



United States Department of the Interior

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In reply refer to: FWS-IMP-3419.2

APR 03 2003

MEMORANDUM

To: State Director, Bureau of Land Management, Sacramento, California

From:  Assistant Field Supervisor, Carlsbad Fish and Wildlife Office, Carlsbad, California

Subject: Endangered Species Consultation on Management of Imperial Sand Dunes Recreation Area, based on the California Desert Conservation Area Plan, as amended by the draft 2002 Recreation Area Management Plan (BLM reference number 6840(P) CA-063.50)

This document transmits our biological opinion based on our review of the California Desert Conservation Area Plan (CDCA Plan), as amended by the draft Imperial Sand Dunes Recreation Area (ISDRA) Management Plan (RAMP), and modifications of the RAMP made during the consultation process. At issue are the effects of the CDCA Plan as amended by the RAMP, on the threatened Peirson's milk-vetch (*Astragalus magdalena* var. *peirsonii*) and desert tortoise (*Xerobates agassizi*). This document was prepared in accordance with section 7 of the Endangered Species Act of 1973, as amended (16 U.S.C. 1531 *et seq.*) (Act). Your request for formal consultation on the CDCA Plan was received on January 31, 2001, and your request for consultation on the proposed RAMP, which would amend the CDCA Plan, was received on April 15, 2002.

This biological opinion is based on the following information: (1) the CDCA Plan; (2) *Recreation Area Management Plan and Environmental Assessment for the Imperial Sand Dunes* (BLM 1987 or 1987 RAMP); (3) *Draft Imperial Sand Dunes Recreation Area Management Plan* (BLM 2002a or proposed RAMP); (4) *Draft Environmental Impact Statement for a Proposed Recreation Area Management Plan and Amendment to the CDCA Plan: Imperial Sand Dunes Recreation Area* (BLM 2002 or draft EIS); (5) *Biological Evaluation on Effects of the CDCA Plan as Amended by the NEMO and NECO Preferred Alternatives and with Other Interim Measures on Ten T&E Plants*, dated January 2001 (BLM 2001); (6) information transmitted in a memorandum from the BLM to the Service on September 27, 2001; (7) information transmitted by e-mail from the BLM to the Service on June 19, 2002; (8) memo from the BLM to Service dated October 11, 2002; and (9) various reports and publications. A complete administrative record of this consultation is on file in Carlsbad Fish and Wildlife Office.

CONSULTATION HISTORY

On March 16, 2000, the Southwest Center for Biological Diversity, the Sierra Club, and the Public Employees for Environmental Responsibility (PEER) filed a lawsuit against the BLM.

The plaintiffs alleged that the BLM violated section 7(a)(2) of the Act and its implementing regulations by failing to initiate consultation with Service on the effects of the CDCA Plan, its amendments, and related actions that may affect listed species in the California Desert Conservation Area (CDCA) that are authorized, approved, allowed, or otherwise carried out pursuant to the CDCA Plan and its amendments. The plaintiffs also alleged that the BLM violated section 7(d) of the Act and its implementing regulations, by authorizing, allowing, or implementing land use practices that might affect federally listed species prior to completing a programmatic consultation with Service on the CDCA Plan and its amendments.

On August 25, 2000, the plaintiffs and the BLM agreed to a settlement that was approved by the U.S. District Court, Northern California Division. Terms of the agreement required that the BLM enter into formal consultation with the Service under section 7 of the Act. On January 16, 2001, the plaintiffs and the BLM agreed to a second settlement that described 58 measures intended to promote the conservation of various listed species within the California desert. As part of the settlement agreements, BLM agreed to implement interim measures in the Imperial Sand Dunes Recreation Area until the CDCA Plan was amended via a revised RAMP:

1. The BLM will only consider land exchanges or disposals involving threatened or endangered species habitat or potential habitat if they benefit the species.
2. The BLM will temporarily close four areas of the Algodones Dunes to all off-highway vehicles and other vehicles. These areas, which total approximately 49,000 acres (BLM 2002), will remain closed until the BLM completes section 7 consultation on an amended RAMP. Official government vehicles conducting monitoring or other legitimate governmental activities shall be allowed inside the closed areas. The four closure areas are known as the Northern, Small Central, Large Central, and Southern Closures.

The borders of the North Closure are: to the South, the northern boundary of the Algodones Wilderness Area; to the West, the Coachella Canal; to the East, the road immediately west of and parallel to the Southern Pacific Railroad Tracks; and to the North, the East-West Section line dividing Section 20 from Section 29 at the Coachella Canal and dividing Section 19 from 30 at the Southern Pacific Railroad Tracks.

The borders of the Southern Closure, a small polygon south of Interstate 8, are depicted on a map associated with the October 20, 2000 Stipulation.

The Small Central Closure consists of approximately 2,000 acres, in an approximate oval shape. The boundaries of the Small Central Closure were drawn to include the four high density Peirson's milk-vetch survey cells located between Roadrunner Campground and Oldsmobile Hill. There is a minimum of one quarter mile between the southern boundary of the Small Central Closure and the northern boundary of the Large Central Closure.

The boundaries of the Large Central Closure are: to the North, beginning one quarter mile southeast of Roadrunner Campground due east to the Canal Road, excluding China Wall Hill; to the East, Canal Road running southeast to the southern boundary in the original stipulation (field October 20, 2000); except for the Patton Valley Area described below,

the Southern and Western boundaries shall be the same as those in the original stipulation (field October 20, 2000). The Patton Valley Area shall consist of approximately 540 acres in a semi-circle shape, to include the one high density cell and portions of three medium density cells located to the northwest of Patton Valley.

The boundaries of the Small Central Closure and the Patton Valley Area of the Large Central Closure shall be determined after a joint site visit to those areas by representatives from each of the signatories to this Stipulation. The acreage shall remain as stated above, but the boundaries may be adjusted to account for the actual location of plant populations.

3. To benefit all threatened and endangered species, the BLM agreed to amend brochures and maps distributed to the public to encourage camping only in previously disturbed sites.
4. BLM will temporarily close approximately 25,600 acres of desert tortoise habitat within the ISDRA. The camping closure is located east of Glamis and the railroad tracks.

Subsequent to initiation of consultation on the CDCA Plan, the BLM began developing a revised RAMP for the ISDRA. In March 2002, the BLM released the draft RAMP and EIS for public comment, and on July 17, 2002, the Service met with the BLM and agreed to combine the biological opinion on the CDCA Plan with the biological opinion on the RAMP, rather than issue separate consultations based on different project descriptions, one with Interim Closure Areas and one without closures.

The Service and BLM held subsequent meetings and conference calls, and exchanged e-mails to develop modifications to the draft RAMP that would prevent appreciable declines in the numbers, reproduction and distribution of Peirson's milk-vetch, yet allow implementation of the RAMP without closure areas. As a result of these discussions, in a memo dated October 11, 2002, BLM agreed to:

1. Increase precision of the proposed monitoring plan, and fund and implement studies to answer questions regarding the effects of OHV use on Peirson's milk-vetch (Appendix 1);
2. Use information from the next four years of monitoring to develop, in cooperation with the Service, an adaptive management program for the milk-vetch. Specifically, in coordination with the Service, BLM will identify minimum thresholds of Peirson's milk-vetch abundance for each Management Area (MA) that if not attained, will require reinitiation of formal consultation and possible management changes;
3. Reinitiate formal consultation in 4 years based on incorporation of information obtained from monitoring and studies; and
4. Reinitiate consultation sooner than 4 years if the milk-vetch population in any Management Area falls to 50% of the baseline level in a subsequent year with comparable rainfall at or above the long-term mean.

DESCRIPTION OF THE PROPOSED ACTION

The BLM proposes to manage the Imperial Sand Dunes Recreation Area (ISDRA) under prescriptions described in the CDCA Plan, as amended by the proposed RAMP. The BLM proposes to implement the RAMP; as described below, for 4 years, and reinstate formal consultation with the Service to re-evaluate effects and refine management for Peirson's milk-vetch in light of the additional 4 years of monitoring and research results. If Peirson's milk-vetch population levels in individual Management Areas fall to 50% of baseline in a comparable rainfall year (at or above the long-term mean), BLM has committed to reinstate consultation. This threshold may be adjusted by the subsequent consultation.

Items not considered part of the proposed action include existing plans of operation for mining activities and ongoing activities and/or facilities that are authorized under existing special use permits. These activities involve permittees and effects to listed or proposed species that need to be addressed on a case by case basis. Any approval, permitting, administration, or funding of new or amended activities that may affect listed or proposed species must be addressed through future consultation.

California Desert Conservation Area Plan

The primary plan that guides the overall management of the California desert is the CDCA Plan. The CDCA Plan employs three basic tools for managing resources:

1. *A land zoning system that allows for a variety of uses and resource conservation activities.* The zoning system outlined in the CDCA Plan contains four Multiple-Use Classes; Class C (Controlled Use), Class L (Limited Use), Class M (Moderate Use), and Class I (Intensive Use). The multiple-use class assignment of an area is based on resource sensitivity and land use. Lands classified as "L" or "M" are generally designated as "Limited" for OHV use under the CDCA. However, lands within the sand dune areas would be designated either "Open" or "Closed" to OHV use regardless of MUC designation, because topographic or other land characteristics that make management of limited use areas practical generally do not exist within sand dunes (BLM 2002). Under the CDCA Plan, as modified by the RAMP, approximately 84 percent of the sand dune habitat within the Algodones Dunes would be classified as "Open" to OHV use.

Multiple-Use Class C (controlled use) lands include areas that have been recommended for wilderness designation and areas that have already been formally designated as wilderness. The United States Congress designated wilderness areas across large portions of the California Desert Conservation Area in 1994 with the California Desert Protection Act. The 26,202-acre North Algodones Dunes Wilderness Area is the only current Class C area within the boundaries of the ISDRA. An additional Class C area, Wilderness Study Area 362 was established in 1994, however, this area was not formally designated as a Wilderness Area and is no longer managed as a Class C area. The North Algodones Dunes Wilderness Area includes approximately 16% of the dunes system within the ISDRA. No recreational vehicle use has been or would be authorized within the Wilderness Area.

Multiple-Use Class L (limited use) lands are managed to provide for lower density, carefully controlled multiple uses of resources while ensuring that sensitive values are not significantly diminished. Approximately one third of the ISDRA would remain designated as Class L under the proposed RAMP, based on maps provided in the EIS. This designation limits mining, road construction, facilities, etc, however, intensive off-road vehicle-based recreational use would be allowed in limited use areas in the ISDRA under the CDCA as amended by the draft RAMP.

Multiple-Use Class M (moderate use) lands are managed to provide for a wide variety of uses that include mining, livestock grazing, recreation, energy, and utility development. Approximately one-twelfth of the ISDRA would remain designated as Class M under the proposed RAMP. Intensive off-road vehicle-based recreational use would be allowed in moderate use areas in the ISDRA under the CDCA, as amended by the draft RAMP. New proposals for mining, energy, roads, facilities, communications projects, etc. would require separate section 7 consultation.

Multiple-Use Class I (intensive use) lands include areas that may experience concentrated use serving human needs. Approximately one third of the ISDRA would remain designated as Class I under the proposed RAMP. New proposals for mining, energy, roads, facilities, communication projects, etc. would require separate section 7 consultation.

2. *Twelve Plan Elements that provide detailed treatments and prescriptions addressing the management of different land uses and resources.* The 12 Plan Elements provide specific management prescriptions for major resources or human activities. Each element has a set of goals and planned actions and a description of how these goals and actions will be implemented and monitored. The 12 Plan Elements include: Cultural Resources, Native American, Wildlife, Vegetation, Wilderness, Wild Horses and Burros, Livestock Grazing, Recreation, Motorized-Vehicle Access, Geology-Energy-Minerals (G-E-M), Energy Production and Utility Corridors, and Land Tenure Adjustment. These Elements are specifically applied, where appropriate, to identified areas of the California Desert. Application of Plan Elements is evident in the Management Actions prescribed for different Management Areas within the ISDRA, and described in Table 1 and Table 2.

3. *The designation of special management areas, including, but not limited to Special Areas and Areas of Critical Environmental Concern (ACECs).* The designation of an Area of Critical Environmental Concern (ACEC) is the primary tool the BLM uses for identifying and highlighting areas with significant cultural and natural resources that require special management attention. Twenty-eight areas in the CDCA have been identified as ACECs solely or partially to protect fish and wildlife resources. Two ACECs have been designated in the ISDRA. Plank Road, located south of Interstate 8 is a historical desert crossing, and the Gold Basin-Rand Intaglios, which has unique prehistoric cultural resource values. East Mesa, which lies to the west of the ISDRA, also is afforded protection through ACEC designation.

Other areas that possess rare, unique, or unusual qualities of scientific, educational, cultural, or recreational significance may be designated as one of 11 types of "Special Area." These 11 categories include: Research Natural Areas, Outstanding Natural Areas, Other Natural Areas, National Natural Landmarks, National Historical Landmarks, National Register of Historic Places, Historic American Engineering Record, National Scenic Trails, National Historic Trails, man and Biosphere Reserves, and Recreation Lands. No "Special Areas" have been designated in the ISDRA.

Imperial Sand Dunes RAMP

The CDCA Plan provides a general prescription for management. The purpose of the RAMP is to provide more specific management guidelines that pertain to the ISDRA, as an amendment to the CDCA Plan. The ISDRA was designated first by a management plan adopted in 1972. A RAMP was adopted in 1987 that included prescriptions for recreation, safety, resource protection, outreach, facility development, concessions, and land tenure adjustment. The 1987 RAMP would be replaced by the proposed RAMP.

The draft RAMP proposes to divide the ISDRA into 9 management areas and manage recreation activities in each unit based on the "Recreation Opportunity Spectrum" (ROS) classification system. Under this system, each management area would have a "desired future condition", which might be achieved by implementation of identified management actions. Each management area is also classified by one or more MUCs, as listed below. Some existing rights-of-way are associated with existing projects, others are corridors in which future projects may be developed. Such future projects will require separate section 7 consultation.

Under the draft RAMP, BLM would manage approximately 29,741 acres as Rural Land. Management of these lands would entail development of facilities, including campgrounds, overlooks, parking lots, and camping pads. A substantially modified environment would characterize areas designated as rural areas. BLM would manage approximately 64,389 acres as Roded Natural Areas. Facilities would be designed and constructed to accommodate conventional motorized use. A natural appearing environment would theoretically characterize Roded Natural Areas with evidence of human use. BLM would manage approximately 105,208 acres in Semi-primitive Motorized Areas. A predominantly natural appearing environment would characterize these areas where motorized vehicle use is allowed. BLM proposes to retain the existing Northern Algodones Dunes Wilderness Area (27,695 acres) as the only management area in which motorized vehicle use would not be allowed. A natural appearing environment would characterize the area with little evidence of human use.

Recreation Use and Facilities: A complete description of the level of OHV use and facilities proposed by BLM is available in the draft RAMP. The table below provides a synopsis of management actions proposed for each Management Area.

Table 1: Synopsis of Management Planned Under CDCA as Amended by Draft RAMP

Management Area	MUCs ²	ROS	Proposed Management Actions	Species ¹
Mammoth Wash 8,105 acres camping ³ 808 vehicles/day ³ 2,829 campers/day ³	I	Semi-primitive motorized	-Maintain guzzlers - Biological monitoring - Allow filming permits - New camping area	DT, FTHL, PMV
N. Algodones Wilderness 27,089 acres 26,202 acres camping ³ 0 vehicles/day ³ 74 campers/day ³	C, I	Semi-primitive non-motorized	- Maintain guzzlers - Maintain signage - Maintain Watchable Wildlife site - Biological monitoring	DT, FTHL, PMV
Gecko 21,225 acres 674 acres camping ³ 8,057 vehicles/day ³ 28,199 campers/day ³	I, L	Rural	- No camping N. of 78 - Construct 15 acres new campsites (70.5 current acres campsites) -B/t canals S. 78 - use for overflow camping - Volunteer/non-profit cleanup activities - Pilot reservation program - Close Osborne to camping - Construct Osborne ranger station - Construct Osborne law enforcement facility - Construct housing/parking at current ranger station - Install Osborne educational kiosks - Install kiosks Gecko Rd., Gecko and Roadrunner Campgrounds - Biological monitoring	FTHL, PMV
Glamis 24,041 acres 2,014 camping acres ³ 3,625 vehicles/day ³ 12,688 campers/day ³	I, L	Roaded natural	- Construct pit toilets in Glamis flats, washes - Allow camping east of Glamis and RR tracks - Grade Wash Road regularly - Biological monitoring	DT, FTHL, PMV
Adaptive Management 33,289 acres 0 camping acres ³ 525 vehicles/day ³ 0 campers/day ³	L	Semi-primitive motorized	- Biological monitoring - Research studies - Sign boundaries - Develop permit program	DT, FTHL, PMV
Dune Buggy Flats 16,658 acres 1,237 camping acres ³ 2,227 vehicles/day ³ 7,793 campers/day ³	I, M, L	Roaded natural	- Construct pit toilets - Grade entrance road regularly - Biological monitoring	FTHL, PMV

Ogilby 21,710 acres 1,539 camping acres ³ 2,770 vehicles/day ³ 9,696 campers/day**	I, M	Roaded natural	- Biological monitoring	DT, FTHL
Buttercup 7,842 acres 432 camping acres ³ 5,476 vehicles/day ³ 19,165 campers/day	I	Rural	- Construct Ranger Station - Construct Law Enforcement Facility - Designate interpretive area closed to OHV use and camping - Repair Plank Road fencing and exhibits - Construct vendor area - Designate bus parking area adjacent to interpretive area - Biological monitoring	FTHL, PMV
Buffer 48,312 acres 0 camping acres ³ unknown # vehicles/day 0 campers/day ³	M, L		- Biological monitoring - Sign for no camping	DT, FTHL

1. DT=desert tortoise, FTHL=flat-tailed horned lizard, PMV=Peirson's milk-vetch
2. Under the CDCA, roughly 1/3 of the ISDRA is zoned as "limited use" (Class L), 1/3 is zoned as "intensive use" (Class I), and 1/4 is zoned as "controlled use" (Class C). Roughly 1/12 of the dunes is zoned as "moderate use" (Class M).
3. Estimates made by BLM in RAMP revision based on "ROS" system. These figures constitute target use levels.

By classifying the Management Areas as listed above, BLM is proposing to re-open 49,000 acres (4 Interim Closure Areas) to OHV use, and one temporary camping closure to camping. Interim closure areas were instituted to protect Peirson's milk-vetch, and the temporary camping closure was enforced to protect the desert tortoise until consultation on a draft RAMP was complete.

Monitoring

The draft RAMP identified a monitoring plan for several sensitive species and ecological communities located within the ISDRA. After discussions with the Service, BLM proposes to modify the monitoring plan identified in the draft RAMP to a more rigorous monitoring and research plan, as presented in Appendix 1. The monitoring plan includes (1) dune-wide monitoring of Peirson's milk-vetch, (2) dune-wide monitoring and calibration of OHV use patterns, (3) two experimental studies on the effects of OHVs on Peirson's milk-vetch, (4) examination for correlation between OHV use patterns and milk-vetch population levels, (5) modeling of milk-vetch populations under various management scenarios, and (6) an implementation schedule. The monitoring plan also includes monitoring of dune vegetation, desert tortoise populations, flat-tailed horned lizard populations, avian populations, and microphyll woodlands.

Adaptive Management

BLM proposes to (1) establish triggers to activate alternative management actions when visitation exceeds target levels (termed “camping opportunities” or “supply” in the draft RAMP) by 15 percent of the time on a yearly basis, and (2) establish more restrictive triggers to activate management actions when visitation exceeds the supply of available camping opportunities by 20 percent of the time on a yearly basis or for 15 percent of the time for two consecutive years. In addition, BLM has committed to reinitiate consultation (1) if Peirson’s milk-vetch population levels in individual Management Areas fall to 50 percent of baseline in a comparable rainfall year (at or above the long-term mean), and (2) after accumulation of 4-years of monitoring information to adjust and refine the management program to reflect best available data.

STATUS OF THE SPECIES

Peirson’s milk-vetch

Peirson’s milk-vetch was listed as an endangered species by the State of California in 1979. On May 8, 1992, the Service published a rule proposing endangered or threatened status for seven desert milk-vetch taxa, including Peirson’s milk-vetch (57 Federal Register 19844). The Service listed this species as threatened on October 6, 1998 (63 FR 53596) due to threats of increasing habitat loss from OHV use and associated recreational development, destruction of plants, and lack of protection afforded the plant under State law. At the time of listing, the Service estimated that 75-80% of the milk-vetch habitat in the Algodones Dunes was subject to OHV use.

Peirson’s milk-vetch is a stout, short-lived perennial member of the Legume Family (Fabaceae). Stems are gray-green in color, upright, and reach heights of 20 to 70 centimeters (8-27 in). Leaves are pubescent, gray-green, long, and slender, with paired leaflets along each edge. The flowers are dull purple, arranged in 10- to 17-flowered racemes. The pods are large and inflated, 2 to 3.5 centimeters (0.8-1.4 in) long, and contain 4.5-5.5 mm (0.2 in) black flat seeds--the largest seeds of any *Astragalus* in North America. Seeds require no pre-germination treatment to induce germination but show increased germination success when scarified (Romspert and Burk 1979). Seeds germinated best at lower and intermediate temperatures (15-25°C) in laboratory studies (Romspert and Burk 1979), and as might be expected, germinate in the cooler fall and winter months. The taproot is extremely long and penetrates deeply before lateral rootlets emerge (Barneby 1964). The root crown is often exposed due to moving sand in the dunes. Milk-vetch seedlings mature rapidly, and although perennial, some plants may bear fruit within several months of germination (Barneby 1964, Phillips *et al.* 2001). Romspert and Burk (1979) noted that older plants were the primary seed producers, and plants that become reproductive in the first season do not contribute much to the seed pool. This corresponds to conclusions reached by Pavlik and Barbour (1986) on a related *Astragalus* species, although Phillips and Kennedy (2002) concluded that there was a “substantial infusion of seeds into the sand as a result of the 2000 germination event and favorable weather conditions in the dune system in the spring and summer 2001”. Survival into the following wet fall/winter period was low in studies conducted by Romspert and Burk (1979), and Phillips and Kennedy (2002) reported 26 percent survival of the 2000-01 cohort through the summer of 2001. Though additional research will improve our understanding of the relative importance of first year reproductive plants, the

existing literature suggests that older plants are important contributors to the persistence of the Peirson's milk-vetch seedbank. Rompsert and Burk (1979) also noted significant presence of the bruchid seed beetles, which they concluded contributes to a high mortality of seeds and a reduced seed crop for the species.

Peirson's milk-vetch grows on slopes and hollows of windblown dunes in the southwestern Sonoran Desert. The species is frequently associated with other psammophytic (sand-loving) plants in the "psammophytic scrub" plant community. The only confirmed extant population of Peirson's milk-vetch in the U.S. is distributed in "what can be considered one extensive population of scattered colonies spanning the length of the (Algodones) dune system" (63 FR 53596). The plant occurs primarily in partially stabilized bowls that lie behind the primary, western-most dunes. Most vegetation occurs in dunes of intermediate size in the western half of the area, and not in the "high dunes" in the eastern portion of the dune field (Phillips and Kennedy 2002). Approximately 108,658 acres of psammophytic scrub/active dune occurs within the ISDRA (BLM 2002), although recent studies conclude that "mappable concentrations of plants were noted in less than 25 percent of the dunes proper" (Phillips and Kennedy 2002). Surveys conducted in the Borrego Valley, where the species was originally collected, have failed to detect Peirson's milk-vetch (BLM 2001). Another historic location, west of the Salton Sea, cannot be confirmed. Peirson's milk-vetch has been apparently misidentified in the Yuma Dunes of Arizona (Phillips and Kennedy 2002). A specimen collected in the Gran Desierto of northwestern Sonora was confirmed as *A. m. var. peirsonii* by A. Phillips in 2001.

Peirson's milk-vetch exhibits temporal variability in plant numbers apparently associated with annual precipitation patterns. In dune-wide surveys conducted in 1997, 1998, 1999, and 2000, the species was most abundant in 1998, the highest rainfall year, and least abundant in 2000, the lowest rainfall year. Responses of this species were similar in both the closed and open areas across 4 years of BLM monitoring (BLM 2001). Based on current understanding of the species' life history, sufficient rain in conjunction with wetter than average fall weather appears to trigger significant germination events. After germination, seedlings may be present throughout the dunes, especially during above normal precipitation years. As discussed above, older plants produce more seeds than first-year plants. In intervening drier years, plant numbers decrease as individuals die and are not replaced by new seedlings. The species likely depends on the production of seeds in the wetter years, and the persistence of seed producers and seeds in the dunes until appropriate conditions for production and germination occur. Further research and modeling are necessary to better understand the dynamics of this system and how the species may be responding to natural and man-made disturbances within its range.

Vehicles can crush individual plants, reduce the reproductive output of those that survive, and change dune structure. Destruction of plants and modification of habitat associated with off-road vehicle activity is considered the primary threat to Peirson's milk-vetch. Willoughby (2001), however, concluded that healthy milk-vetch populations persist in OHV "open areas" in the Algodones Dunes and that populations in both "open" and "closed" areas respond to precipitation patterns. This likely results from the observation that OHV use does not tend to encroach on habitat of the plants in more distant regions of the open area away from OHV staging concentrations (Willoughby 2001). At the time of listing, an estimated 75 percent of the ISDRA was open to motorized vehicle use. Since listing, recreational use and border traffic

associated with illegal entry into the U.S. has increased significantly in the Algodones Dunes. The number of visits to the ISDRA has tripled since 1985 (BLM 2002).

The Service has not yet developed a recovery plan or designated critical habitat for Peirson's milk-vetch. Based on our current understanding of the species' biology, the primary conservation needs include: maintenance of the major occurrences of Peirson's milk-vetch to conserve genetic diversity; management of milk-vetch habitat to prevent catastrophic population declines; and collection of additional information concerning recreational use-patterns in the Algodones Dunes, the direct and indirect effects of OHV use on this species, and biological factors affecting milk-vetch demographics.

Desert tortoise

The desert tortoise is a large herbivorous reptile found in portions of the California, Arizona, Nevada, and Utah deserts, and extending in range to Sonora and Sinaloa, Mexico. In California, the species occurs primarily within the creosote bush, shadscale, and Joshua tree series of the Mojave Desert scrub, and the lower Colorado River Valley subdivision of the Sonoran Desert scrub. Optimal habitat has been characterized as creosote bush scrub in which precipitation ranges from 2-8 in, the diversity of perennial plants is relatively high, and production of ephemerals is prominent (Luckenbach 1982, Turner 1982, Turner and Brown 1982, Schamberger and Turner 1986). Soils must be friable to allow for burrow excavation, but firm to avoid burrow collapse. In California, desert tortoises are typically associated with gravelly flats or sandy soils with some clay, although the species has occasionally been found on windblown sand or rocky terrain (Luckenbach 1982). Tortoises also frequent washes characterized by microphyll woodland. Live tortoises have been recorded in the California desert from below sea level to an elevation of 7,300 ft, but the most favorable habitat occurs at elevations of about 1,000 to 3,000 ft (Luckenbach 1982, Schamberger and Turner 1986).

Tortoises are most active in California during the spring and early summer when annual plants are most prevalent. Additional activity occurs during the warmer fall months and sometimes following summer rainstorms. Desert tortoises spend the remainder of the year in burrows, escaping the extreme conditions of the desert. Further information on the range, biology, and ecology of the desert tortoise is described in Burge and Bradley (1976), Burge (1978), Luckenbach (1982), and the Service (1994a,b).

In the early 1970s, biologists noted a decline in desert tortoise populations throughout the species' range in the United States. On August 4, 1989, the Service emergency listed the Mojave population of the desert tortoise as threatened (54 FR 32326), and on April 2, 1990, the Service finalized a rule listing the Mojave population of the desert tortoise as threatened (55 FR 12178). Threats to the desert tortoise include loss and degradation of habitat from construction projects and mining activity, conversion of tortoise habitat for agricultural and residential development, livestock grazing, off-highway vehicle activity, illegal collection, upper respiratory tract disease, and elevated levels of predation.

On February 8, 1994, the Service designated critical habitat for the Mojave population of the desert tortoise. In California, 8 units of designated critical habitat encompass portions of the Mojave and Colorado deserts that are essential to tortoise recovery. Northern portions of the ISDRA lie approximately 6 miles from designated critical habitat in the Chuckwalla Unit.

A final Desert Tortoise (Mojave Population) Recovery Plan was published in June 1994 (Service 1994b). The recovery plan serves as the key strategy for recovery and delisting of the desert tortoise. The document divides the tortoise population into six evolutionarily significant units termed "recovery units". The tortoise population in each recovery unit shows differentiation in genetics, morphology, ecology, or behavior. Preserving viable populations of desert tortoises within each recovery unit is essential to the long-term recovery of the species. Within each recovery unit, the desert tortoise recovery plan recommends establishment of protected areas called "Desert Wildlife Management Areas" (DWMAs). Within DWMAs, human activities that negatively affect the desert tortoise will be restricted as part of the recovery effort (Service 1994b). The ISDRA lies within the Eastern Colorado Recovery Unit, and is within 6 miles of the Chuckwalla DWMA.

Desert tortoises in the Eastern Colorado Recovery Unit occupy small washes, well-developed washes, flat-areas, and rocky slopes characterized by relatively species-rich Succulent Scrub, Creosote Bush Scrub, and microphyll woodland communities. Winter burrows are generally shorter in length, and activity periods are longer than elsewhere due to mild winters and summer precipitation. Tortoises feed on summer and winter annuals and some cacti and den singly. They have the California mtDNA haplotype and shell type.

Within the Eastern Colorado Recovery Unit, the recovery plan deemed threats to the desert tortoise as relatively high, receiving a 4 on a scale of 1-5. The Chuckwalla DWMA is the only DWMA that lies entirely within the Eastern Colorado Recovery Unit. The Chuckwalla DWMA has two study plots that provide density estimates and trend data: Chuckwalla Bench and Chuckwalla Valley. In 1979-1982, estimated densities were 578 tortoises per square mile on the Chuckwalla Bench study plot, and 163 tortoises per square mile on in the Chuckwalla Valley study plot. By 1990-1992, estimated densities had declined to 160 tortoises per square mile on the Chuckwalla Bench study plot, and 73 tortoises per square mile on the Chuckwalla Valley study plot. The 1988-1991 estimates ranged from 5-175 adults per square mile (overall average of 15 adults per square mile). Tortoise densities in the Recreation Area (RA) are probably very small based on the rarity of tortoise sign and tortoise sightings. Many biological surveys for species other than tortoise have been conducted, and numerous agency personnel have spent time in the Dunes over years, yet sightings are rare. Fall 2002 surveys conducted in the ISDRA yielded few observations of tortoise sign, and no observations of live tortoises. However, surveys did not cover the entire area of potential tortoise habitat within the ISDRA. Recorded tortoise sightings include: one desert tortoise found in the Buttercup Area in the late 1980's (Watkins, pers. comm. 1991); one on Vista Mine Road about 0.5 miles from the RA in 2001 (Himmerich, pers. comm. 2001); and a third between Ted Kipf Road and the railroad 1 mile north of Clyde also in 2001 (Heine, pers. comm. 2001). A possible tortoise burrow was seen in the Open Area several miles southwest of Glamis in the spring of 2002 (Wright, pers. comm. 2002). All sightings have been on the east side of the Dunes, primarily associated with

microphyll woodland and creosote bush scrub. Beginning in the 1980's and into the 1990's, over 100 tortoises were relocated to the area south of Mesquite Mine along Ogilby Road and Vista Mine Road, within 0.5 to 2.0 miles of the ISDRA. Abundant tortoises (from 0 to 59 tortoises per square mile) occur in the vicinity of Mesquite Mine about 3 miles east of the ISDRA (Nicholson 1984), and an average tortoise density of 20 tortoises per square mile was reported for the proposed Mesquite Regional Landfill site directly to the east of ISDRA. Though tortoises are known to occur in the immediate and general vicinities, the absence of any tortoises detected during the 2002 fall survey of 20 transects within ISDRA (G. Wright, pers. comm. 2002), and the history and increasing trend of recreation around the dunes, indicates that tortoise densities are low in the ISDRA.

ENVIRONMENTAL BASELINE

The ISDRA includes the dune vegetation in the Algodones Dunes (103,091 acres), as well as creosote scrub (21,434 acres total) to the east and west and microphyll woodland (34,547 acres) east of the dune system. The Algodones Dunes are one of the driest and hottest regions in the United States. Romsper and Burk (1979) reported average yearly precipitation between 1941-1970 was 67.8 mm.

An accumulation of wind-blown sand derived from beach deposits of Pleistocene Lake Cahuilla, the Algodones Dunes support numerous specialized biota, some of which are endemic. The area has been used recreationally for decades, and currently receives more OHV use than any other dune system in California. The ecosystem has been subject to major effects from recreational OHV's, flood control, highways, filming, power lines, communications projects, hiking, camping, mining, Border Patrol and illegal immigrant travel for many years. Visitor levels to this dune system tripled between 1985 and 2001 (BLM 2002).

The ISDRA is somewhat isolated from the surrounding desert habitat, bordered to the west by the Coachella Canal, and to the east by Wash Road, Ted Kipf Road (250 acres), railroad tracks (339 acres), and flood control dikes (500 acres). The canal, roads, dikes, and railroad tracks may limit wildlife movement into and out of the ISDRA and Algodones Dunes ecosystem. Two major highways, Interstate 8 (125 acres) and Highway 78 (50 acres), bisect the dunes, which may limit the movement of wildlife throughout the dunes, and represents a potential source of fatalities to individuals that do attempt to cross the roads.

Four areas within the ISDRA, totaling 49,000 acres, are currently closed to OHV use to protect Peirson's milk-vetch until the impacts of the proposed RAMP have been evaluated. Prior to these interim closures, all areas of the Algodones Dunes were open to OHV use except for the Northern Algodones Dunes Wilderness Area. One 25,600-acre area is currently closed to camping to protect the desert tortoise until the impacts of the proposed RAMP have been evaluated.

Mammoth Wash Management Area: This area has historically been exposed to a low level of OHV use (Wright 2002). Historically, even on heavy weekends, approximately 10 to 15 visitor groups camped in the area. However, with the Interim Closures in effect, this number has risen to as high as 100 vehicles on a major holiday weekends during the past two years. Currently,

staging impacts occur on only about 200 acres of lizard habitat. This area lacks any visitor facilities such as camping pads, improved roads, latrines or vendors, all of which would increase impacts. One big game guzzler is located on the east side of the Dunes in this MA. This MA has two existing rights-of-way.

North Algodones Dunes Management Area: The North Algodones Dunes experience a low level of mostly unauthorized OHV use. Recreational OHV use is not allowed, although it is known to occur. Most vehicle use results from Border Patrol activities. Three big game guzzlers are present in this MA along its east side in microphyll woodland. State Route 78 constitutes the southern border of this management area, which may limit wildlife movement and result in fatalities to individuals that attempt to cross the road. This MA has three existing rights-of-way.

Gecko Management Area: This MA is heavily impacted by OHV recreation, especially along Gecko Road and Highway 78. Each winter tens of thousands of recreational vehicles camp intensively along this Road and ride between Glamis and Gecko Road just south of Highway 78. Heavy use has caused and perpetuates severe de-vegetation and soil compaction. Such heavy impacts probably depress the number of wildlife and plant species found in and around use areas (Wright 2002).

Of the 21,928 acres in the Gecko MA, about 589 acres (2.8 percent of the MA) are occupied by camping and staging areas and associated very heavy riding areas. Dispersed riding areas that differ in the level of impacts occupy the remaining 97.2 percent of the MA. Some dispersed riding areas have virtually no impact and resemble the Wilderness while others are almost devoid of vegetation. At this time, these dispersed areas have only been rather crudely divided into areas of high, medium and low impact (Wright 2002). More accurate quantitatively based data are not available.

State Route 78 constitutes the northern border of this management area, which may limit wildlife movement and result in fatalities to individuals that attempt to cross the road. This MA has 9 existing right-of-ways.

Glamis Management Area: As with the Gecko Management Area, this MA is very heavily impacted by OHVs near the Glamis Store on its northeast corner and along the wash road for 3 - 4 miles southward. The area affected by intensive camping recently increased as hundreds of campers moved into the creosote scrub and microphyll woodland south of Glamis, possibly in response to the temporary camping closure east of Glamis (Hamada, pers. com. 2002). These portions of the MA are subject to some of the heaviest OHV impacts in the ISDRA. As with the Gecko MA, some dispersed riding areas resemble Wilderness because of the lack of OHV impact, while others show signs of heavy impacts. Of the 24,000 acres in the MA, about 800 acres (3%) are heavily impacted staging areas, primarily in creosote bush scrub and microphyll woodland. These areas have widespread de-vegetation and soil compaction.

State Route 78 is the northern border of Glamis MA, and likely restricts wildlife movement between the North Algodones Management Area and Glamis MA. This MA has 4 existing rights-of-way.

Adaptive Management Area: This area contains about 34,000 acres. It has been closed to OHV riding for two years, and prior to this closure was open to OHVs. No camping, facilities, or staging areas are located within this MA, and most use prior to closures consisted of dispersed riding. Because no facilities or staging areas are located in this MA, there are fewer areas that have received heavy impacts. Current habitat impacts are concentrated around the Tubes, Plane Wreck and Ceiling Hill - popular OHV play sites. This MA has 4 existing rights-of-way.

Ogilby Management Area: Staging areas occupy about 300 acres (1%) of this 24,000-acre MA. Patton Valley receives heavy use during holiday weekends. This MA has 9 existing rights-of-way.

Dune Buggy Flats Management Area: This MA covers 17,000 acres and receives very heavy use like the Gecko, Glamis and Buttercup MAs. Camping and intensive riding in and around staging areas has resulted in severe de-vegetation and soil compaction. These staging areas occupy about 1,800 acres, or over 10% of the MA. At present staging areas fill to capacity on major holiday weekends. Riders also spill over into the East Mesa Flat-tailed Horned Lizard MA (FTHL MA), creating surface impacts on 62% of the surface of the western half of section 31. This impact is primarily associated with access to a private business, Pair-a-dice and the Herman Schneider Bridge. Vehicle impact level increased by 20% in the west half of section 31 following the opening of the bridge and closure to camping in 2001. This effect may have occurred as more people crossed the bridge from the Buttercup MA to reach the Dune Buggy Flats MA or because the camping blocked vehicle access in a large portion of section 31. This MA has 6 existing rights-of-way.

Buttercup Management Area: This area receives heavy OHV impacts, especially around Buttercup Valley, Midway, and Grays Well areas, which have about 100 acres of staging areas. This MA is readily accessible from Interstate 8 but receives reduced use in less accessible portions of the interior. In addition to OHV impacts, this area also receives heavy Border Patrol, Interstate 8 and immigrant impacts. The MA is isolated from the larger dune system and East Mesa by the All American Canal. The Mexican portion of the Dunes is contiguous with this MA but is bounded by the developed area associated with Ciudad Morelos. This MA has 16 existing rights-of-way.

Buffer Zone Management Area: The Buffer Zone MA surrounds the ISDRA with a 1-mile zone. The Buffer Zone includes 32 rights-of-way, which have resulted in disturbances within this MA, and experiences varying levels of recreational use at different points along the ISDRA perimeter.

EFFECTS OF THE ACTION

Peirson's milk-vetch

The following analysis is organized according to the plan elements described in the BLM (2001).

Recreation Element: Continued implementation of the CDCA Plan, as amended by the proposed RAMP is likely to adversely affect Peirson's milk-vetch primarily due to increasing intensity of use associated with the recreational activities. However, the magnitude of adverse effects would

be limited by the proposed monitoring and adaptive management program, as described in more detail below.

As OHV use in the dunes continues to increase in accordance with the planning guidelines provided in the proposed RAMP, increasing numbers of plants are likely to be run over and subsequently damaged or killed by vehicles. Reproductive output of individual plants and the overall population likely will be reduced, causing long-term changes in the milk-vetch population. Given the large numbers of visitors to the dunes, and the temporal overlap between the growth and reproduction of milk-vetch with periods of visitation, milk-vetch is vulnerable to physical damage, despite efforts aimed at visitor education. Implementation of the proposed RAMP also is likely to indirectly affect Peirson's milk-vetch by changing dune and soil structure in heavily used areas. The extent of adverse effects is difficult to assess due to lack of documentation of past intensity of use and vehicular distribution patterns, lack of information on mortality rates, and changes in reproductive output associated with being run over.

Adverse effects to Peirson's milk-vetch also could occur from construction of facilities, such as pit toilets, camping pads, and vendor stations. Direct effects to Peirson's milk-vetch from facilities construction is unlikely because the location of proposed facilities does not overlap with the known distribution of milk-vetch in the dunes. However, new facilities are likely to indirectly affect nearby plant populations by creating nodes of higher use as visitors are attracted to these conveniences. Heavy impacts, such as greatly reduced extent of dune vegetation, are associated with such facilities in the ISDRA (Luckenbach and Bury 1983, ECOS 1990, Phillips *et al.* 2001, Willoughby 2001).

The level of adverse effects would vary markedly from one Management Area (MA) to another. Peirson's milk-vetch is found in seven of the nine proposed MAs. The effects of the proposed action would be minimal in the North Algodones Dunes MA (designated wilderness) because no vehicle use or facilities are proposed. Though the BLM proposes continued prohibition of vehicle use in this area, the Wilderness Area supports only 16 percent of Peirson's milk-vetch habitat (BLM 2002). The remaining 84 percent of the habitat identified by BLM would remain subject to effects of OHV use. Of the dune-restricted plant taxa monitored by BLM, Peirson's milk-vetch appears to be the most vulnerable species to destruction by OHVs (63 FR 53596). Its small stature provides little obstacle to riders (Rompsert and Burke 1978, ECOS 1990); the brittle nature of its single stem causes the plants to break, rather than bend when hit by a vehicle (ECOS 1990); and a lack of lateral roots may reduce its ability to remain anchored and survive vehicle induced damage (Rompsert and Burke 1978). The level of impact that would occur from dispersed riding is unknown, however, effects are likely to become more intense and widespread as the level of visitation increases, and technological advances, such as cell phones and global positioning systems, improve rider safety and allow more distant exploration into formerly remote areas.

A maximum of 525 vehicles could use the Adaptive Management Area (33,289 acres, 23 percent of milk-vetch habitat) each day, however, the use patterns that would result and the effects of this level of use are not known. Theoretically, it would be possible for permitted vehicles to drive over the entire surface of the Adaptive Management Area within 6 peak holiday periods if each vehicle drove only 21 miles per day (calculations based on 2, 6-inch tire tracks per vehicle).

This, however, is considered unlikely based on typical use patterns exhibited by OHV recreationsists (A. Phillips, pers. comm. 2002). Based on research conducted by Pavlik (1979) on a related milk-vetch taxon (*Astragalus lentiginosus* var. *micans*), damage from one to two tire tracks can kill individual plants. Although no research has been conducted to assess the effects of vehicle contact on the survivorship or reproductive output of Peirson's milk-vetch, Sebesta (*in litt.* 2002) has observed effects similar to those reported by Pavlik.

Outside the proposed Adaptive Management Area and Wilderness Area, the proposed plan identifies a dune-wide recreational carrying capacity of 20,736 vehicles and 72,577 campers per day on the remaining 66,976 acres (61 percent) of the ISDRA. The proposed RAMP includes measures to address use levels above the identified recreational carrying capacity, if such overuse occurs for 15 percent or 20 percent of the use period each year (see Adaptive Management, page 9). However, carrying capacity likely would never exceed this threshold because recreational use is primarily concentrated into only six holiday weekends each year, totalling about 50 percent of annual visitation (BLM 2002). Because these approximately 21 days of use do not constitute 15 percent of the days of the October to May recreational season (BLM 2002), this trigger for management change would only be reached if use patterns changed substantially, and an order-of-magnitude increase in visitation began occurring on non-holiday weekends. Regardless, the level of visitation on holiday weekends likely will continue to increase at a 5 to 7.5 percent rate per year under the proposed RAMP according to the draft EIS. Based on recorded use levels, dune visitation increased 111 percent between 1994 and 1999 (63 FR 53596). Over 850,000 visitor-use days occurred during the 1999-2000 season (BLM 2002). Based on the proposed plan, BLM (2002) anticipates an increase in visitor use from 867,753 in 2001-2002, to 1,005,000 in the 2002-2003 season, and up 1,637,000 in the 2012-2013 season, more than doubling use levels since the date of Federal listing.

The primary use season coincides with the winter and spring periods of seed germination, growth, and flowering of Peirson's milk-vetch (Romspert and Burk 1979, Willoughby 2000, Phillips *et al.* 2001). As a result, vehicle use in areas of milk-vetch occurrence is likely to reduce reproductive success because plants or branches are damaged or destroyed prior to seed-set. Moreover, reproductive output is likely reduced over the long-term if fewer plants mature because larger perennial individuals produce more seed than smaller individuals (Pavlik and Barbour 1986, Rompert and Burk 1978). Because mature plants are brittle and lack lateral roots, they can be easily broken or uprooted by vehicles (Sebesta, pers. comm. 2002), reducing or eliminating seed production from these individuals. While over 70,000 milk-vetch seedlings were counted during a recent census during a winter that experienced high rainfall, seedling survival was not assessed and only five individuals greater than 1 year old were observed (Phillips *et al.* 2001). This discrepancy in age-class distribution suggests that older, more productive plants may be suffering high mortality. Rompsert and Burk (1979) state that plants that become reproductive in the first season do not contribute substantially to the seed bank, but that mature plants with more flowers per plant, produced copious amounts of seed.

Absence of Peirson's milk-vetch has been observed in many high use areas (Luckenbach and Bury 1983, ECOS 1990, Phillips *et al.* 2001, Willoughby 2001), with some likely attributable to local extirpation of the plant due to use intensity. Based on the projected doubling in recreational use levels between 1998 and 2013 (BLM 2002), milk-vetch eventually could experience

significant declines over the long-term in many areas outside the North Algodones Dunes Wilderness Area. However, substantial reductions within the 4-year period of analysis in this opinion are not expected because (1) the likelihood of more than one or two significant germination events occurring during this 4-year interval is remote, given the past intervals between above normal rainfall years, (2) ungerminated seeds are not known or likely to be affected significantly by OHV use between significant germination events, and (3) like other desert psammophytes (Bowers 1996) and congeners (USFWS 1999), the milk-vetch almost certainly has a persistent seed bank, which is not likely to be appreciably diminished during the 4-year interval at issue.

Without an adaptive management program, anticipated use levels could result in long-term (1) increases in plant mortality, (2) decreases in reproduction, (3) population declines, and (4) contraction in distribution of Peirson's milk-vetch. To avoid long-term risks to survival and recovery and to allow more rigorous assessment of OHV effects and population trends on Peirson's milk-vetch, BLM (see Appendix 1) has modified the proposed RAMP to include (1) a monitoring plan that is expected to reliably measure population trends and detect potential declines, and (2) population decline thresholds in each management unit that will trigger re-examination of management needs through reinitiation of formal consultation with the Service. These components of the proposed action provide a margin of safety because any population declines to the prescribed threshold level would be addressed on a management unit basis, which would provide the opportunity to adjust management in smaller areas before range-wide declines likely could occur. In addition, the proposed plan includes studies that are designed to quantitatively measure vehicular use levels, as well as experimentally and correlationally determine the effects of OHV use on milk-vetch populations. The proposed RAMP also requires a reassessment through reinitiation of formal consultation of adaptive management thresholds and management prescriptions based on the results of the 4-year monitoring and research program, which will provide a more definitive information base for a future 7(a)(2) analysis.

Wildlife, Vegetation, Wilderness, and ACEC Elements: BLM (2001) identified few positive actions for milk-vetch proposed under these elements, other than designation of the Agadones Dunes ACEC. It is difficult to determine whether the generally stated management objectives would benefit the milk-vetch or be achieved through the proposed RAMP.

Energy and Mineral Production Element: Though two Known Geothermal Resource Areas underlie the ISDRA, no leases have been issued. Several oil and gas leases exist but no development has occurred. Any exploration, development, or production activities for these mineral resources would require compliance under section 7 through separate consultation. Given the recreational focus of BLM in the ISDRA, the likelihood of these conflicting resource uses being developed would appear discountable.

Utility Corridors Element: According to the biological evaluation, operation and maintenance of existing transmission lines south of Interstate 8 may adversely affect the milk-vetch but existing 500KV towers appear to protect plants somewhat by discouraging vehicles near the tower bases and diverting OHV traffic along a "sand highway" north of the towers.

Desert Tortoise

The effects of the CDCA Plan on desert tortoise were previously addressed in biological opinion #1-8-01-F-16, dated June 17, 2002; therefore, the analysis in this opinion focuses solely on the effects of the ISDRA RAMP. In general, vehicular traffic in tortoise habitat would be expected to negatively impact tortoises through direct mortality, damage to habitat, and collecting. Trash associated with camping and other uses could attract tortoise predators, such as coyotes and ravens. Domestic dogs, which also kill and injure tortoises, would be brought to the ISDRA by visitors. Owing to the apparent low density of tortoises in the ISDRA, such incidences would be expected to be rare and to occur in MAs on the east side of the ISDRA, including Mammoth Wash, North Algodones Dunes, Adaptive Management Area, Glamis, and Ogilby.

Mammoth Wash Management Area: Use of this area is expected to increase, which could result in increasing potential for take of tortoises. One big game guzzler also occurs on the east side of the Dunes. Vehicular access to maintain these guzzlers could result in occasional tortoise mortalities, as well as minor habitat degradation on the order of less than 2 acres. The possibility of drowning in the guzzlers is remote because they are equipped with a roughened concrete surface that gives tortoises good traction. Desert Wildlife Unlimited (DWU) tested this surface with a captive desert tortoise and the tortoise successfully negotiated the ramp from the bottom of the guzzler. In addition, the California Department of Fish and Game (CDFG) surveyed guzzler waters for bones of animals and did not find any tortoise remains in them (Andrew *et al.* 2001).

North Algodones Dunes Wilderness Management Area: This MA contains a large, un-quantified acreage of microphyll woodland to the east of the dunes. Since this MA would continue to be managed as Wilderness with almost no vehicular access, impacts to tortoises in this area would be negligible. As with the Mammoth Wash MA, guzzlers are present but represent little threat to tortoises and their maintenance would have few habitat impacts.

Glamis Management Area: This MA is very heavily impacted by OHVs near the Glamis Store on its northeast corner and along the wash road for 3-4 miles southward. This impact distance was recently lengthened by the tortoise camping closure east of Glamis, as hundreds of campers moved into the creosote scrub and microphyll woodland south of Glamis in response to the closure (N. Hamada, pers. comm. 2002). These portions of the MA are subject to some of the heaviest OHV impacts in the Dunes and substantial damage to any remaining tortoises could occur. Approximately 2,000 acres of staging areas may be present in this MA under the draft RAMP. These areas have, or will eventually result in widespread de-vegetation and soil compaction. Tortoises that enter staging areas, would have a high probability of being killed, injured, or collected. Pit toilets proposed for the Washes could result in increases in visitor use that may expand and intensify impacts.

BLM proposes to allow camping in the area east of Glamis and the railroad tracks. This action would probably reduce adverse effects to the tortoise habitat southeast of Glamis, as visitors moved back to the area east of Glamis. Since this area is an old mining area with extreme pre-existing devegetation and soil compaction, impacts to the tortoise at the newly reopened site are likely to be minimal. This area has little value to tortoises due to the presence of the railroad, Ted

Kipf Road, and State Route 78, all of which have probably depressed or eliminated tortoise numbers over time. The predator attraction associated with the Glamis Store and its trash also probably attracts predators that are likely to prey on tortoises in this area. For these reasons, the area has very little value as tortoise habitat and is well suited for camping. However, an occasional tortoise may wander into the area from the east and be crushed, eaten, or collected. Some OHV riders could travel out into the relatively intact creosote and microphyll areas adjacent to the camping area, and resulting levels of trash would probably increase in the area, attracting tortoise predators such as coyotes and ravens. About 100 acres of creosote bush scrub and microphyll woodland would experience reduced impacts by this measure, while the degraded mining area east of Glamis would experience increased impacts.

The proposed regular grading of Wash Road could result in death or injury to tortoise. However, such incidences likely would be rare because of the low density of tortoises in the area, and the fact that no tortoise mortalities have been documented during previous grading of this road.

Adaptive Management Area: This MA has a large, unquantified area of microphyll woodland and creosote bush scrub on its east side that could contain tortoises. Tortoises have never been reported on the west side of the MA and are unlikely to occur there. Most of the 525 riders permitted into this area each day are anticipated to ride in the active dune areas in the west and central parts of this MA. The education program associated with the proposed permit program could lead to a reduction in impacts to the tortoise if riders cooperate in avoiding sensitive habitats and refrain from damaging vegetation or collecting tortoises.

Ogilby Management Area: The Ogilby MA contains a large, unquantified acreage of microphyll woodland and creosote scrub that likely supports tortoises. Riding and camping in this MA could result in tortoise mortality, collecting, or habitat damage, as well as predator attraction. The draft RAMP designates 1,500 acres for camping, which is a significant increase over the existing situation.

Buttercup Management Area: This MA would continue to receive heavy OHV pressure under the RAMP and impacts to tortoises might occur. An absence of sightings since the late 1980's suggests tortoises are uncommon in the area. However, any tortoise that did enter this MA would have a high probability of mortality or collection because of the high visitation and the presence of Interstate 8.

Buffer Management Zone Area: The Buffer Zone MA contains a large acreage of microphyll woodland and creosote scrub that likely supports tortoises. This MA lies outside of the boundaries of the ISDRA. Because the original proposal presented in the draft RAMP has been modified to allow camping the one-mile area surrounding the dunes, this MA is expected to receive increasing camping impacts. The eastern edge of the ISDRA, and the tortoise habitat located within this area is likely to become more degraded as use increases.

Summary: Overall, the proposed RAMP would significantly elevate impacts to desert tortoise in the ISDRA. Increases in ISDRA visitation would result in further degradation of tortoise habitat and reduced survivorship in the population. The number of tortoises killed or adversely impacted annually by proposed activities is unknown but given the apparent sparse density of

tortoises, is probably relatively low. The partial barriers created by the railroad, Ted Kipf Road, and flood control dikes reduce the potential for tortoise movement into the ISDRA from the more plentiful populations from the east. A lack of demographic augmentation from the east would increase the potential for extirpation within the ISDRA. Indirect effects beyond the ISDRA also is likely to occur due to raven and coyote attraction to human byproducts in the ISDRA and consequent support of higher population levels. Predators would likely disperse to the east and prey upon tortoises in the Chuckwalla DWMA, and in the southern-most areas of designated critical habitat, which lies approximately 6 miles to the east.

CUMULATIVE EFFECTS

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 biological opinion. Future Federal actions that are unrelated to the proposed action are not considered in this section because they require separate consultation pursuant to section 7 of the ESA. We are unaware of any future State, tribal, local, or private actions proposed in the ISDRA action area.

CONCLUSION

Peirson's milk-vetch

It is our biological opinion that implementation of the CDCA Plan, as amended by the ISDRA RAMP and subsequent revisions agreed upon during the consultation process, is not likely to jeopardize the continued existence of Peirson's milk-vetch. We reached this conclusion for the following reasons:

- 1 Under the proposed management plan, it is our opinion that continued and expanded habitat degradation is likely over the next 4 years, however, a monitoring plan and interim population thresholds for each management unit have been identified that will necessitate re-initiation of consultation should the milk-vetch population decline to specified levels.
2. Peirson's milk-vetch is expected to persist in all management areas for the next 4 years as BLM collects necessary information on OHV use levels and use patterns, the status of the plant throughout the dunes, and the effects of OHVs. The BLM will reinitiate consultation on the RAMP in 4 years to allow appropriate incorporation of higher resolution scientific information into a new section 7a(2) analysis, at which time the adaptive management program may be modified.
- 3 The BLM will work with the Service during the next 4 years to identify an adaptive management strategy for the dunes that will assure that reductions in abundance, numbers, and distribution of milk-vetch do not occur over significant portions of the species' range. This information will be used when consultation is reinitiated in 4 years.

Desert tortoise

It is our biological opinion that implementation of the CDCA Plan, as amended by the ISDRA RAMP, is not likely to jeopardize the continued existence of the desert tortoise. Though indirect effects as described above, likely would adversely affect tortoise populations within the southern-most portions of designated critical habitat, adverse effects would not be of sufficient magnitude to constitute an adverse modification under section 7(a)(2) or 50 CFR 402.02. We reached this conclusion for the following reasons:

1. The portions of the ISDRA that support desert tortoise encompass a small portion of the species' Eastern Colorado Desert Recovery Unit, and lie outside the Chuckwalla DWMA.
2. Although 65,382 acres of microphyll woodland are mapped within the boundaries of the ISDRA, and tortoises are known along the eastern edge of the dune system, few tortoises have been recorded in the ISDRA, and no tortoises were observed during fall surveys in 2002 (Knauf, pers. comm. 2002). The ISDRA is on the periphery of the species' range, and apparently does not currently support a large tortoise population.

INCIDENTAL TAKE STATEMENT

Sections 7(b)(4) and 7(o)(2) of the Act do not apply to the incidental take of listed plant species. However, protection of listed plants is provided in that the Act to the extent that removal or reduction to possession of endangered or threatened plants from Federal lands requires a Federal permit. It is unlawful for any person to remove, cut, dig up, damage or destroy a listed plant species in knowing violation of any law or regulation of any state or in the course of any violation of a State criminal trespass law [section 9(a)(2)(B) of the Act].

Sections 4(d) and 9 of the Act, as amended, prohibit taking (harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, or collect, or attempt to engage in any such conduct) of listed species of fish and wildlife without a special exemption. Harm is further defined to include significant habitat degradation or modification that results in death or injury to listed species by significantly impairing behavioral patterns such as breeding, feeding, or sheltering. Harass is defined as actions that significantly disrupt normal behavioral patterns which include, but are not limited to, breeding, feeding, or sheltering. Incidental take is any take of listed animal species that results from, but is not the purpose of, carrying out an otherwise lawful activity conducted by the Federal agency or the applicant.

The measures described below are non-discretionary, and must be undertaken by the BLM for the exemption in 7(o)(2) to apply. The BLM has a continuing duty to regulate the activity covered by this incidental take statement. If the BLM fails to assume and implement the terms and conditions the protective coverage of 7(o)(2) may lapse. In order to monitor the impact of the incidental take, the BLM must report the progress of the action and its impact on species to the service as specified in the incidental take statement [50 CFR 402.14(i)(3)].

The CDCA as amended by the draft RAMP describes several programs and projects under which the BLM will need to make specific decisions with regard to future actions. Although we have

evaluated the general nature of the effects of these actions, we cannot assess the potential effects of specific actions because information on the location, timing, and other aspects of the actions are not known at this time. Consequently, we cannot provide an exemption from the prohibitions against take, as described in section 9 of the Act, for the incidental take that may result from such actions.

Amount or Extent of Take

Given the limitations discussed above, this biological opinion provides exemption from the prohibitions against the incidental take of desert tortoise that may result from entrapment in managed waters or guzzlers, casual use associated with recreation, installation of pit toilets at the Washes, and regular grading of Wash Road. We anticipate that these activities are likely to result in relatively few fatalities or injuries to desert tortoises that inhabit about 65,382 acres of potential desert tortoise habitat within the ISDRA in microphyll woodland and creosote scrub to the east of the dunes, and outside of the Northern Algodones Dunes Wilderness Area. We cannot anticipate the precise numbers of tortoises that may be killed or injured because the number of desert tortoises within the ISDRA has not been estimated, the ISDRA is large, tortoises are patchily distributed in this part of the species' range, and it is unpredictable where and when the unmonitored recreational activities described herein will injure or kill tortoises. Incidental take may occur due to vehicle collision, collection associated with increasing levels of visitor use, changes in raven or other predator abundance associated with presence of people or trash, loss of cover from vehicle use, and approximately 50 acres of construction activities and road maintenance. We do not anticipate documentation of most tortoises taken as a result of the proposed action due to the casual and dispersed nature of activities.

To ensure that the measures proposed by BLM are effective and being properly implemented, BLM shall contact the Service immediately if a desert tortoise is killed or injured. At that time, the Service and BLM shall review the circumstances surrounding the incident to determine whether additional protective measures are required.

In accordance with Opinion 1-8-01-F-16, BLM shall contact the Service if more than five desert tortoises are found dead or injured in any 12-month period as a result of any specific activity or circumstance to determine whether formal consultation should be re-initiated on that aspect of the CDCA Plan.

Reasonable and Prudent Measures

The reasonable and prudent measures, with their accompanying terms and conditions are necessary and appropriate to minimize the impact of the incidental take associated with implementation of the CDCA as amended by the RAMP.

1. The BLM shall increase public awareness about the desert tortoise within the ISDRA, and develop a reporting mechanism so individuals using the ISDRA can report desert tortoise observations, injuries, or fatalities. The BLM shall report recorded incidental take on an annual basis.

2. BLM shall improve trash management in the ISDRA to minimize attraction to potential predators of the desert tortoise.
3. BLM shall minimize the potential for incidental take of desert tortoises during recreational use, facility construction, and maintenance activities.

Terms and Conditions

The following terms and conditions implement Reasonable and Prudent Measure number 1:

1.1 BLM shall develop a brochure to educate ISDRA visitors about the desert tortoise and conservation needs. This brochure must include information regarding the location of desert tortoise habitat, and provide instruction that allows visitors to report tortoise sightings. This information may be incorporated as part of the proposed "Quick Facts" brochure. Information on the desert tortoise, including reporting mechanisms, must be made available to visitors at all kiosks, pay stations, and ranger stations.

The following terms and conditions implement Reasonable and Prudent Measure number 2:

2.1 BLM shall install and maintain adequate facilities to allow appropriate disposal of trash in heavily used areas. Trash receptacles must be inaccessible to coyotes and ravens.

The following terms and conditions implement Reasonable and Prudent Measure number 3:

3.1 BLM shall conduct tortoise surveys along Wash Road immediately prior to grading, and train equipment operators to look for, recognize, and avoid tortoises. A biological monitor shall be present during grading and construction activities (e.g., pit toilets), unless they are conducted between November and March, the primary inactive period of the desert tortoise.

CONSERVATION RECOMMENDATIONS

Section 7(a)(1) of the Act directs Federal agencies to use their authorities to further the purposes of the Act by carrying out conservation programs for the benefit of endangered and threatened species. Conservation recommendations are discretionary agency activities to minimize or avoid adverse effects of a proposed action on listed species or critical habitat, to help implement recovery plans, or to develop information. The Service recommends the following:

1. The BLM should consider designating a large closed area in the central/southern portion of the dunes as an ACEC or Special Area as described in the CDCA Plan. Such an area could correspond to WSA 362 or the proposed Adaptive Management Area. The biologically preferable alternative, as identified in the draft EIS, would be to provide additional protection from disturbance to sensitive resources, including listed species, over a more extensive area of the dunes. Protection of such an area would afford improved protection of Peirson's milk-vetch and other sensitive species, and simplify the management program.

2. BLM should use the existing interim "Southern Closure" as the boundary for the interpretive area proposed in the draft RAMP. This area is easily accessible from existing parking resources, supports Peirson's milk-vetch, and likely supports the flat-tailed horned lizard.
3. BLM should establish a pilot program to determine the effectiveness of a smaller-scale, voluntary, closure strategy around discrete milk-vetch concentrations (or subpopulations). To accomplish this, BLM should randomly install protective signs around select subpopulations that advise against vehicular entry to benefit the species, while still providing access throughout the areas surrounding the signed zones. Monitoring should be designed to determine the extent of compliance compared with unrestricted access to select unsigned subpopulations. Depending on the results, such a voluntary conservation strategy may prove to have larger-scale utility across the ISDRA.
4. The BLM should expand the ecological education programs within the ISDRA and include hikes, etc. as part of the promoted recreational program.
5. The BLM should create a research coordinator position to oversee the overall monitoring and adaptive management program for the ISDRA.
6. The BLM should implement measures to minimize mortality of flat-tailed horned lizards within and adjacent to the ISDRA, and to quantify the extent that does occur. Such measures include: (1) sign the western boundary of the ISDRA where it is adjacent to the East Mesa Flat-tailed Horned Lizard Management Area (East Mesa MA); (2) educate dunes users about flat-tailed horned lizard appearance, habits, habitat, and management areas; and (3) provide a reporting mechanism for dunes users to report lizard sightings.

The Service requests notification of the implementation of any conservation recommendations so we may be kept informed of actions that promote the conservation listed species.

REINITIATION NOTICE

This concludes formal consultation on the proposed action outlined in the request. As provided in 50 CFR 402.16, re-initiation of formal consultation is required where discretionary Federal agency involvement or control over the action has been retained (or is authorized by law) and if: (1) the amount of extent of incidental take is exceeded; (2) new information reveals effects of the agency action that may affect listed species or critical habitat in a manner or to an extent not considered in this opinion; (3) the agency action is subsequently modified in a manner that causes an effect to the listed species or critical habitat not considered in this opinion; or (4) a new species is listed or critical habitat designated may be affected by the action.

If you have any questions regarding this biological and conference opinion, please contact Sandy Vissman of our Carlsbad Fish and Wildlife Office at (760) 431-9440.

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