ROWs is an insignificant portion of the ESDC economy. Using the IMPLAN model for Eastern San Diego County, the baseline economic cost of the annual maintenance for the existing right of ways is as follows in Table 3-21.⁴

**TABLE 3-21
BASELINE ECONOMIC CONDITION OF ROW FOR THE PLANNING AREA**

Economic Baseline Condition - 347 Acres/28 Miles of ROW				
Category	Direct	Indirect	Induced	Total
Dollar Value	\$ 112,000	\$ 19,619	\$ 20,238	\$ 151,857
Employment	0.90	0.15	0.18	1.23
Labor Income	\$ 47,238	\$ 6,407	\$ 5,981	\$ 59,626
Property Income	\$ 8,220	\$ 2,351	\$ 5,082	\$ 15,653
Tax Revenue	\$ 684	\$ 822	\$ 1,407	\$ 2,912
Value Added	\$ 56,142	\$ 9,579	\$ 12,470	\$ 78,191

Source: MIG IMPLAN/Pro and CIC Research, Inc. (2006)

3.19.3.2 Program-specific Socio-cultural Conditions

A very small fraction of the economic activity within BLM lands in ESDC is generated by communications sites and transportation maintenance activities. These activities on BLM lands in ESDC involve and/or affect very few people.

⁴ Jason W. Phipps, Civil Engineering Technician at the Yuma County Public Works Department provided cost per mile for ROW and road maintenance, June 13, 2006. Detailed cost for ROW construction and maintenance in Eastern San Diego County has been requested from SDG&E, the primary user of BLM right of way in the study area. This section of the report will be updated when the SDG&E cost data are provided.

Renewable Energy. Renewable energy ROWs on BLM lands are generally for solar or wind energy sites. There are no solar energy sites on BLM lands within the Planning Area. Solar potential is likely discounted due to lack of large open flat spaces, topography, vegetative cover, boulders, and/or excluded areas due to critical habitat, and VRM classes.

There are no permanent wind energy facilities on BLM lands within the Planning Area, however, there is a wind energy test site with a 3-year interim ROW. The test site encompasses 17,000 acres. BLM receives revenue of \$1 per acre per year. A permanent facility would generate annual revenue for BLM of \$2,365 per MW paid in advance. The expected cost of developing a wind energy site on BLM land is approximately \$900,000 per MW. These costs include \$720,000 per MW for the equipment, which is not available for purchase within the Planning Area, and \$180,000 for site preparation and installation. The annual cost of maintenance of the site would be \$33,288 per MW.⁵ Using the IMPLAN model for Eastern San Diego County, the baseline economic costs per MW of energy generation capacity would be as follows in Tables 3-22 and 3-23:

**TABLE 3-22
BASELINE ECONOMIC CONDITION OF SITE PREPARATION AND CONSTRUCTION FOR A
WIND ENERGY SITE**

Economic Baseline Condition - Per MW of Generating Capacity				
Category	Direct	Indirect	Induced	Total
Dollar Value	\$ 180,000	\$ 31,531	\$ 32,526	\$ 244,057
Employment	1.44	0.25	0.29	1.98
Labor Income	\$ 75,919	\$ 10,296	\$ 9,612	\$ 95,828
Property Income	\$ 90,228	\$ 15,395	\$ 20,041	\$ 125,664
Tax Revenue	\$ 1,099	\$ 1,321	\$ 2,261	\$ 4,681
Value Added	\$ 90,228	\$ 15,395	\$ 20,041	\$ 125,664

Source: MIG IMPLAN/Pro and CIC Research, Inc. (2006)

⁵<http://windeis.anl.gov/documents/docs/WindFAQ21Jun05.pdf>; BLM "Wind Energy Programmatic EIS, Appendix B, National Renewable Energy Laboratory Estimates of Wind Energy Resources on BLM-Administered Lands."

**TABLE 3-23
BASELINE ANNUAL ECONOMIC CONDITION PER MEGAWATT FOR
WIND ENERGY SITE MAINTENANCE WITHIN THE PLANNING AREA**

Economic Baseline Condition - Per MW of Generating Capacity					
Category	Direct	Indirect	Induced	Total	
Dollar Value	\$ 33,288	\$ 3,729	\$ 8,266	\$	45,283
Employment	0.380	0.030	0.070		0.480
Labor Income	\$ 20,650	\$ 1,260	\$ 2,443	\$	24,353
Property Income	\$ 2,025	\$ 474	\$ 2,076	\$	4,575
Tax Revenue	\$ 221	\$ 155	\$ 574	\$	950
Value Added	\$ 22,895	\$ 1,889	\$ 5,093	\$	29,877

Source: MIG IMPLAN/Pro and CIC Research, Inc. (2006)

The \$180,000 direct cost for site preparation and installation per MW of energy would generate a total impact (direct, indirect, and induced) of \$244,057 in output, including \$125,664 in total value added within the Planning Area. The total value added within the Planning Area would include \$95,828 in labor income (wages and salaries) and a total of 1.98 jobs (about two jobs) per MW of energy generation.

The annual direct cost for maintenance would be \$33,288 per MW of energy output and would generate a total impact (direct, indirect, and induced) of \$45,283 in output, including \$29,877 in total value added within the Planning Area. The total value added within the Planning Area would include \$24,353 in labor income (wages and salaries) and a total of 0.48 job (about one-half a job) per MW of energy generation.

Even though the cost of wind power has decreased dramatically in the past 10 years, the technology requires a higher initial investment than fossil-fueled generators. Roughly 80 percent of the cost is the machinery, with the balance being for site preparation and installation. If wind generating systems are compared with fossil-fueled systems on a "life-cycle" cost basis (counting fuel and operating expenses for the life of the generator), however, wind costs are much more competitive with other generating technologies because there is no fuel to purchase and minimal operating expenses.

3.19.4 Mineral Resources

3.19.4.1 Baseline Economic Conditions

Locatables. There are approximately 80 mining claims filed on BLM land. The cost of a mining claim is \$140 annually. The mining claim entitles the holder to the mineral rights, but not to operate a mine. To operate the mine the owner of the claim must also file a Mining Notice for operations of less than five acres or a Mining Plan for operations of more than five acres.

There are no Mining Plans and only three Mining Notices that have been filed with BLM. The three notices are for avocational mining and are not commercial operations. The existing conditions for locatables on BLM lands do not yield an economic output. Therefore, no economic baseline exists for locatable minerals, and they are not addressed further in this document.

Leasables. There are no leasable resources (e.g., oil and gas, coal, or geothermal) that are economically viable on BLM lands within the Planning Area. Therefore, the economics of leasables are not addressed further in this document.

Salables. There are no saleable resources that are economically viable (e.g., sand and gravel extraction) on BLM lands within the Planning Area. Therefore, the economics of salables are not addressed further in this document.

3.19.4.2 Program Specific Socio-cultural Conditions

Since there are no economically viable existing or proposed mineral resource operations in the Planning Area, there are no actual program-specific socio-cultural conditions *per se* relating to mining. However, from a cultural perspective, it should be pointed out that mining has an important place in the history of the West in general and specifically in the Planning Area. This is associated most notably with the community of Julian and the Gold Rush of 1870. This history is reflected in a positive view toward historic mining districts and to some degree, current mining activities. There is considerable nostalgia associated with mining and the Old West. These nostalgia values are contributing factors to the tourism that to a large degree supports the economy of the town of Julian and other western tourist towns. These values are also evident in the hobbyist mining

that takes place all over the West and to a limited degree in the Planning Area. At this point, there are no studies in the Planning Area that attempt to document and measure the nexus between history, mining, and the tourism economy of Julian.

3.19.5 Recreation Management

3.19.5.1 Baseline Economic Conditions

Recreation on ESDC BLM lands covers a wide range of outdoor activities such as sightseeing, hiking, backpacking, rock climbing, camping, photography, bird watching, horseback riding, hang-gliding/parasailing, hunting/shooting, and off-highway vehicle activity (40-inch width maximum). Recreation within the Planning Area is an important source of revenues for the local economy. The area is visited by many of the 3.1 million residents of metropolitan San Diego as an occasional leisure outing and primarily as a day use activity.

There are two relatively small campgrounds on BLM land within the Planning Area: 1) Cottonwood Campground (29 sites) and Lark Canyon (15 sites). Overnight camping within the Planning Area is primarily supported by State campgrounds (166 campsites), County of San Diego campgrounds (328 campsites/RV hookups), and private campgrounds (145 campsites/RV hookups). In addition there are nearly 500 rooms in commercial lodging accommodations including: hotel and motels, inns, bed and breakfasts, and rental cabins and second homes.⁶

Although tourism is very important to the economy of the Planning Area it is unfortunately very difficult to measure. This is especially true for recreation on BLM lands. This problem exists because reliable estimates of visitor volume are very limited for most of the activities in which the visitors are participating. There are no trail head log sheets and no fees are charged for access to the BLM lands except for the Cottonwood and Lark Canyon Campgrounds.

Recreational use data for FY2004-2005, the most current available data, were provided by the BLM EI Centro Field Office from the Recreation Management Information System

⁶ CIC Research, Inc., San Diego County 2005 Lodging Inventory.

3.19 Social and Economic

(RMIS). Although limited in scope the RMIS does provide a recreational use baseline for the Carrizo Overlook (day use), Cottonwood Campground, Lark Canyon Campground, and dispersed recreational use of McCain Valley.

Cottonwood Campground had 1,758 visitors for a total of 5,889 visitor days and an average stay of over 3.3 days during FY2004–FY2005. Lark Canyon Campground had 1,483 visitors for a total of 2,644 visitor days and an average stay of about 1.8 days. The combined total number of campground visitor days was 8,533 days.

Carrizo Overlook and dispersed use of McCain Valley generated 63,793 visitor days. The overall total number of visitors to the BLM campgrounds and day use areas in FY2004-2005 was 82,483 and the total number of visitor days was 72,326.⁷ This level of recreational use/visitation for the BLM land represents at most 5% of the total visitor days in the Planning Area based on an estimated 1,450,000 visitor days within the Planning Area (including recreation/visitation on non-BLM lands).

Average spending per visitor day within the Planning Area is estimated at \$22. Total estimated visitor spending in the Planning Area (including non-BLM lands) is a minimum of \$31.9 million annually. The \$31.9 million in annual visitor spending supports about 15% of the total sales and employment within the Planning Area (direct, indirect, and induced). As a result, recreation and tourism is a very significant part of the ESDC economy. However, visitor spending by recreational users of BLM land is a modest \$1.6 million. Total visitor spending within San Diego County is estimated at \$6.9 billion.⁸

The annual economic value generated by recreation on BLM lands is very small compared to the overall value of recreation and tourism in the Planning Area. The total direct, indirect, and induced sales generated by camping on BLM lands is about \$260,000 per year. The total direct, indirect, and induced sales generated by dispersed use of BLM lands outside of the two campgrounds is about \$1.9 million per year. The

⁷ A visitor can visit multiple sites during a visitor day. The RMIS visitor modeling system has factors that account for partial-day use and multiple site visits during a visitor day.

⁸ CIC Research, Inc., "2005 San Diego County Visitor Profile and Economic Impact Study," July 2006. This study was prepared by CIC Research, Inc., under contract to the San Diego Convention and Visitors Bureau.

combined total impact of day-use recreational activities and campground use is about \$2,150,000 per year. Using the IMPLAN model for ESDC, the baseline economic impacts of recreation on BLM lands is as shown in Tables 3-24 through 3-28.

TABLE 3-24
BASELINE ECONOMIC CONDITION FOR BLM CAMPGROUNDS
VISITOR USE-DAY IMPACTS GENERATED FOR THE PLANNING AREA

Economic Impacts - 8,533 BLM Campground Visitor Days				
Impact Category	Direct	Indirect	Induced	Total
Dollar Value	\$ 187,726	\$ 47,771	\$ 24,237	\$ 259,734
Employment	2.16	0.38	0.22	2.76
Labor Income	\$ 48,884	\$ 15,360	\$ 7,163	\$ 71,407
Property Income	\$ 29,597	\$ 10,286	\$ 6,086	\$ 45,970
Tax Revenue	\$ 6,980	\$ 2,747	\$ 1,684	\$ 11,411
Value Added	\$ 85,461	\$ 28,393	\$ 14,934	\$ 128,788

Source: MIG IMPLAN/Pro and CIC Research, Inc. (2006)

TABLE 3-25
ECONOMICS IMPACTS PER 1,000 CAMPGROUND VISITOR USE-DAYS
GENERATED BY BLM CAMPGROUNDS IN THE PLANNING AREA

Economic Impacts - Per 1,000 Campground Visitor Days				
Impact Category	Direct	Indirect	Induced	Total
Dollar Value	\$ 22,000	\$ 5,598	\$ 2,840	\$ 30,438
Employment	0.253	0.045	0.026	0.324
Labor Income	\$ 5,729	\$ 1,800	\$ 839	\$ 8,368
Property Income	\$ 3,469	\$ 1,205	\$ 713	\$ 5,387
Tax Revenue	\$ 818	\$ 322	\$ 197	\$ 1,337
Value Added	\$ 10,015	\$ 3,327	\$ 1,750	\$ 15,092

Source: MIG IMPLAN/Pro and CIC Research, Inc. (2006)

**TABLE 3-26
BASELINE ECONOMIC CONDITION FOR BLM DISPERSED-USE VISITOR DAYS**

Economic Impacts - 63,793 Dispersed Use Visitor Days				
Impact Category	Direct	Indirect	Induced	Total
Dollar Value	\$ 1,403,446	\$ 271,082	\$ 216,382	\$ 1,890,910
Employment	28.74	1.97	1.94	32.65
Labor Income	\$ 495,953	\$ 77,604	\$ 63,947	\$ 637,504
Property Income	\$ 128,996	\$ 47,768	\$ 54,338	\$ 231,103
Tax Revenue	\$ 71,840	\$ 11,976	\$ 15,038	\$ 98,854
Value Added	\$ 696,789	\$ 137,349	\$ 133,324	\$ 967,461

Source: MIG IMPLAN/Pro and CIC Research, Inc. (2006)

**TABLE 3-27
ECONOMIC IMPACTS PER 10,000 MCCAIN VALLEY
DISPERSED-USE VISITOR DAYS IN THE PLANNING AREA**

Economic Impacts per 10,000 Dispersed-Use Visitor Days				
Impact Category	Direct	Indirect	Induced	Total
Dollar Value	\$220,000	\$42,494	\$33,919	\$296,413
Employment	4.505	0.309	0.304	5.118
Labor Income	\$77,744	\$12,165	\$10,024	\$99,933
Property Income	\$20,221	\$7,488	\$8,518	\$36,227
Tax Revenue	\$11,261	\$1,877	\$2,357	\$15,495
Value Added	\$109,227	\$21,530	\$20,899	\$151,656

Source: MIG IMPLAN/Pro and CIC Research, Inc. (2006)

**TABLE 3-28
ECONOMIC IMPACTS OF COMBINED CAMPGROUND AND DISPERSED-USE
VISITOR DAYS ON BLM LANDS IN THE PLANNING AREA**

Economic Impacts - Combined Campground & Dispersed Day Use				
Impact Category	Direct	Indirect	Induced	Total
Dollar Value	\$ 1,591,172	\$ 318,853	\$ 240,619	\$ 2,150,644
Employment	30.90	2.35	2.16	35.41
Labor Income	\$ 544,837	\$ 92,964	\$ 71,110	\$ 708,910
Property Income	\$ 158,594	\$ 58,054	\$ 60,425	\$ 277,073
Tax Revenue	\$ 78,819	\$ 14,724	\$ 16,723	\$ 110,266
Value Added	\$ 782,250	\$ 165,742	\$ 148,257	\$ 1,096,249

Source: MIG IMPLAN/Pro and CIC Research, Inc. (2006)

3.19.5.2 Program Specific Socio-cultural Conditions

Recreation within the Planning Area is an important source of revenues for the local economy. The area is visited by many of the 3.1 million residents of metropolitan San Diego as an occasional leisure outing and primarily as a day use activity. Recreation activities in the Planning Area include sightseeing, hiking, backpacking, rock climbing, camping, photography, bird watching, horseback riding, hang-gliding/parasailing, hunting/shooting, and off-highway vehicle use. Each of these activities has a user group which consists of a club or a casual group of like-minded friends and associates who constitute an avocationally-based subculture. Each of these user group subcultures (sightseers, hikers, backpackers, rock climbers, campers, photographers, bird watchers, equestrians, hang gliders/parasailors, hunters, shooters, and off-highway vehicle users) hold that their activities are important and that they should be provided ample space to pursue their activities without being disturbed.

The BLM concurs, but points out that there are sometimes conflicts among different user group subcultures and between them and protection of natural and heritage resources, as well as American Indian groups. These differing perspectives require the BLM to effect a balance between these competing interests. The BLM approaches this problem by encouraging public involvement so that the various user groups can see that their cultural values, interests, and activities are being seriously considered in a balanced management process.

3.19 Social and Economic

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3.20 Environmental Justice

Beginning in the 1990s, the concept of environmental justice came to widespread public attention. Concern has developed over environmental justice issues among advocates for the poor and communities of color. In general terms, the focus of environmental justice is on disproportionate adverse environmental impacts on poor communities and communities of color in the United States. These impacts and the nature of disadvantaged communities are difficult to measure. However, a number of executive orders and policy initiatives have attempted to address environmental justice concerns.

Executive Order 12898 is entitled *Federal Action to Address Environmental Justice in Minority Populations and Low-Income Populations*. It was issued by President Clinton on February 11, 1994. The order requires federal agencies to identify minority and low-income populations and ascertain whether or not disproportionately high and adverse health or environmental effects might result from their programs, policies and activities. Subsequently, the EPA defined environmental justice as fair treatment and meaningful involvement of all people regardless of their race, color, national origin, or income, in the development, implementation, and enforcement of environmental laws, regulations, and policies. The Office of Environmental Justice coordinates the EPA's efforts to integrate environmental justice into all policies, programs, and activities. The EPA also established the National Environmental Justice Advisory Council to incorporate environmental justice into federal environmental health research, environmental law enforcement, environmental penalty assessment, environmental rule-making, and facility siting decisions.

EO 13045 is entitled *Protection of Children from Environmental Health Risks*. It requires that federal agencies assess the environmental, health, and safety risks that may disproportionately affect children. Thus, disproportional impacts to children are now considered under environmental justice.

According to the Council on Environmental Quality environmental justice guidelines, minority populations should be identified when the minority population percentage either exceeds 50 percent or the minority population is meaningfully greater than the minority population in the general population or in a meaningful geographic area. In general terms, ESDC does not contain a culturally or racially diverse population (see following section). The populations of Blacks, Hispanics, and American Indians are not meaningfully greater in the Planning Area than the general population of San Diego

County. However, there are Indian Reservations in ESDC, in which the Indian population is meaningfully greater, than in the general population, as would be expected. The proportion of San Diego County residents living below the poverty level was 12.6 percent in 2000. For Indian reservation residents within San Diego County this figure was 29.3 percent (2000 U.S. Census). There are six Indian reservations in the Planning Area. These reservations are sparsely populated today. Current population data are summarized in Table 3-29 below. As the table illustrates there is a small resident Indian population in the Planning Area, so in terms of environmental justice, they would constitute a population of concern.

**TABLE 3-29
INDIAN RESERVATIONS IN THE PLANNING AREA**

Band or Reservation	Resident Population	Tribal Affiliation	Reservation Acreage
Campo	351	Kumeyaay	15,336
Cuyapaibe	0	Kumeyaay	4,156
La Posta	18	Kumeyaay	3,471
Los Coyotes	70	Cahuilla	24,762
Manzanita	69	Kumeyaay	3,563
Santa Ysabel	250	Kumeyaay	15,270

The BLM has identified no disproportionate adverse impacts to American Indian or other minority groups in the Planning Area. To provide for open public involvement and address environmental justice issues for the Planning Area, the BLM sent outreach letters and made follow-up telephone calls inviting tribal representatives and other interested parties to come to a several public outreach scoping and economic planning meetings held in the San Diego, El Centro, and Julian, California. The public has also been invited to participate in the planning process by sharing their insights and concerns about the Planning Area in other meetings and by letter and telephone. A total of 15 members of the public spoke at the scoping meetings, 17 letters of comment were received, and 4 members of the public attended the economic workshop.

3.20.1 Minority and Low-income Communities

As presented in the discussion of environmental justice above, there are six Indian Reservations within the Planning Area. Of these, five have resident populations: Campo, La Posta, Los Coyotes, Manzanita, and Santa Ysabel. These Indian communities can be characterized as low income and minority. The BLM has no economic data focused on

the economic status of these communities. The BLM has identified no other communities with a majority low income or minority population. However, the BLM assumes that there are small pockets of poverty scattered throughout the Planning Area. There are no available economic, sociological, or anthropological studies of these economically disadvantaged neighborhoods that might exist within the Planning Area.

3.20 Environmental Justice

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