

Biological Assessment for the Imperial Sand Dunes Draft Recreation Area Management Plan/Draft Environmental Impact Statement

Prepared for

United States Department of the Interior
Bureau of Land Management
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A handwritten signature in black ink, appearing to read "Cheri Bouchér". The signature is fluid and cursive, with a large initial "C" and "B".

Cheri A. Bouchér, Biologist

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1.0 Introduction

The Bureau of Land Management (BLM) El Centro Field Office (ECFO) is developing a revised Recreation Area Management Plan (RAMP) for the Imperial Sand Dunes (ISD) Recreation Area. The overall Planning Area for the RAMP encompasses approximately 214,930 acres located in Imperial County, California, within the California Desert Conservation Area (CDCA)¹ (Figure 1). The RAMP Planning Area includes the ISD Special Recreation Management Area (SRMA), the North Algodones Dunes Wilderness (located within the SRMA), as well as a 1-mile limited use area around the entire ISD SRMA that is managed as an Extended Recreation Management Area (ERMA). As shown in Figure 2, the RAMP Planning Area is more than 40 miles long and averages 5 miles in width.

The RAMP Planning Area contains the largest mass of sand dunes in California and is considered a world-class off-highway-vehicle (OHV) area. It is a well-known area to local residents and the thousands who visit each year from the southwestern United States (US) and beyond. The RAMP Planning Area is the most intensively used OHV recreation area within the BLM California Desert District (CDD), with over 1.4 million OHV visitors per year. In addition, the RAMP Planning Area is recognized for its frequent use as a backdrop for commercials and movies because of its unique beauty and landscape. The RAMP Planning Area is also recognized for providing unique habitat for several endemic and sensitive plant, insect, and animal species.

A revised RAMP that updates the 1987 ISD RAMP is being designed to provide a variety of sustainable OHV and other recreational activities, and to maintain or improve the conditions of the special status species and other unique natural and cultural resources, while creating an environment to promote the health and safety of visitors, employees, and nearby residents (BLM 2009a).

General management policies for the RAMP Planning Area are provided by the Federal Land Policy and Management Act (FLPMA). Applicable policies include the following:

- 1) Management will be on the basis of multiple-use and sustained yield.
- 2) Public lands identified for disposal are those that are difficult and uneconomic to manage as part of the public lands and are not suitable for management by another federal department or agency.
- 3) Public lands are to be retained in federal ownership, unless disposal serves the national interest.

¹ The CDCA encompasses 25 million acres of land in southern California that were designated by Congress in 1976 through Federal Lands and Policy Management Act (FLPMA). The BLM directly administers approximately 10 million acres of the CDCA.

- 4) Public lands will be managed in a manner that will protect the quality of scientific, scenic, historical, ecological, environmental, air and atmospheric, water resource, and archaeological values that, where appropriate, will preserve and protect certain public lands in their natural condition; that will provide food and habitat for fish and wildlife, and domestic animals; and that will provide for outdoor recreation and human occupancy and use.
- 5) Public lands will be managed in a manner which recognizes the nation's need for domestic sources of minerals, food, timber, and fiber from the public lands including implementation of the Mining and Minerals Policy Act of 1970, as it pertains to the public lands.
- 6) The BLM will give priority to the designation and protection of Areas of Critical Environmental Concern (ACEC).
- 7) The BLM will weigh long-term benefits to the public against short-term benefits.

All BLM actions are subject to the requirements of NEPA (National Environmental Policy Act) and the Clean Water Act (CWA).

Mineral exploration and development are managed in compliance with the General Mining Law of 1872; Mining and Minerals Policy Act of 1970; National Materials and Minerals Policy, Research and Development Act of 1980; Material Sale Act of 1947; Mineral Leasing Act of 1920; Geothermal Steam Act of 1970; the *Federal Regulations* that codify the above mentioned laws; and BLM Mineral Resource Policy of 1984.

Public lands in the RAMP Planning Area will be managed in compliance with the federal Endangered Species Act (ESA). In addition, management will be guided and/or in conformance with the following specific plans:

- *Imperial Sand Dunes Recreation Area Management Plan (ISD RAMP; BLM 1987)*
- *2003 Updated ISD RAMP (BLM 2003a)*
- *South Coast Resource Management Plan and Record of Decision (BLM 1994, currently under revision)*
- *California Desert Conservation Area Plan (BLM 1980), as amended*
- *Western Colorado Routes of Travel Designation (WECO; BLM 2003b)*
- *Northern and Eastern Colorado Desert Plan (NECO; BLM 2002)*

Designated wilderness areas are managed under the provisions of the Wilderness Act, regulations promulgated in 43 Code of Federal Regulations (CFR) Part 8560, and policies established in BLM wilderness manual handbooks.

For purposes of this Biological Assessment (BA), the Action Area to be evaluated includes the ISD SRMA, 1-mile area surrounding the SRMA (ISD ERMA), and an area of private lands that hosts the federally listed threatened Peirson's milk-vetch (*Astragalus magdalenae* var. *peirsonii*; PMV) adjacent to the ISD SRMA in the Mammoth Wash area. The U.S. Fish and Wildlife Service (USFWS) has identified six federally listed species that may occur within the Action Area. Peirson's milk-vetch is known to occur on BLM-administered lands within the Action Area. The Mojave desert tortoise (*Gopherus agassizii*; desert tortoise), listed as a threatened species, and flat-tailed horned lizard (*Phrynosoma mcalli*; FTHL), proposed for listing, are both known to occur in very low densities, and potential habitat exists for these species within the Action Area. The remaining four species, Yuma clapper-rail (*Rallus longirostris yumanensis*) (endangered), southwestern willow flycatcher (*Empidonax traillii extimus*) (endangered), razorback sucker (*Xyrauchen texanus*) (endangered), and western yellow-billed cuckoo (*Coccyzus americanus occidentalis*) (candidate), have not been observed and due to lack of suitable habitat are unlikely to occur within the Action Area. These four species will not be considered further in this BA.

Critical habitat has been designated for PMV, desert tortoise, southwestern willow flycatcher, and razorback sucker. Of these designations, only PMV critical habitat exists within the Action Area. Therefore, only PMV critical habitat that is found within the Action Area will be evaluated; critical habitat for the other three species will not be considered further. It is intended that this BA will provide the information necessary to initiate formal consultation as required by 50 CFR 402.

2.0 Project Description

2.1 Location/Action Area

As mentioned in the Introduction, the overall RAMP Planning Area encompasses approximately 214,930 acres located in Imperial County, California, within the California Desert Conservation Area (see Figure 2). The RAMP Planning Area includes the ISD SRMA, the North Algodones Dunes Wilderness (located within the SRMA), and the 1-mile limited use area ERMA. For this BA, BLM is defining the Action Area as the ISD SRMA and ERMA, as well as privately owned in-holdings within the boundaries of the SMRA and ERMA.

The ISD are the largest mass of sand dunes in California. This dune system extends for more than 40 miles along the eastern edge of the Imperial Valley agricultural region in a band averaging 5 miles in width. It is roughly bordered to the west by the Coachella Canal and to the east by Wash Road, Ted Kipf Road, the Union Pacific Railroad (UPRR) tracks, and flood control dikes. The International Boundary with Mexico is the southern border of the Action Area. Two major highways, I-8 and SR-78, and the All-American Canal bisect the Action Area. The All American Canal and I-8 are located along the southern portion of the Action Area, and SR-78 bisects the central portion (see Figure 2).

2.2 Proposed Action

A Draft Recreation Area Management Plan/Draft Environmental Impact Statement (DRAMP/DEIS) for the RAMP Planning Area is under preparation by the BLM. The purpose of the DRAMP/DEIS is to update land use planning decisions based on changes in circumstances and policies since the current land use plan decisions were adopted (1987, 2003). Eight alternatives are being analyzed in the NEPA process in order to address the various combinations of public land uses and resource management practices within the RAMP Planning Area. Only the Preferred Alternative (Alternative 8) is presented here for consultation purposes.

The main goal of the DRAMP/DEIS is to provide guidance in the management of the lands and resources administered by the BLM ECFO. In the DRAMP/DEIS, decisions for the Planning Area fall within two main types, in accordance with the BLM Land Use Planning Handbook (BLM 2005a):

- *Land Use Plan Decisions* are broad-scale decisions that guide future land management actions and subsequent site-specific implementation decisions, with allowable uses and actions to achieve planning goals and objectives. Additional NEPA and ESA review would be required for future on-the-ground actions.
- *Implementation Decisions* generally constitute BLM's final approval allowing on-the-ground actions to proceed. These are site-specific decisions that allow on-the-ground actions to proceed and do not require further NEPA or ESA review.

Table 1 identifies the 17 resource categories analyzed within the DRAMP/DEIS and assigns to each resource the pertinent decision type. Additionally, Table 1 provides a summary of the effects analysis. The primary management actions for all 17 resources are discussed in following sections of this BA.

As management actions in the Special Designations and Visual Resources Management resource categories are not expected to have an adverse effect on listed species, they are not discussed further. The proposed management actions for these resource categories provide guidance for land throughout the ISD, but would not in themselves result in on-the-ground adverse impacts to any natural resources.

**TABLE 1
ISD RAMP PLANNING DECISIONS**

Resource Category	Specific Management Decision Type	Effect to PMV	Effect to DT	Effect to FTHL	Effect to PMV CH
Rangeland Health Standard Management	<i>Implementation Decisions</i> ; any further actions not described here would require additional consultation.	NLAA	NLAA	NLAA	NE
Air Resources Management	<i>Implementation Decisions</i> ; any further actions not described here would require additional consultation.	NLAA	NLAA	NLAA	NE
Soil Resources Management	<i>Implementation Decisions</i> ; any further actions not described here would require additional consultation.	NLAA	NLAA	NLAA	NE
Water Resources Management	<i>Implementation Decisions</i> ; any further actions not described here would require additional consultation.	NLAA	NLAA	NLAA	NE
Vegetation Resources Management	<i>Implementation Decisions</i> ; any further actions not described here would require additional consultation.	NLAA	NLAA	NLAA	NE
Wildlife Resources Management	<i>Implementation Decisions</i> ; any further actions not described here would require additional consultation.	NLAA	NLAA	NLAA	NE
Special Status Species Management	<i>Implementation Decisions</i> ; any further actions not described here would require additional consultation.	NLAA	NLAA	NLAA	NE
Wildland Fire Management	<i>Land Use Plan Decisions</i> ; Emergency consultation would be initiated in the event of a wildfire.	LAA	LAA	LAA	LAA
Special Designations	<i>Implementation Decisions</i> ; no further consultation anticipated.	NE	NE	NE	NE
Cultural Resources Management	<i>Implementation Decisions</i> ; any further actions not described here would require additional consultation.	NLAA	NLAA	NLAA	NE
Paleontological Resources Management	<i>Implementation Decisions</i> ; any further actions not described here would require additional consultation.	NLAA	NLAA	NLAA	NE
Visual Resources Management	<i>Implementation Decisions</i> ; no further consultation anticipated.	NE	NE	NE	NE
Mineral Resources Management	<i>Land Use Plan Decisions</i> ; future NEPA and ESA analysis would be required prior to any on-the-ground action occurring.	NLAA	LAA	LAA	NE
Recreation Resource Management	<i>Implementation Decisions</i> ; any further actions not described here would require additional consultation.	LAA	LAA	LAA	LAA
Transportation and Public Access	<i>Implementation Level</i> ; any further actions not described here would require additional consultation.	NLAA	LAA	LAA	NLAA
Lands and Realty	<i>Land Use Plan Decisions</i> ; future NEPA and ESA analysis would be required prior to any on-the-ground action occurring.	LAA	LAA	LAA	LAA
Public Health and Safety	<i>Implementation Level</i> ; any further actions not described here would require additional consultation.	LAA	LAA	LAA	LAA

DT = Mojave desert tortoise, FTHL = flat-tailed horned lizard, LAA = likely to adversely affect, NE = no effect, NLAA = not likely to adversely affect, PMV = Peirson's milk-vetch, PMV CH = Peirson's milk-vetch critical habitat

2.2.1 Rangeland Health Standards Management

Rangeland Health Standards and Guidelines for the Action Area are implemented as directed by national policy, and under the Northern and Eastern Colorado Desert Coordinated Management Plan (NECO) and Western Colorado (WECO) OHV Routes of Travel Designation Plan. Rangeland health standards management within these plans and rangeland health assessment methods have previously undergone USFWS consultation.

2.2.1.1 Objectives

- Meet or exceed the national policy for watersheds, ecological processes, water quality, and habitats.
- Implement standards as directed by national policy, as well as regional standards found in NECO and WECO plans.

Standard #1—Soils. Soils exhibit infiltration and permeability rates that are appropriate to soil type, climate, geology, landform, and past uses. Adequate infiltration and permeability of soils allow accumulation of soil moisture necessary for optimal plant growth and vigor and provide a stable watershed, as indicated by:

- Canopy and ground cover are appropriate for the site;
- There is diversity of plant species with a variety of root depths;
- Litter and soil organic matter are present at suitable sites;
- Microbiotic soil crusts are maintained and in place;
- Evidence of wind or water erosion does not exceed natural rates for the site; and
- Soil permeability, nutrient cycling, and water infiltration are appropriate for the soil type.

Standard #2—Riparian–Wetland and Stream Function. Wetland systems associated with subsurface, running, and standing water function properly and have the ability to recover from major disturbances. Hydrologic conditions are maintained as indicated by:

- Vegetative cover adequately protects banks and dissipates energy during peak water flows;
- Dominant vegetation is an appropriate mixture of vigorous riparian species;
- Recruitment of preferred species is adequate to sustain the plant community;
- Stable soils store and release water slowly;

- Plant species present indicate that soil moisture characteristics are being maintained;
- There is a minimal cover of shallow-rooted invader species, and they are not displacing deep-rooted native species;
- Shading of stream courses and water sources is sufficient to support riparian vertebrates and invertebrates;
- Stream is in balance with water, and sediment is being supplied by the watershed where appropriate;
- Stream channel size and meander are appropriate for soils, geology, and landscape; and
- Adequate organic matter (litter and standing dead plant material) is present to protect the site and to replenish soil nutrients through decomposition.

Standard #3—Native Species. Healthy, productive, and diverse habitats for native species, including special status species, are maintained in places of natural occurrences, as indicated by:

- Photosynthetic and ecological processes continue at levels suitable for the site, season, and precipitation regimes;
- Plant vigor nutrient cycles and energy flows are maintaining desirable plants and ensuring reproduction and recruitment;
- Plant communities are producing litter within acceptable limits;
- Age class distributions of plants and animals are sufficient to overcome mortality fluctuations;
- Distribution and cover of plant species and their habitats allow for reproduction and recovery from localized catastrophic events;
- Alien and noxious plants and wildlife do not exceed acceptable levels or require action to prevent the spread and introduction of noxious/invasive weeds;
- Appropriate natural disturbances are evident; and
- Populations and their habitats are sufficiently distributed to prevent the need for new listings of special status species.

Standard #4—Water Quality. Water quality meets state and federal standards, including exemptions allowable by law, as indicated by:

- Dissolved oxygen levels, aquatic organisms, and aquatic plants (e.g., macroinvertebrates, fish, and algae) indicate support of beneficial uses;

- Chemical constituents, water temperatures, nutrient loads, fecal coliform, and turbidity are appropriate for the site or source; and
- Best management practices (BMP) are implemented.

2.2.1.2 Management Actions

To meet these objectives, BLM would implement the current BLM-approved range land health assessment methods. A group of specialists (<10 people) would survey up to 30 "representative sites" throughout the management area. Surveyors would use designated roads or open travel areas. Surveys include visual inspection and photograph documentation of the sites. This assessment would be completed once every 10 years, would require not more than 30 days of surveys, and would be completed outside of the spring growing season. Survey locations might be within tortoise habitat, but individual tortoise and burrows would be avoided. Surveys would avoid deep bowls in the dunes and large individual PMV. Due to surveys occurring outside the growing season, it is highly unlikely that seedling PMV would be present; therefore it is assumed that seedlings would be completely avoided.

2.2.2 Air Resources Management

2.2.2.1 Objectives

- Maintain or improve air quality as established by the National Ambient Air Quality Standards (NAAQS) and California Ambient Air Quality Standards (CAAQS) through cooperative management of emissions with industry, the State of California, and federal agencies.
- BLM would strive to minimize, within the scope of its authority, any emissions that may cause violations of air quality standards, add to acid rain, or degrade visibility.

2.2.2.2 Management Actions

1. Comply with the State of California for all proposed actions that would contribute to particulate matter emissions in the air as a result of actions taken.
2. As needed, based on the Dust Control Plan (once approved by Imperial County Air Pollution Control District [ICAPCD]), treat the following access roads for dust control to reduce the impact of OHV activities on air quality, as personnel and funding levels allow: Wash Road adjacent to the UPRR (from south of Glamis to the Clyde Overcrossing) and the entry road to Dunebuggy Flats Campground. Road watering occurs during high-use weekends (Halloween, Thanksgiving, Christmas, New Year's Day, Easter, President's Day) as staffing and funding allows up to 10 times per year. Road watering does not extend beyond the road bed. OHV staging areas and primary pull-out areas (i.e., areas with heavy traffic) are also watered as staffing and funding allows. Watering of the

staging and pull-out areas can occur several times a day during these high-use weekends as needed for dust suppression. Typically when watering, sufficient water is used to moisten the soil and control dust, but not in amounts that result in standing water.

3. Install air meters for ozone and particulate matter less than 10 microns in diameter (PM₁₀) in the Planning Area, if requested by ICAPCD or the Environmental Protection Agency (EPA). Implement actions to mitigate for contributions to the non-attainment due to activities in the Planning Area, as requested by ICAPCD, and as personnel and funding levels allow.
4. Evaluate impacts of activities within the Planning Area to air quality non-attainment. Implement BLM dust control plan to improve air quality as required by the ICAPCD.

2.2.3 Soil Resources Management

2.2.3.1 Objectives

- Manage soils to maintain productivity and to minimize erosion.
- Preserve natural process of dune movement and formation.
- Meet proposed Rangeland Health Standard #1, as related to soils per the regional standards of rangeland health.

2.2.3.2 Management Actions

1. Minimize surface disturbance from authorized activities. Post-activity, disturbed surfaces would be restored to a pre-disturbance or natural condition as applicable.
2. Incorporate erosion control measures into projects on a case-by-case basis.
3. Manage vegetation to minimize erosion and maintain natural dune structure.

The primary action associated with the management of soil resources is road grading. All dirt roads within the RAMP must be maintained, including re-shaping the roads, compacting the roads, and blading the roads to maintain proper grades. Additionally, roads that are routinely covered with sand are scraped clear as funding and staffing allows. This activity occurs after high wind events, several times each year. Sand is typically moved from the center of the road to the side of the road. When blading the roads, equipment operators typically avoid creating large piles of sand; sand is dispersed to within 100 feet of the road edge. Roads that routinely have sand abatement are associated with the high, active dunes. Equipment operators receive training in the identification of special status plants and animals and are trained to avoid and protect these species. Prior to moving any sand, the equipment operator surveys the area to determine the best location to place the sand once it is collected. Vegetated areas are avoided.

2.2.4 Water Resources Management

2.2.4.1 Objectives

- Ensure that BLM activities or authorized activities do not degrade surface or groundwater in the Planning Area.
- Ensure that water quality achieves or is making significant progress toward achieving established BLM management objectives such as meeting wildlife needs.
- Meet proposed Rangeland Health Standard #4, as related to water quality per the regional standards of rangeland health.
- Identify and protect surface waters where possible.
- Preserve and enhance the natural condition and hydrology of washes.
- Identify area-wide use restrictions or other protective measures to meet federal, state, and local water quality requirements.
- Make groundwater, where present, available for beneficial use on public lands in coordination with Imperial County.

2.2.4.2 Management Actions

Water Resource Management is primarily a planning level activity. It is a means of incorporating BMPs into other projects, with little specific independent on-the-ground activities in this resource category.

1. Prevent or reduce water quality degradation through implementation of applicable BMPs or other specific mitigation measures, when applicable (BMPs have been included in Appendix D of the DRAMP).
2. Continue to maintain or improve water quality in accordance with state and federal standards. Consult with the appropriate state agencies on proposed projects that may significantly affect water quality.
3. Maintain authorized vehicle routes in a manner that will promote natural hydrology and protect water quality through application of BMP (BMPs have been included in Appendix D of the DRAMP).

2.2.5 Vegetation Resource Management

2.2.5.1 Objectives

Planning Area-wide

- Maintain viable populations of all native plant species throughout the Planning Area.
- Maintain habitat connectivity throughout the Planning Area to limit habitat fragmentation and support transfer of genetic material from all sub-populations.
- Promote biological diversity through conservation of native plant communities and special status species with consideration for multiple uses of the land and sustained ecological function.
- Maintain and enhance a mosaic of native plant communities.
- Promote wildlife forage and habitat values, and maintain and/or restore intrinsic biological integrity and value of all native plant communities.
- Protect or restore native species through an integrated weed management approach emphasizing prevention, early detection, and eradication of invasive non-native plants.
- Ensure that plant communities continue to support wildlife in a manner consistent with other resource management practices or uses.
- Promote natural processes that secure soil resources and protect against erosion and air quality degradation.
- Meet proposed Rangeland Health Standards #3 and #4, as related to vegetative resources per the regional standards of rangeland health.

Desired Plant Communities

Creosote Bush Scrub

- Promote multi-layered desert communities that are dominated by perennial vegetation which provide watershed connectivity, sediment capture, and storage, energy dissipation, and bank stability.
- Promote diverse vegetative composition and structure that include such species as creosote (*Larrea tridentata*), desert willow (*Chilopsis linearis* spp. *arcuata*), Mormon tea (*Ephedra trifurca*), white bursage (*Ambrosia dumosa*) and giant Spanish needle (*Palafoxia arida* var. *gigantea*).

- Ensure sufficient vegetation to provide landscape habitat connectivity and physical stability, which in turn support ground-dwelling species.

Microphyll Woodlands

- Promote multi-layered desert communities that are dominated by perennial vegetation which provide watershed connectivity, sediment capture and storage, energy dissipation, and bank stability.
- Promote diverse vegetative composition and structure that include such species as blue palo verde (*Cercidium floridum* spp. *floridum*), desert willow, ironwood (*Olneya tesota*), mesquite (*Prosopis glandulosa* var. *torreyana*), smoke tree (*Psoralea argemone*), and catclaw acacia (*Acacia greggii*). Native species exhibit variability in size and growth forms (e.g., overhanging branches). Complex vegetative structure with mid- and under-story vegetation is often present in healthy communities.
- Ensure sufficient vegetation that provides landscape habitat connectivity and physical stability, which in turn support ground-dwelling species.

Psammophytic Scrub

- Promote diverse vegetative composition and structure that include such species as Colorado desert buckwheat (*Eriogonum deserticola*), Mormon tea, fan-leaf crinkle-mat (*Tequilium plicatum*), and Wiggin's croton (*Croton wigginsii*).
- Ensure sufficient vegetation that provides landscape habitat connectivity and physical stability, which in turn support ground-dwelling species.

2.2.5.2 Management Actions

2.2.5.2.1 Management of Plant Communities

1. Implement a monitoring plan for the microphyll woodland community. Analyze the monitoring data to compare trends in vegetation cover in relation to the different types of impacts in each area.
2. Avoid adverse impacts to special status species, priority species, plants protected by the California Native Plant Protection Act, and their associated habitats by developing, modifying, redesigning, mitigating, or abandoning specific projects.
3. Restore degraded native plant communities through restoration activities that could include but are not limited to exclusion of disturbance activity, non-native invasive plant treatment, site preparation, and revegetation.

4. Restore surface disturbance from discretionary activities (e.g., right-of-way [ROW] construction) with rehabilitation measures including imprinting, contouring, debris and brush replacement, native plant seeding (where appropriate), and non-native invasive plant treatment.
5. Restore surface disturbance from illegal trespass activities (not including closure violations) with rehabilitation measures including imprinting, contouring, debris and brush replacement, native planting or seeding (where appropriate), and non-native invasive plant treatment.
6. Require minimum impact approaches such as trimming trees instead of removal, using existing routes and ROWs instead of creating new ones, and using previously disturbed sites and crushed vegetation instead of blading new routes, where appropriate.
7. Encourage transplanting of plant species directly on-site or onto neighboring public lands where feasible, using approved protocol for surface-disturbing activities where avoidance is not possible.
8. Design surface-disturbing activities to avoid impacts to desired plant communities to the greatest extent possible. Where avoidance is not possible, these areas would be restored to their previously undisturbed or natural condition. Restoration would follow approved protocol and include watering and maintenance until establishment.
9. Remove tamarisk and other non-native invasive plant species using mechanical and herbicide applications in accordance with BLM policy on minimum tools in wilderness and the Vegetation Treatment Using Herbicides on BLM Lands in 17 Western States Final Programmatic Environmental Impact Statement (BLM 2007) and Record of Decision (ROD) of November 2007.
10. Salvage useable native plants and parts of plants where plants would normally be lost due to development, disposal, or disturbance on public lands when practicable. Plants and parts of plants may be replanted on public lands or salvaged for public purposes. Plants and parts of plants would only be removed from public lands pursuant to applicable federal and state laws and regulations governing the sale, disposal, and transportation of plants.
11. Use native plant materials for landscaping at developed facilities within public lands.
12. Treat non-native invasive species, where appropriate, to meet management objectives.
13. Limit the introduction of non-native plants through an education program partnered with recreational users, including OHV users.

14. Develop partnerships with adjacent landowners, local agencies, state agencies, and federal agencies to manage habitat, conduct restoration activities, develop educational material, and provide interpretation of vegetation.
15. Give rehabilitation priority to habitat that supports special status species and ACECs.
16. Prohibit removal of native standing trees, alive or dead, with the exception of fire management, public health and safety, or disease control.
17. Classify microphyll woodlands as avoidance areas² for all commercial and non-commercial surface-disturbing activities.
18. Allow OHV recreation and close camping in microphyll woodlands south of Wash 25 and north of Wash 69.

2.2.5.2.2 Management of Priority Plant Species

1. Implement a monitoring plan for sand food (*Pholisma sonora*), a priority plant species.
2. Minimize or mitigate loss of habitat or fragmentation of priority plant species populations.
3. Avoid priority plant species where possible for surface-disturbing activities. Where avoidance is not possible, these populations would be restored to their previously undisturbed or native condition after completion of the activity. Restoration would follow approved protocol and include watering and maintenance until establishment.
4. Implement protection and restoration measures such as signage, non-native invasive plant species treatment, and seed collection of the priority plant species.
5. Treat non-native invasive species where appropriate to protect priority plant species.
6. Use an Integrated Pest Management (IPM) approach to ensure that the best methods available are implemented to prevent the introduction of and to control the spread of non-native plants, invasive plants, and noxious weeds (US Department of the Interior [DOI] 2007).
7. Treat non-native invasive species that constitute significant fuel load and fire threat directly by using IPM or management through fire breaks and other tactics.
8. Treat tamarisk and other non-native invasive plant species in the Planning Area.

² Avoidance area is defined as an area only available for discretionary land-use authorizations when there are no other reasonable alternatives for the authorization. Exclusion area is defined as an area that is not available for discretionary land-use authorizations.

2.2.5.2.3 Vegetative Use Authorization

1. To manage vegetation resources, the BLM would administer a permit program for specific commercial and non-commercial uses. Vegetative use authorization would be considered on a case-by-case basis, and permits would include standard guidelines and stipulations for collection. Permits could also include stipulation developed during a site-specific NEPA analysis. Priority plant species would be protected and collections would be permitted on a case-by-case basis.
2. Restore native species habitat distribution and occurrence (especially for priority species), conserve biological diversity, maintain genetic integrity and exchange, and improve availability of suitable habitats and habitat linkages. Initiate restoration activities in priority habitats, such as non-native invasive plant treatment and/or native seeding, to move toward desired habitat conditions and provide functional landscapes to sustain wildlife populations. Wildlife habitat improvement projects for the Planning Area would be implemented in coordination with California Department of Fish and Game (CDFG), pursuant to Section 103(f) of the California Desert Protection Act (CDPA) of 1994.

2.2.6 Wildlife Resource Management

2.2.6.1 Objectives

- Maintain viable populations of all native wildlife species throughout the Planning Area.
- Maintain habitat connectivity throughout the Planning Area to limit habitat fragmentation and maintain transfer of genetic material from all sub-populations throughout the Planning Area.
- Promote and maintain healthy key habitats (e.g., microphyll woodlands and psammophytic scrub) and associated wildlife assemblages.
- Promote wildlife resources that would meet conservation, socio-economic (e.g., hunting, watchable wildlife), and tribal needs.
- Provide well-distributed habitat and connectivity corridors capable of supporting self-sustaining populations of interacting groups of priority species for biodiversity and genetic viability.
- Provide suitable habitat capable of maintaining stable or increasing trends in abundance of wildlife species.
- Reduce human-caused disturbance to habitats that result in animal mortalities or undesirable effects to populations of priority species during critical times, such as breeding or drought.

- Maintain or restore appropriate amount, distribution, and characteristics of life-stage habitats for general wildlife species. Populations of non-native invasive plants should be managed in areas where their presence threatens the integrity of general wildlife populations.

2.2.6.2 Management Actions

2.2.6.2.1 Planning Areawide

1. Authorize reintroductions, transplants, and supplemental stockings (augmentations) of native wildlife populations (as defined in BLM Manual 1745) in current or historic ranges in cooperation with CDFG and/or the USFWS to (1) maintain populations, distributions, and genetic diversity, (2) conserve or recover threatened or endangered species, (3) restore or enhance native wildlife diversity and distribution; and (4) maintain isolated populations.
2. Manage non-native invasive species in accordance with applicable BLM or CDFG management policies depending on administrative area.
3. Coordinate with CDFG to ensure that wildlife guzzlers provide safe access to usable water.
4. Pursue land acquisition options (i.e., purchase, exchange, donation, and easement) to consolidate important wildlife habitats.
5. Maintain habitat connectivity throughout the Planning Area.
6. Maintain current wildlife guzzlers through cooperation with CDFG and volunteer contributions.
7. Consider construction of new wildlife guzzlers on a case-by-case basis, in coordination with CDFG.

2.2.6.2.2 Raptors

1. Provide natural or man-made nesting or perching structures in suitable areas to enhance foraging and breeding habitat for raptors as needed.
2. Require all new structures to be raptor-safe in accordance with the *Suggested Practices for Avian Protection on Power Lines: The State of the Art in 2006* (Avian Power Line Interaction Committee 2006) or the current version of this document.
3. Apply the BLM wind energy development program policies and BMPs from Appendix A in the Wind Energy Development Program ROD (BLM 2005b).

2.2.6.2.3 Non-game Migratory Birds

1. Prevent or abate the pollution or detrimental alteration of the environment for the benefit of migratory birds, as practicable, through the application of mitigation measures on authorized activities.
2. Guide management actions by recommendations of comprehensive migratory bird planning efforts such as those completed by California Partners in Flight, including the *Riparian Bird Conservation Plan* (Riparian Habitat Joint Venture 2004), and other plans as available.
3. Require all new structures to be bird-safe in accordance with the *Suggested Practices for Avian Protection on Power Lines: The State of the Art in 2006* (Avian Power Line Interaction Committee 2006) or the current version of this document.
4. Provide recreational opportunities for bird watching and photography.
5. Monitor new energy development (including power lines, wind turbines, and/or other structures) to better understand risks to non-game migratory birds.
6. Require a non-game migratory bird inventory prior to and following new utility or energy projects.

2.2.6.2.4 Bats

1. Protect bat foraging habitat within microphyll woodlands.
2. Apply the BLM wind energy development program policies and BMPs from Appendix A in the Wind Energy Development Program ROD (BLM 2005b).
3. Require a bat inventory prior to and following new wind energy projects.
4. Maintain and enhance bat habitat across a wide variety of dune environments.

2.2.6.2.5 Invertebrates

1. Avoid adverse impacts to sensitive invertebrate species and associated habitats by developing, modifying, redesigning, mitigating, or abandoning specific projects.
2. Restore surface disturbance from discretionary activities, such as ROW construction, with rehabilitation measures including imprinting, contouring, debris and brush replacement, native plant seeding (where appropriate), and non-native invasive plant treatment.
3. Restore surface disturbance from illegal trespass activities (not including closure violations) with rehabilitation measures including imprinting, contouring, debris and

brush replacement, native planting or seeding (where appropriate), and non-native invasive plant treatment.

2.2.6.2.6 Game Animals

1. Prohibit OHV use for the pursuit of game within closed areas.
2. Maintain, restore, or enhance water resources for native game animal populations. Water developments would include design features to ensure safety and accessibility to water by desirable wildlife. Where practical, water troughs and tanks would be kept full year-round to provide a continuous water supply for native game animals. Provide reasonable administrative use-related vehicular access by CDFG personnel to game animal water facilities for operation and maintenance activities, which could include cross-country travel along a pre-approved route. Enhancement projects would not be undertaken for non-native birds and mammals.
3. Apply the BLM wind energy development program policies and BMPs from Appendix A in the Wind Energy Development Program ROD (2005b).

2.2.7 Special Status Species Management

2.2.7.1 Objectives

- Maintain, enhance, and restore habitats for the survival and recovery of species listed under the ESA and to prevent proposed or candidate species from becoming listed as endangered or threatened under the ESA. Perform management actions that contribute to recovery and delisting of species listed under the ESA.
- Avoid or minimize activities that would result in the following situations for special status species and associated habitat on BLM-administered public lands: (1) species becoming endangered or extirpated from public lands in the Planning Area; (2) species undergoing significant current or predicted downward trend in habitat capability that would reduce a species' existing distribution; and (3) species undergoing significant current or predicted downward trend in population or density.
- Provide habitat capable of maintaining stable or increasing population trends of special status species to ensure persistence. Provide suitable ecological conditions that constitute well-distributed habitats and connective corridors to support reproductive needs and free-flow movements of special status species for population persistence.
- Manage allowable uses to minimize habitat destruction, degradation, and fragmentation to protect special status species. Habitat modifications from land and resource uses would be at levels that do not threaten the persistence of special status species populations.

- Achieve stable or increasing populations of special status plant species over time with adequate pollination, nurse plants, recruitment, and survivorship. Maintain desired habitat conditions or restore degraded habitats to promote pollinator success and survival.
- Achieve stable or increasing populations of special status animal species over time with adequate recruitment and survivorship. Maintain desired habitat conditions or restore degraded habitats to promote reproductive success and survival.
- Protect the habitat of sensitive species throughout the Planning Area.

2.2.7.2 Management Actions

2.2.7.2.1 Plan Areawide

1. Authorize reintroductions, transplants, and supplemental stockings (augmentations) of special status species populations (as defined in BLM Manual 1745) in current or historic ranges in cooperation with CDFG and/or the USFWS to (1) maintain populations, distributions, and genetic diversity, (2) conserve or recover threatened or endangered species, (3) restore or enhance diversity and distribution; and (4) maintain isolated populations.
2. Maintain or restore an appropriate amount, distribution, and characteristics of life-stage habitats for special status plant species. Populations of non-native invasive plants should be managed in occupied and potential special status plant habitat.
3. Apply the BLM wind energy development program policies and BMPs from Appendix A in the Wind Energy Development Program ROD (BLM 2005b).
4. Analyze impacts of all projects occurring within occupied sensitive species' habitat and require that projects mitigate the impacts accordingly.
5. Allow camping only in designated areas within BLM sensitive species habitat.
6. Prohibit commercial or personal collection of special status species. Allow research collection by permit only.

2.2.7.2.2 Federally Listed Species and Designated Critical Habitats

1. Follow prescriptions in recovery plans for federally listed species.
2. Minimize effects to PMV resulting from human-caused disturbances.
3. Promote research activities to further management goals of PMV.

4. Implement a monitoring plan for PMV. Analyze the monitoring data to compare the trend in species' abundance due to the different types of impacts in each area.
5. Close PMV critical habitat (existing and future designated) to motorized use. Close Dunebuggy Flats campground to camping, if rainfall threshold is met for PMV Critical Habitat.
6. Exclude PMV critical habitat from solar and wind energy development as well as all other types of land use authorization.
7. Review land use requests on a case-by-case basis. Requests may be denied or require mitigation to achieve Goals and Objectives for desert tortoise.
8. Compensate for loss of desert tortoise habitat in accordance with the Desert Tortoise Compensation Team report (1991).
9. Limit activities that would fragment or further isolate existing populations of desert tortoises (e.g., canals, highways).
10. Reduce the attraction of desert tortoise predators through proper management of garbage.
11. Reduce take of Mojave desert tortoises by injury or death through proper mitigation measures.
12. Manage consistently with the FTHL range-wide management strategy.
13. Implement a monitoring plan for the FTHL. Analyze the monitoring data to compare trends in species' abundance due to the different types of impacts in each area.

2.2.8 Wildland Fire Management

2.2.8.1 Objectives

- Protect human life (both firefighters and public), communities, property, and the natural resources on which they depend. Firefighter and public safety are the highest priority in all fire management activities.
- Scale the management response to wildfire to the values, risks and other factors present. The management response may vary from aggressive suppression action to those actions that allow fire to function in its natural ecological role.

2.2.8.2 Management Actions

1. Implement fuels reduction programs where needed, with wildland fuels decreased and maintained at a manageable level, creating conditions conducive to safe, efficient, and

effective firefighting. Fire and fuels management treatments may include fire suppression, prescribed fire, and non-fire treatments (manual, chemical, mechanical, or biological treatments). Treat non-native invasive species that constitute significant fuel load and fire threat directly by using Integrated Pest Management or management through fire breaks and other tactics.

2. Identify, prioritize, and plan fuels reduction projects using a uniform system for determining wildland fire risk in wildland–urban interface (e.g., Risk Assessment and Mitigation Strategy).
3. Identify and implement post-fire stabilization and rehabilitation actions in burned areas to restore a functional landscape to meet the natural resource management objectives.
4. Apply the minimum impact management tactics, identified in the Interagency Standards for Fire and Aviation Operations for Wilderness Areas (WAs), when wildland fire suppression is required.
5. Consider the desired conditions and management prescriptions in implementing fire management activities for ACECs (see Section 2.3.12.2 ACECs of this chapter).
6. Utilize wildland fire suppression methods with lesser ground disturbance to minimize potential adverse impacts on special status species, critical habitat, desired plant communities, and cultural resources. Provide an on-site resource advisor to consult with the wildland fire responders on the location of sensitive resources and provide input to minimize impacts to those resources. When feasible, use of fire suppression techniques that minimize ground-disturbing impacts is desirable; however, reduction of total acreage lost to fire, especially in critical habitat, through the use of mobile attack with engines, fireline construction with bulldozers, aerial fire retardant, or other necessary techniques is appropriate and requested.
7. Use fire retardants or chemicals adjacent to waterways in accordance with the *Environmental Guidelines for Delivery of Retardant or Foam near Waterways: Interagency Standards for Fire and Aviation Operations* (National Interagency Fire Center 2009).
8. Use wildland fire to achieve resource benefits whenever possible.

2.2.9 Cultural Resources Management

2.2.9.1 Objectives

- Identify, preserve, and protect significant cultural resources, districts, and landscapes and ensure that they are available for appropriate uses by present and future generations.

- Identify priority geographic areas for new field inventory, based upon a probability for unrecorded significant resources.
- Enhance public understanding and appreciation of cultural resources through educational outreach and heritage tourism opportunities.
- Evaluate identified cultural resources under the criteria for the National Register of Historic Places (NRHP). Eligible resources would be formally nominated to the NRHP, as appropriate.
- Promote new survey efforts on an ongoing basis, utilizing partners where appropriate.
- Maintain viewsheds of important cultural resources whose settings contribute significantly to their scientific, public, traditional, or conservation values.
- Provide and encourage research opportunities on cultural resources that would contribute to the understanding of the ways humans have used and influenced natural systems and processes.
- Seek to reduce imminent threats, and direct and indirect impacts to cultural resources, and resolve potential conflicts from natural or human-caused deterioration or potential conflict with other resource uses.
- Develop and deepen BLM consultation and coordination with Native American tribes.

2.2.9.2 Management Actions

1. Maintain current cultural resource data in a geographic information system (GIS) format and increase knowledge of cultural resources within the Planning Area through proactive surveys. The inventory would include a prioritized list (high/medium/low sensitivity) of areas for future inventory—based on sensitivity and the likelihood of significant unrecorded sites. Inventory strategies for un-surveyed areas would be continually refined.
2. Work cooperatively with the California State Historical Preservation Office (SHPO) on data sharing, information management, and promotion and enhancement of public education, including Archaeological Awareness Week/Historic Preservation Month, outreach, and stewardship programs.
3. Provide for and/or increase interpretive educational opportunities at selected cultural and historic sites, including the Plank Road. Work with communities, tribes, interested individuals, and other agencies to enhance public understanding, appreciation, and enjoyment of cultural resources.

4. Implement protection measures to stop, limit, or repair damage to sites that are on or eligible for the NRHP. A variety of protection measures, described in BLM Manual 8140, may be used to protect the integrity of sites at risk such as signing, fencing or barriers, trash removal, erosion control, backfilling, repairing, shoring up or stabilizing structures, restricting uses and access, and closures. Where feasible, acquire properties within the Planning Area that contain significant cultural resources including, but not limited to, those properties eligible for or included on the NRHP.
5. Manage spiritually significant and traditional cultural properties in consultation with Native American tribes, accommodate tribal access to spiritually significant and traditional cultural properties, and prevent physical damage or intrusions that might impede their use by religious practitioners. The locations of spiritually significant and traditional cultural properties and other places of traditional or religious importance to Native American tribes would be kept confidential to the extent allowed by law.
6. Coordinate with Native Americans to manage harvesting areas for the collection of medicinal herbs, ceremonial herbs, other vegetation, and/or minerals for traditional or ceremonial use.
7. Evaluate and allocate cultural properties (including cultural landscapes) to one of six uses as outlined in BLM-IB No. 2002-101—*Cultural Resource Considerations in Resource Management Plans*.

2.2.10 Paleontological Resources Management

2.2.10.1 Objectives

- Protect and conserve significant paleontological resources as they are discovered on public lands.
- Manage paleontological resources in ways that prioritize research needs, facilitate educational and recreational needs, and protect important sites.
- Develop specific objectives and management actions for fossil localities, when paleontological resources are discovered in the Planning Area.

2.2.10.2 Management Actions

1. Evaluate paleontological resources as they are discovered, considering their scientific, educational, and recreational values. Identify appropriate objectives, management actions, and allowable uses for fossil localities as they are found.
2. Restrict the collection of all vertebrate fossils and noteworthy invertebrate and plant fossils to legitimate scientific or educational uses in accordance with permitting procedures.

3. Allow recreational collecting of common invertebrate and plant fossils in accordance with 43 CFR 8365.1-5.
4. Notify BLM immediately if paleontological resources are encountered during project ground-disturbing activities, and cease work in the area of the discovery. Work may not resume until a written authorization to proceed is issued by BLM.

2.2.11 Visual Resources Management

2.2.11.1 Objectives

The DRAMP alternatives would designate visual resource management (VRM) classes ranging from Class I to IV, and all future projects and actions would adhere to the following VRM class objectives as appropriate:

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

Class II Objective. The objective of this class is to retain the existing character of the landscape. The level of change to the characteristic landscape should be low. Management activities may be seen, but should not attract the attention of the casual observer. Any changes must repeat the basic elements of form, line, color, and texture found in the predominant natural features of the characteristic landscape.

Class III Objective. The objective of this class is to partially retain the existing character of the landscape. The level of change to the characteristic landscape should be moderate. Management activities may attract attention, but should not dominate the view of the casual observer. Changes should repeat the basic elements found in the predominant natural features of the characteristic landscape.

Class IV Objectives. The objective of this class is to provide for management activities which require major modification of the existing character of the landscape. The level of change to the characteristic landscape can be high. These management activities may dominate the view and be the major focus of viewer attention. However, every attempt should be made to minimize the impact of these activities through careful location, minimal disturbance, and replication of the basic elements.

2.2.11.2 Management Actions

The overall goal of VRM analysis is to minimize visual impacts through development of mitigation measures. The VRM system involves inventorying scenic values (developing VRM Class area boundaries on maps), establishing management objectives for those values through the land use planning process, and evaluating proposed management activities to determine

whether they conform to the established management objectives. The VRM system is BLM's tool to document a proposed activity's potential impacts to the landscape, develop mitigation measures to minimize those impacts, and maintain scenic values of public lands for the future. Designating VRM classes does not have immediate on-the-ground effects.

2.2.12 Special Designation Management

Special designations within the Planning Area include one WA (North Algodones Dunes Wilderness Area) and two ACECs (Plank Road ACEC and East Mesa ACEC) (Figure 3).

The WA is closed permanently to OHVs and other mechanized use—hiking and horseback access are permitted. Primitive camping is allowed, but developed camping sites or facilities are not available. No commercial uses are permitted, and the use of motorized vehicles of any kind is prohibited. Most use in the WA takes the form of short photographic and sightseeing walks from SR-78, although hiking, backpacking, and nature study trips also occur. BLM also conducts guided hikes into the North Algodones Dunes Wilderness for the local community and schools as staffing allows. Solitude and primitive recreation are the primary land uses within the wilderness.

The three ACECs within the Planning Area were designated for natural and cultural resource values: East Mesa ACEC, Plank Road ACEC, and North Algodones Dunes ACEC. Each ACEC has its own management plan.

2.2.12.1 Objectives

Wilderness Area

- Provide for the long-term protection and preservation of the area's wilderness character under the principle of non-degradation. The area's naturalness and untrammelled condition, opportunities for solitude, opportunities for primitive and unconfined types of recreation, and any ecological, geological, or other features of scientific, educational, scenic, or historic value would be managed so that they remain unimpaired.
- Meet minimum requirements necessary for the administration of the area for the purpose of the Wilderness Act (including measures required in emergencies involving the health and safety of persons within the area).
- Manage any newly designated WAs in accordance with the designation authority.

ACECs

- ACECs would provide protection for relevant and important special status species, wildlife, scenic values, and significant cultural resources.

2.2.12.2 Management Actions

Wilderness Areas

Continue to provide monitoring, signing, and restoration as necessary.

1. Some relevant management provisions provided for by law or policy for these areas are:
 - Withdrawal from mineral entry, mineral leasing, and mineral sales.
 - Prohibition of motor vehicles, motorized equipment, or other form of mechanical transport.
 - Prohibition of structures or installations within these areas.
 - Administrative structures (e.g., trail markers or informational kiosks) and use of vehicles and structures would be the minimum necessary for the administration of these areas.
 - Prescribed fire may be used (1) to reintroduce or maintain the natural condition of a fire-dependent ecosystem, (2) to restore fire where past strict fire control measures had interfered with natural ecological processes, (3) where a primary value of a given wilderness would be perpetuated as a result of burning, or (4) where it would perpetuate threatened and endangered species (MS-8560.35).

ACECs

1. Ensure that land use authorizations approved in ACECs are consistent with the actions presented in Section 2.3.16 of the RAMP/EIS—Lands and Realty Management.
2. Ensure that mineral management actions authorized in ACECs are consistent with the actions presented in Section 2.3.16 of the RAMP/EIS—Lands and Realty Management.
3. Retain the ACEC in public ownership and seek to acquire non-federal lands and interests in lands within the ACECs from willing sellers by purchase, exchange, or donation. Future acquisitions of in-holdings and edge-holdings would be managed in accordance with the designated ACEC.
4. Allow treatment for hazardous fuels and non-native invasive or pest species.
5. Prohibit wood collection in all ACECs.
6. Allow traditional use by Native Americans consistent with Vegetative Use Authorization (Section 2.3.5.4 of the RAMP/EIS—Vegetative Use Authorization).

7. Monitor resources within the ACECs to detect change and prevent future deterioration.
8. Acquire in-holdings from willing owners.
9. Perform restoration treatments where damage has occurred or where it will reduce vehicle incursions.

Special designations are established to protect natural and cultural resource values, and designation of these areas typically results in beneficial impacts to the resources. Special designation area management dictates how other future actions may or may not occur within the special designation areas. Because these actions would have no on-the-ground impacts, Special Designation Management actions would not affect listed species and will not be discussed further.

2.2.13 Mineral Resource Management

2.2.13.1 Objectives

ECFO manages mineral resources in accordance with BLM's National Mineral Policy, Energy Policy Act, and National Energy Policy. Development of mineral resources from public lands managed by the BLM is directed by Congress through various enabling laws under three general categories: locatable minerals, leasable minerals, and salable minerals. Figure 4 shows the land available for mineral resource activities.

2.2.13.2 Management Actions

2.2.13.2.1 Locatable Minerals

1. Provide opportunities for mineral production while preventing unnecessary or undue degradation of public lands and resources.
2. Involve management to maintain ACEC(s) as open to mineral entry under the Mining Law, subject to Section 7 and Section 106 consultations.
3. Maintain the ISD SRMA, excluding the WA, as open to mineral entry under the Mining Law, subject to Section 7 and Section 106 consultations.

2.2.13.2.2 Leasable and Salable Minerals

1. Exclude ISD SRMA and donated lands from geothermal minerals leasing.
2. Classify the FTHL management area as available for geothermal leasing, but with a No Surface Occupancy (NSO) stipulation.
3. Classify the Limited Use Area ERMA (excluding FTHL management area) as available for geothermal minerals leasing.

4. Close critical habitat, ACEC(s), other special area designations, and camping and staging areas to surface occupancy.
5. Limit available acres for geothermal leasing to 35,115.
6. Prohibit mineral sales or free use permits within the ISD SRMA.

2.2.14 Recreation Resource Management

2.2.14.1 Objectives

To meet the specific needs and changing demands of recreation visitors and changes in BLM recreation management, a California-specific *Recreation and Visitor Services Strategy* was completed in 2008 (BLM 2008). The strategy outlined a framework with specific goals, objectives, and actions to be implemented. The three primary goals of the document were designed to increase public land stewardship through consistent and coordinated management of the BLM California recreation program in order to achieve the best possible balance of recreational uses and land health standards statewide. These goals are 1) to set a framework for achieving sustainable experiences and quality of life outcomes for individuals, communities, and the environment, 2) to sustain diversity, distinctive character, and capacity of BLM recreation settings, and 3) to increase the economic stability and sustainability of the BLM California recreation program.

The DRAMP/DEIS would achieve these goals by balancing recreation needs with land health within the Recreation Management Areas (RMAs), Recreation Management Zones (RMZs), and establishing OHV Management Area classifications that designate all BLM-administered public lands within the Planning Area as open, closed, or limited to motorized travel. The Preferred Alternative RMZs are shown on Figure 5, and the Preferred Alternative OHV Management Areas are shown on Figure 6.

2.2.14.2 Management Actions

1. Provide a minimum of recreational facilities. Those facilities should emphasize resource protection and visitor safety.
2. Work cooperatively with the OHV community, the environmental community, and other local, state, and federal agencies to develop and implement interpretive and public relations programs about issues and resources related to the Planning Area.
3. Incorporate the idea of climate change into planning so that recreational experiences may be directed toward reducing the carbon footprint.
4. Monitor economic changes (e.g., increases in fuel prices) to leverage funding for eco-friendly recreation.

5. Engage the business community and local governments in collaboratively planning and management for sustainable recreation–tourism use of public lands that meet or exceed land health standards, addressing needs of visitors and resident customers.
6. Prohibit camping in the Dunebuggy Flats Campground, if rainfall threshold (Appendix C) for PMV is met.
7. Prohibit camping within the microphyll woodlands south of Wash 25 and north of Wash 69. OHV recreation would continue to be allowed in this area.
8. Within each SRMA, BLM also allocates Recreation Management Zones (RMZ). An RMZ represents public lands with a distinctive recreation niche (activities, experiences, and benefits) within each SRMA.
9. Designate all BLM-administered public lands within the RAMP Planning Area as open, closed, or limited to motorized travel with OHV Management Areas (Table 2). An open classification means that users have full access to drive anywhere within the designated area. A closed classification indicates that no OHV use is allowed to the general public, and access is limited to administrative uses or for emergency access. Limited access means that the public must stay on designated OHV routes, while some areas are restricted.

**TABLE 2
RMZ AND OHV AREA DESIGNATION UNDER THE PREFERRED ALTERNATIVE**

Use Areas	OHV (acres)	RMZ (acres)
Open	127,416	127,416
Limited	52,370	52,370
Closed	35,144	-
Resource Protection	-	9,046
North Algodones Dunes Wilderness	-	26,098

2.2.15 Transportation and Public Access

2.2.15.1 Routes of Travel

As seen in Figure 7, the routes of travel currently existing in the RAMP Planning Area were developed through the NECO (BLM 2002) and WECO (BLM 2003b) plans. These routes of travel are therefore considered to be valid for existing implementation decisions.

Routes of travel within the ISD ERMA have been designated as limited, and routes within the ISD SRMA, excluding the WA, have been designated as open. Open routes are available to motorized vehicles. Limited routes may have additional limitations on use including vehicle size, vehicle type, and season of use. Closed routes are closed to motorized vehicles, including OHV, but open to biking, hiking, and equestrian use. Table 3 provides the total mileage of existing open and limited routes in the RAMP Planning Area.

**TABLE 3
ROUTES OF TRAVEL (MILES)**

Route Name	Miles
Grays Well Road	4.49
Luis Aguilar Road	0.49
Wash Road	5.69
Gecko Road	6.39
Niland-Glamis Road	15.53
Ted Kipf Road	21.31
Other (unpaved)	174.31
Total Miles	228.21

2.2.15.2 Objectives

- Ensure that the BLM continues to provide essential motorized access to non-federal lands, prior existing rights on BLM lands, and private in-holdings surrounded by BLM lands.

- Ensure that the BLM continues to provide adequate motorized access for the maintenance of wildlife guzzlers and for dispersed recreation activities such as hunting.
- Ensure that the BLM provides for a wide variety of recreational opportunities (e.g., hiking, OHV recreation, horseback riding, filming, and commercial activities).
- Reduce or halt the unauthorized incursions into closed areas. Ensure that the BLM would minimize impacts to identified sensitive cultural, natural, biological, and visual resources.

2.2.15.3 Management Actions

1. Maintain, and where necessary, improve Wash Road.
2. Allow primary vehicle travel only on routes designated for motorized vehicles. Emergency vehicles may utilize a drivable wash to access a site. Where no roads exist, vehicles could be authorized on a case-by-case basis to travel cross-country to avoid the need for road building. Where new roads must be built, roadbeds would be no wider than needed for reliable access; BLM specifications would also be used to reduce erosion.
3. Reduce vehicle incursions by restoring conditions of disturbed or degraded non-motorized routes or trespasses as rapidly as funding permits. Sensitive resources in immediate danger or those that have been damaged by linear disturbances would be a high priority for restoration. Typically, the restoration would be limited to that portion of the route of trespass that is in line of sight from an open route. Each route would be evaluated on a case-by-case basis, and the most appropriate method of restoration would be used based on geography, topography, soils, hydrology, and vegetation. The methods of restoration would include:
 - Not repairing washed-out routes
 - Using natural barriers, such as large boulders
 - Using rocks, and dead and downed wood to obscure the route entryway
 - Employing mulching, chipping, and raking to disguise evidence of routes
 - Ripping up the route bed and reseeding with vegetation native to that area
 - Utilizing fences or barriers
 - Providing signage, including information to OHV users, on the need and value of resource protection
 - Converting motorized two-track routes into non-motorized single track routes

- Ensuring that designated routes within the Planning Area are adequately signed and mapped for public use.

2.2.16 Lands and Realty Management

2.2.16.1 Objectives

The lands and realty management program consists of four distinct parts: land tenure, land use authorization (including solar and wind energy; see Figure 4), withdrawals, and utility corridors. Land tenure focuses on disposing of and acquiring lands or interests in lands. Public lands would be retained in federal ownership, unless as a result of land use planning it is determined that disposal of a particular parcel would serve the national interest. Land use authorization focuses on public demand requests for ROWs, permits (such as temporary filming permits), leases, and easements.

2.2.16.2 Management Actions

1. Manage all acquired lands in accordance with the approved land use and planning decisions for surrounding or adjacent BLM-administered lands.
2. Consolidate split-estates pursuant to Sections 205 and 206 of FLPMA.
3. Acquire lands that include both the surface and subsurface (minerals) estates when possible and manage them in accordance with the approved land use decisions for the surrounding area.
4. Consider leases, permits, and easements on a case-by-case basis.
5. Locate new major ROWs in designated corridors, unless an evaluation of the project shows that locating outside of a designated corridor is the only practicable alternative.
6. Ensure that any application for proposed facilities at existing communication sites is compatible with other uses at the site existing at the time of application.
7. Consider applications for new communication sites outside the four existing sites on a case-by-case basis emphasizing co-location and subleasing of facilities.
8. Continue the existing three utility corridors (one is a contingency corridor). There is one 2-mile-wide existing utility corridor along I-8 on BLM-administered lands within the Planning Area. A second utility corridor begins in the northernmost portion of the Planning Area near Mammoth Wash and runs north (see Map 2-28). The contingency corridor travels along the eastern boundary of the Planning Area adjacent to the UPRR tracks (Map 2-28).
9. Locate all new major utility ROWs (consisting of the following types) within the designated corridors: (1) new electrical transmission towers and cables of 161 kilovolts

(kV) or above; (2) all pipelines with diameters greater than 12 inches; (3) coaxial cables for interstate communications; and (4) major aqueducts or canals for interbasin transfers of water.

10. Avoid special designation areas and environmentally sensitive areas, where practical.
11. Allow apiary permits on a case-by-case basis within strategically located sites to limit interaction with the public.
12. Treat PMV critical habitat as an exclusion area for all other types of land use authorization.
13. Avail 35,115 acres of land within the ISD ERMA (1-mile buffer area surrounding the ISD SRMA; see Figure 4) for solar and wind energy development under the Preferred Alternative. Complete separate NEPA and ESA analyses prior to any ROW withdrawal or disposal.
14. Exclude approximately 153,717 acres from solar and wind energy development, including PMV critical habitat, FTHL management area, donated lands, and ACEC(s).

2.2.17 Public Health and Safety Management

2.2.17.1 Objectives

- Work cooperatively with the county, contracted emergency medical service providers, and other interested agencies to find innovative methods of providing the highest level of emergency medical service needed to adequately serve visitors to the Planning Area, as needs fluctuate.
- Provide adequate basic life support training to the ISD SRMA staff as a minimum level of emergency medical service.
- Improve the health and safety of visitors, employees, and nearby residents by working with local, state, and federal agencies and interest groups.
- Promote safety through education about the rules and regulations within the Planning Area.
- Promote safety through law enforcement activities to improve compliance with the rules and regulations of the Planning Area.
- Improve public health by addressing the air quality around established roads with the management of dust and particulates through stabilization and/or reduction in accumulation, as appropriate and practical, and the enforcement of speed limitations.

- Provide education to encourage compliance with the rules about camping-related issues such as disposal of trash and wastewater.
- Reduce OHV-related accidents and injuries. Provide education concerning the rules and regulations relating to OHV use within the Planning Area.
- Increase compliance with all laws and regulations.
- Strive to minimize, within the scope of BLM's authority, excessive noise.
- Maintain or improve noise levels in the Planning Area.
- Ensure that public lands adjacent to the US–Mexico border are safe for public and agency use.
- Promote public and/or environmental safety from unexploded ordnance (UXO) and related hazardous materials.
- Minimize the presence and potential impact to human health and the environment from hazardous materials.

2.2.17.2 Management Actions

1. Provide emergency medical technician training to the permanent visitor services staff as a minimum level of emergency medical service.
2. Provide adequate off-highway emergency medical service support to the county and visitors throughout the Planning Area.
3. Maintain and enhance cooperation between law enforcement entities having jurisdictional authority within the Planning Area.
4. Enforce existing rules and regulations to facilitate a safe visitor experience.
5. Manage OHV destination areas to provide safety for the OHV recreationists and agency personnel.
6. Provide for adequate law enforcement and visitor services (emergency medical technicians).
7. Maintain law enforcement coalition.
8. Coordinate with United States Border Patrol (USBP) to minimize impacts to resources in emergency situations, where greater access may be required.
9. Educate visitors about border safety through continued partnerships.

10. Maintain area adjacent to the US–Mexico border as open to public use and continue voluntary compliance through public education and cooperation with USBP to enhance public safety.
11. Identify the locations on BLM-administered lands that are potential areas of UXO concern in cooperation with the US Army Corps of Engineers (USACE).
12. Report UXO to the proper authorities for disposal as they are found.
13. Perform public notification of potential health risks by means of notices, signage, and other forms of communication.
14. Remediate areas contaminated with hazardous materials in accordance with applicable laws and regulations.

3.0 Environmental Baseline

3.1 Action Area

An action area includes all areas to be affected directly or indirectly by a federal action and not merely the immediate area involving the action. For purposes of this BA, the Action Area includes the ISD SRMA, 1-mile limited area ERMA, and the area of private lands that hosts PMV adjacent to the ISD SRMA (in the Mammoth Wash area).

3.1.1 Site History

The ISD have been a recreational area since the 1950s. During this time the use of the land has shifted from being completely open to visitor use to having some areas closed to OHV recreation, some areas with restricted visitor use, and some areas remaining fully open to visitor use. The sections below describe the existing conditions of visitor access and natural resources within the Action Area.

3.1.2 Administrative Closures

As part of legal stipulations as a result of a lawsuit filed against the BLM regarding the PMV in 2000, five areas located within the ISD SRMA were closed to motorized vehicle use (Figure 8). The BLM acknowledged the requirement to consult with the USFWS to ensure that adoption and implementation of the CDCA Plan is not likely to jeopardize the continued existence of threatened or endangered species or result in the destruction or adverse modification of designated critical habitat of listed species. As a result of this acknowledgment, the BLM entered into a consent decree whereby it agreed to close certain portions of the Planning Area to OHV use until the Record of Decision (ROD) for the RAMP was signed. In October 2001, the BLM issued a *Federal Register* notice closing portions of the Planning Area to OHV use pursuant to 43 CFR 8341.2(a).

The closure boundaries are identified in the *Amended Stipulation and Order Concerning Injunctive Relief for the Peirson's Milk-vetch, Case No. C-00-0927 WHA-JCS*. The boundaries of each closure area are identified by sign posts. The five closure areas consist of 49,224 acres and are identified in Figure 8.

Under the Preferred Alternative, the Administrative Closures would be eliminated, in accordance with the court stipulation, and new motorized vehicle closed areas would be designated (see Figure 6).

3.1.3 Visitor Use Areas

Mammoth Wash open area is the most remote OHV recreation area within the Action Area in its northern location. The Mammoth Wash open area is about 5 miles long and 2 miles wide and is located within the most northern portion of the Action Area (see Figure 7). Visitation is usually low in this area. Historically, even on weekends with high visitation, approximately only 10 to 15 visitor groups camp in the area. Currently, visitor use has risen to as high as 100 vehicles on a major holiday weekend, possibly due to the Administrative Closures south of SR-78. The Mammoth Wash area lacks visitor facilities such as camping pads, improved roads, latrines, or vendors. One of the five Administrative Closure areas is located immediately south of the Mammoth Wash area and north of (adjacent to) the North Algodones Dunes Wilderness (see Figure 7). Under the Preferred Alternative, the Mammoth Wash area would be open to OHV recreation except for PMV critical habitat. All PMV critical habitat would be closed to motorized use (including OHV recreation) (see Figure 6).

North Algodones Dunes Wilderness is located south the Mammoth Wash open area and north of SR-78. Motorized vehicles, bicycles, or any other form of mechanized equipment are prohibited within Wilderness Areas to protect the solitude and primitive nature of these special places. The WA consists of 26,098 acres and experiences relatively low levels of non-motorized recreation use. Three wildlife guzzlers are located within the WA along the eastern portion within the microphyll woodlands.

Glamis/Gecko Area just south of SR-78 is the most intensively utilized OHV recreation portion of the Action Area. Gecko Road is the most developed area, with numerous developed campgrounds and other facilities. Cahuilla Ranger Station, located along Gecko Road, is the headquarters for the ISD SRMA and incident command center for dunes operations. Other facilities along Gecko Road include: Gecko Campground, Keyhole Campground, Roadrunner Campground, 10 hardened camping pads, a vendor area, vault toilets, trash facilities, kiosks, and a public telephone. Another of the Administrative Closures is located east of the southern portion of the Gecko Campground (and Pads #3 and #4) (see Figure 7). Under the Preferred Alternative, the Gecko/Glamis area would be open to OHV recreation except for PMV critical habitat, all PMV critical habitat would be closed to motorized use including OHV recreation (see Figure 6).

Glamis Area (eastside) is undeveloped, contains minimal facilities, and provides for open desert camping and open OHV recreation. The main access into the Glamis area is via Wash Road, which was historically adjacent to the UPRR tracks and within the UPRR ROW. During the summer of 2009, BLM developed a new Wash Road, located on BLM-managed lands. The new Wash Road, which is adjacent to the URPP ROW, allows for safe and easy access to the camping area known as the Washes. The Glamis and Palo Verde Flats areas are open desert camping areas accessed from SR-78. The BLM provides trash and toilet facilities within this area. The town of Glamis, located along SR-78, comprises privately owned properties and supports three OHV-oriented businesses (see Figure 7). The small settlement of Boardmanville is just east of Wash 10, southeast of Glamis.

Dunebuggy Flats area is located in the southern portion of the Action Area and is located north of I-8. This is an intensive OHV recreation area similar to the Glamis/Gecko area. Facilities located within this area include: kiosks, signs, trash facilities, camp hosts, toilets, and a portable ranger station trailer staffed by BLM staff on holiday weekends. The largest Administrative Closure is located north of the Dunebuggy Flats area and south of the Gecko area. One of the small Administrative Closures is located just south of the large Administrative Closure in this area as well (see Figure 7). Under the Preferred Alternative, the Dunebuggy Flats area would be open to OHV recreation except for PMV critical habitat. All PMV critical habitat would be closed to motorized use (including OHV recreation) (see Figure 6). If rainfall thresholds for PMV are met, the Dunebuggy Flats Campground would be closed.

The area west of the Coachella Canal and adjacent to Gordons Well Road was closed (March 2002) to camping in order to protect the FTHL and its habitat (see Figure 7). The closure was the result of a USFWS Biological Opinion that required mitigation of impacts from development of the Herman Schneider Memorial Bridge. The bridge opened in April 2001 and provides OHV access across the All-American Canal and the shared use (OHV and street-legal vehicles) of the Gordons Well overpass. This allows OHV enthusiasts legal access across I-8 from the Buttercup Valley to the Dunebuggy Flats area. Prior to the bridge construction, there were illegal and dangerous OHV crossings across I-8. The land east of and adjacent to the closed area is privately owned and supports OHV-oriented private businesses as well as campgrounds and residences (see Figure 7).

Ogilby and Dunes Vista Campgrounds (see Figure 7) are located in the southeastern portion of the Action Area. The access to this area is via the Ogilby Road and a dirt/sand road. This area is similar to Mammoth Wash, but there are no facilities or services except irregular BLM patrols. Visitation is low to moderate, with most use occurring on weekends and holidays.

Buttercup Campground is located south of I-8 and north of the US–Mexico border. Buttercup Ranger Station is located in this area and provides visitor information (maps, education materials, information about the ISD) and emergency medical services. Grays Well Road provides access to Buttercup, Midway, and the Plank Road camping areas. All three camping areas have vault toilets and trash facilities. At Plank Road, a metal protective barrier and

interpretive signs surround the remnants of the old wooden road that enabled vehicles to cross the ISD in 1915. The southernmost Administrative Closure is located in this area (south of I-8, between the Buttercup and Midway campgrounds) (see Figure 7). Under the Preferred Alternative, the Buttercup Campground area would be open to OHV recreation except for PMV critical habitat. All PMV critical habitat would be closed to motorized use including OHV recreation (see Figure 6).

Within ISD ERMA (the 1-mile area surrounding the ISD SRMA), OHV recreation opportunities are limited to existing trails and routes. There is a network of trails east of the ISD that extend to the Colorado River and north to I-10. There are several WAs and military closures that limit access. Very little OHV recreation opportunity exists directly west of the Action Area in the East Mesa. The cities of Brawley, Imperial, Holtville, and El Centro lie west of the Action Area. On the far western side of the valley lie the Ocotillo Wells State Vehicle Recreation Area, Plaster City, and Superstition Mountains. These are open OHV recreation areas with limited use surrounding them. These areas are shown on Figure 6 and discussed in Table 3.

3.1.4 Visitation

The majority of the visitation in the Action Area occurs from October through May. Summer visitation level is low due to extremely high temperatures, although some OHV activity does occur during the summer nights. Typically, the Action Area experiences high levels of visitation during Halloween, Thanksgiving, New Year's Eve/Day, Martin Luther King Jr. Day, Presidents' Day, and Easter holiday weekends.

In addition to the camping areas within the Action Area, visitors have historical congregation sites, most of which are within the ISD SRMA. Vendor row (alternatively known as the mall) is an area in Glamis Flats that has been historically used for vending of commercial goods and services. The vendors set their sites along the south side of SR-78 between the Glamis Flats off-ramp and the Glamis private property line. Rows of vendors often form, facing each other with OHV traffic flowing between them. Additional rows, similar in design, generally follow along the west private property boundary of Glamis.

There are also historical gathering areas farther into the dunes. Some of these sites are Competition Hill, the sand drags, Oldsmobile Hill, Patton Valley, Test Hill, and Buttercup Valley. Visitors meet at these locations to test their OHVs and riding skills, and to engage in informal competition. Visitation at these sites peak during different times of the day and are usually busiest during the holidays.

The Action Area is located within a 3-hour drive from Los Angeles, Riverside, San Diego, and Phoenix. The ISD SRMA is a highly valued and unique recreation resource within the southwestern US for two reasons: (1) it is a sand dune ecosystem of a size and height unparalleled and (2) it fills a unique and valued niche for providing the largest acreage of dune-oriented motorized recreational opportunities in the US. The ISD SRMA has far more acreage than the 10 other dune areas that are located within 1,500 miles.

Continued population growth in southern California, expanding popularity of OHV recreation (108-percent increase since 1980 in California; California State Parks 2002), and a decrease in the acreage available to OHV recreation in the California Desert have resulted in a steady increase in visitation within the Action Area. Due to the increased demand for OHV recreation, there has been a need for increased law enforcement.

The Action Area provides for many types of recreational experiences, with OHV recreation as the dominant activity. The OHV enthusiasts who visit on holiday weekends experience large crowds, noise, and intensive, 24-hour OHV activity in areas such as Glamis, Gecko, Dunebuggy Flats, and Buttercup. There are other locations within the Action Area where OHV recreation is less intense on holiday weekends, and visitors can have a quieter, less intensive experience (Mammoth Wash or the Ogilby areas).

The Action Area is managed to provide both non-motorized and motorized recreational opportunities to area residents and visitors. In addition to OHV recreation, the Action Area provides other recreational opportunities including hiking, horseback riding, wildlife and scenery viewing, picnicking, photography, nature study and environmental education, camping, sightseeing, and driving for pleasure.

The types of vehicles that are utilized within the Action Area include OHVs and street-legal vehicles. The vehicle types that can be found include: sand rails, dune buggies, all-terrain vehicles, motorcycles, 4WD pickups, 2WD pickups, sport utility vehicles, and custom built off-road vehicles. Private, law enforcement, military, commercial, and rescue aircraft frequently fly over the dunes at low altitudes.

Average annual visitation for Fiscal Years 2004 through 2008 was estimated at 1.4 million visitors, with peak visitation between October and April. Visitation is unevenly distributed throughout the year, with the highest visitation occurring during the major holiday weekends. The visitation estimates for the major holiday weekends often exceed 100,000 visitors. For example, the average visitation during Thanksgiving weekend for fiscal years 2004 through 2008 was 181,258. Roughly 44 percent of the annual visitation occurs during 19 percent of the recreation season (i.e., six weeks out of eight months in the season).

3.1.5 Facilities

The sandy terrain limits access to most of the ISD SRMA for vehicle camping. The acreage that is suitable is primarily along Gecko Road, a portion of the Glamis area, the western side of the Mammoth Wash area, Dunebuggy Flats, the eastern portion of the Ogilby area, and the area adjacent to Grays Well Road in Buttercup.

The Action Area has two developed campgrounds adjacent to Gecko Road. Gecko Campground is located approximately 3.5 miles south of SR-78. It consists of north and south loops that extend out into a rolling sand dunes area. Roadrunner Campground is located at the terminus of Gecko Road, approximately 5 miles south of SR-78. It consists of one loop that extends out into

a flat sandy area. These two campgrounds are the only developed camping areas in the Action Area. The southern portion of the Roadrunner loop and the northern loop of Gecko Campground are filled in with hard dirt/gravel material to provide camping space. Both campgrounds also provide pit toilets.

The BLM has constructed nine dirt/gravel pads in order to provide additional camping areas for 2WD vehicles. The rest of the camping in the Action Area is relatively dispersed, although visitors tend to stay in historically used areas such as Glamis, Gecko, Buttercup, and Dunebuggy Flats. These areas provide trash dumpsters and have pit toilets.

Cahuilla Ranger Station is located on Gecko Road near SR-78. The station provides interpretive services and information to visitors. It also serves as the incident command center during holiday weekends for the BLM and a contact point for emergency services. There is also a maintenance shed to accommodate BLM OHVs, emergency vehicles, and supplies. Buttercup Ranger Station, located in the Buttercup area south of I-8, provides visitor information (maps, education materials, information about the ISD) and emergency medical services.

3.2 Existing Biological Conditions

3.2.1 Soils

The dune system is situated on a relatively flat plain with a base elevation of approximately 50 feet above sea level. On the west, the plain is called East Mesa (because it is east of Imperial Valley). On the east, the plain is called Pilot Knob Mesa.

The dunes reach heights of 300 feet above the plain and include classic examples of several different types of dunes. The sand dunes are thought originally to have been beach sands of ancient Lake Cahuilla, which occupied the Imperial Valley at a time when the Colorado River emptied into it instead of to the Gulf of California. Unlike some major dune systems that have formed next to a mountain range, the Imperial Dunes have formed primarily as a result of opposing seasonal winds. Winter winds come from the northwest, but often reverse to the southeast in summer. The stronger winter winds are slowly pushing the dune system southeastward (BLM 1987).

The east and west sides of the dune system differ substantially in character. West side sands are composed of material that is generally heavier and coarser than the lighter, finer sands carried further east in the prevailing winds. The coarse sands form the largest, tallest dunes, which are located in the western two-thirds of the dune system. These constitute the primary dunes. The tallest dunes are found toward the center of the overall dune mass, in the eastern half of the primary dune area. East of the primary dunes are the secondary dunes, smaller dunes composed of finer sands and having more vegetative cover (BLM 1987).

The western portion of the Action Area is composed primarily of Rositas sands with lesser areas of Antho loamy fine sands and Holtville silty clay loams. The Rositas sands range from loamy fine

sands to fine sands and to medium sands. The larger-grained Rositas sands are mostly in the western, upwind section of the Action Area with the finer sands located mostly on the eastern downwind side of the dunes area. Typically, the Rositas sands are stratified, with reddish yellow-to-light-brown coloring. These sands are formed in alluvial or eolian deposits from distant sources. Typically, the surface layer of the Rositas soil is light brown, loamy, fine sand about 4 inches thick. The underlying material is pinkish and very pale brown sand to a depth of 60 inches and can have thin gravelly subsurface layers. In many places, there are soils that have a sandy profile and a few thin lenses of fine sandy loam, silt loam, or silty clay loam. Permeability is rapid, and available water capacity is low. Surface runoff is slow, and there is a high hazard of soil blowing and abrasion to young plants. The effective rooting depth is 60 inches or more.

3.2.2 Water Resources

The Action Area is located in the desert of southeastern California, an area marked by long, hot summers and meager rainfall. Surface water in the extended vicinity of the Action Area includes the Salton Sea, the Colorado River, and the Gulf of California. Other than canals that carry Colorado River water to the Imperial Valley, water resources in the immediate vicinity of the Action Area are limited.

There are no major lakes or reservoirs on BLM-administered lands within the Action Area. There are two primary surface waterways in the vicinity of the Action Area, the All-American Canal and the New Coachella Canal. There are also several surface water wildlife guzzlers (water retaining structures) within the Action Area.

Water is diverted from the Colorado River into the All-American Canal at the Imperial Dam. Flow proceeds in a westerly direction, and smaller distributary canals carry water from it into the Imperial Valley and Coachella Valley (Imperial Irrigation District 2006).

The New Coachella Canal is connected to the All-American Canal in the southwestern corner of the Action Area near I-8. The canal extends northwesterly from the All-American Canal for approximately 123 miles and runs along the east side of the Salton Sea and northwest along the approximate western boundary of the ISD SRMA.

Seepage along the Old Coachella Canal resulted in a greenbelt and pools along the canal that supported various forms of wildlife. With construction and operation of the New Coachella Canal and the subsequent retirement of the southern portion of the Old Coachella Canal, wildlife dependent on the greenbelt and pools no longer had a water source. To partially mitigate the loss of this wetland habitat, the California Department of Fish and Game (CDFG) installed four wildlife guzzlers, in the North Algodones Dunes Wilderness Area and two wildlife guzzlers in the Mammoth Wash Area to the north.

Numerous washes that carry storm runoff exist within the Action Area. These are particularly evident as generally east-to-west-flowing channels that have incised the distal alluvial fans of the Chocolate Mountains and the Cargo Muchacho Mountains in the eastern portion of the

Action Area. Ephemeral surface flows and pools form in the washes and low points in the eastern transition areas as a result of infrequent runoff events caused by cloudbursts in the nearby mountains. The ephemeral surface flows and pools most commonly occur in the springtime of wet years, but can also occur at other times. The pools do not remain for long periods following rains due to the permeable nature of the soils in this area.

3.2.3 Vegetation Communities

The primary vegetation communities within the Action Area are: creosote bush scrub, microphyll woodland, psammophytic scrub, and canal-influenced vegetation (Westec Services, In. 1977; BLM 1987). Vegetation communities are depicted in Figure 9 and described in detail below.

3.2.3.1 Creosote Bush Scrub

Creosote bush scrub is the most common vegetation community in the Colorado Desert and typically occurs on well-drained secondary soils of slopes, fans, and valleys. Within the Action Area, this vegetation community occurs on the relatively stable soils along the periphery of the dune system. It rarely occurs in the central portion of the Action Area, where shifting dunes are prevalent. This vegetation community is generally characterized by relatively barren ground between widely spaced shrubs. To the west of the Action Area, the community consists of almost pure stands of creosote bush. On the eastern boundary of the Action Area, the vegetation is more diverse due to the topographic relief of the dunes and runoff from the nearby Chocolate and Cargo Muchacho mountains. The creosote bush scrub within the alluvial fan between the desert washes forms a transitional zone with the microphyll woodland vegetation community. The creosote scrub vegetation community covers approximately 80,981 acres of the entire Action Area. Characteristic plant species of this community include creosote bush (*Larrea tridentata*), brittlebush (*Encelia farinosa*), and white bursage (*Ambrosia dumosa*). Less abundant species associated with this community include woolly desert marigold (*Baileya pleniradiata*), birdcage evening-primrose (*Oenothera deltoides*), dyebush (*Dalea emoryi*), longleaf jointfir (*Ephedra trifurca*), desert thorn-apple (*Datura discolor*), big galleta (*Hilaria rigida*), white ratany (*Krameria grayi*), and brown plume wirelettuce (*Stephanomeria pauciflora*).

3.2.3.2 Microphyll Woodland

To the east of the dune system is a large alluvial fan draining the Chocolate and Cargo Muchacho mountains. The alluvial fan is dissected by numerous ephemeral washes and separated by expansive, level interfluves. The desert microphyll woodland vegetation community typically is best developed in the larger drainages where dense stands of a variety of trees occur. Microphyll woodlands are generally found along the margins of these dry channels and around the cul-de-sac sinks of their terminii. This vegetation community covers approximately 21,992 acres of the entire Action Area. Vegetation is generally sparse in the open wash areas between the sinks. Typical vegetation of this community includes palo verde,

ironwood, smoke tree, and to a lesser degree honey mesquite, desert willow (*Chilopsis linearis*), and desert unicorn plant (*Proboscidea altheaefolia*). Depending on rainfall, the understory in the plains is generally composed of shrubs and annuals such as desert starvine (*Brandegea bigelovii*), carrizo mallow (*Sphaeralcea orcuttii*), California threeawn, Mediterranean grass (*Schismus barbatus*), lineleaf white puff (*Oligomeris linifolia*), and rush milkweed (*Asclepias subulata*).

3.2.3.3 Psammophytic Scrub

Psammophytic scrub occurs within the interior dune system where active and partially stabilized dunes are found. This vegetation community occurs most frequently between active dunes in depressions that are commonly termed “bowls.” The soils in these areas consist primarily of fine sand. As the dunes shift from year to year, the bowls generally shift as well. Vegetation is adapted to relatively high sand mobility and deep water percolation. Most of these plant species are capable of rapid growth given favorable soil moisture conditions. This vegetation community covers approximately 106,247 acres of the entire Action Area. Common vegetation within this community includes Mormon tea, Colorado desert buckwheat, desert dicoria (*Dicoria canescens*), common sandpaper plant (*Petalonyx thurberi*), and desert panicum (*Panicum urvilleanum*). Additionally, birdcage evening primrose, and desert lily (*Hesperocallis undulata*) may occur in the relatively stable dunes that form a transitional zone with the creosote bush scrub vegetation community.

3.2.3.4 Canal-influenced Vegetation

Both the Coachella and All-American canals support hydrophytic vegetation that is subject to periodic eradication efforts. Although the canals are lined, some seepage occurs and promotes the growth of hydrophytic vegetation. Submergent species include shortspike watermilfoil (*Myriophyllum exalbescens*) and fennel-leaf pondweed (*Potamogeton pectinatus*). Emergent and upland species include cattails (*Typha* spp.), spotted cadythumb (*Polygonum fusiforme*), horseweed (*Conyza canadensis*), spiny chloracantha (*Aster spinosus*), giant reed (*Arundo donax*), small-flowered tamarisk (*Tamarix parviflora*), false daisy (*Eclipta alba*), common sunflower (*Helianthus annuus*), white sweetclover (*Melilotus albus*), and arrow weed (*Pluchea sericea*).

3.2.4 Wildlife

3.2.4.1 General Wildlife

The Action Area provides habitat for an abundance of wildlife species, including numerous birds, mammals, reptiles and invertebrates. The ISD SRMA is one of the largest dune ecosystems in the US, and there are many species that are endemic to this unique area. As mentioned in Section 3.2.3, several vegetation communities are found within the Action Area, providing habitat features for a variety of wildlife species.

Wildlife commonly associated with the creosote bush scrub vegetation community includes desert iguana (*Dipsosaurus dorsalis*), zebra-tailed lizard (*Callisaurus draconoides*), western whiptail lizard (*Cnemidophorus tigris*), red-tailed hawk (*Buteo jamaicensis*), mourning dove (*Zenaidura macroura*), lesser nighthawk (*Chordeiles acutipennis*), black-tailed gnatcatcher (*Poliottila melanura*), yellow-rumped warbler (*Dendroica coronata*), white-crowned sparrow (*Zonotrichia leucophrys*), big brown bat (*Eptesicus fuscus*), kit fox (*Vulpes macrotis*), roundtail ground squirrel (*Spermophilus tereticaudus*), and black-tailed hare (*Lepus californicus*). The endemic Hardy's dune beetle (*Anomala hardyorum*) and Carlson's dune beetle (*Anomala carlsoni*) are also found in this vegetation community (Hardy and Andrews 1979).

The plant diversity and density combined with the micro-topographic variability associated with the washes in the Action Area accounts for a high diversity of wildlife in the microphyll woodlands. The wildlife commonly associated with this vegetation community includes side blotched lizard (*Uta stansburiana*), western whiptail lizard, zebra-tailed lizard, sidewinder rattlesnake (*Crotalus cerastes*), red-tailed hawk, Gambel's quail (*Lophortyx gambelli*), mourning dove, ladder-backed woodpecker (*Picoides scalaris*), verdin (*Auriparus flaviceps*), western flycatcher (*Empidonax difficilis*), cactus wren (*Campylorhynchus burnneicapillus*), warbling vireo (*Vireo gilvus*), Wilson's warbler (*Wilsonia pusilla*), house finch (*Carpodacus mexicanus*), black-tailed gnatcatcher, white-crowned sparrow (*Zonotrichia leucophrys*), western pipistrelle bat (*Pipistrellus hesperus*), coyote (*Canis latrans*), kit fox, mule deer (*Odocoileus hemionus*), white-tailed antelope squirrel (*Ammospermophilus leucurus*), black-tailed hare, and desert cottontail (*Sylvilagus audubonii*).

The wildlife commonly associated with psammophytic scrub include black-tailed gnatcatcher, mourning dove, cliff swallow (*Hirundo pyrrhonota*), Colorado Fringe-toed Lizard (*Uma Notata*) coyote, roundtail ground squirrel, desert kangaroo rat (*Dipodomys deserti*), and black-tailed hare. The endemic Andrew's dune scarab beetle (*Psuedocotalapa andrewsi*) is also found in this habitat type (Hardy and Andrews 1979).

The canal-influenced vegetation community is utilized by a variety of birds including American coot (*Fulica americana*), red-wing blackbird (*Agelaius phoeniceus*), yellow-headed blackbird (*Xanthocephalus xanthocephalus*), common yellowthroat (*Geothlypis trichas*), and marsh wren (*Cistothorus palustris*). Common mammals of this community include black-tailed hare, coyote, raccoon (*Procyon lotor*), and American badger (*Taxidea taxus*).

3.3 Status of the Federally Listed Species within the Action Area

Three federally listed species are known to occur within the Action Area: PMV, Mojave desert tortoise, and FTHL. Critical habitat has been designated for PMV and desert tortoise. PMV critical habitat occurs within the Action Area. There is no desert tortoise critical habitat within the Action Area.

The remaining four federally listed species known to occur in the vicinity are not expected to occur within the Action Area due to lack of suitable habitat. These species are the Yuma clapper-rail (*Rallus longirostris yumanensis*), southwestern willow flycatcher (*Empidonax traillii extim*), western yellow-billed cuckoo (*Coccyzus americanus occidentalis*), and razorback sucker (*Xyrauchen texanus*).

Records of occurrence for the Action Area are based on BLM file documents and field notes, published literature sources, technical reports, and the California Natural Diversity Database (State of California 2009).

3.3.1 Peirson's milk-vetch

PMV was proposed as endangered by the USFWS in 1992 and listed as threatened in 1998 (USFWS 1998). It is also recognized as endangered by the State of California. The California Native Plant Society (CNPS) lists the PMV as a category 1B species (rare, threatened, or endangered in California and elsewhere throughout its range) (CNPS 2001).

A short-lived perennial plant of the pea family (Fabaceae), PMV may reach 8 to 30 inches in height and develop tap roots that penetrate deeply into moist sand anchoring the plant in the shifting sand dunes (USFWS 2008a). The stems and leaves are pubescent, and the leaves are 2 to 6 inches long. The flowers are dull purple and arranged in 10 to 17 flowered racemes. The resulting seed pods are 0.8 to 1.5 inches long and inflated with a triangular beak (Bowers 1996).

Based on the current understanding of the PMV life history, sufficient rain in conjunction with cool temperatures and wetter-than-average fall weather appear to trigger germination events (USFWS 2008a). This species likely depends on the production of seeds in wetter years and the persistence of the seed bank from previous years to survive until appropriate conditions for germination occur again (USFWS 2008a).

This species is able to become reproductive in a single season. It generally completes seed production by June. By July, the plant has dropped many of its leaflets, and some entire leaves. This condition may persist from July to October. Seedlings may be present in December, although not in great numbers. Seedlings that germinate by November or December may reach the flowering or fruiting stage by March (Romspert and Burk 1979).

Seeds of the PMV are the largest of any North American milk-vetch species (Barneby 1964). Within this genus, the large seeds are thought to be better adapted to active dunes than small seeds. This may be due to the larger food reserves enabling them to emerge even when deeply buried (Bowers 1996). Harper et al. (1970), however, noted that there is a trade-off between seed size and seed numbers such that large-seeded plants typically produce fewer seeds. PMV seeds are transported within inflated pods that are dispersed by winds across the dunes where they may come to rest within vegetation or depressions. Many seeds fall prey to members of the seed beetle family, Bruchidae, which contributes to a high mortality of seeds and reduced seed crop for this species (Romspert and Burk 1979).

PMV habitat consists of sandy depressions at the base of high dunes and lower established dunes. This species does not extend many lateral roots and, therefore, is vulnerable to being uprooted if the main stem is broken. The vulnerability of the adult plants in conjunction with the period of seedling establishment during the cooler months, which coincides with the higher usage of the dunes by OHVs, makes this species sensitive to impacts (Romspert and Burk 1979).

An obligate psammophyte, PMV occurs on bowls, swales, and slopes of intact, active, windblown sand dunes. This species is currently known to occur within the Imperial Sand Dunes as well as the northeastern Estado de Baja California and Gran Desierto of northwestern Sonora, Mexico (USFWS 2008a). Although it has been reported from Borrego Valley, San Diego County, California, it has not been observed there for several decades (Tibor 2001).

Within the Action Area, PMV is restricted to about 53,000 acres in a narrow band running 40 miles northwest to southeast along the western portion of the ISD. The sand dunes within the Action Area are estimated to support between 75 and 80 percent of all of the world's known colonies of this species (USFWS 1998). As seen in Figures 10a and 10b, plants are generally scattered throughout the dune complex with a higher abundance along the central and western aspect of the dunes. Surveys for PMV were conducted in 1977 and again annually between 1998 and 2006 (USFWS 2008a). The disparity between the different three survey methods and the data collected make it difficult to assess status and trends of the PMV population. However, USFWS considers the surveys conducted by BLM to be the most extensive and precise effort to determine overall population abundance and distribution of this species. The effort effectively covered the entire Dunes and thus encompassed all management areas containing PMV, and the amount of data gathered in 2005 was the result of an exceptionally good rainfall year and extraordinary monitoring effort. USFWS feels that the 2005 survey effort represents the best estimate to date of distribution and abundance of the species on the Dunes (Willoughby 2006, p. v, as cited in USFWS 2008a).

Ongoing monitoring has indicated that the distribution and abundance of PMV is closely tied to precipitation. Plants are most abundant in years with the highest rainfall and least abundant in years with the lowest rainfall. Response of PMV was similar in areas both open and closed to OHV use (Willoughby 2001).

OHV recreation and associated recreational development have been described as the primary threats to PMV through destruction of individual plants and habitat (USFWS 2008a). OHV recreation can impact PMV habitat by:

1. Disrupting the natural processes that support dune formation, movement, and structure, which could disrupt the available habitat needed for individual and population growth;
2. Causing the collapse of dune faces and ridges, which could result in burial of the seed bank;
3. Disturbing surface sand, thereby decreasing soil moisture needed for establishment of individual plants and population growth, and

4. Degrading the psammophytic scrub plant community that provides habitat for pollinators required for reproduction.

Critical Habitat. Surveys for the PMV have been conducted repeatedly since about 1977. The BLM conducted annual surveys for this species from 1997 to 2000 and from 2004 to 2007. Based on data collected during these surveys and other relevant information, the USFWS designated critical habitat for the PMV on August 4, 2004, comprising a total of 21,863 acres (USFWS 2004). Critical habitat was revised and re-designated on February 14, 2008 (USFWS 2008a) and now includes 12,105 acres in three units (Figures 10a and 10b).

All areas designated as critical habitat are currently occupied and contain sufficient primary constituent elements to support at least one life history function. The USFWS determined that the primary constituent elements for the PMV are:

- West and/or northwest-facing sides of bowls, swales, and slopes consisting of Rositas fine sands within intact, active sand dune systems (defined as sand areas that are subject to sand-moving winds) in the existing range of the species that provide space needed for individual and population growth, including sites for germination, reproduction, seed dispersal, seed bank, and pollination.
- The associated co-adapted psammophytic scrub plant community characterized by Wiggin's croton (*Croton wigginsii*), Colorado desert buckwheat (*Erigonum deserticola*), Algodones Dunes sunflower (*Helianthus niveus* spp. *Tephrodes*), giant Spanish needles (*Palafoxia arida* var. *gigantea*), sand food (*Pholisma sonora*), fan-leaf crinkle net (*Tiquilia plicata*), common sandpaper plant (*Petalonyx thurberi*), and desert panicum (*Panicum urvilleanum*) that provides habitat for insect pollinators, particularly the white-faced digger bee (*Habropoda pallida*), required for reproduction.
- Areas within intact, active sand dune systems between occupied bowls, swales, and slopes that allow for pollinator movement and wind dispersal of fruit and seeds.

The entire documented US population of the PMV and all designated critical habitat for the species occurs within the Action Area, although some critical habitat is outside of BLM-administered lands (within the northern portion of critical habitat near Mammoth Wash).

The USFWS selected areas that had been surveyed (survey cells) by BLM for PMV with plant densities greater than 30 plants per cell (192 plants per acre) as core areas. This density was used because it captured the majority of the large clusters of standing plants. Each core area was expanded to 2 hectares (ha), then the 2-ha core areas were merged. Additional merging and buffers resulted in the critical habitat legal boundaries. This methodology captured approximately 92 percent of the 2005-observed PMV population and includes areas the USFWS believes contain high density core populations, a large extent of high quality habitat, a large seed bank, and, therefore, areas important for the recovery of the species (BLM 2005d and USFWS 2008a).

3.3.2 Mojave Desert Tortoise

The Mojave population of the desert tortoise was emergency-listed by the USFWS as an endangered species in 1989 and federally listed as threatened in 1990 (USFWS 1990). It is also recognized as threatened by the State of California. A final recovery plan was completed by the USFWS in 1994, and a draft revised recovery plan was released in 2008 (USFWS 1994a, 2008b).

The desert tortoise is a large herbivorous terrestrial reptile. It has a high-domed shell that may reach a length of 15 inches or more. This species has stocky, elephant-like limbs and a short tail. The carapace (upper shell) is brown; and the plastron (lower shell) is yellow in color, both exhibiting prominent growth lines. Adult males can be distinguished from females by the concavity in their plastron. Adult males also have larger chin glands, and a longer tail and gular horn than females (Stebbins 1985).

The adult desert tortoise is active from mid-March or April until about November. During the winter months, tortoises are dormant in underground burrows (Luckenbach 1982; Zimmerman et al. 1994). Desert tortoises congregate in winter dens during colder weather, then spread out to nearby areas during moderate weather in the spring and fall. They retreat into short individual burrows or under shrubs during the extreme heat of the summer (Woodbury and Hardy 1940). During the active period, desert tortoises may establish home ranges of approximately 1 square mile. Tortoises feed on a wide variety of herbaceous plants, including cacti, grasses, and annual flowering plants (USFWS 1994a).

Adult desert tortoises reach sexual maturity at 15 to 20 years of age. Mating occurs in the spring (April and May) and the fall (August and September) with nesting and egg laying occurring from May to July (Rostral et al. 1994). The female tortoise lays her eggs in a hole approximately 3 to 4 inches deep that is dug near the mouth of a burrow. Following egg laying the female covers the eggs with soil (Woodbury and Hardy 1940). Clutch size ranges from two to 14 eggs with an average of five to six eggs (Luckenbach 1982). Desert tortoise eggs typically hatch from August through October. These hatchlings are provided a food source in the form of an egg yolk that is assimilated into the underside of the shell. This yolk sac will sustain the hatchling for up to 6 months. The hatchling desert tortoise will go into hibernation in the late fall, but can be active on warm sunny or rainy days (Luckenbach 1982).

The desert tortoise is widely distributed throughout the Mojave, Sonoran, and Colorado deserts. It occupies arid regions from southern Nevada and extreme southwestern Utah to northern Sinaloa, Mexico; southwestern Arizona west to the Mojave Desert and the eastern side of the Salton Basin, California (Stebbins 1985).

In the Mojave region, desert tortoises are primarily associated with flats and bajadas with soils ranging from sand to sandy gravel, but firm enough for the tortoise to construct burrows (USFWS 1994a). In California, the desert tortoise is most commonly found in association with creosote bush scrub with intershrub space for growth of herbaceous plants. However, it may also occur in saltbush scrub, desert wash, desert scrub, and Joshua tree woodlands. The desert

tortoise is found from below sea level to elevations of 5,000 feet in California. The most favorable habitats occur at elevations of approximately 1,000 to 3,000 feet (USFWS 1994a).

The decline in the desert tortoise population is attributed primarily to habitat loss, degradation, and fragmentation resulting from increased human population and urbanization in the desert and arid regions of the southwestern US. The increase in urbanization, collection of tortoises for pets, overgrazing, landfills, subsidized predation (including predation by ravens), highway mortality, vandalism, agriculture, fire, drought, and OHV recreation all have contributed to the decline of the tortoise in the wild (Luckenbach 1982; USFWS 1990). Another important reason for the decline of the desert tortoise is the introduction of an upper respiratory tract disease into many of the wild populations (Berry 1986). This disease was thought to have been introduced through the illegal release of captive desert tortoises into the wild (USFWS 1994a).

The closest Desert Wildlife Management Area (DWMA) proposed in the *Desert Tortoise Recovery Plan* is 6 miles to the northeast (USFWS 1994a) and is not included in the ISD Action Area. Desert tortoise habitat in the general vicinity of the Action Area has been degraded and fragmented by OHV and camping recreation, agricultural development, utility corridors, and the construction and maintenance of the UPRR and All-American Canal. Along the eastern portion of the Action Area, the creosote bush scrub habitat and the desert washes north and south of SR-78 provide marginal suitable habitat for the desert tortoise. BLM USBP officials have observed desert tortoises in the general vicinity of and crossing Vista Mine and Ted Kipf roads. To date, limited surveys for desert tortoise have been conducted within the Action Area. Limited desert tortoise distribution and abundance data currently exist. Figure 12 shows the tortoise habitat within and adjacent to the Action Area.

Critical habitat for the Mojave population was also designated by the USFWS in 1994. A total of 6,446,200 acres of critical habitat have been designated for the Mojave desert tortoise in California (4,754,000 acres), Nevada (1,224,400 acres), Utah (129,100 acres), and Arizona (338,700 acres) (USFWS 1994b). The Chuckwalla Bench Critical Habitat Unit for this species is located approximately 20 miles northeast of the Action Area (see Figure 12).

3.3.3 Flat-tailed Horned Lizard

In California, the FTHL was designated a sensitive species by the BLM in 1980. In 1988, a petition was submitted to the California Fish and Game Commission (CFGC) to list the species as endangered. In 1989, the commission voted against the proposed listing. In 1993, the USFWS published a proposed rule to list the FTHL as a threatened species (USFWS 1993). In 2006, the USFWS withdrew its proposal (USFWS 2006). On November 3, 2009, the U.S. District Court in Arizona reinstated the USFWS's 1993 rule to propose FTHL for listing (USFWS 2009); therefore, BLM recognizes the FTHL as a species that is proposed for listing.

FTHL has the typical flattened body shape of horned lizards. It is distinguished from other species in its genus by its dark dorsal stripe, lack of external openings, broad flat tail, and comparatively long spines on the head (Funk 1981). The FTHL has two rows of fringed scales on

each side of its body. The species has cryptic coloring, ranging from pale gray to light rust brown dorsally and white or cream ventrally with a prominent umbilical scar. The only apparent external difference between males and females is the presence of enlarged postanal scales in males. Maximum snout-vent length for the species is 3.3 inches (Muth and Fisher 1992).

FTHLs escape extreme temperatures by digging shallow burrows in the loose sand. Adults are primarily inactive from mid-November to mid-February. Juvenile seasonal activity is often dependent on temperature fluctuations. Breeding activity takes place in the spring with young hatching in late July and September. The diet of horned lizards typically consists of greater than 95 percent native ant species, mostly large harvester ants (*Pogonomyrmex* spp.).

The FTHL is found in the low deserts of southwestern Arizona, southeastern California, and adjacent portions of northwestern Sonora and northern Baja California, Mexico. In California, the FTHL is restricted to desert washes and desert flats in central Riverside, eastern San Diego, and Imperial counties. The majority of the habitat for the species is in Imperial County (Turner et al. 1980).

The lizard is known to inhabit sand dunes, sheets, and hummocks, as well as gravelly washes. The species is thought to be most abundant in creosote bush scrub vegetation communities. However, this species may also be found in desert scrub, desert wash, succulent shrub, alkali scrub, sparsely vegetated sandy flats, desert pavement, and rocky slopes. It is typically found in dry, hot areas of low elevation (less than 800 feet).

Human activities have resulted in the conversion of approximately 34 percent of the historic habitat of the FTHL. The decline in the FTHL population is primarily due to impacts from utility lines, roads, geothermal development, sand and gravel mining, OHV recreation, waste disposal sites, military activities, pesticide use, and USBP activities (Flat-tailed Horned Lizard Interagency Coordinating Committee 2003). The Argentine ant (*Linepithema humile*), an invasive species, was considered as a possible threat, but dismissed as such, since the climate at the dunes is too dry for Argentine ants to survive.

As seen on Figure 13, suitable habitat for the FTHL is found in the eastern portion of the Action Area from Ogilby Road extending south to the All-American Canal (Federal Energy Regulatory Commission [FERC] 2007). Monitoring conducted as part of the North Baja Pipeline Project in 2000 and 2001 detected FTHL in this area (FERC 2007). Rado (1995) noted that sand sheets extending east from the sand dunes provide favorable habitat for about one mile northwards from the intersection of Ogilby Road and I-8.

The surveys conducted by the BLM in 1978, 1979, and 1980 revealed that the highest abundance of FTHL occurred southwest of the Action Area in the East Mesa ACEC. Low abundance of this species was detected on the eastern and western boundaries of the sand dunes, predominantly in the creosote bush scrub community. Although this species is known to occur in the central ISD SRMA, the habitat is considered to be marginal because of the lack of

suitable soil structure required to support the FTHL's predominant prey: harvester ants (BLM 2001). The FTHL management area is shown on Figure 13.

4.0 Impacts of Proposed Action on Listed Species/Critical Habitat

The DRAMP/DEIS identifies 17 resource categories summarized in Table 1. In the Proposed Action section, Special Designations and Visual Resource Management were identified as having no on-the-ground actions, therefore, would have no effect to listed species. These two resource categories will not be discussed further. The analysis of the remaining 15 resource categories are presented below to support the determinations presented in Table 1.

4.1 Rangeland Health Standard Management

Due to the minimal impact on the ground, the limited scope in size and duration of management actions, and the ability to implement measures that would allow management actions to avoid adverse impacts to listed species, management actions may affect PMV and desert tortoise, but are not likely to adversely affect these species. Due to how and in which locations the Rangeland Health Standards Management actions would be implemented, management actions would not adversely impact principle constituent elements of PMV critical habitat and therefore would have no affect on critical habitat.

4.2 Air Resources Management

Due to the minimal impact on the ground, the limited scope in size and duration of Air Resources Management, the separation of these activities from PMV habitat and the ability to implement measures that would allow management actions to avoid adverse impacts to PMV, FTHL, and desert tortoise, these management actions may affect these species, but are not likely to adversely affect them. Air Resources Management actions would not be implemented within PMV critical habitat, and therefore would have no effect on PMV critical habitat.

4.3 Soil Resource Management

Due to the minimal impact on the ground, the limited scope in size and duration of Soil Resource Management, and the BLM's ability to implement measures that would allow management actions to avoid adverse impacts to listed species, these management actions may affect PMV, FTHL, and desert tortoise, but are not likely to adversely affect them. Due to how and in which locations Soil Resource Management actions would be implemented, they would not adversely impact principal constituent elements of PMV critical habitat and therefore would have no effect on critical habitat.

4.4 Water Resources Management:

Due to the minimal impact on the ground, the limited scope in size and duration of Water Resources Management, and the BLM's ability to implement measures that would allow management actions to avoid adverse impacts to listed species, these management actions may affect PMV, desert tortoise, and FTHL, but are not likely to adversely affect them. Due to how and in which locations Water Resource Management actions would be implemented, management actions would not adversely impact principal constituent elements of PMV critical habitat, and therefore would have no effect on critical habitat.

4.5 Vegetation Resource Management

Most of the activities related to vegetation management would occur on the edges of developed zones or in the microphyll woodlands. Due to the focus of management actions (tamarisk removal and revegetation of damaged areas), these actions are unlikely to occur in or near PMV habitat. Any application of herbicides would apply BMPs that would require the avoidance of PMV individuals. While desert tortoise and FTHL may occupy the microphyll woodlands, surveys indicate that these species occur at extremely low densities within the Action Area. Avoidance measures such as clearance surveys and setbacks from burrows would make adverse impacts to these species highly unlikely. Due to the minimal overlap of vegetation management activities and potential habitat for listed species and the ability to implement avoidance measures during project implementation, Vegetation Resource Management actions may affect, but are not likely to adversely affect PMV, FTHL, and desert tortoise. Any vegetation management actions that occur within PMV critical habitat would not destroy or adversely modify its principal constituent elements and therefore would not adversely affect PMV critical habitat.

4.6 Wildlife Resource Management

Due to the minimal impact on the ground, the limited scope in size and duration of Wildlife Resource Management, and the ability to implement measures that would allow management actions to avoid adverse impacts to listed species, these management actions may affect PMV, FTHL, and desert tortoise, but are not likely to adversely affect these species. Due to how and in which locations Wildlife Resource Management actions would be implemented, management actions would not adversely impact principal constituent elements of PMV critical habitat and therefore would have no effect on critical habitat.

4.7 Special Status Species Management

Special Status Species Management essentially involves non-destructive monitoring and surveys. All management actions for PMV are currently covered under a Section 10(a)1(A) permit. Management actions associated with FTHL and desert tortoise follow USFWS- and BLM-issued

protocols which are visual-encounter surveys. Any project that would be implemented for additional recovery actions would have additional NEPA and ESA compliance/analysis. Special Status Species Management as described may affect, but is not likely to adversely affect PMV, FTHL, and desert tortoise. Due to how and in which locations Special Status Species Management actions would be implemented, management actions would not adversely impact principal constituent elements of PMV critical habitat and therefore would have no effect on critical habitat.

4.8 Wildland Fire Management

Wildland Fire Management can be destructive. Large equipment would likely be driven off roads, vegetation is often removed to create fire breaks, soil is scraped down to the mineral soil level, and retardant (which has been shown to affect vegetation and wildlife) can be deployed into areas. Given these kinds of activities, FTHL and desert tortoises have the potential to be harassed, injured, or killed during suppression activities. Tortoise habitat (e.g., burrows) could be crushed during suppression activities, resulting in harm to desert tortoise. Therefore, wildland fire management actions may affect and are likely to adversely affect desert tortoise and FTHL. However, the scope and frequency of adverse impacts from Wildland Fire Management actions on desert tortoise and FTHL cannot be predicted at this time. This BA does not request incidental take for desert tortoise related to the wildland fire management actions, but anticipates using the emergency consultation process if a wildland fire occurs within the ISD.

The psammophytic scrub habitat that supports PMV is too sparse to support a wildfire, (USFWS 2004). Therefore, even though wildland fire activities have the potential to be very damaging and destructive, these activities are highly unlikely to occur in PMV occupied areas. Because wildland fire management activities are discountable within PMV habitat, Wildland Fire Management actions may affect, but are not likely to adversely affect PMV. Similarly, PMC critical habitat is unlikely to support a wildfire and thus wildland fire activities are unlikely to occur within critical habitat. Therefore, Wildland Fire Management actions would not adversely impact principal constituent elements of PMV critical habitat, and therefore would have no effect on critical habitat.

4.9 Cultural Resource Management

Due to the minimal impact on the ground, the limited scope in size and duration of Cultural Resources Management, and the ability to implement measures that would allow management actions to avoid adverse impacts to listed species, these management actions may affect PMV, FTHL, and desert tortoise, but are not likely to adversely affect these species. Due to how and in which locations Cultural Resource Management actions would be implemented, management actions would not impact principal constituent elements of PMV critical habitat and therefore would have no effect on critical habitat.

4.10 Paleontological Resource Management

Due to the minimal impact on the ground, the limited scope in size and duration of Paleontological Resource Management, and the ability to implement measures that would allow management actions to avoid adverse impacts to listed species, these management actions may affect PMV, FTHL, and desert tortoise, but are not likely to adversely affect these species. Due to how and in which locations Paleontological Resource Management actions would be implemented, management actions would not impact principle constituent elements of PMV critical habitat and therefore would have no effect on critical habitat.

4.11 Mineral Resource Management

Mineral resource activities and construction of associated facilities could result in the loss of habitat. Mineral activities could include digging, moving of soil, scraping of vegetation, and general destruction of habitat features. Impacts to listed species would be minimal for locatable mineral development, because a plan of operation, including a reclamation plan, is required prior to development.

Approximately 35,115 acres within the Action Area would be available for geothermal, leasing, and development, all located within the 1-mile limited use ERMA. The desert tortoise habitat east of the UPRR tracks (within the 1-mile limited use ERMA) offers marginal habitat where few desert tortoises have been recorded. Under the Preferred Alternative, all of the potential desert tortoise habitat along the eastern portion of the Action Area (east of the UPRR tracks) would be available for geothermal development and surface occupancy. Geothermal developments could result in habitat destruction and direct mortality from off-road travel to explore and access sites, habitat loss to road and development construction, fugitive dust and soil erosion, and habitat loss from developments to support operations. Most of these geothermal sites would be point sources of disturbance with potentially little effect beyond the immediate site of development. Geothermal development sites result in direct and indirect loss of habitat, fragmentation of habitat and population, and increase in access roads which can lead to direct mortality from vehicle use (Boarman 2002). Under the Preferred Alternative, all of PMV critical habitat would be excluded from mineral resource development activities. Under the Preferred Alternative, FTHL habitat within the East Mesa ACEC would be available for geothermal lease but with a no surface occupancy stipulation, eliminating the potential of habitat destruction and direct harm to FTHL within the ACEC.

As mentioned above, Mineral Resource Management actions could result in harm, harassment, injury and mortality of PMV, FTHL, and desert tortoise. Specifics regarding when, where, how often, or how large a mineral resource (geothermal)-related activity may occur can not be predicted; therefore, any future Mineral Resource Management actions would require additional NEPA and ESA analyses and compliance. Due to the unknown nature of these actions, the BLM is not requesting incidental take coverage for Minerals Resource Management actions.

Due to the potentially destructive nature of Mineral Resource Management actions and the BLM's inability at this time to provide assurances that these activities would avoid listed species, the Minerals Resource Management actions may affect and are likely to adversely affect PMV, desert tortoise, and FTHL. Under the Preferred Alternative, all of PMV critical habitat would be excluded from mineral resources development activities. Mineral Resource Management actions would not impact principal constituent elements of PMV critical habitat and therefore would have no effect on critical habitat.

4.12 Recreation Resource Management

Recreation activities have the potential to result in harm, harassment, injury, and mortality of PMV, FTHL, and desert tortoise.

4.12.1 Pierson's milk-vetch

Although PMV is concentrated within the western slopes of the dunes that have been designated as PMV critical habitat and Wilderness Area that would be closed to OHV activities under the Preferred Alternative, there are still individual PMV plants found outside of the critical habitat and Wilderness Area boundaries that may be adversely affected by recreation activities.

OHV activities outside of the designated PMV critical habitat and Wilderness Area may affect PMV in a number of ways:

- While seedlings appear to be resilient toward light OHV use, mature plants are brittle and tend to break rather than bend, even with light OHV usage of an area (ECOS 1990 and Phillips et al. 2001 as cited in USFWS 2004).
- Even resilient PMV seedlings can be severely damaged under moderate or heavy use, when they were run over multiple times. Removal of soil from around the plant, as well as a lack of lateral roots may reduce the plant's ability to remain anchored and survive and/or recover from vehicle damage (Romspert and Burk 1979; Plavlik 1979 as cited in USFWS 2004)
- The primary OHV recreation season coincides with the winter and spring periods of seed germination, growth, and flowering of PMV (Romspert and Burk 1979 and Phillips et al. 2001 as cited in USFWS 2004). As a result, vehicle use outside of the PMV critical habitat may reduce reproductive success, because plants or branches are damaged or destroyed prior to seed set. In addition, reproductive output is likely reduced over time, if fewer plants mature and are reproductively successful (USFWS 2004).
- OHV recreation or walking may disturb the sand surface and may result in increased evaporative water loss in the dunes (Porter et al. 2005) and reduced water availability to PMV. The impacts to PMV habitat from recreational activities would also include crushing of plants via OHV and other vehicle traffic. Occasional non-motorized (e.g., hiking, equestrian)

use could also result in damage to individual plants. Churning of the sand has been known to alter soil structure, which could impact PMV habitat. Disruption of the soil by OHV recreation could lead to additional damage to germinating seedlings.

Unpredictable precipitation and the shifting nature of the dunes result in a degree of variation both in population size and location; however, PMV-designated critical habitat encompasses areas containing the critical constituent elements required to sustain the PMV population. Based on 2005 PMV surveys conducted by BLM, the USFWS believes that 92 percent of the PMV population is contained within designated critical habitat (BLM 2005d and USFWS 2008a). In addition, critical habitat also contains high-density core populations, a large extent of high-quality habitat, a large seed bank, and, therefore, areas important for the recovery of the species.

While the potential impacts to remaining plants found outside critical habitat and WA boundaries would not likely result in a significant decline in population or affect the sustainability of the species due to management actions (including population monitoring, camping exclusions, and protection of critical habitat), Recreation Resource Management activities under the Preferred Alternative may affect and are likely to adversely affect PMV outside of critical habitat boundaries. The level of impact to individuals outside of critical habitat and WA is difficult to estimate, as OHV recreation activities vary within the ISD as does the PMV population within any given year. Approximately 18,498 acres are identified as having PMV individuals outside of critical habitat (see Figure 10) and are located within an Open OHV Management area under the Preferred Alternative. Individual plants within Open OHV Management areas may experience adverse impacts as outlined in the bullets above.

Recreation Resource Management actions may affect and are likely to adversely affect PMV. As seen in Figure 6, all of PMV critical habitat would be closed to OHV recreation under the Preferred Alternative. Motorized travel would not be authorized within PMV critical habitat or proposed closed in OHV management areas; loss of habitat, disturbance of species, and direct mortality from OHV recreation within critical habitat would not likely occur. Recreation Resource Management actions are not likely to adversely affect PMV critical habitat.

4.12.2 Mojave desert tortoise

The Mojave desert tortoise habitat east of the UPRR tracks offers marginal habitat where few desert tortoises have been recorded. This habitat would remain as a limited use ERMA (motorized vehicles are limited to existing routes only), likely resulting in minimal loss of habitat, disturbance of species, and potential direct mortality from OHV and other recreation, as well as from other motorized vehicles.

OHV recreation may affect, and would likely adversely affect tortoise populations in multiple ways:

- Direct mortality by crushing tortoises on the surface or in burrows; indirect mortality through habitat alteration from soil compaction; vegetation destruction (direct or indirect); and, toxins from exhaust., Evidence has shown that desert tortoise population densities decline in heavy OHV recreation areas (Boarman 2002).
- OHV recreation in desert tortoise habitat would result in disturbance to the soil, which could break down microbiotic crusts that support the vegetation, thereby degrading tortoise habitat. OHV recreation could prevent recruitment of perennial plant species and cause injury to annual plant species that are important food sources for the tortoise.
- Ravens are reported to be a significant predator of the desert tortoise. Ravens have been observed preying on juvenile tortoises as well as adults (Boarman 2002). Areas with trash receptacles may attract a larger number of ravens, which in turn may increase the likelihood of predation on desert tortoise.
- Access routes through microphyll woodland habitat and open desert wash areas would result in direct impacts to the desert tortoise through vehicles running over tortoises or crushing of burrows.

While there is potential for recreation activities to impact individual tortoise, the Action Area is considered to be marginal habitat and few individuals are known to occur. The few potential impacts to habitat and individuals within the Action Area are not likely to result in a significant decline in population or affect the sustainability of the desert tortoise. Recreation Resource Management actions may affect and are likely to adversely affect desert tortoise.

4.12.3 Flat-tailed horned lizard

Potential adverse impacts of OHV recreation to FTHL was considered in detail. For this species, it is assumed that all areas of psammophytic scrub and creosote bush scrub are sparsely occupied habitat. The majority of habitat for these species would be open or limited to OHV recreation (about 78 percent of the Planning Area), potentially resulting in loss or displacement of species.

While there is potential for recreation activities to impact individual FTHL, the Action Area is considered to be marginal habitat and few individuals are known to occur, as seen in Figure 12. Wright and Grant in 2003 estimated a density of 0.01 FTHLs per acre in the Dunes. The few potential impacts to habitat and individuals within the Action Area are not likely to result in a significant decline in population or affect the sustainability of FTHL. Recreation Resource Management actions may affect and are likely to adversely affect FTHL.

4.13 Transportation and Public Access

The routes of travel currently existing in the Action Area were developed through the NECO (BLM 2002) and WECO (BLM 2003b) plans. These routes of travel are therefore considered to be

valid, existing implementation decisions. Because these routes are already in use, and are regularly used, the potential for impacting PMV is minimal. The regular and continued use of the routes largely prohibits new PMV seedlings or populations from encroaching and becoming at risk from impacts related to vehicle and OHV use.

As discussed in Section 4.12, impacts may occur to FTHL and desert tortoise from transportation and access within the Action Area. These species are mobile and may occur within the designated travel routes that pass through their habitat, and be killed or wounded by vehicles in the process.

While there is potential for recreation activities to impact individual desert tortoise and FTHL, ISD is considered to be marginal habitat for these species, and few individuals are known to occur within the Action Area. Potential impacts to individuals within the Action Area are not likely to result in a significant decline in population or affect the sustainability of FTHL or desert tortoise.

As seen on Figure 6, all of PMV critical habitat would be closed to OHV recreation under the Preferred Alternative. Motorized travel would not be authorized within PMV critical habitat or proposed closed OHV management areas; loss of habitat, disturbance of species, and direct mortality from OHV recreation within critical habitat would not likely occur.

In summary, Transportation and Public Access management action may affect and likely to adversely affect FTHL and desert tortoise, but are not likely to adversely affect PMV or PMV critical habitat.

4.14 Lands and Realty Management

Lands and Realty Management activities may affect and are likely to adversely affect PMV, FTHL, and tortoise populations in multiple ways:

Construction activities may result in: loss of habitat by the project footprint; incidental destruction of habitat in a buffer area around the footprint; damage to soil on the periphery of the project area; incidental injury or death of individuals; destruction of habitat; entrapment of tortoises in pits or trenches dug for fiber optic lines, water, and gas pipelines and other utilities; attraction of ravens and facilitation of their survival by augmenting food and water; and fugitive dust (Boarman 2002).

Energy developments, such as solar and wind energy generation, could result in habitat destruction and direct mortality, habitat loss to road and development construction, fugitive dust and soil erosion, and developments to support operations. Most of these energy sites would be point sources of disturbance with potentially little effect beyond the immediate site of development. Energy development sites result in direct and indirect loss of habitat, fragmentation of habitat and population, and increase in access roads, which can lead to direct mortality from vehicle use (Boarman 2002).

Scattered individual PMVs are located outside the critical habitat boundaries. The desert tortoise habitat east of the UPRR tracks, where few desert tortoise have been recorded, offers marginal habitat. The FTHL Management Area is excluded from wind and solar development, but a few individuals may occur outside of the management area. Therefore, although the impacts from Lands and Realty Management activities may be adverse to desert tortoise and FTHL, they would likely only affect a few individuals, if any at all.

All portions of PMV critical habitat are excluded from solar and wind development (see Figure 4). It is unlikely that other Lands and Realty management activities would occur within critical habitat due to the nature of the dunes.

Currently, there is one application for a Lands and Realty activity. The application is for a new 500 kilovolt (kV) transmission line between the Imperial Valley substation and the Gila Substation in Arizona that would traverse the planning area within the existing energy corridor along Interstate 8. The BLM cannot predict when, where, how often, or how large Lands and Realty program-related activities may be. Future Lands and Realty actions would require additional NEPA and ESA analyses and compliance. Due to the potentially destructive nature of Lands and Realty Management actions, and the BLM's inability at this time to provide assurances that these activities would avoid listed species or critical habitat, Lands and Realty Management actions may affect and are likely to adversely affect PMV, FTHL, and desert tortoise. Due to the nature of the dunes, potential Lands and Realty activities are discountable. These management activities may affect, but are not likely to adversely affect PMV critical habitat. Due to the unknown nature of these actions, this BA is not requesting incidental take coverage for Lands and Realty Management actions.

4.15 Public Health and Safety

The ECFO has a staff of 12 delegated law enforcement officers who conduct regular patrols of the Action Area. Various vehicles (e.g., quadrunners, 4WD vehicles, and dune buggies) are used to patrol the interior of the dunes to monitor OHV recreation. Most visitors stay within 1 mile of paved roads and the Sand Highway (along the western portion of the dunes); however, with the increased use of global positioning system (GPS) units, visitors are starting to venture further into the inner dunes. During holiday weekends, law enforcement officers are increased. In 2008, from 45 to 66 additional officers were added, depending on the visitor numbers anticipated.

Impacts to listed species from Public Health and Safety activities are similar to those outlined for OHV recreation in Section 4.12. Public Health and Safety activities occur in areas where visitors recreate and would have the same or similar impacts as recreation activities.

Law enforcement or emergency search and rescue activities, including USBP activities, occurring in areas supporting PMV could result in adverse impacts through trampling and disturbance. While law enforcement and emergency search and rescue activities may occur within critical habitat, activities within critical habitat are rare and such activities are unlikely to affect the

principal constituent elements, therefore, Public Health and Safety-related activities are not likely to adversely affect critical habitat.

5.0 Cumulative Impacts

Cumulative effects include the effects of future state, tribal, local, or private actions that are reasonably certain to occur in the Action Area considered in this BA. Future federal actions that are unrelated to the Preferred Alternative are not considered in this section, because they would require separate consultation pursuant to Section 7 of the ESA.

The Mesquite Mine, located to the east of the Action Area, would likely result in an increase of motorized vehicle traffic along SR-78 through the Action Area. Increased traffic across the Action Area may result in harm or mortality to desert tortoise and FTHL.

Impacts of OHV recreation or cross-country travel on private parcels located within the ISD and within or immediately adjacent to the Action Area (see Figure 2) would potentially adversely impact wildlife species, including desert tortoise and FTHL, through destruction of soil stabilizers, soil compaction, reduced rates of water infiltration, increased wind and water erosion, noise, decreased abundance of populations, and destruction of vegetation.

OHV recreation occurring within and adjacent to the Action Area impacts reptiles and amphibians, specifically desert tortoise, and affects the amount and quality of forage available to species when they emerge from winter hibernation. Roads and highways pose several direct and indirect threats to populations. Roads and highways are considered the greatest cumulative threat to tortoise populations and may also impact other special status wildlife species. As barriers, roads inhibit dispersal and subsequent geneflow between subpopulations and metapopulations. In providing access to species populations, particularly tortoise, roads and highways foster such threats as development, vandalism, and collecting. Increased diversity and productivity of vegetation resulting from enhanced hydrological conditions along roadway edges attract wildlife and thereby place them at a greater risk of direct mortality from both predators and motorized vehicles. Roadkills are a substantial source of mortality for many wildlife species, including special status species (Boarman et al. 1997).

The presence of humans, their activities, and noise decreases habitat suitability for special status species. Increased dispersal camping and/or day use may cause loss of vegetation, which could have an adverse impact on special status species.

5.1 Peirson's Milk-vetch Critical Habitat

There are 12,105 acres of designated critical habitat for PMV, located in Imperial County in California. Of the total critical habitat, 11,866 acres are on federal land and 239 acres are on private land. All of the 12,105 acres of critical habitat are found within the Action Area. Federal

lands in Imperial County represent 98 percent of critical habitat within the county. Private holdings within the Action Area represent 2 percent.

Given the small amount of critical habitat for this localized species, protective measures built into the DRAMP/DEIS focus on complete avoidance of the critical habitat; therefore, BLM actions would have no cumulative effect on this species.

5.2 Mojave Desert Tortoise Critical Habitat

There are 340,360 acres of Mojave desert tortoise critical habitat within Imperial County. Of the total critical habitat acres in Imperial County, 164,060 are on BLM lands, 120,040 are on military lands, 5,274 are on California State Parks land; and 51,717 are on private lands. There is no critical habitat on BLM-administered lands within the Action Area. Given that no critical habitat is managed by BLM within the Action Area and the protective measures built into the DRAMP/DEIS, BLM actions would have no cumulative effect on the Mojave desert tortoise critical habitat.

6.0 Measures Proposed to Avoid, Minimize, and Compensate for Impacts

6.1 Peirson's Milk-vetch

The Preferred Alternative outlines goals and objectives for managing listed species. These goals and objectives would be used to avoid, minimize, and compensate for impacts. The management actions below provide guidance on achieving these goals and objectives.

6.1.1 Goals and Objectives

- Promote population increase and protect habitat necessary to promote recovery.
- Provide for habitat connectivity between PMV populations throughout the dunes.
- Ensure no adverse modification of critical habitat.
- Achieve stable or increasing populations of PMV over time with adequate pollination, nurse plants, recruitment, and survivorship. Maintain desired habitat conditions or restore degraded habitats to promote pollinator success and survival.

6.1.2 Proposed Management Actions

- Minimize effects resulting from human-caused disturbances.
- Promote research activities to further management goals of PMV.

- Implement a Monitoring Plan for the Action Area that incorporates monitoring measures for PMV in the Action Area. The monitoring plan includes:
 - (a) Commitment to reinstate ESA Section 7 consultation under the Act with USFWS, as appropriate, so that scientific information collected can be fully integrated into the Section 7(a)(2) analysis of the action
 - (b) Dune-wide monitoring of PMV
 - (c) Dune-wide monitoring and calibration of OHV use patterns
 - (d) Two experimental studies on the effects of OHV use on PMV
 - (e) Examination of the correlation between OHV-use patterns and PMV population levels
 - (f) Modeling of PMV populations under various management scenarios
 - (g) Implementation schedule
 - (h) Viability study of the PMV seed bank
- Analyze the monitoring data from the Monitoring Plan to compare the trend in species abundance due to the different types of impacts in each area.
- Provide for recovery of PMV through habitat protection.
- Close PMV critical habitat (existing and future designated) to motorized use.
- Close Dunebuggy Flats to camping, if rainfall threshold (Attachment 2) is met for PMV critical habitat.
- Exclude PMV critical habitat from solar energy development.
- Exclude PMV critical habitat from wind energy development.
- Exclude PMV critical habitat from all other types of land use authorization.

6.2 Mojave Desert Tortoise

The Preferred Alternative outlines goals and objectives for managing listed species. These goals and objectives would be used to avoid, minimize, and compensate for impacts. The management actions below provide guidance on achieving these goals and objectives.

6.2.1 Goals and Objectives

- Maintain and improve Mojave desert tortoise habitat.

- Promote population increase and protect habitat necessary to promote recovery.
- Provide for habitat connectivity between Mojave desert tortoise populations.
- Establish the goals and criteria for three categories of desert tortoise habitat areas (USFWS 1994a). These categories are:
 - (a) Category I. Maintain stable, viable populations, retain natural shelter sites, protect existing tortoise habitat values, and increase populations where possible.
 - (b) Category II. Maintain stable, viable populations and halt further declines in tortoise values.
 - (c) Category III. Limit tortoise habitat and population declines to the extent possible through mitigating impacts.

6.2.2 Proposed Management Actions

The following management actions would apply to all desert tortoise habitat within the Action Area:

- Review land use requests on a case-by-case basis. Requests may be denied or require mitigation to achieve Goals and Objectives.
- Compensate for loss of desert tortoise habitat in accordance with the *Desert Tortoise Compensation Team Report (1991)*.
- Limit activities that would fragment or further isolate existing populations of desert tortoise (e.g., canals, highways).
- Reduce the attraction of predators through proper management of garbage.
- Reduce take of desert tortoises by injury or death through proper mitigation measures.

6.3 Flat-Tailed Horned Lizard

The Preferred Alternative outlines goals and objectives for managing listed species. These goals and objectives would be used to avoid, minimize, and compensate for impacts. The management actions below provide guidance on achieving these goals and objectives.

6.3.1 Goals and Objectives

- Maintain, enhance, and restore habitats for the survival and recovery of species listed under the ESA and to prevent proposed or candidate species from becoming listed as endangered or threatened under the ESA.

- Avoid or minimize activities that would result in the following situations for special status species and associated habitat on BLM-administered public lands: (1) species becoming endangered or extirpated from public lands in the Planning Area; (2) species undergoing significant current or predicted downward trend in habitat capability that would reduce a species' existing distribution; and (3) species undergoing significant current or predicted downward trend in population or density.
- Provide habitat capable of maintaining stable or increasing population trends of special status species to ensure persistence. Provide suitable ecological conditions that constitute well-distributed habitats and connective corridors to support reproductive needs and free-flow movements of special status species for population persistence.
- Manage allowable uses to minimize habitat destruction, degradation, and fragmentation to protect special status species. Habitat modifications from land and resource uses would be at levels that do not threaten the persistence of special status species populations.

6.3.2 Proposed Management Actions

The following management actions would apply to all FTHL habitat within the Action Area:

- Review land use requests on a case-by-case basis. Requests may be denied or require mitigation to achieve Goals and Objectives.
- Limit activities that would fragment or further isolate existing populations of FTHL (e.g., canals, highways).
- Reduce the attraction of predators through proper management of garbage.
- Reduce take of FTHL by injury or death through proper mitigation measures. Manage consistently with the FTHL range-wide management strategy.
- Implement a monitoring plan for the FTHL. Analyze the monitoring data to compare the trend in species' abundance due to the different types of impacts in each area.

7.0 Conclusions

Implementation of the RAMP Preferred Alternative would adversely affect listed species located on BLM-administered lands within the Action Area. Based on the preceding analysis concerning the effects of the Preferred Alternative on the species addressed and after considering the cumulative effects, BLM renders the effects determinations shown below for each of the potentially affected species and critical habitats. These determinations represent the net effect of all beneficial and adverse effects associated with the Preferred Alternative. They thus

represent BLM's overall finding concerning the need to consult, pursuant to Section 7 of the ESA.

No Effect

- Yuma clapper-rail
- Southwestern willow flycatcher
- Western yellow-billed cuckoo
- Razorback sucker
- Mojave desert tortoise critical habitat

May Affect, Likely to Adversely Affect

- PMV
- Mojave desert tortoise
- FTHL

Not Likely to Adversely Affect

- PMV critical habitat

8.0 Acronyms

ACEC	Area of Critical Environmental Concern
BA	Biological Assessment
BLM	Bureau of Land Management
BMP	best management practices
BO	Biological Opinion
BOR	Bureau of Reclamation
CAA	Clean Air Act
CAL FIRE	California Department of Forestry and Fire Protection
CDD	California Desert District
CDFG	California Department of Fish and Game
CDPA	California Desert Protection Act
CEQ	Council on Environmental Quality
CFR	Code of Federal Regulations
CNPS	California Native Plant Society
DEIS	Draft Environmental Impact Statement
DOI	Department of the Interior
DRAMP	Draft Recreation Area Management Plan
ECFO	El Centro Field Office
EIS	Environmental Impact Statement
EPA	Environmental Protection Agency
ERMA	Extensive Recreation Management Area
ESA	Endangered Species Act
FLPMA	Federal Lands and Policy Management Act
FTHL	flat-tailed horned lizard

ICAPCD Imperial County Air Pollution Control District

IMP	integrated pest management
ISD	Imperial Sand Dunes
NECO	Northern and Eastern Colorado Desert Coordinated Management Plan
NEMO	Northern and Eastern Mojave Management Plan
NEPA	National Environmental Policy Act
NHPA	National Historic Preservation Act
NRCS	Natural Resources Conservation Service
OHV	off-highway vehicle
PMV	Peirson's milk-vetch
RAMP	Recreation Area Management Plan
RMA	Recreation Management Areas
RMZ	Recreation Management Zone
ROD	Record of Decision
ROW	right-of-way
SHPO	State Historic Preservation Officer
SRMA	Special Recreation Management Area
US	United States
UPRR	Union Pacific Railroad
USACE	US Army Corps of Engineers
USBP	US Border Patrol
USFWS	US Fish and Wildlife Service
USGS	US Geological Survey
UXO	unexploded ordnance
WECO	Western Colorado Desert Route of Travel Plan

WEMO West Mojave Management Plan

WA Wilderness Area

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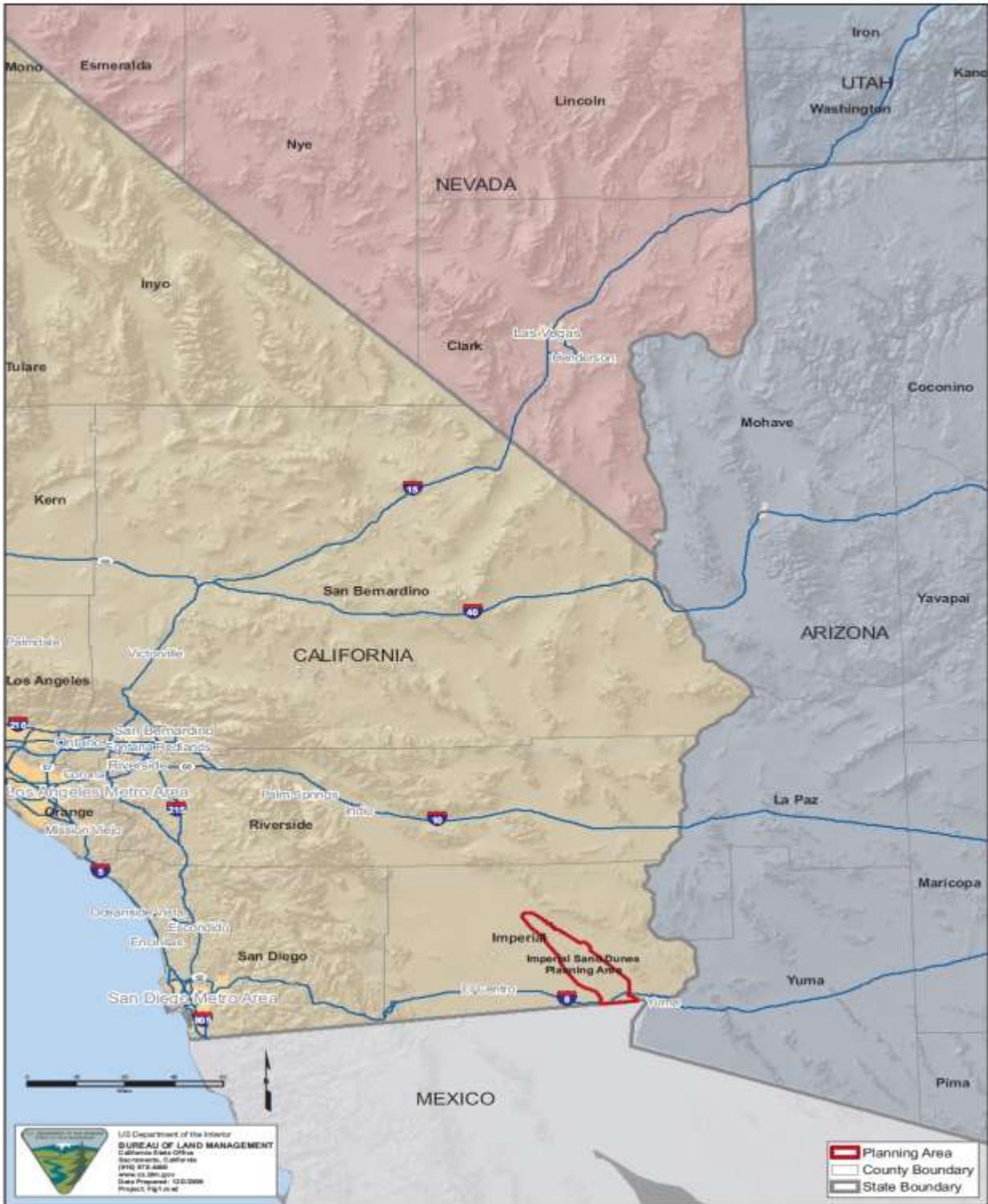
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**BIOLOGICAL ASSESSMENT FOR THE IMPERIAL SAND DUNES
DRAFT RECREATION AREA MANAGEMENT PLAN
DRAFT ENVIRONMENTAL IMPACT STATEMENT**



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FIGURE 1

Regional Setting

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BIOLOGICAL ASSESSMENT FOR THE IMPERIAL SAND DUNES
DRAFT RECREATION AREA MANAGEMENT PLAN
DRAFT ENVIRONMENTAL IMPACT STATEMENT

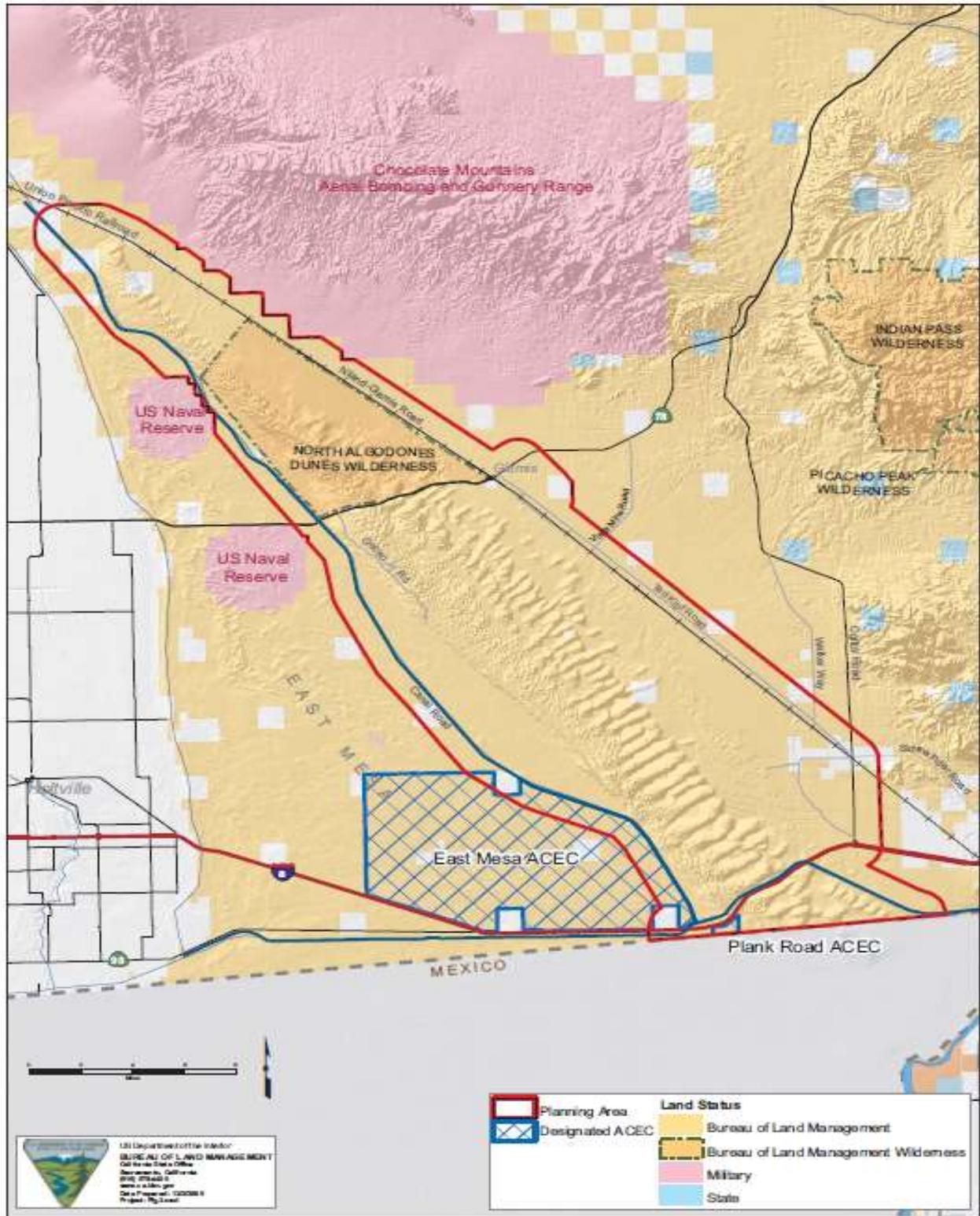


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FIGURE 2
Planning Area

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DRAFT ENVIRONMENTAL IMPACT STATEMENT**

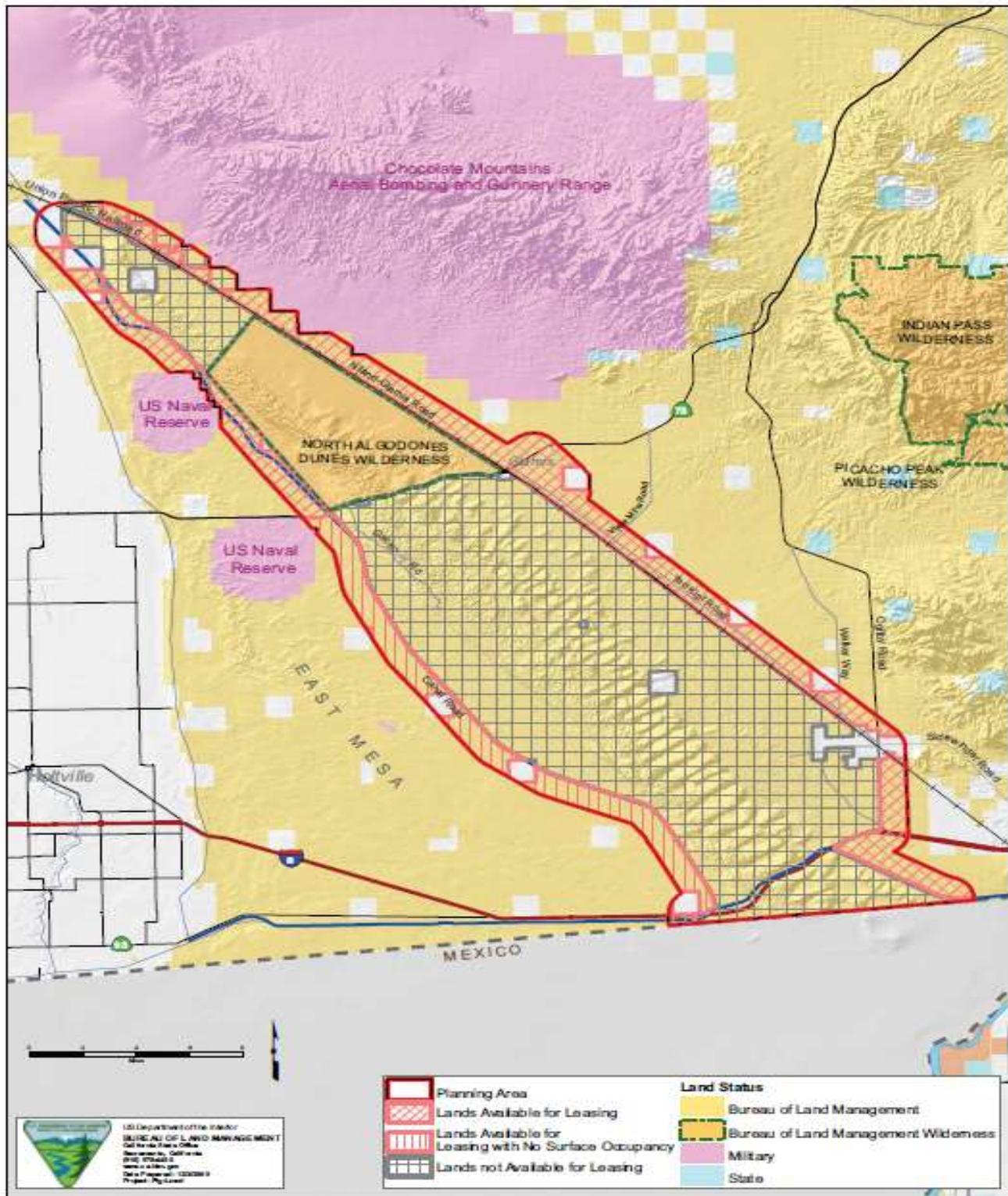


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FIGURE 3
Special Designations

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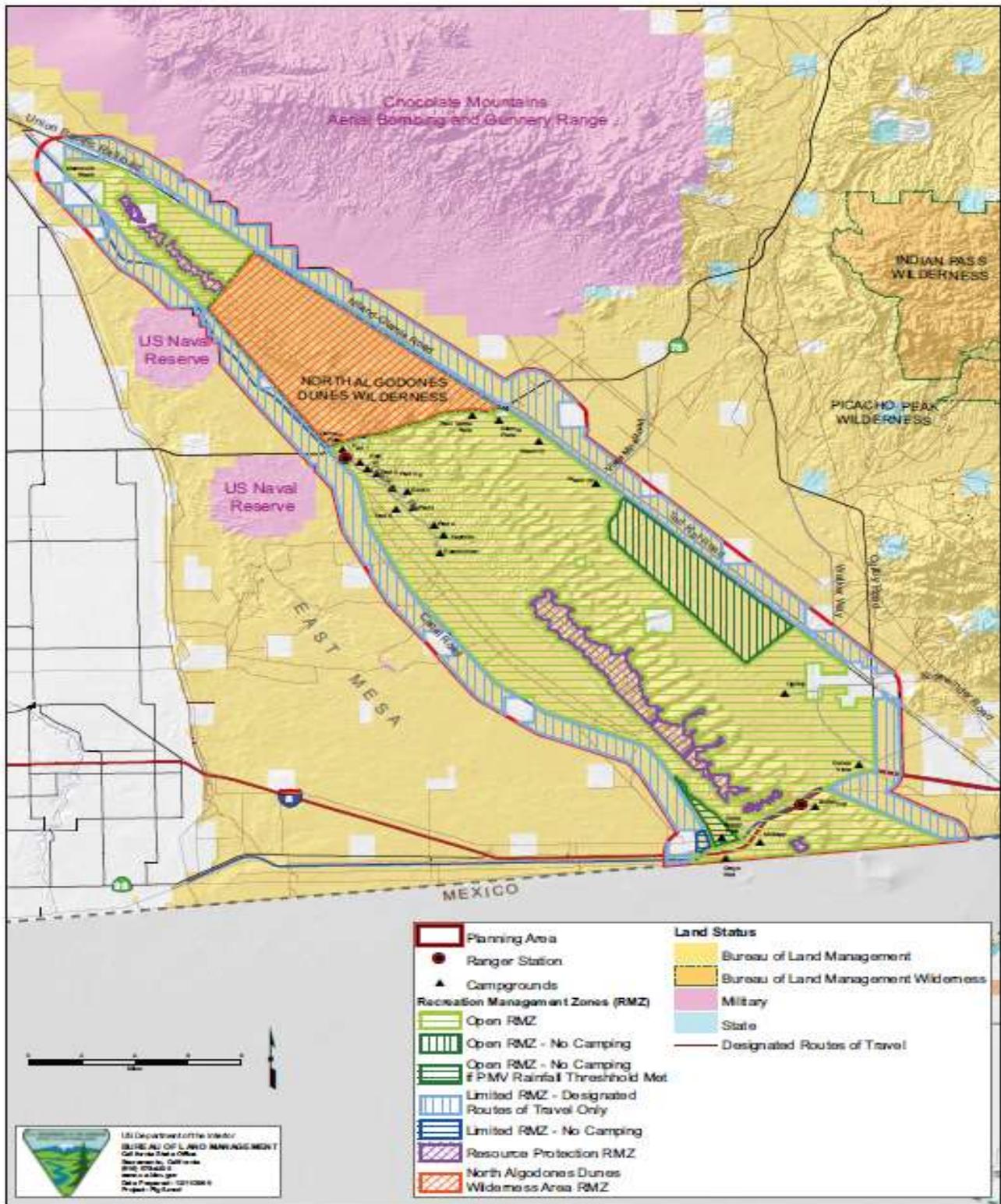
FIGURE 4
Lands Available for Geothermal, Solar, and
Wind Leasing Under the Preferred Alternative



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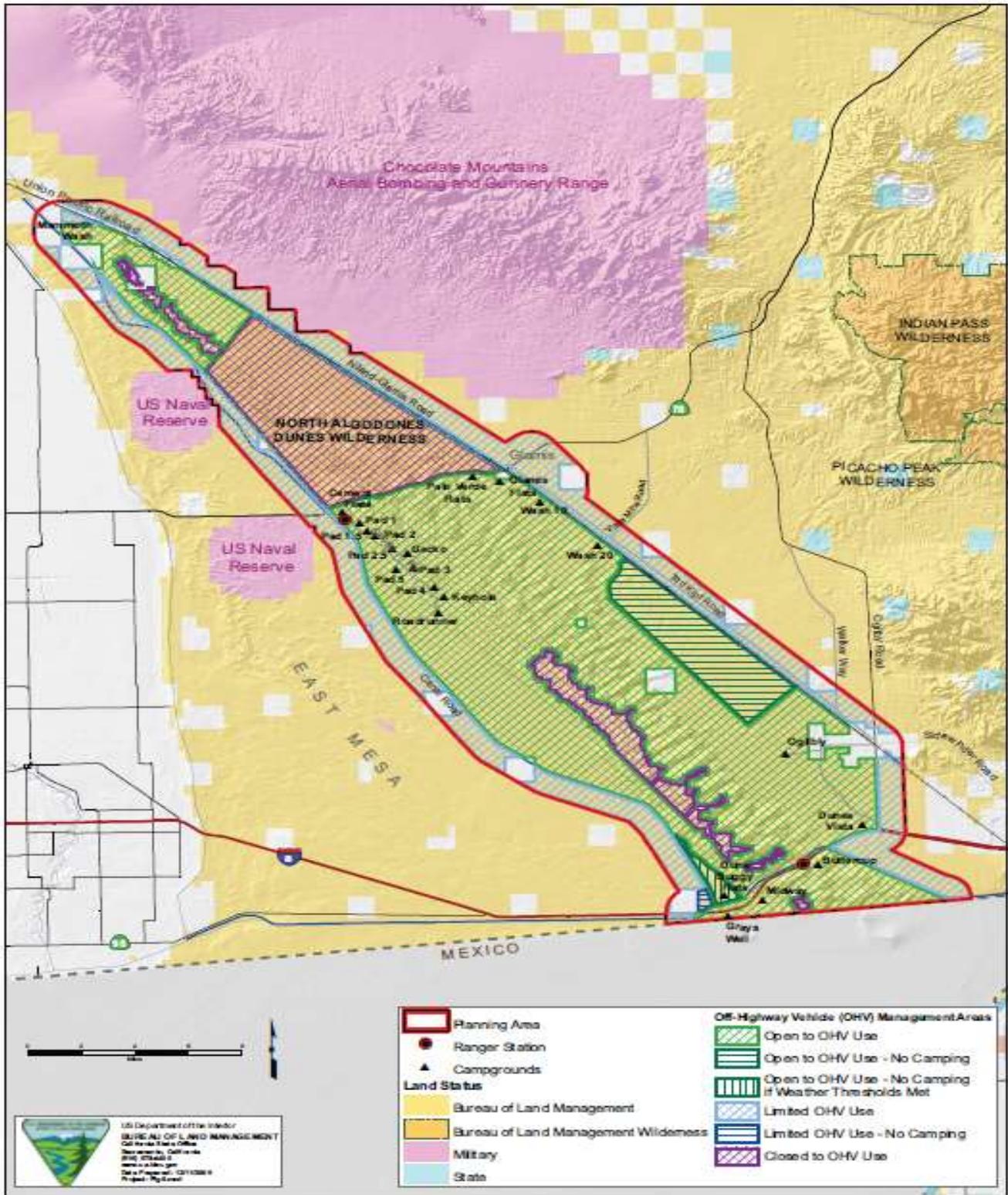
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FIGURE 5

Recreation Management Zones Under the Preferred Alternative

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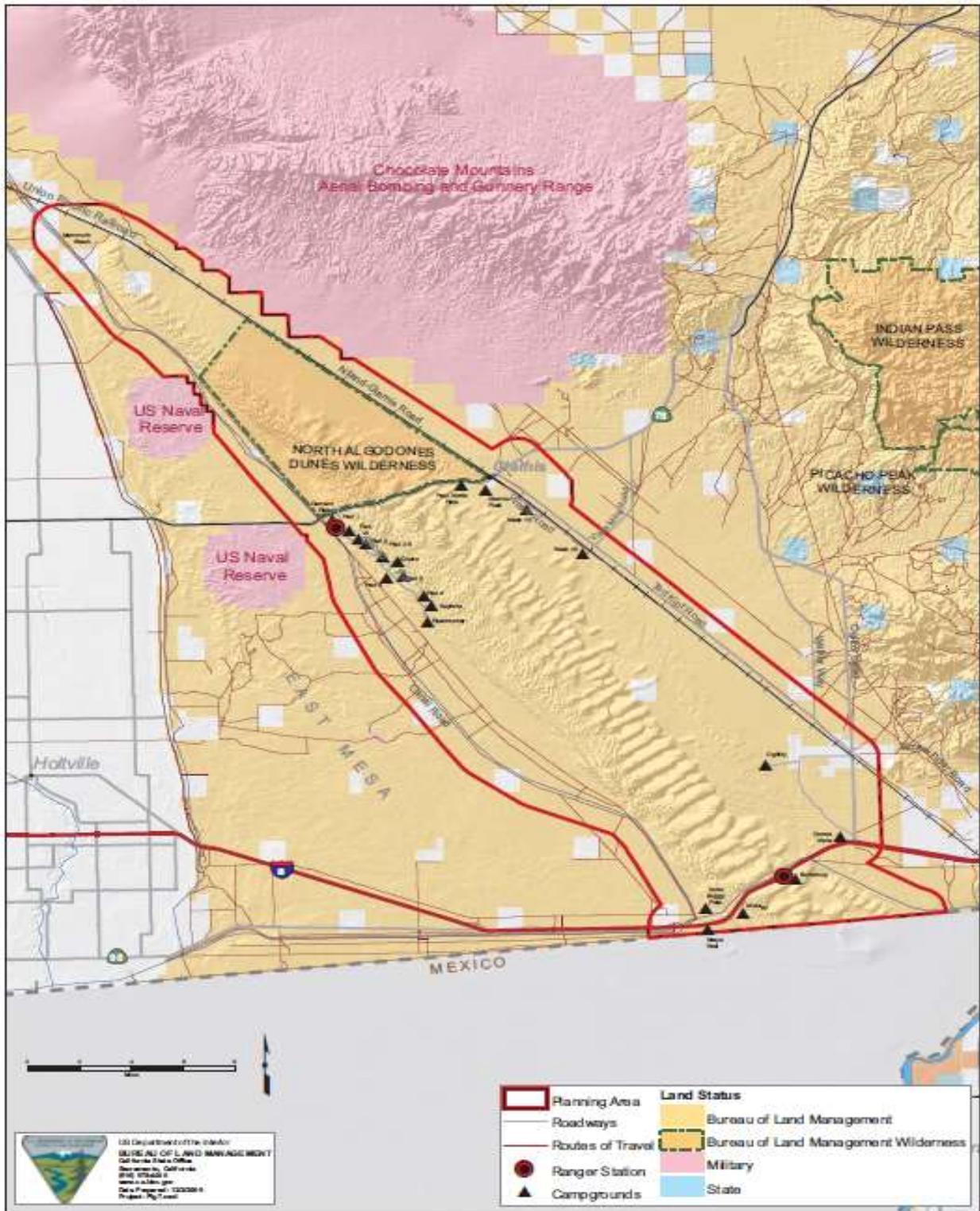
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FIGURE 6

OHV Management Areas Under the Preferred Alternative

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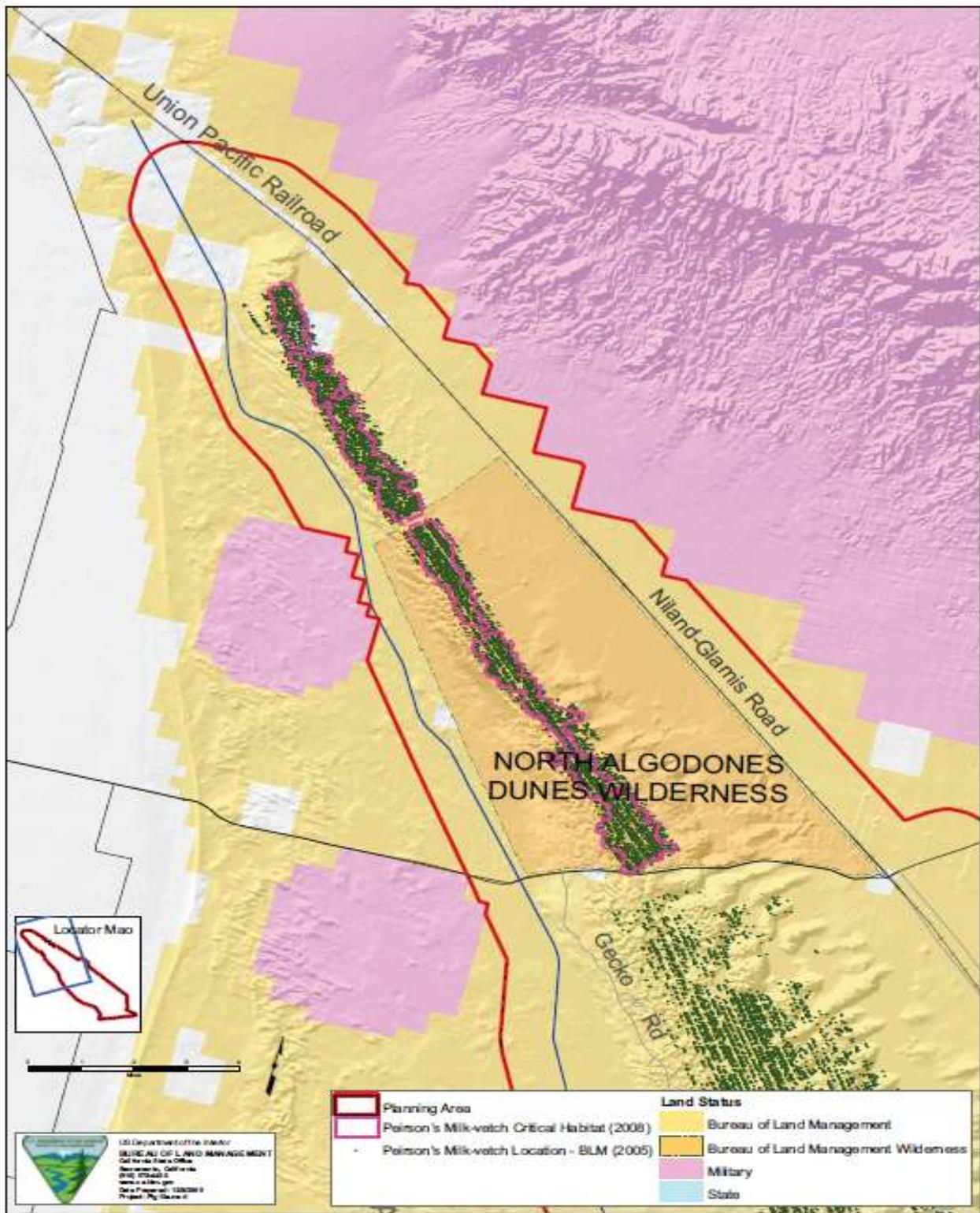
FIGURE 7

Routes of Travel in the Planning Area

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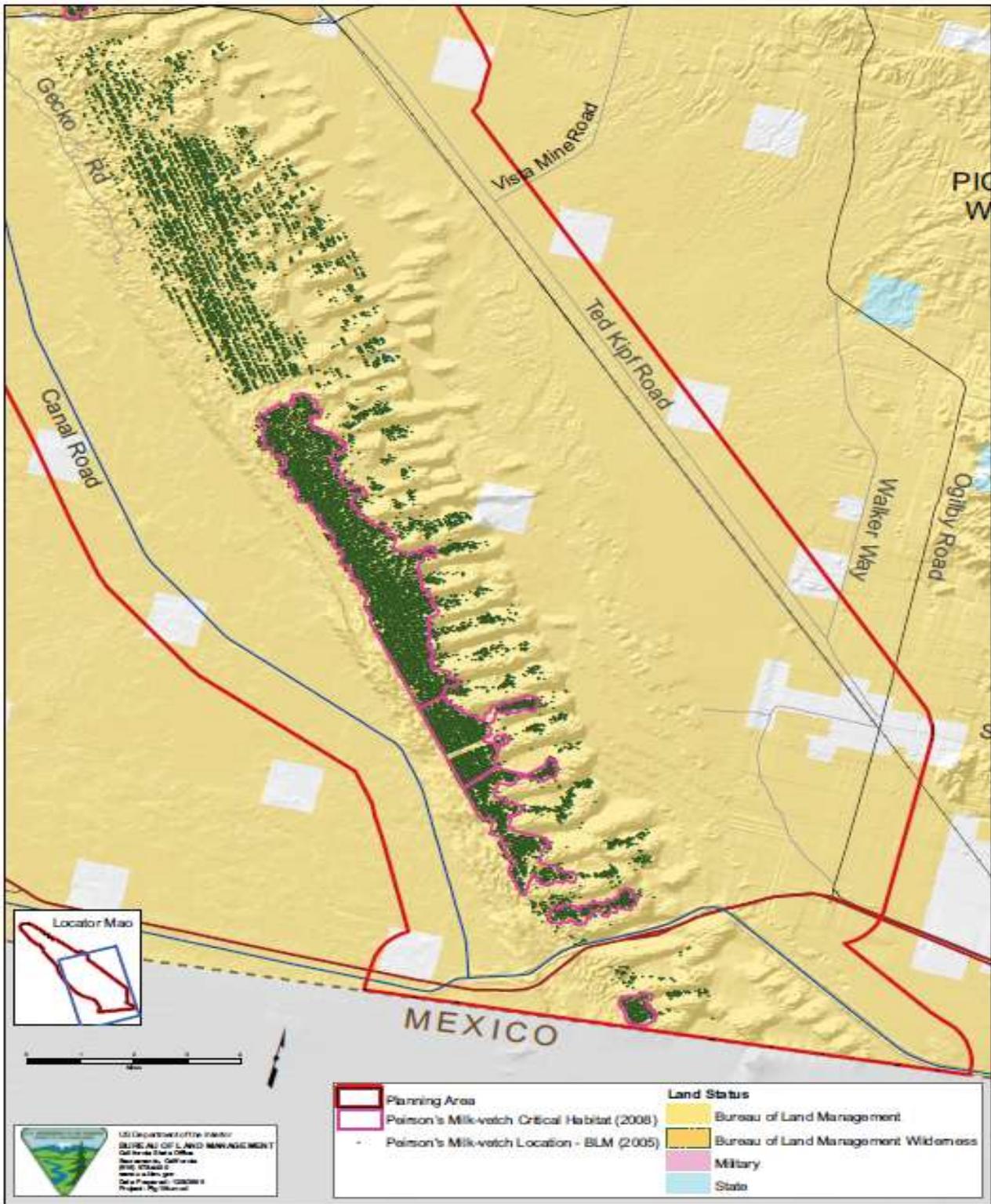


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FIGURE 10a
Peirson's Milk-vetch Locations and Critical Habitat
within the Planning Area

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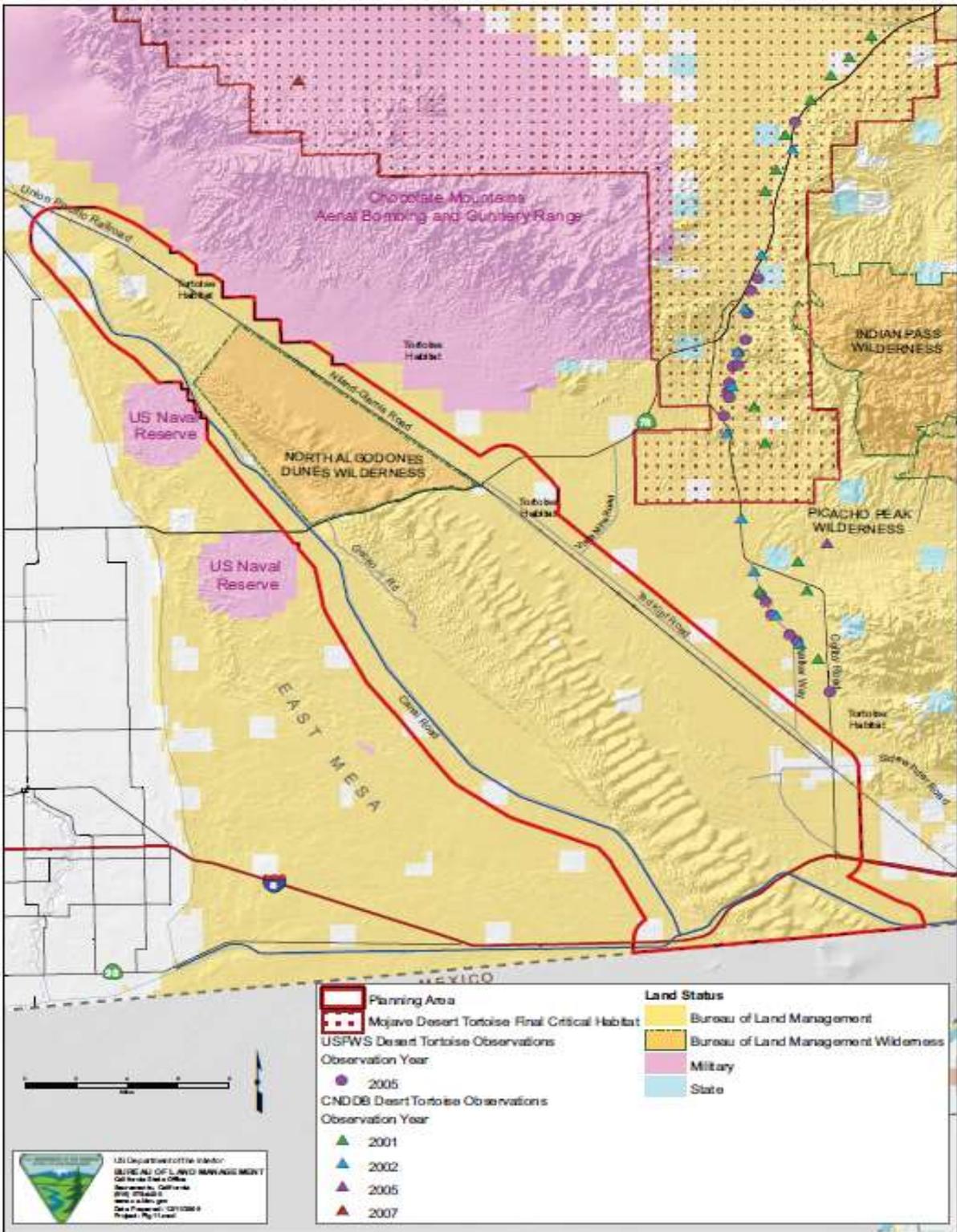


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FIGURE 10b
Peirson's Milk-vetch Locations and Critical Habitat
within the Planning Area

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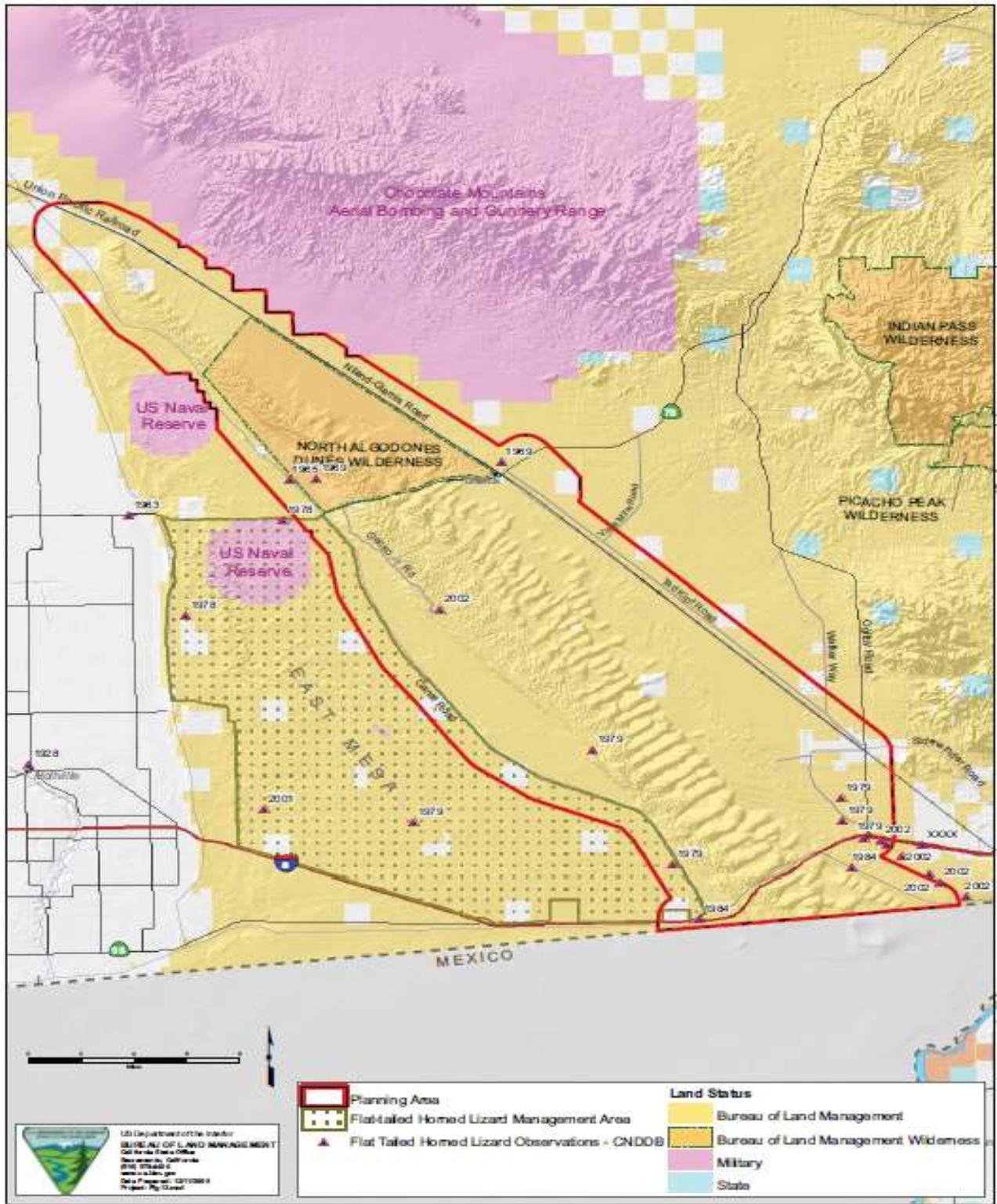


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FIGURE 11
Mojave Desert Tortoise Critical Habitat

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FIGURE 12

Flat Tailed Homed Lizard within the Planning Area

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