

## **APPENDIX J**

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### **REPORTS OF FOCUSED BIOLOGICAL ASSESSMENTS AND LITERATURE SURVEYS FOR THE MOHAVE GROUND SQUIRREL AND DESERT TORTOISE**

- 1. Alice Karl - Desert Tortoise Review**
  
- 2. Phillip Leitner - Mohave Ground Squirrel Habitat Assessment**
  - a. Storage Reservoir Construction Area**
  - b. Eastern Agricultural Option Area**

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**1. Alice Karl - Desert Tortoise Review**

August 27, 2001

Mr. Tom Barnes  
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Re: Desert tortoise review for the Lancaster Water Reclamation Plant 2020 Facilities Plan

The Lancaster Water Reclamation Plant (LWRP) 2020 Facilities Plan identifies wastewater collection, treatment and disposal systems to meet the anticipated needs of the District 14 service area until the year 2020 and proposes alternatives to accommodate these systems. All alternatives require the conversion of approximately 4000 acres of land and the expansion of the existing facility, located approximately five miles north of Lancaster, in Antelope Valley, California, at the southwestern edge of Edwards Air Force Base (EAFB).

The desert tortoise (*Gopherus agassizii*) is a state- and federally-listed species whose western range boundary approximately coincides with the plant area. Historically, tortoises may have occupied Antelope Valley (Berry and Nicholson 1984) prior to the conversion of many acres of native habitat to agriculture, grazing, and urban development. However, hard evidence for this is lacking. Recent surveys suggest that no tortoises remain in the area of the plant (Berry and Nicholson 1984, EAFB 1994 in West Mojave Interagency Planning Team [WMP] 1999).

The habitat immediately surrounding the project site, for several miles in all directions, is poor tortoise habitat. It is largely alkali sink habitat and saltbush scrub. Dominant species include spiny saltbush (*Atriplex spinifera*), and allscale (*A. polycarpa*). Such habitat may support low numbers of tortoises, especially if there is more favorable habitat (e.g., creosote bush [*Larrea tridentata*] scrub, Joshua tree [*Yucca brevifolia*] woodland) nearby (Karl 1983, pers. obs., and many desert tortoise surveys [cf. Berry and Nicholson 1984, CWESA 1992, WMP 1999, Karl 2001]). However, habitat to the west and south of the project site is non-tortoise habitat, largely comprising non-native grassland, ruderal habitat, or agriculture (pers. obs.). To the northeast, alkali sink continues to dominate. Creosote bush enters the saltbush scrub community approximately five miles north of the plant.

The combination of extensive poor and non-habitat in the project area plus survey results suggesting few, if any, tortoises in the area of the plant indicate that any population effects on tortoises would be negligible. This is supported by the fact that the nearest targeted conservation and management areas lie approximately 12 miles east of the project site. These include the Fremont-Kramer Critical Habitat Unit along Highway 395, the nearest critical habitat unit designated by the U. S. Fish and Wildlife Service (USFWS 1994a). This is essentially overlapped by the Fremont-Kramer Desert Wildlife Management Area identified in the Desert Tortoise Recovery Plan (USFWS 1994b). The nearest sites where relatively high tortoise densities are suggested from transect data are in this area of Highway 395 (WMP 1999) and approximately ten miles northeast (Berry and Nicholson 1984).

Informal consultation should be initiated with the USFWS and California Department of Fish and Game (CDFG) to insure that they concur with the conclusion that there will be no impacts to desert tortoises or critical habitat. Although the likelihood of tortoises in the area is extremely low, some mitigation measures should be established for implementation in the event that a tortoise is encountered during facility construction:

- 1) Prior to working on the project, all site managers and construction employees should be educated as to the natural history, endangerment factors for tortoises, and appropriate protocol for dealing with tortoises encountered in and around the project site.
- 2) If a tortoise is observed in the construction area, all construction must halt until the tortoise leaves voluntarily. Tortoise handling is not authorized.

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- 3) A biologist with substantial training in tortoise behavior, habitat use, and physiology should be available to go to the site should a tortoise be encountered, in order to monitor the situation and assist in further consultation with the appropriate resource agencies.
- 4) Should a tortoise be encountered, USFWS and CDFG must be immediately notified to determine initiation of a take permit or other mitigation actions necessary to avoid take of desert tortoises.

Literature Cited

Berry, K. and L. Nicholson. 1984. Tortoise density in the California Desert Conservation Area. Plate 2-2 in K. Berry (ed.), The status of the desert tortoise (*Gopherus agassizii*) in the United States. Report to the USFWS from the Desert Tortoise Council. Order No. 11310-0083-81.

CWESA. 1992. Results of a sensitive species survey for a Mojave Pipeline Company Natural gas pipeline. Unpub. rept. to Woodward-Clyde Consultants, Inc., Denver, Colorado. 79 pp plus appendices.

EAFB. 1994. Results of desert tortoise relative density transects. Data incorporated into WMP map.

Karl, A. E. 1983. The distribution, relative densities, and habitat associations of the desert tortoise, *Gopherus agassizii*, in Nevada. M.S. Thesis, California State Univ., Northridge. 111 pp.

---. 2001. Fort Irwin Expansion Project, desert tortoise surveys. In prep.

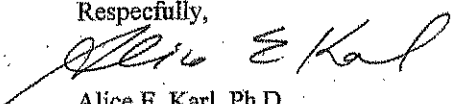
U.S. Fish and Wildlife Service. 1994a. Determination of critical habitat for the Mojave population of the desert tortoise; final rule. Federal Register 59(26):5820-5866.

---. 1994b. Desert tortoise (Mojave population) Recovery Plan. USFWS, Portland, Oregon. 73 pp plus appendices.

West Mojave Interagency Planning Team. 1999. Desert tortoise surveys, West Mojave Plan. U.S. Department of the Interior Bureau of Land Management, Barstow, California. Map.

I believe this completes the review that you requested. Should you have further questions or require further discussion of certain areas, please feel free to contact me.

Respectfully,

  
Alice E. Karl, Ph.D.

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**2. Phillip Leitner - Mohave Ground Squirrel Habitat Assessment**

**a. Storage Reservoir Construction Area**

**b. Eastern Agricultural Option Area**

**DRAFT  
TECHNICAL REPORT**

**LANCASTER WATER RECLAMATION PLANT  
2020 FACILITIES PLAN**

**MOHAVE GROUND SQUIRREL HABITAT ASSESSMENT  
PHASE 1 PROJECT AREA**

**August-September 2001**

Prepared by

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September 24, 2001

## INTRODUCTION

County Sanitation District No. 14 of Los Angeles County is proposing to prepare a facilities plan for the Lancaster Water Reclamation Plant. This plan will evaluate the wastewater conveyance, treatment, and disposal needs through the year 2020 and recommend specific improvements to meet those needs. District 14 is currently preparing an Environmental Impact Report (EIR) for the facilities plan. Among the project alternatives under consideration are construction of additional wastewater treatment capacity and expansion of evaporation ponds for effluent management. The EIR will assess potential impacts associated with these alternatives, including land use changes that could result in loss of wildlife habitat within the project area.

The project area lies within the geographic range of the Mohave ground squirrel (*Spermophilus mohavensis*), a species listed as Threatened by the California Fish and Game Commission. It is necessary to evaluate the potential for impacts to this species that might result from use of existing open space for new wastewater treatment facilities. This report describes the initial habitat assessment effort carried out in August and September 2001 on the Phase 1 project area located to the north of the present Lancaster Water Reclamation Plant (WRP). This survey focused on habitat features such as soils, vegetative cover, and surface disturbance that would indicate the habitat quality and degree of suitability for the Mohave ground squirrel. It was not intended to establish the presence or absence of the species, but rather to determine relative habitat value and to identify areas that should be subject to protocol-level trapping surveys in spring 2002.

## METHODS

Habitat assessment was conducted over 1015 acres (410 hectares) of open space adjoining the Lancaster WRP to the north (Figure 1). The acreage inspected included almost all of the Phase 1 project area plus undeveloped land located between the two units of the Phase 1 project area. For purposes of habitat assessment, the area was divided into a series of 11 units, ranging in area from about 30–140 acres (12–56 hectares). Each unit was inspected visually over a period of 60–90 minutes by walking transects varying in length from 4600–7200 feet (1400–2200 meters). The habitat assessment effort was accomplished on August 14-15 and September 18, 2001.

Habitat elements that are believed to be important for Mohave ground squirrels have been summarized and discussed in Leitner and Leitner (1998). During the field survey, these habitat features were observed and recorded as described below.

Certain soil properties are important indicators of habitat quality for Mohave ground squirrels since they excavate burrow systems for protection against predators and thermal extremes. Soil characteristics noted were particle size, friability, and presence/absence of rodent burrows.

The physical structure and species composition of site vegetation are also important in evaluating habitat quality. Mohave ground squirrels often locate their

burrows under large shrubs with strong root systems that provide protection from predators. They often forage in and under larger shrubs where they are concealed from predators and are sheltered from heat, cold, and wind.

The foliage of certain shrub species provides a critical food source during times when herbaceous plants are not available. The presence of large shrubs, high shrub cover values, and the availability of certain valuable forage species, such as winterfat (*Kraschennikovia lanata*), spiny hopsage (*Grayia spinosa*), or saltbush (*Atriplex* spp.), are suggestive of high quality habitat.

The quantity and quality of herbaceous vegetation are important in spring and early summer for successful reproduction and preparation for dormancy. An abundant and diverse standing crop of native forbs both under and between shrubs indicates good quality forage. On the other hand, Mohave ground squirrels rarely utilize the common alien annual grasses and forbs, such as bromes (*Bromus* spp.), Mediterranean grass (*Schismus* spp.), and red-stem filaree (*Erodium cicutarium*).

A standard data sheet was used to record observations on soil, vegetation, and habitat disturbance for each of the 11 units that were surveyed. A copy of the data sheet is appended to this report.

## RESULTS

### General Habitat Description

The Phase 1 project area and adjacent open space is a flat featureless plain that slopes very gradually to the east. The elevation range is from about 2315 feet (705 meters) on the western edge of the area to 2300 feet (700 meters) on the east along the boundary of Edwards Air Force Base. The substrate is made up of fine-textured sediments, mostly silts and clays, which were deposited in the bed of the Pleistocene lake that covered this portion of Antelope Valley. Most of the area is characterized by a distinctive hummock and pan microtopography. The hummocks consist of low mounds of loose silty soil and are usually interspersed with flat pans whose hard clay bottoms often hold water after rains. East of Sierra Highway there are a few large drainage channels incised as deeply as 2-4 feet (0.6-1.2 meters).

Desert scrub vegetation covers almost the entire Phase 1 project area and adjacent property. The dominant shrub species is shadscale (*Atriplex confertifolia*), which is abundant and widely distributed throughout the area. It is found most commonly on the hummocks, but scattered shadscale plants also occur around the edges of pans. Other shrubs noted occasionally in hummock areas included alkali goldenbush (*Isocoma acradenia*), desert alyssum (*Lepidium fremontii*), and two saltbush species, allscale (*Atriplex polycarpa*) and spinescale (*A. spinescens*). Along drainages and in areas of surface disturbance two rabbitbrush species were often seen: yellow rabbitbrush (*Chrysothamnus viscidiflorus*) and gray rabbitbrush (*C. nauseosus*). The most common



shrub on and adjacent to the pans is bush seepweed (*Sueda moquini*), a species characteristic of saline environments.

Herbaceous vegetation on the Phase 1 project area is strongly dominated by a few species of alien grasses and forbs. The most abundant introduced grasses are red brome (*Bromus madritensis* ssp. *rubens*), cheat grass (*B. tectorum*), and Mediterranean grass (*Schismus* sp.), while red-stem filaree (*Erodium cicutarium*) is the dominant alien forb. These four species make up the majority of herbaceous standing crop over the entire project area. Arrowscale (*Atriplex phyllostegia*) and common spikeweed (*Hemizonia pungens*) are the most abundant native forbs. Because of their large size and abundance, these two weedy native species also make a significant contribution to total herbaceous standing crop. Other native forbs that are common and widely occurring include gilia (*Gilia* sp.), fiddleneck (*Amsinckia tessellata*), alkali mariposa lily (*Calochortus striatus*), tansy mustard (*Descurainia pinnata*), and stephanomeria (*Stephanomeria* sp.). Widespread native grasses are salt grass (*Distichlis spicata*), found around the margins of pans, and alkali sacaton (*Sporobolus airoides*), which forms large clumps in hummock areas.

The Phase 1 project area and adjacent property is privately owned, but consists of undeveloped open space. The Sierra Highway and a parallel railroad alignment cut through the area in a NNW-SSE direction. Avenue C extends across from east to west and there are several unpaved but maintained roads that provide access to different parts of the property. In addition, there is evidence of a number of unimproved roads that were bulldozed out in the past but then abandoned. There are no buildings within the area at present and it appears that the land has never been used for intensive agriculture. There is no evidence of recent livestock grazing, but I have no information about possible grazing use in the past. An abandoned test track about 3300 feet (1000 meters) in diameter is located at the northern edge of the Phase 1 project area, just west of Sierra Highway. This track includes an inclined paved section about 30 feet (10 meters) across and an adjoining gravel strip about 50 feet (15 meters) wide. To the east of Sierra Highway is an area of about 20 acres (8 hectares) that has been planted with extensive tamarisk (*Tamarix* sp.) windbreaks. There is evidence that the natural vegetation has been bladed off much of this area in the past, although allscale (*Atriplex polycarpa*) has subsequently become established as the dominant shrub. Other evidence of disturbance in this area is a borrow pit, a series of low berms, and disintegrating barbed wire fences.

#### Habitat Suitability for Mohave Ground Squirrel

White-tailed antelope squirrels do not estivate or hibernate and are active during daylight hours throughout the year. They were seen frequently throughout the Phase 1 project area during the field investigations. There were no visual or auditory detections of Mohave ground squirrels. This does not necessarily indicate the absence of Mohave ground squirrels, since adults have usually entered dormancy by the end of July and most juveniles are dormant by mid-August.

Soils in hummock areas are quite suitable for rodent burrowing activity and a good number of active and inactive burrows were observed. Many were of a size that would accommodate a ground squirrel and were most likely constructed and used by white-tailed antelope squirrels.

Shrub vegetation in the project area provides low quality habitat for Mohave ground squirrels. It provides little protection from predators and thermal extremes since shrub cover is low ( $\leq 5\%$ ) over most of the area and the shrubs are generally quite small. Mohave ground squirrels depend upon shrub foliage for food and moisture during droughts and at other times when native forbs are not available. The preferred forage shrubs are winterfat (*Krascheninnikovia lanata*) and spiny hopsage (*Grayia spinosa*); these species were not observed in the project area. Mohave ground squirrels will feed on saltbush foliage, although the high salt content of the leaves is undesirable. Since shadscale and other saltbush species are abundant, they could serve as a food source in the absence of native forbs.

The alien grasses and forbs that make up the majority of herbaceous standing crop in the project area are not used to any extent by Mohave ground squirrels. The most abundant native grasses and forbs are salt grass, alkali sacaton, arrowscale, and common spikeweed. These species have not been recorded in the Mohave ground squirrel diet, but could possibly provide some forage during the spring and early summer growing season. Gilia is the only one of the more common native forbs that has been reported as an important food item.

The two disturbed areas do not provide suitable habitat for Mohave ground squirrels. These areas are the abandoned test track and the 20-acre (8 hectare) parcel east of Sierra Highway with tamarisk windbreaks.

## CONCLUSIONS

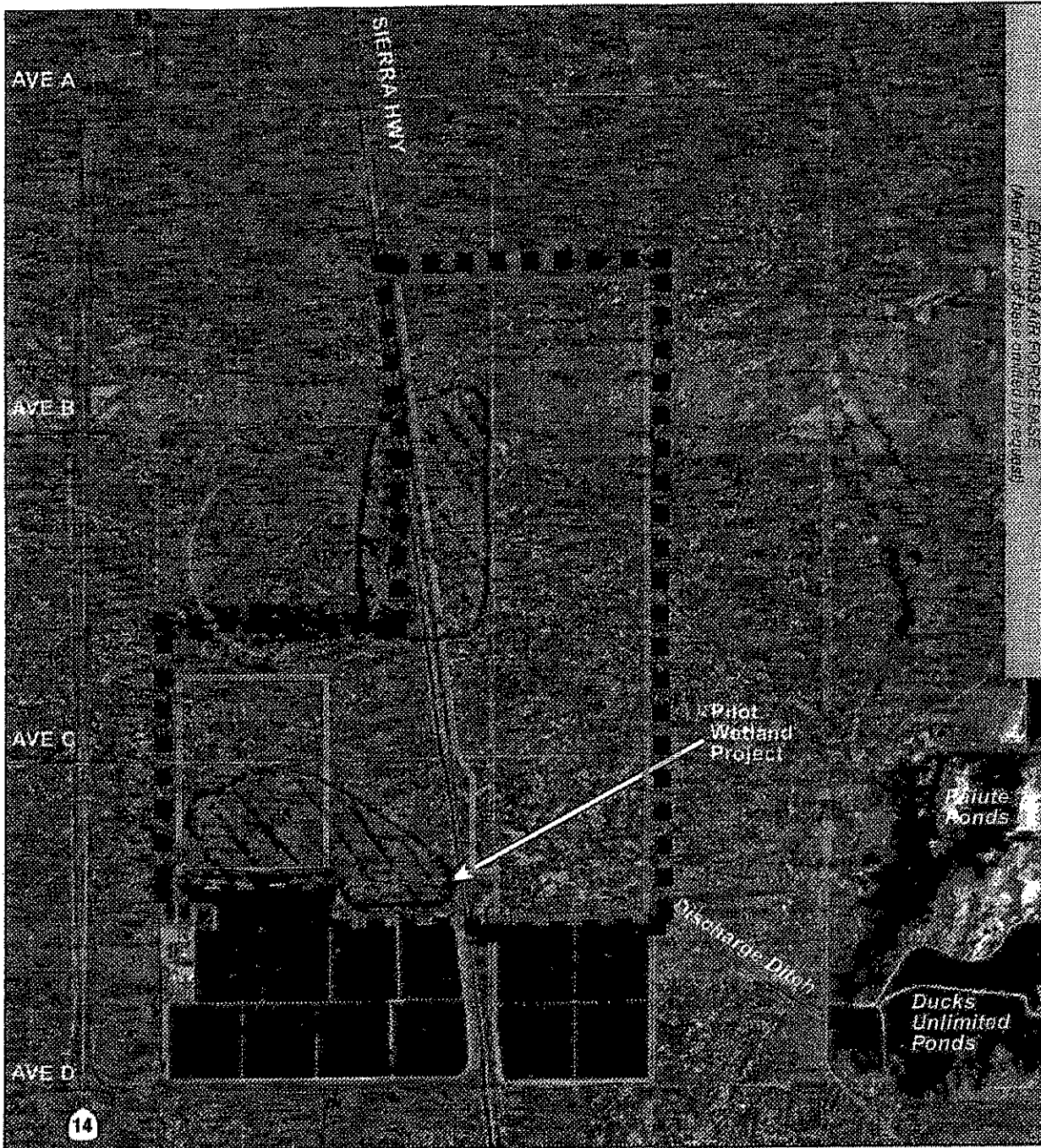
The Phase 1 project area is within the historic range of the Mohave ground squirrel. The western boundary of the range as currently understood is along the Highway 14 corridor just west of the project area. There are several Mohave ground squirrel records in the California Natural Diversity Data Base for this general region. One such occurrence was 5 miles (8 kilometers) north at Rosamond, while another was 8 miles (13 kilometers) south within the city limits of Lancaster. There are also several records about 12 miles (19 kilometers) ENE at the south end of Rogers Dry Lake on Edwards Air Force Base. Based on these occurrences, there is the possibility that the species could be present in the Phase 1 project area if suitable habitat is available here.

In general, the habitat in the project area appears to be of marginal quality for Mohave ground squirrels. While soils are suitable, both the shrub and herbaceous vegetation show low suitability for the species. Shrub cover is low over most of the area, most shrubs are quite small, and the two most important forage species are not present. Herbaceous cover and standing crop are strongly dominated by alien grasses and forbs that rarely appear in the Mohave ground squirrel diet.

In spite of these considerations, it is not possible to rule out the occurrence of Mohave ground squirrels in the Phase 1 project area. There are records of the species in this region, soils are suitable for burrowing, and there are a few native shrub and forb species that could provide food sources. A careful analysis of environmental conditions within the project area indicates that three habitat units can be distinguished (Figure 1). First, there are two small, disturbed areas that do not have the potential to support Mohave ground squirrels. Second, the great majority of the remaining acreage shows very low habitat suitability. Third, there are two areas with higher shrub cover (7-15%) that have low habitat suitability. If the Phase 1 project area is proposed as a site for new wastewater treatment facilities, I recommend that trapping surveys be conducted in these two areas to establish presence or absence of Mohave ground squirrels.




## REFERENCE

Leitner, P. and B. M. Leitner. 1998. Coso Grazing Exclosure Monitoring Study. Mohave Ground Squirrel Study, Coso Known Geothermal Resource Area, Major Findings, 1988-1996. Final Report. May 1998. 42 pp + appendix.



SOURCE: Environmental Science Associates  
 AirPhoto, USA, ©2009

Lancaster WRP 2020 Facilities Plan EIR / 200481 ■

- Habitat Suitability*
-  *Unsuitable*
  -  *Very Low Suitability*
  -  *Low Suitability*

**Figure 1**  
 Boundaries of Habitat  
 Mohave Ground Squirrel  
 Habitat Assessment via  
 Phase I Project Area

**DRAFT  
TECHNICAL REPORT**

**LANCASTER WATER RECLAMATION PLANT  
2020 FACILITIES PLAN**

**MOHAVE GROUND SQUIRREL HABITAT ASSESSMENT  
BIOLOGICAL STUDY AREA 3 / EASTERN AGRICULTURAL AREA**

By

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**INTRODUCTION**

Habitat assessment was conducted over approximately 5,800 acres (2,300 hectares) of agricultural land and open space about 5 miles (8 kilometers) northeast of Lancaster, Los Angeles County. This area includes nine square miles and extends from Avenue D on the north to Avenue G on the south. Its western boundary is at 50<sup>th</sup> St. East and its eastern edge at 80<sup>th</sup> St. East. The legal description is sections 22-26 and 34-36, Township 8 North, Range 11 West, San Bernardino Baseline & Meridian. This area is being considered for possible agricultural reuse of treated effluent from the Lancaster Water Reclamation Plant when it is expanded to meet future wastewater treatment needs. Since permission for access to private property within the area had not been secured, the habitat assessment was carried out by visual inspection while driving on public roads. Because of the level topography and lack of visual barriers, it was possible to determine land use and vegetative cover for the entire area. The habitat assessment effort was accomplished on September 18, 2001.

**DESCRIPTION OF BIOLOGICAL STUDY AREA 3**

Land use within this nine square mile area is primarily agricultural, with irrigation water provided by pumping from a number of wells. However, crops are currently under irrigation on only about 600 acres (240 hectares), in five parcels located in sections 25, 26, 35, and 36. Alfalfa and carrots appear to be the main commercial crops. Much of the remaining land within this area was formerly cultivated, but is now fallow. I estimate that there are about 4,600 acres (1,840 hectares) that have been cleared of native vegetation and leveled, but are not presently in agricultural production. Some of this acreage has been fallow only a brief time and supports thick stands of weedy plants such as tumbleweed (*Salsola tragus*). Other fallow areas appear to have been abandoned for some time and support widely scattered shrubs, chiefly allscale (*Atriplex polycarpa*). On

the east side of Section 34, along 60<sup>th</sup> Street East, is a 40-acre (16-hectare) parcel that is in use as a small golf course.

A total of about 540 acres (216 hectares) in this area still supports natural desert vegetation. This acreage is found in five parcels scattered around the periphery (see attached map). All five parcels support saltbush scrub vegetation strongly dominated by shadscale (*Atriplex confertifolia*) with some allscale present as well. It appears that these parcels have never been tilled and the original microrelief, characterized by low mounds and hummocks, is unaltered. The soils of these parcels are generally fine-textured sands and silts, suitable for rodent burrows. Shrubs tend to grow on low mounds of loose soil and rodent burrows were often observed in these mounds. Conditions on each parcel will be described briefly.

One area of saltbush scrub comprising 160 acres (64 hectares) is located in Section 22, where it makes up the N ½ of the NW ¼ and the N ½ of the NE ¼. The perennial vegetation here is almost entirely made up of shadscale, with a few allscale and yellow rabbitbrush (*Chrysothamnus viscidiflorus*). There is a great deal of bare ground, shrubs are small and widely scattered, and shrub cover is very low (estimated at 2-3%). The herbaceous vegetation is dominated by weedy species, both native and alien, and herbaceous standing crop is low. The more common annual herbaceous plants include the native fiddleneck (*Amsinckia tessellata*), arrowscale (*Atriplex phyllostegia*), and stephanomeria (*Stephanomeria* sp.), as well as introduced alien species like tumbleweed, red-stem filaree (*Erodium cicutarium*), and red brome (*Bromus madritensis* ssp. *rubens*). There is evidence that sheep are pastured on this parcel regularly. This area of saltbush scrub is continuous with extensive habitat of the same type on Edwards Air Force Base that stretches north to the Rosamond Lake playa.

Another 160-acre (64-hectare) area of saltbush scrub is found in the NE ¼ of Section 24, where it is also continuous with relatively undisturbed natural habitat to the north on Edwards Air Force Base. This parcel is dominated by shadscale, but large allscale shrubs and clumps of Mormon-tea (*Ephedra nevadensis*) are common. A few big sagebrush (*Artemisia tridentata*) and yellow rabbitbrush are found in low areas. Scattered Joshua trees (*Yucca brevifolia*) were seen here as well. Shrub cover is low (estimated at 5-10%), although somewhat higher than on the previous site. Weedy alien species dominate the herbaceous plant assemblage, with high cover contributed by red brome, cheatgrass (*Bromus tectorum*), Mediterranean grass (*Schismus* spp.), and tumbleweed. Arrowscale is the most abundant native herbaceous species. This parcel is also used regularly by sheep.

A 40-acre (16 hectare) area of saltbush scrub is located on the east side of Section 25 (SE ¼ of the NE ¼). It appears to be dominated by shadscale, with scattered allscale shrubs present as well. Shrub cover is low (estimated at 5-10%). Herbaceous plants include the common alien and native species observed on other areas of saltbush scrub in this area. This parcel is surrounded on all sides by land that has been converted to agricultural use.

An area of about 40 acres (16 hectares) in the SW ¼ of Section 34 supports saltbush scrub habitat. This site seems to be dominated by allscale, with little evidence of other shrub species. Shrub cover is very low (estimated at <5%), although many of the allscale bushes are fairly large (about 3 feet or 1.1 meters in height). Herbaceous cover and standing crop are quite low and the herbaceous species present are the common alien and native species observed elsewhere in this area. Across Avenue G to the south of this parcel is a patch of similar vegetation, but these two areas of saltbush scrub appear to be completely isolated within the agricultural matrix.

The fifth parcel of saltbush scrub is located in the southeast corner of Section 36, where it occupies about 140 acres (56 hectares). This site is dominated by shadscale and allscale, but other shrub species such as Mormon-tea and yellow rabbitbrush are also present. There are a number of Joshua trees on the site. Shrub cover is low to moderate (estimated at 10-15%), there are a number of large shrubs, and the microrelief is more diverse with shrub-covered mounds up to 3 feet (1.1 meters) in height. Herbaceous cover and standing crop are low and the herbaceous species present are the common alien and native species observed elsewhere in this area. Sheep use on this parcel is heavy and there is unauthorized trash dumping as well. There is a patch of similar habitat to the south of Avenue G and to the east there appears to be a narrow strip (up to 0.5 mi or 0.8 km wide) of saltbush scrub that connects this parcel to extensive areas of natural habitat.

## CONCLUSIONS AND RECOMMENDATIONS

Biological Study Area 3 is within the geographic range of the Mohave ground squirrel. The California Natural Diversity Data Base contains 16 occurrence records for this species within a 10-mile (16-kilometer) radius of this area. The nearest records are a series of four occurrences about 5-6 miles (8.0-9.6 kilometers) to the northeast just south of Rogers Dry Lake on Edwards AFB (Buescher, *et al.*, 1995). Based upon these records, there is the potential for Mohave ground squirrels to occur within Biological Study Area 3 in areas of suitable habitat.

However, approximately 90% of the land area within Biological Study Area 3 has been converted to agricultural use. There is no habitat suitable for the Mohave ground squirrel on these agricultural lands, because the shrub cover and forage plants required by this species are no longer present. It is recommended that all future agricultural reuse of treated effluent from the Lancaster Water Reclamation Plant be restricted to lands within Biological Study Area 3 that have already been converted to agriculture. If this is done, there should be no impacts to the Mohave ground squirrel.

Three of the five parcels of remaining natural habitat have very low potential to support Mohave ground squirrels. The parcels in sections 25 and 34 are very small and completely isolated from other natural habitat. The northern strip in Section 22 is continuous with saltbush scrub vegetation to the north on Edwards AFB, but this parcel has few of the characteristics associated with high quality habitat for Mohave ground squirrels.

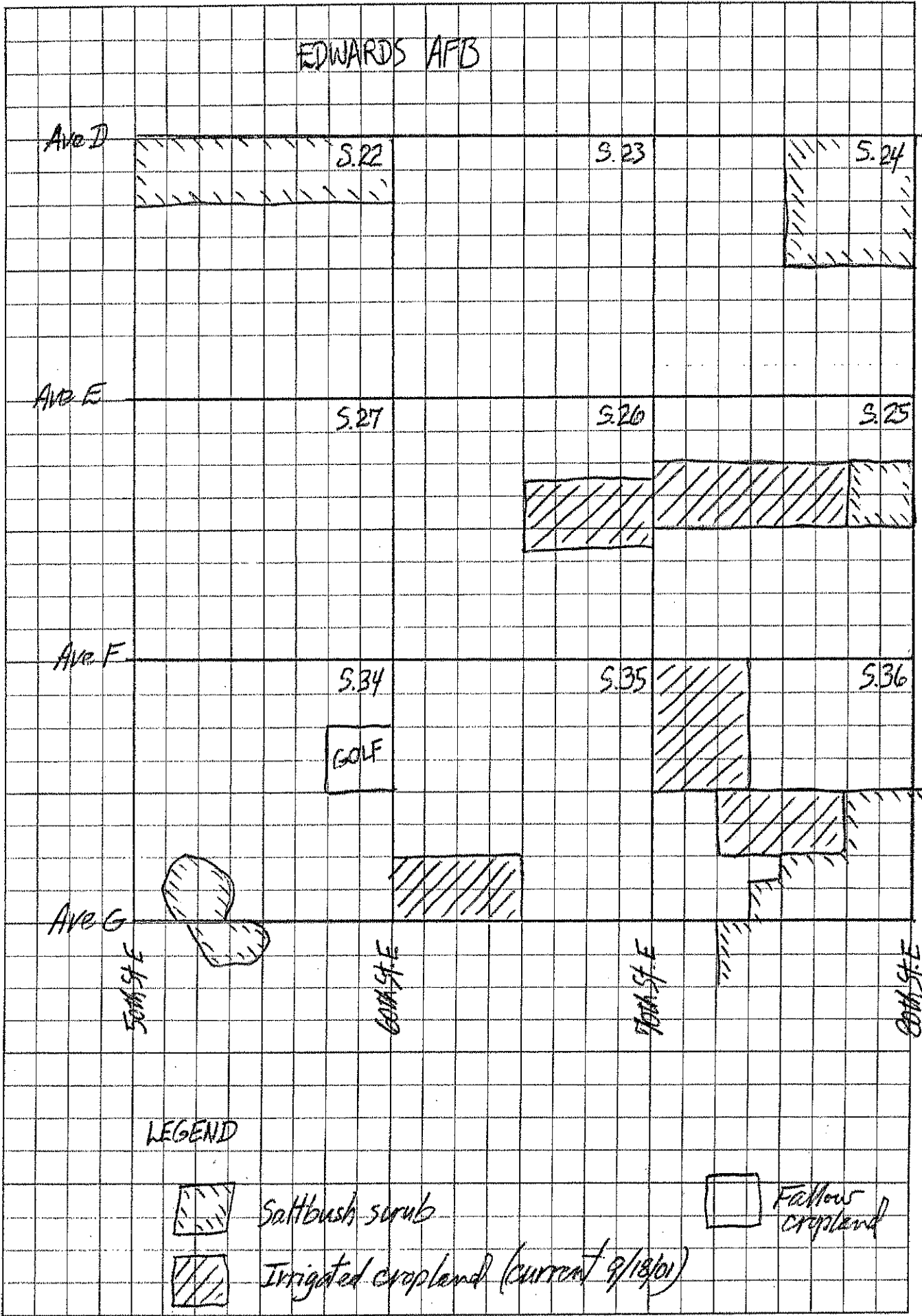
The two parcels of saltbush scrub habitat located in sections 24 and 36 have low potential to support Mohave ground squirrels. Shrub cover is low to moderate, but there are some large saltbush shrubs present that could provide adequate cover. The foliage of these shrubs is also a potential source of food when annual plants are not available. Furthermore, both parcels are connected to large areas of suitable habitat. If it is important to utilize these two parcels for agricultural reuse of treated effluent from the Lancaster Water Reclamation Plant, I would recommend that trapping surveys be conducted according to the protocol required by the California Department of Fish and Game.

#### REFERENCE

Buescher, K., D. R. Mitchell, B. Ellis, J. Sawasaki, D. M. Laabs, and M. Allaback. 1995. Mohave Ground Squirrel Studies at Edwards Air Force Base, California. Air Force Flight Test Center, Environmental Management Office, Edwards AFB, CA 93523. 52 pp.



# EDWARDS AFB



## LEGEND



Saltbush scrub



Irrigated cropland (current 9/18/01)



Fallow cropland