

**Appendix M:**  
**Tribal Wells Hydraulic Test Report**



Since 1958

# PUMP CHECK

Pumping Systems Analysts  
Hydraulic Test Report

(951) 684-9801 • Lic. 408415 • Fax (951) 684-2988

Soboba Band of Luiseno Indians  
Lake Park Drive, West of Soboba Road

Test Date: 03/14/2007  
Pump type: DWT  
Plant: Well GCW1

A test was made on this well pump and the following information was obtained.

## EQUIPMENT

PUMP:	Layne & Bowler	SERIAL:	D19999
MOTOR:	US	SERIAL:	B409/N06N097R074R-6
H.P.:	75	LAT/LON:	33.47.254n 116.55.961w
METER:	349M-001172	SCE Ref:	7456

## TEST RESULTS

	TEST 1
Discharge, PSI	1.0
Discharge head, feet	2.3
Standing water level, feet	303.1
Drawdown, feet	67.1
Pumping water level, feet	370.2
Total pumping head, feet	372.5
<b>Gallons per minute flow</b>	<b>410</b>
Gallons per foot of drawdown	6.1
Acre feet pumped per 24 hours	1.812
KW input to motor	54.3
HP input to motor	72.8
Motor load, % BHP	91.4
Measured speed of pump, RPM	1778
KWH per acre foot	719.9
<b>Overall Plant efficiency in %</b>	<b>53.0</b>

Test 1 was the normal operation of the pump at the time of the test.

If you have any questions please contact Jon Lee at (951) 684-9801.

P.O. Box 5646, Riverside, California 92517  
*Pump Testing, The Service That Pays For Itself*



Since 1958

# PUMP CHECK

Pumping Systems Analysts

Hydraulic Test Report

(951) 684-9801 • Lic. 799498 • Fax (951) 684-2988

Soboba Band of Luiseno Indians  
1020 North Soboba Road

Test Date: 07/30/2007  
Pump type: DWT  
Plant: Well GCW2

A test was made on this well pump and the following information was obtained.

## EQUIPMENT

PUMP:	Layne & Bowler	SERIAL:	N/A
MOTOR:	GE	SERIAL:	JMJ915115
H.P.	250	LAT/LON:	33.47.628n 116.56.169w
METER:	349-017687	Ref #:	90194

## TEST RESULTS

	TEST 1	TEST 2
Discharge, PSI	8.0	25.0
Discharge head, feet	18.5	57.8
Standing water level, feet	328.9	(prob. unrecovered)
Drawdown, feet	78.5	69.3
Pumping water level, feet	407.4	398.2
Total pumping head, feet	425.9	456.0
<b>Gallons per minute flow</b>	<b>1018</b>	<b>950</b>
Gallons per foot of drawdown	13.0	13.7
Acre feet pumped per 24 hours	4.498	4.198
KW input to motor	125.4	122.5
HP input to motor	168.0	164.2
Motor load, % BHP	61.8	60.4
Measured speed of pump, RPM	1780	
KWH per acre foot	669.1	700.3
<b>Overall Plant efficiency in %</b>	<b>65.1</b>	<b>66.6</b>

Test 1 was the normal operation of the pump at the time of the test. The other results were obtained by throttling the pump discharge.

At the time of the above test, it was noted by the test crew that there was a considerable amount of air being discharged by this pump.

If you have any questions please contact Jon Lee at (951) 684-9801.

P.O. Box 5646, Riverside, California 92517  
 "Pump Testing, The Service That Pays For Itself"



# PUMP CHECK

Pumping Systems Analysts  
Hydraulic Test Report

Since 1958

(951) 684-9801 • Lic. 408415 • Fax (951) 684-2988

Soboba Band of Luiseno Indians  
24100 Soboba Road

Test Date: 03/14/2007  
Pump type: DWT  
Plant: Well DW1

A test was made on this well pump and the following information was obtained.

## EQUIPMENT

PUMP:	Goulds	SERIAL:	N/A
MOTOR:	US	SERIAL:	J248A-Y03Y030R013R-1
H.P.:	100	LAT/LON:	33.46.101n 116.54.563w
METER:	Y828-1687	SCE Ref:	90191

## TEST RESULTS

	TEST 1	TEST 2
Discharge, PSI	130.0	145.0
Discharge head, feet	300.3	335.0
Standing water level, feet	149.1	
Drawdown, feet	18.3	17.4
Pumping water level, feet	167.4	166.5
Total pumping head, feet	467.7	501.5
<b>Gallons per minute flow</b>	<b>532</b>	<b>500</b>
Gallons per foot of drawdown	29.0	28.8
Acre feet pumped per 24 hours	2.349	2.211
KW input to motor	77.9	75.6
HP input to motor	104.4	101.3
Motor load, % BHP	97.1	94.2
Measured speed of pump, RPM	1780	
KWH per acre foot	796.4	820.1
<b>Overall Plant efficiency in %</b>	<b>60.1</b>	<b>62.6</b>

Test 1 was the normal operation of the pump at the time of the test. The other results were obtained by throttling the pump discharge.

If you have any questions please contact Jon Lee at (951) 684-9801.

P.O. Box 5646, Riverside, California 92517  
*Pump Testing, The Service That Pays For Itself*



# PUMP CHECK

Pumping Systems Analysts

Hydraulic Test Report

(951) 684-9801 • Lic. 408415 • Fax (951) 684-2988

Soboba Band of Luiseno Indians  
24396 Soboba Road

Test Date: 03/14/2007  
Pump type: DWT  
Plant: Well DW3

A test was made on this well pump and the following information was obtained.

## EQUIPMENT

PUMP:	Goulds	SERIAL:	N/A
MOTOR:	US	SERIAL:	D06-R489A-MB2
H.P.	250	LAT/LON:	33.46.085n 116.54.268w
METER:	V349E-007090	SCE Ref:	90189

## TEST RESULTS

	TEST 1	TEST 2
Discharge, PSI	220.0	230.0
Discharge head, feet	508.2	531.3
Standing water level, feet	157.7	
Drawdown, feet	37.4	37.0
Pumping water level, feet	195.1	194.7
Total pumping head, feet	703.3	726.0
<b>Gallons per minute flow</b>	<b>1063</b>	<b>1047</b>
Gallons per foot of drawdown	28.4	28.3
Acre feet pumped per 24 hours	4.695	4.627
KW input to motor	209.6	204.1
HP input to motor	280.9	273.5
Motor load, % BHP	107.6	104.8
Measured speed of pump, RPM	1783	
KWH per acre foot	1071.3	1058.6
<b>Overall Plant efficiency in %</b>	<b>67.2</b>	<b>70.2</b>

Test 1 was the normal operation of the pump at the time of the test. The other results were obtained by throttling the pump discharge.

If you have any questions please contact Jon Lee at (951) 684-9801.

P.O. Box 5646, Riverside, California 92517  
*Pump Testing. The Service That Pays For Itself*



Since 1958

# PUMP CHECK

Pumping Systems Analysts  
Hydraulic Test Report

(951) 684-9801 • Lic. 408415 • Fax (951) 684-2988

Soboba Band of Luiseno Indians  
24150 Soboba Road

Test Date: 03/14/2007  
Pump type: DWT  
Plant: Well DW4

A test was made on this well pump and the following information was obtained.

## EQUIPMENT

PUMP:	Goulds	SERIAL:	N/A
MOTOR:	US	SERIAL:	J09-20032114GT-01
H.P.	250	LAT/LON:	33.46.127n 116.54.409w
METER:	349-016666	SCE Ref:	90188

## TEST RESULTS

	TEST 1	TEST 2
Discharge, PSI	217.0	227.5
Discharge head, feet	501.3	525.5
Standing water level, feet	158.6	
Drawdown, feet	38.1	36.9
Pumping water level, feet	196.7	195.5
Total pumping head, feet	698.0	721.0
<b>Gallons per minute flow</b>	<b>1071</b>	<b>998</b>
Gallons per foot of drawdown	28.1	27.1
Acre feet pumped per 24 hours	4.732	4.412
KW input to motor	187.2	180.9
HP input to motor	250.8	242.4
Motor load, % BHP	93.3	90.2
Measured speed of pump, RPM	1782	
KWH per acre foot	949.4	984.1
<b>Overall Plant efficiency In %</b>	<b>75.2</b>	<b>75.0</b>

Test 1 was the normal operation of the pump at the time of the test. The other results were obtained by throttling the pump discharge.

If you have any questions please contact Jon Lee at (951) 684-9801.

P.O. Box 5646, Riverside, California 92517  
*Pump Testing. The Service That Pays For Itself*

**Appendix N:**

**Biological Resources Assessment (Revised Appendix)**

**BIOLOGICAL RESOURCES ASSESSMENT**  
**SOBOBA BAND OF THE LUISEÑO INDIANS**  
**FEE-TO-TRUST CONVEYANCE AND CASINO/HOTEL PROJECT FOR**  
**THE HORSESHOE GRANDE PROPERTY**

*Prepared for:*

**SOBOBA BAND OF THE LUISEÑO INDIANS**  
223904 Soboba Road  
P.O. Box 487  
San Jacinto, California 92581

*Prepared by:*

**ENTRIX, Inc.**  
8655 E. Via de Ventura, Suite F-165  
Scottsdale, Arizona 85258

Project No. 4111901

**May 2009**



## TABLE OF CONTENTS

---

	<b>Page</b>
1 Introduction.....	1
2 Project Description.....	6
2.1 Proposed Action.....	6
3 Regulatory Setting .....	6
4 Methods.....	7
4.1 Special Status Species Literature and Database Review .....	7
4.2 Field Reconnaissance.....	8
5 Environmental Setting .....	9
6 Drainage Patterns and Waters of the United States .....	9
7 Vegetation Communities and Wildlife Habitats.....	10
7.1 Native Plant Communities .....	10
7.1.1 Coastal Sage Scrub .....	10
7.1.2 Southern Willow Scrub.....	11
7.2 Disturbed Areas .....	13
7.2.1 Developed Areas.....	13
7.2.2 Barren Areas .....	13
8 Special Status Species Potentially Occurring in the Project Area.....	13
8.1 Federally Listed Species .....	19
8.1.1 Federally Listed Plants.....	19
8.1.2 Federally Listed Birds.....	20
8.1.3 Federally Listed Mammals .....	21
8.2 Additional Species Considered.....	26
8.2.1 Plants.....	26
8.2.2 Reptiles .....	27
8.2.3 Birds.....	28
8.2.4 Mammals.....	31
9 Impacts Analysis and Mitigation Measures.....	34
9.1 Federally Listed Species .....	37
9.1.1 Federally Listed Plants.....	37
9.1.2 Federally Listed Birds.....	38

9.1.3	Federally Listed Mammals .....	39
9.2	Additional Species Considered.....	41
9.2.1	Plants.....	41
9.2.2	Reptiles .....	42
9.2.3	Birds.....	43
9.2.4	Mammals.....	46
9.3	Cumulative Effects Analysis .....	47
9.4	Mitigation Measures .....	47
10	Document Preparation .....	49
11	Literature Cited.....	50

**LIST OF TABLES**

Table 1. The nine USGS 7.5-minute quadrangle map names for which species occurrence records from the CNDDDB were reviewed for occurrence records of special status plant and wildlife species.....8

Table 2. Special status species with the potential to occur in the general vicinity of the Horseshoe Grande Project Area.....14

Table 3. Special status plant and animal species for which potential habitat is found on the Horseshoe Grande Property .....36

**LIST OF FIGURES**

Figure 1. Location of the Soboba Reservation.....2

Figure 2. Location of the Horseshoe Grande Property adjacent to the Soboba Reservation.....3

Figure 3a. Aerial image of the Horseshoe Grande Property showing proposed action A .....4

Figure 3b. Aerial image of the Horseshoe Grande Property showing proposed action B .....5

Figure 4. Habitat types found on the Horseshoe Grande Property .....12

Figure 5. Aerial image of the Horseshoe Grande Property identifying currently designated critical habitat and the proposed critical habitat in June 2007 .....24

Figure 6. Potential San Bernardino kangaroo rat den site within the San Jacinto River corridor. 25

Figure 7. Disturbance within the San Jacinto River bed, including off-road vehicle tracks. ....25

# **BIOLOGICAL RESOURCES ASSESSMENT**

## **SOBOBA BAND OF THE LUISEÑO INDIANS FEE-TO-TRUST CONVEYANCE OF THE HORSESHOE GRANDE PROPERTY**

**Soboba Reservation  
Riverside County, California**

**July 2008**

### **1 INTRODUCTION**

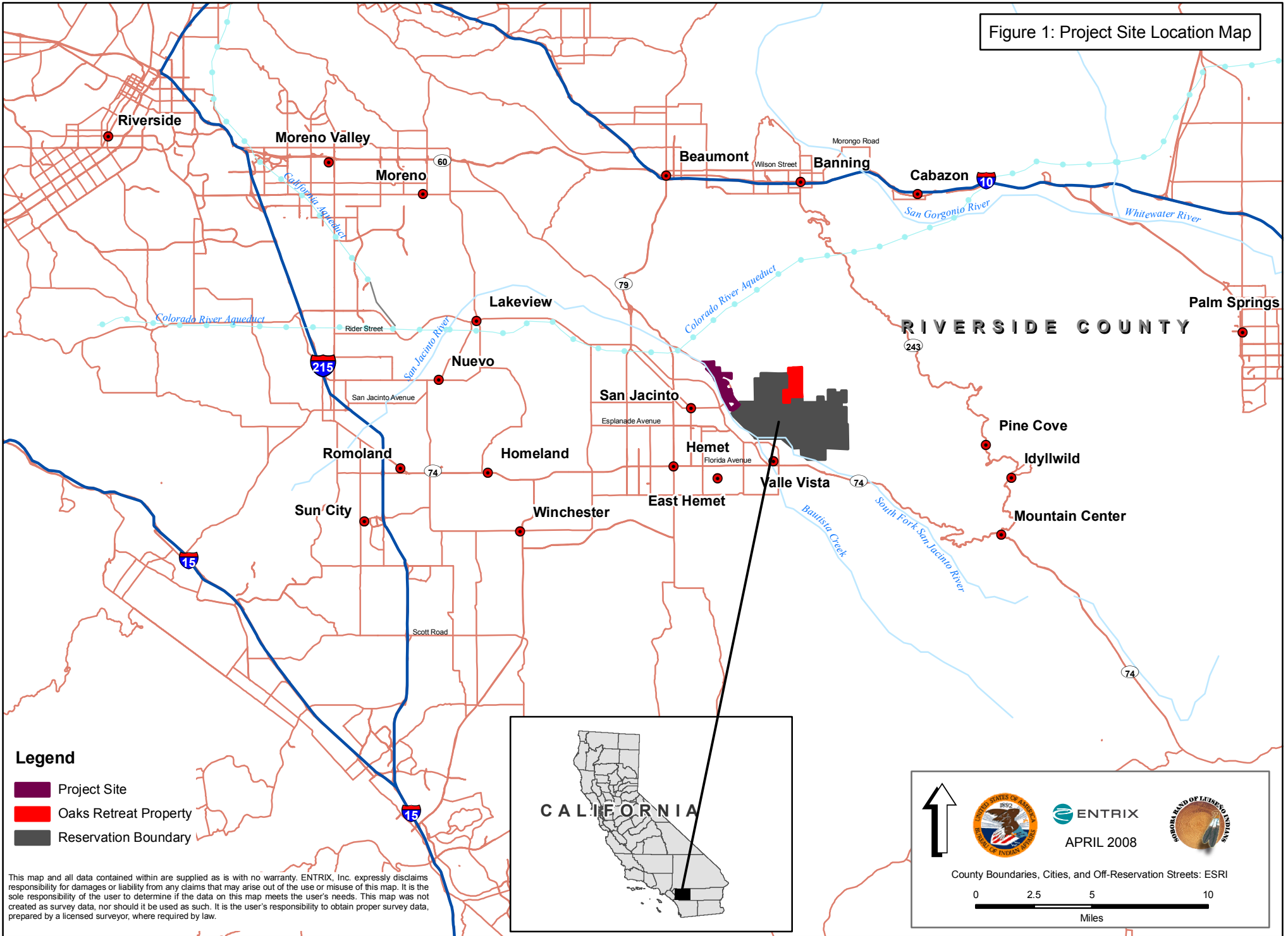
The Soboba Band of the Luiseño Indians (the Tribe) has acquired private fee-title properties adjacent to the Soboba Indian Reservation (hereinafter, the “Reservation”) and proposes to convey these lands, known as the Horseshoe Grande Property (hereinafter, the “Project Site”), into federal trust status. In addition, the Tribe intends to relocate its existing casino, which presently resides on trust lands, to the Project Site. The Tribe also plans to develop a 300-person room hotel, fire and police station, and 1.2 million gallon wastewater treatment plant in addition to the fee-to-trust action and casino relocation. For the purposes of this analysis, “Development Site” refers to the footprint of the proposed developments.

The Reservation is located at the base of the San Jacinto Mountains, in the upper San Jacinto River Basin (Figure 1). The Horseshoe Grande Property is located adjacent to the San Jacinto River, which flows along the western boundary of the property Reservation. The irregular configuration of the Reservation stretches eastward to the boundary of the San Bernardino National Forest, and westward and southward to the cities of San Jacinto and Hemet (Figure 2). The Horseshoe Grande Property currently consists of approximately 535 acres in 34 parcels and includes approximately 1.1 kilometers (0.7 mile) of the San Jacinto River (Figures 3a and 3b).

The Project Site includes bladed lands, developed areas, and slopes with natural vegetation (including both native and non-native plants). The Tribe owns the Project Site, of which they are proposing to develop a small portion. The Project Site is located in portions of sections 19, 30 and 31 of Township 4 South, Range 1 East and sections 23–25 and 36 of Township 4 South, Range 1 West (San Bernardino Baseline and Meridian, on the “San Jacinto, California” U.S. Geological Survey (USGS) 7.5-minute topographic quadrangle map).

The Tribe has requested the Bureau of Indian Affairs (BIA) to acquire the Project Site into federal trust status under the authority of the Indian Reorganization Act and its implementing regulations at 15 CFR 151. If the property is taken into trust, it would no longer be subject to state and local regulations, including the jurisdiction of the California Department of Fish and Game (CDFG). However, the application of federal statutes continues to apply to the Horseshoe Grande Property as reservation land. The purpose of this biological resources assessment is to characterize the existing environment present on the Project Site, to evaluate habitat suitability and the potential for the occurrence of special-status plant and animal species, and to assess potential impacts to sensitive biological resources due to the conveyance of this property to federal trust status and proposed developments (Figures 3a and 3b).

Figure 1: Project Site Location Map



- Legend**
- Project Site
  - Oaks Retreat Property
  - Reservation Boundary

This map and all data contained within are supplied as is with no warranty. ENTRIX, Inc. expressly disclaims responsibility for damages or liability from any claims that may arise out of the use or misuse of this map. It is the sole responsibility of the user to determine if the data on this map meets the user's needs. This map was not created as survey data, nor should it be used as such. It is the user's responsibility to obtain proper survey data, prepared by a licensed surveyor, where required by law.



APRIL 2008

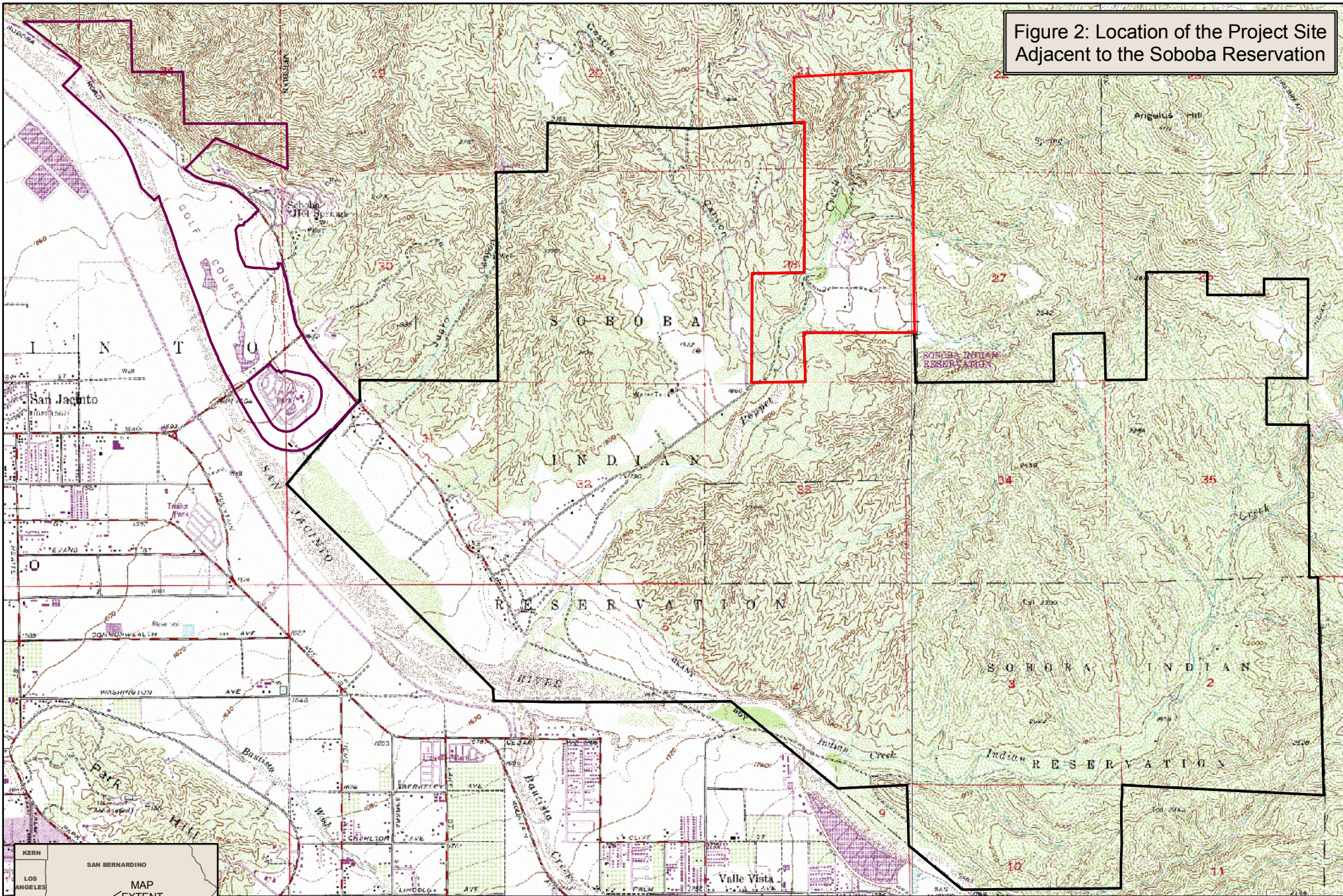
County Boundaries, Cities, and Off-Reservation Streets: ESRI

0      2.5      5      10

---

Miles

Figure 2: Location of the Project Site Adjacent to the Soboba Reservation



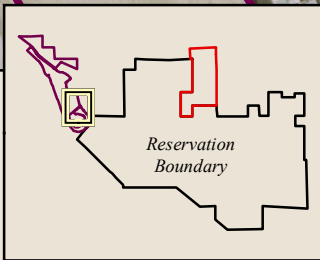
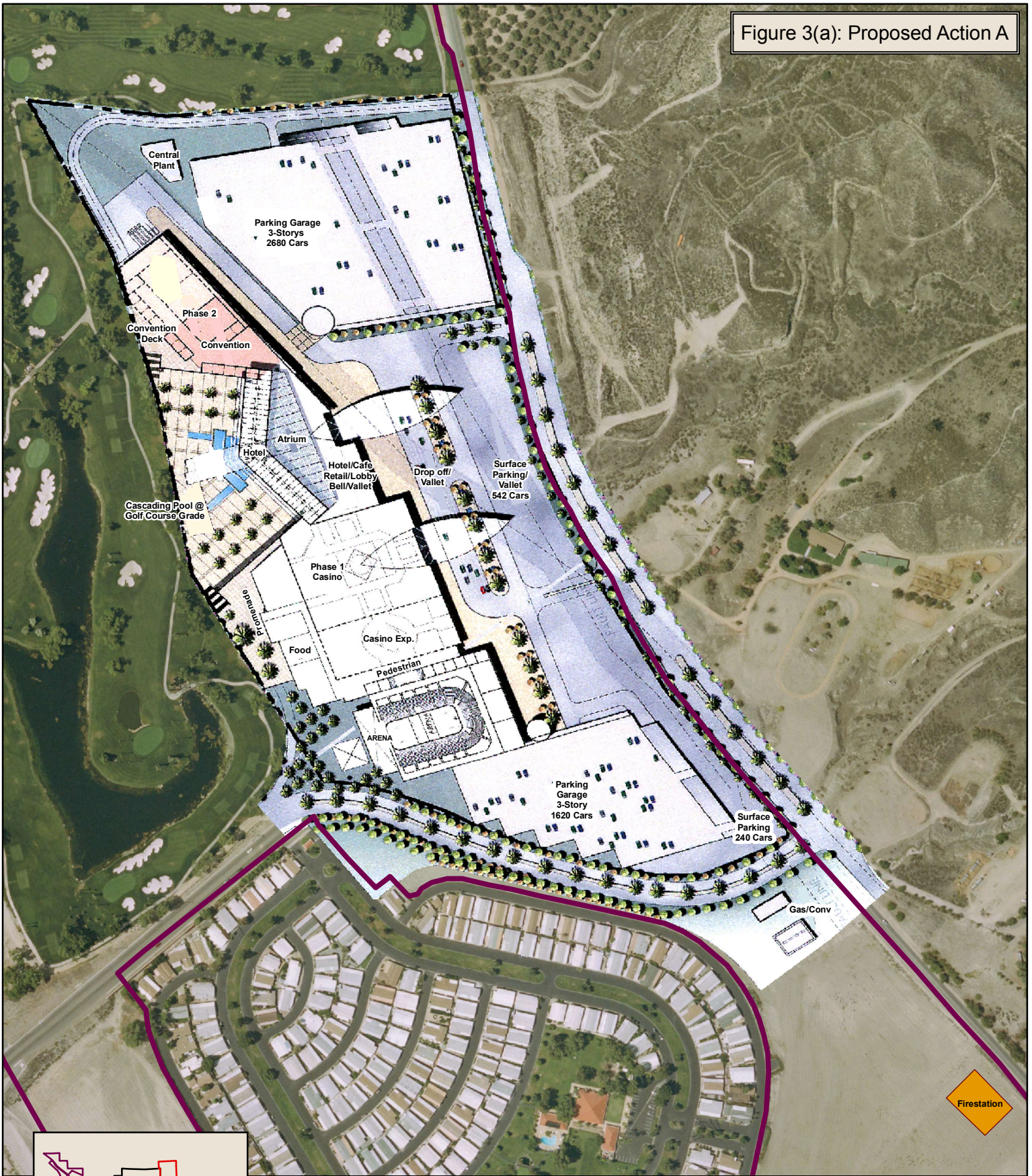
-  Reservation Boundary
-  Tribal Properties in Fee Title
-  Oaks Retreat Property
-  Project Site



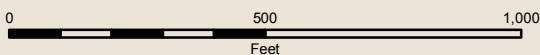
Source of Topographic Backdrop: USGS

This map and all data contained within are supplied as is with no warranty. ENTRIX, Inc. expressly disclaims responsibility for damages or liability from any claims that may arise out of the use or misuse of this map. It is the sole responsibility of the user to determine if the data on this map meets the user's needs. This map was not created as survey data, nor should it be used as such. It is the user's responsibility to obtain proper survey data, prepared by a licensed surveyor, where required by law.

Figure 3(a): Proposed Action A



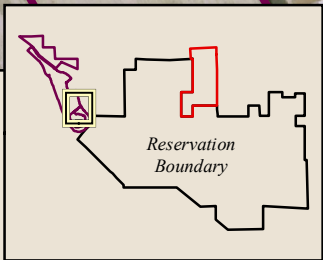
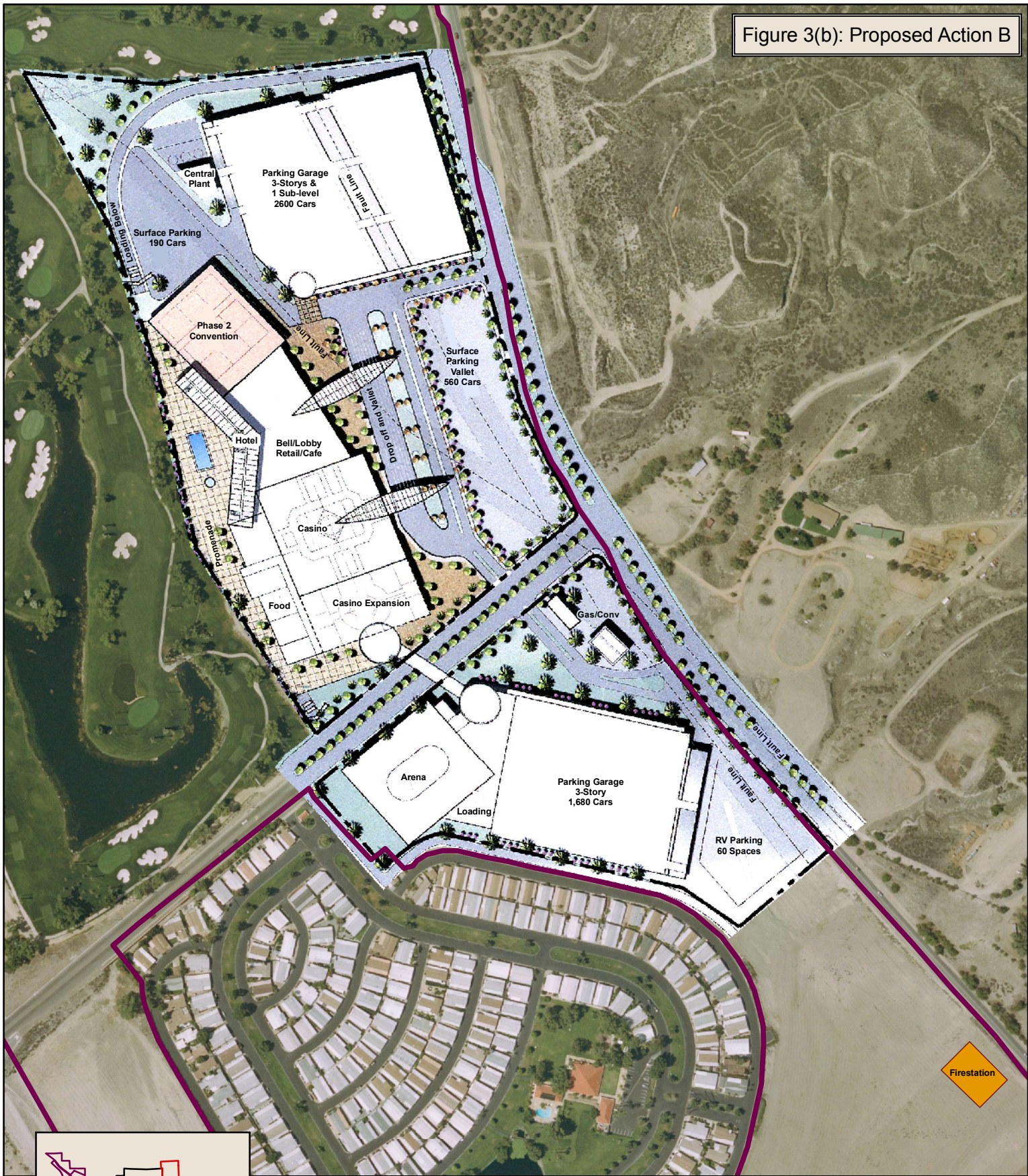
APRIL 2008



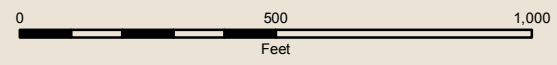
Aerial Imagery: Digital Globe, Inc. September 2007  
Proposed Site Plan: JMA

This map and all data contained within are supplied as is with no warranty. ENTRIX, Inc. expressly disclaims responsibility for damages or liability from any claims that may arise out of the use or misuse of this map. It is the sole responsibility of the user to determine if the data on this map meets the user's needs. This map was not created as survey data, nor should it be used as such. It is the user's responsibility to obtain proper survey data, prepared by a licensed surveyor, where required by law.

Figure 3(b): Proposed Action B



APRIL 2008



Aerial Imagery: Digital Globe, Inc. September 2007  
Proposed Site Plan: JMA

This map and all data contained within are supplied as is with no warranty. ENTRIX, Inc. expressly disclaims responsibility for damages or liability from any claims that may arise out of the use or misuse of this map. It is the sole responsibility of the user to determine if the data on this map meets the user's needs. This map was not created as survey data, nor should it be used as such. It is the user's responsibility to obtain proper survey data, prepared by a licensed surveyor, where required by law.



## **2 PROJECT DESCRIPTION**

### **2.1 PROPOSED ACTION**

The Tribe proposes the conveyance of 34 parcels, 534.91± acres of Tribally owned property (Project Site) that is contiguous to the boundaries of the existing Reservation to Federal trust status, and to develop a portion of the Project Site into a destination hotel/casino complex. The Tribe would relocate its existing casino, which presently resides on trust lands, to the Project Site. In addition to the fee-to-trust action and casino relocation, the Proposed Action also includes the development of a 300-room hotel, casino, restaurants, retail establishments, a convention center, an events arena, and a spa and fitness center, within a 729,500± square-foot complex. The proposed developments also include a Tribal fire station, and a 12-pump gas station with a 6,000 square-foot convenience store. A portion of the Project Site is occupied by the Soboba Springs Golf Course and Country Club (hereinafter, “the Golf Course and Country Club” collectively; and the “Golf Course” and the “Country Club” individually, respectively), which the Tribe purchased in December 2004. Construction of a new 31,000± square foot Country Club was completed in May 2008. Development of the proposed hotel/casino complex near the Golf Course and Country Club would allow the Tribe to diversify economically by offering customers a destination resort.

Due to fault lines in the area, the Tribe’s engineers have advised the realignment of Lake Park Drive in order to accommodate the proposed developments on the available buildable land. At this point, it is unclear whether the Tribe would realign Lake Park Drive. Therefore, this Biological Resources Assessment presents and analyzes the Proposed Action both with and without the realignment of Lake Park Drive. In the remainder of this document, the Proposed Action accompanied by the realignment of Lake Park Drive is referred to as “Proposed Action A”, while that without the realignment of Lake Park Drive is called “Proposed Action B”. Additionally, in Proposed Action B, the events arena would be located across Lake Park Drive and will be slightly smaller than that in Proposed Action A by 15,000 square-feet to accommodate the events arena in the available building space south of Lake Park Drive. Both these versions of the Tribe’s proposal are collectively referred to as the “Proposed Action”.

## **3 REGULATORY SETTING**

The following section summarizes the federal regulations applicable to biological resources on the Horseshoe Grande property.

### **Endangered Species Act of 1973 (16 USC §1531 et seq.; 50 CFR Parts 17 and 222)**

The Endangered Species Act (ESA) includes provisions for protection and management of species that are federally listed as threatened or endangered, as well as designated critical habitat for these species. Endangered species are species that are in danger of extinction throughout all or a significant portion of their range. Threatened species are species that are likely to become endangered species throughout all or a significant portion of their range. A proposed species is any species that is proposed in the Federal Register to be listed as a threatened or endangered

species under the ESA. A candidate species has been identified by the U.S. Fish and Wildlife Service (FWS) to be proposed for ESA listing at some time in the near future. Section 7 of the ESA directs federal departments and agencies to ensure that actions authorized, funded, or carried out by them are not likely to jeopardize the continued existence of any threatened, endangered, or proposed species or result in the destruction or adverse modification of their critical habitat. Proposed non-federal (e.g., private or state) actions that may result in the take of a threatened or endangered wildlife species are required to apply for a Section 10(a)(1)(B) permit following the development of a Habitat Conservation Plan (HCP). FWS is the administering agency under this authority for non-marine species.

### **Migratory Bird Treaty Act of 1918** (16 USC §703-711; 50 CFR Subchapter B)

This law includes provisions for protection from injury or death of designated migratory birds (50 CFR 10.13) and their nests and eggs, including basic prohibitions against any take not authorized by federal regulation. The administering agency is FWS.

### **Federal Water Pollution Control Act of 1972** (Clean Water Act; 33 USC. § 1251-1387)

Popularly known as the Clean Water Act (CWA), this statute aims to restore and maintain the chemical, physical, and biological integrity of the nation's waters. Any project that involves working in navigable waters of the United States, including the discharge of dredge or fill material, must first obtain authorization from the U.S. Army Corps of Engineers (ACE), under Section 404 of the CWA. Water Quality Certification (CWA Section 401 Permit) may be required by the U.S. Environmental Protection Agency before other permits are issued, and may involve implementation of a storm water pollution prevention plan. The administering agencies are the U.S. Environmental Protection Agency and ACE.

## **4 METHODS**

The assessment of the biological resources of the Project Site included the compilation of existing information on the local environment to provide the ecological context for the general Project vicinity. A list of sensitive biological resources potentially occurring on or adjacent to the Project Site was developed. Distribution and habitat information was reviewed for each special status species that may occur in the Project vicinity, and any documented occurrence records from the area for those species were compiled. Field reconnaissance surveys were conducted to document the existing environmental conditions and to assess habitat suitability for sensitive biological resources within the Project area.

### **4.1 SPECIAL STATUS SPECIES LITERATURE AND DATABASE REVIEW**

Special status wildlife are those species that have received special designation under the authorities of state, federal, or local agencies due to concerns about the species' continuing status in the wild. Site-specific occurrence information for most special status species are included in the California Department of Fish and Game's California Natural Diversity Database (CNDDDB), a computerized inventory of location information on the most rare animals, plants, and natural communities in California. The CNDDDB is continually refined and updated, is used extensively

by natural resource management agencies, and represents the most comprehensive distribution information available on these species within California.

Special status species, as defined for the Horseshoe Grande Property, are:

- ESA listed endangered and threatened species, and species that are proposed or candidates for ESA listing; and
- Species with designated or proposed critical habitat under the ESA.

Species that have been included in Habitat Conservation Plans prepared under the provision of Section 10(a) of the ESA, or other Conservation Strategies that apply to lands within the Project vicinity were also included in this analysis.

A list of special status species that could potentially occur on the Project Site was compiled through a series of literature, website, and database sources. This included a review of the FWS list of species and critical habitats protected under the ESA that were included on the FWS Carlsbad Field Office species list for Riverside County ([http://www.fws.gov/carlsbad/CFWO\\_Species\\_List.htm](http://www.fws.gov/carlsbad/CFWO_Species_List.htm)), the western Riverside County MSHCP, and all documented species occurrence records in the California Natural Diversity Database (CNDDDB; commercial version dated January 4, 2006) recorded on the project-specific USGS 7.5-minute San Jacinto topographic map and the eight surrounding maps (see Table 1).

**Table 1.** The nine USGS 7.5-minute quadrangle map names for which species occurrence records from the CNDDDB were reviewed for occurrence records of special status plant and wildlife species. Presented in appropriate geographic relationship to the central project map.

El Casco	Beaumont	Cabazon
Lakeview	San Jacinto	Lake Fulmor
Winchester	Hemet	Blackburn Canyon

## 4.2 FIELD RECONNAISSANCE

A reconnaissance survey of the Project Site was conducted by ENTRIX biologists on February 20, 2007 (Bruce Palmer and Kay Nicholson), July 19, 2007 (Kay Nicholson and Sara Fischer), and April 9–10, 2008 (Kay Nicholson and Sara Fischer). For the purposes of this evaluation, the Project Area includes the Horseshoe Grande Property and immediate vicinity while the Project Site refers to the footprint of the Horseshoe Grande Property. The surveys were conducted by viewing the accessible areas on foot. All plant and animal species observed were recorded. In addition, any sign found indicating the potential presence of a special status species was noted.

The reconnaissance survey focused on areas with potentially high biological diversity, which occur along the river corridor, and the construction areas. Because of the importance of the riparian habitat to the area, a complete-coverage survey of the riparian area within the Project area and along the Project boundary was conducted on foot. In addition, because of the impacts that would occur to construction areas, the Development Site was also surveyed completely on foot. Habitats with the potential to support special status species of plants and animals were sought out and evaluated for their suitability and indications that those species may be present.

Surveys for special status species were based on incidental sightings and habitat assessments; surveys following established species-specific protocols have not been conducted at this time. Species' evaluations were based on habitat conditions. A survey of the remainder of the Project Site was conducted to characterize habitat where no ground disturbance is planned by driving slowly along this one-mile stretch of Soboba Road and stopping periodically to hike up the hillside to assess the habitat conditions (this was done in conjunction with the field work for preparing a jurisdictional delineation of Waters of the United States during the April 2008 site visit).

## **5 ENVIRONMENTAL SETTING**

The Horseshoe Grande Property is located in the foothills on the west side of the San Jacinto Mountains that separate the San Jacinto River Basin to the west from the Coachella Valley to the east, and adjacent to the San Jacinto River. The property ranges in elevation from approximately 475 meters (1,560 feet) to 500 meters (1,650 feet) above mean sea level. Characteristic vegetation communities occurring within the regional vicinity include coastal sage scrub and southern willow scrub. The Horseshoe Grande Property is adjacent to the Soboba Indian community and is within approximately 1.6–4.8 kilometers (1–3 miles) of major urban and agricultural developments (i.e., the city of San Jacinto and the San Jacinto River valley). The climate of the area is temperate and arid. The mean temperature is 11.1 degrees centigrade (52 degrees Fahrenheit) in the winter and 26.7 degrees centigrade (80 degrees Fahrenheit) in the summer with an average precipitation of approximately 31.8 centimeters (12.5 inches) per year (City-data.com 2007).

The San Jacinto River runs parallel to the length of the Horseshoe Grande Property. The river channel is adjacent to the southwestern Project Site boundary and runs through a portion of the property at the north end. The river is approximately 177–466 meters (580–1,530 feet) wide in the portion within and adjacent to the Project Site and includes alluvium deposits and floodplain terraces. The portion of the Project Site east of Soboba Road extends up into the foothills of the San Jacinto Mountains.

Land use within and surrounding the Project Site includes a golf course, small residential areas, and undeveloped land. The undeveloped land consists of areas with both natural vegetation and barren areas that have previously been cleared of all vegetation. There is evidence of off-road vehicle use throughout portions of the Project Area, including within the San Jacinto River channel, and a wide dirt road (approximately 6–7 meters [20–25 feet] wide) is present on the Project Site on the east side of Soboba Road heading northeast up into the hills.

## **6 DRAINAGE PATTERNS AND WATERS OF THE UNITED STATES**

The San Jacinto River's headwaters originate in the San Jacinto National Forest. The San Jacinto River and its watershed encompass 765 square miles. The San Jacinto River flows for about 10 miles from its source to Lake Hemet, which is dammed. Downstream from the dam, the river continues northeast until it discharges into Mystic Lake. Overflow from Mystic Lake then flows southwest to the Railroad Canyon Reservoir, which eventually drains into Lake Elsinore.

Federal regulation through the CWA requires the determination of presence of Waters of the United States for any action that may result in the alteration or degradation of navigable waters, including the discharge and/or fill of material. If Waters of the United States are present, a jurisdictional delineation and CWA Section 404 permit application should be completed and submitted to ACE. The CWA Section 404 permit should be obtained prior to implementation of any action that would result in alteration or degradation of Waters of the United States. During field reconnaissance surveys of the Horseshoe Grande Property, it was determined through an assessment of channel morphology characteristics that the San Jacinto River, which occurs on a portion of the Project Site, and five tributary washes are jurisdictional waterways. There are two additional washes on the Project Site that are potentially jurisdictional; however, these were not surveyed in the field because accessing them would have required trespassing on private property. No surface disturbance will occur within the San Jacinto River channel or any jurisdictional waterway, as none occur on the Development Site. To document resources on the Project Site, a jurisdictional delineation of Waters of the United States is being prepared for the entire Project Site and will be submitted to the US Army Corps of Engineers for approval.

## **7 VEGETATION COMMUNITIES AND WILDLIFE HABITATS**

Vegetation communities within the Project area include native habitats such as coastal sage scrub and southern willow scrub (Figure 4). Areas that are subjected to anthropogenic use are categorized as developed areas, and areas devoid of vegetation are categorized as barren (Figure 4). The vegetation communities provide the basis for habitats used by a diversity of wildlife. In 2003, a major fire occurred on the west side of the San Jacinto Mountains, consuming much of the upland shrub vegetation throughout the area. Post-fire, the upland habitats became dominated by non-native mustards and some grasses. Some level of recovery of the native upland vegetation is occurring in scattered patches across the landscape. However, the fire may have initiated a vegetation-type conversion that perpetuates recurrent fire and may limit the regeneration of native habitat conditions.

### **7.1 NATIVE PLANT COMMUNITIES**

#### **7.1.1 COASTAL SAGE SCRUB**

Coastal sage scrub is an upland plant community dominated by a characteristic group of drought-deciduous shrubs and subshrub species. Composition varies substantially depending on physical circumstances and the successional status of the site. Characteristic species include California sagebrush (*Artemisia californica*), California buckwheat (*Eriogonum fasciculatum*), laurel sumac (*Malosma laurina*), California encelia (*Encelia californica*), and several species of sage (*Salvia* spp.) (Holland 1986; Sawyer and Keeler-Wolf 1995). Other common species include brittlebush (*Encelia farinosa*), lemonadeberry (*Rhus integrifolia*), sugarbush (*Rhus ovata*), yellow bush penstemon (*Keckiella antirrhinoides*), Mexican elderberry (*Sambucus mexicana*), and prickly-pear (*Opuntia* spp.). Sage scrub is often patchily distributed throughout its range and is often found in mosaics with other plant communities, particularly grassland, chaparral, and oak or riparian woodland. Previously, all coastal sage scrub in Riverside County was considered to be part of the Riversidean sub-association. Recent treatments have identified seven sub-associations

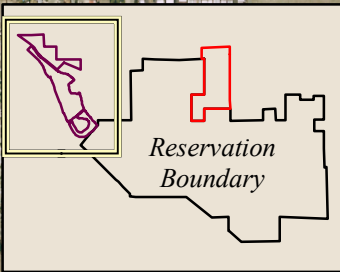
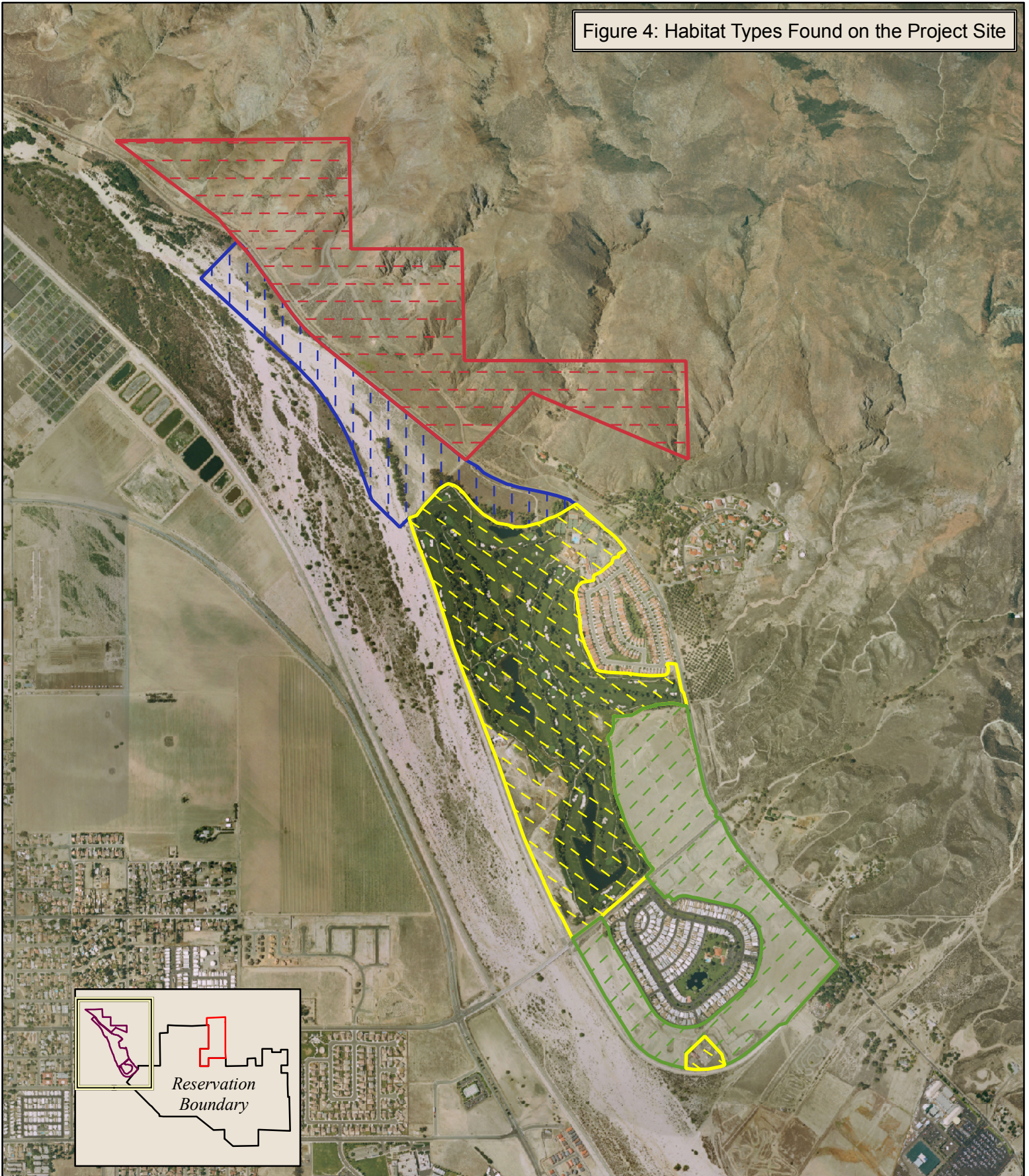
based upon dominant shrub cover (White and Padley 1997). Based on observations of adjacent, unburned vegetation and the native species that are regenerating, the Project Area appears to have been vegetated primarily by coastal sage scrub. However, fire burned most of the scrub vegetation in 2003, and mature stands of sage scrub are currently not present on the Project Site. The post-fire areas appear to be a disclimax coastal sage scrub community dominated primarily by summer mustard (= shortpod mustard, *Hirschfeldia incana*); however, brittlebush is present but sparse in the foothills and much sparser or absent at the higher elevations of the Project Site. Dead, scorched shrubs are present on the hillsides, evidence that a shrub community previously dominated the hillsides. There are approximately 178 acres of disclimax coastal sage scrub habitat located on the Project Site (Figure 4).

### **7.1.2 SOUTHERN WILLOW SCRUB**

Southern willow scrub is a riparian plant community that consists of dense, broadleaved, winter-deciduous riparian thickets dominated by several *Salix* species, with scattered emergent cottonwood (*Populus fremontii*) and sycamore (*Platanus racemosa*). Most stands are too dense to allow much understory development.

The southern willow scrub community provides habitat for much of the species diversity found within the vicinity of the Horseshoe Grande Property. In this habitat, migratory and residential birds nest among the woodland trees, bats concentrate foraging and roosting activities, amphibians use seasonal breeding sites, and many species of reptiles and small mammals are found. This riparian community occurs adjacent to the property along the upper portion of the Project Area, where there are scattered stands of cottonwood, sycamore, and willow with occasional oaks among a complex intermixing of various riparian scrub vegetation associations, and alluvial deposits. However, this habitat is not in pristine condition and continues to be impacted by ongoing human activities in and around the San Jacinto River, as well as being subject to highly dynamic natural processes related to floods and fire. On the Project Site, the vegetation in this habitat type is very sparse, consisting of an open, scoured river bed with thin stringers of cottonwood trees lining the edges. A pond was observed during the April 2008 site visit on the west side of Soboba Road south of Lake Park Drive, where a culvert that crosses Soboba Road drains into the construction area, and riparian vegetation (i.e., cottonwood, tamarisk) was starting to grow. There are approximately 68 acres of disturbed southern willow scrub habitat located on the Project Site (Figure 4).

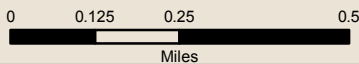
Figure 4: Habitat Types Found on the Project Site



- Horseshoe Grande Property - Habitat Types**
- Barren
  - Developed
  - Disclimax Coastal Sage Scrub
  - Disturbed Southern Willow Scrub



**ENTRIX**  
APRIL 2008



SOURCE: Aerial Imagery - Digital Globe, Inc. September 2007

This map and all data contained within are supplied as is with no warranty. ENTRIX, Inc. expressly disclaims responsibility for damages or liability from any claims that may arise out of the use or misuse of this map. It is the sole responsibility of the user to determine if the data on this map meets the user's needs. This map was not created as survey data, nor should it be used as such. It is the user's responsibility to obtain proper survey data, prepared by a licensed surveyor, where required by law.

## **7.2 DISTURBED AREAS**

### **7.2.1 DEVELOPED AREAS**

Developed land is intensively used with much of the land paved or covered by structures. The urban community within and adjacent to the Horseshoe Grande Project Site includes residential, commercial, and industrial development.

Developed locations within the Project Site cover approximately 178 acres, including roads and a golf course (Figure 4). Vegetation in these areas generally consists of non-native landscape species (grass in the fairways and greens, flowerbeds, shrubs, and ornamental trees) or cleared areas that are generally devoid of vegetation.

### **7.2.2 BARREN AREAS**

Barren land is un-vegetated. On the Project Site, barren lands cover approximately 108 acres, including bare, sandy areas in the floodplain of the San Jacinto River and old bladed lots (Figure 4). Patches of non-native, invasive annuals were observed in portions of the barren areas during the April 2008 site visit. The proposed developments for the Horseshoe Grande Property Project would be constructed in barren areas.

## **8 SPECIAL STATUS SPECIES POTENTIALLY OCCURRING IN THE PROJECT AREA**

Based on a review of the existing literature, websites, and databases, 54 special status plant and animal species have been recorded from, or are included on agency lists as having the potential to occur in, the general Project vicinity. These species are listed in Tables 3 and 4, which also provides a brief summary of each species' habitat requirements and addresses whether suitable habitat for the species may occur on the Horseshoe Grande Property. The species list provided by FWS for Riverside County includes some fish species that are only found in the Colorado River. No natural perennial water sources are present in the Project Area; therefore, these fish species were not included in Tables 2 or 3.

The Horseshoe Grande Property is located within the boundaries of the Western Riverside County MSHCP (Riverside County 2000), and specifically within the planning areas established by the MSHCP known as the Gilman Springs/Southern Badlands Subunit and the Upper San Jacinto/Bautista Creek Subunit of the San Jacinto Valley Area Plan. Planning species established by the MSHCP for these areas include Coulter's goldfields, Davidson's saltscale, San Jacinto Valley crownscale, spreading navarretia, vernal barley, Wright's trichocoronis, slender-horned spine flower, Quino checkerspot butterfly, arroyo toad, mountain yellow-legged frog, western pond turtle, Bell's sage sparrow, southern California rufous-crowned sparrow, least Bell's vireo, southwestern willow flycatcher, yellow warbler, cactus wren, loggerhead shrike, mountain plover, burrowing owl, Cooper's hawk, white-tailed kite, white-faced ibis, Stephen's kangaroo rat, San Bernardino kangaroo rat, Los Angeles pocket mouse, bobcat, and mountain lion. The Tribe is not a signatory to the MSHCP.

Based on an analysis of species' distribution information, known occurrence records, habitat requirements, and the field survey of habitats in the Project Area, a total of 20 special status species have the potential to occur on or adjacent to the Horseshoe Grande Property. This



includes four plants, two reptiles, seven birds, and seven mammals. Additional analyses for these species follow; no additional analysis is conducted for those species that may be present in the general Project vicinity but for which suitable habitat is not present in the Project Area or if the Project Area is outside the species' geographic distribution.

**Table 2.** Special status species with the potential to occur in the general vicinity of the Horseshoe Grande Project Area.

Species Name	Status	Habitat	Potential to Occur in Project Area
<b>FEDERALLY LISTED SPECIES</b>			
<b>Plants</b>			
Munz's onion <i>Allium munzii</i>	FE MSHCP	Chaparral, coastal scrub, cismontane woodland, pinyon-juniper woodland, valley and foothill grassland. Grows in heavy clay soils in grasslands and openings within shrublands or woodlands. Elevation range: 300–1,035 m (985–3,395 ft)	Potential habitat present
San Jacinto Valley crowscale <i>Atriplex coronata</i> var. <i>notatior</i>	FE MSHCP	Restricted to highly alkaline and silty-clay soils in certain alkali sink scrub, alkali playa, vernal pool, and annual alkali grassland habitats. Habitat is typically flooded during winter rains and the plant emerges as waters recede in the spring. Elevation range: 400–500 m (1,310–1,640 ft)	Habitat not present
Thread-leaved brodiaea <i>Brodiaea filifolia</i>	FT MSHCP	Clay soils; usually associated with annual grassland and vernal pools; often surrounded by shrubland habitats. Elevation range: 25–860 m (82–2,820 ft)	Habitat not present
Slender-horned spineflower <i>Dodecahema leptoceras</i> ( <i>Centrostegia l.</i> )	FE MSHCP	Chaparral, coastal scrub (alluvial fan sage scrub), flood-deposited terraces and washes. Associated species include <i>Encelia</i> , <i>Dalea</i> , <i>Lepidospartum</i> . Elevation range: 200–760 m (655–2,495 ft)	Potential habitat present
Spreading navarretia <i>Navarretia fossalis</i>	FT MSHCP	Vernal pools, chenopod scrub, marshes, and swamps. San Diego Hardpan and San Diego Claypan vernal pools: in swales and vernal pools, often surrounded by other habitat types. Elevation range: 30–1,300 m (100–4,265 ft)	Habitat not present
<b>Invertebrates</b>			
Vernal pool fairy shrimp <i>Branchinecta lynchi</i>	FT MSHCP	Endemic to the grasslands of the Central Valley, Central Coast mountains, and South Coast mountains, in rain-filled pools. Inhabits small, clear-water sandstone-depression pools and grassed swales, earth slumps, or basalt-flow depression pools.	Habitat not present
Quino checkerspot butterfly <i>Euphydryas editha quino</i>	FE MSHCP	Sunny openings within chaparral and coastal sage shrublands in parts of Riverside and San Diego counties. Hills and mesas near the coast. Need high densities of food plants <i>Plantago erecta</i> , <i>P. insularis</i> , <i>Orthocarpus purpurescens</i> .	Habitat not present
<b>Amphibians</b>			

**Table 2.** Special status species with the potential to occur in the general vicinity of the Horseshoe Grande Project Area.

Species Name	Status	Habitat	Potential to Occur in Project Area
California tiger salamander <i>Ambystoma californiense</i>	FT	California endemic, a lowland species restricted to the grasslands and lowest foothill regions of Central and Northern California, which is where its breeding habitat (long-lasting rain pools) occurs. During dry-season, uses small mammal burrows as refuge, traveling up to 1.6 kilometers.	Habitat not present. Project area is out of the species' geographic range
Mountain yellow-legged frog <i>Rana muscosa</i>	FE MSHCP	Federal listing refers to populations in the San Gabriel, San Jacinto and San Bernardino Mountains only. Always encountered within a few feet of water. Tadpoles may require 2 to 4 years to complete their aquatic development.	Habitat not present
<b>Birds</b>			
Southwestern willow flycatcher <i>Empidonax traillii extimus</i>	FE MSHCP	(Nesting) Lush growth of shrubby willows of broad open river valleys and mountain meadows. Dense willow thickets are required for nesting and roosting.	Habitat not present. Out of species' geographic range
Least Bell's vireo <i>Vireo bellii pusillus</i>	FE MSHCP	(Nesting) Summer resident in low riparian habitat within the vicinity of water or in dry river bottoms with willow, baccharis, and mesquite.	Habitat not present
Coastal California gnatcatcher <i>Polioptila californica californica</i>	FT MSHCP	Obligate, permanent resident of coastal sage scrub below 760 m (2,500 ft) in southern California. Low, coastal sage scrub in arid washes, on mesas and slopes. Not all areas classified as coastal sage scrub are occupied.	Potential habitat present
Western yellow-billed cuckoo <i>Coccyzus americanus occidentalis</i>	FC MSHCP	(Nesting) Riparian forest nester, along the broad, lower flood-bottoms of larger river systems. Nests in riparian jungles of willow, often mixed with cottonwoods, with lower story of blackberry, nettles, or wild grape.	Habitat not present
<b>Mammals</b>			
San Bernardino kangaroo rat <i>Dipodomys merriami parvus</i>	FE CH MSHCP	Alluvial scrub vegetation on sandy loam substrates characteristic of alluvial fans and floodplains. Needs early to intermediate seral stages.	Potential habitat present. Critical habitat is present within Project limits
Stephens' kangaroo rat <i>Dipodomys stephensi</i>	FE MSHCP	Primarily annual and perennial grasslands, but also occurs in coastal scrub and sagebrush with sparse canopy cover. Prefers buckwheat, chamise, brome grass and filaree. Will burrow into firm soil	Potential habitat present
Palm Springs ground squirrel <i>Spermophilus tereticaudus chlorus</i>	FC	Sandy field and dune formations. Prefers areas where hummocks of sand accumulate at the base of large shrubs for burrow sites.	Habitat not present
<b>ADDITIONAL SPECIES CONSIDERED</b>			
<b>Plants</b>			

**Table 2.** Special status species with the potential to occur in the general vicinity of the Horseshoe Grande Project Area.

Species Name	Status	Habitat	Potential to Occur in Project Area
Parish's brittle scale <i>Atriplex parishii</i>	MSHCP	Alkali meadows, vernal pools, chenopod scrub, playas. Usually on drying alkali flats with fine soils. Elevation range: 4–140 m (13–460 ft)	Habitat not present. Project area is above species' elevation range
Davidson's salt scale <i>Atriplex serenana</i> var. <i>davidsonii</i>	MSHCP	Domino-Willows-Traver soil series in association with the alkali vernal pools, alkali annual grassland, alkali playa, and alkali scrub components of alkali vernal plains. Elevation range: below 200 m (650 ft)	Habitat not present. Project area is above species' elevation range
Munz' mariposa lily <i>Calochortus palmeri</i> var. <i>munzii</i>	MSHCP	Meadows and vernal moist places in yellow-pine forests. Elevation range: 1,200–2,200 m (3,940–7,220 ft)	Habitat not present. Project area is below species' elevation range
Plummer's mariposa lily <i>Calochortus plummerae</i>	MSHCP	Dry, rocky chaparral, yellow-pine forest. Elevation range: below 1,700 m (5,580 ft)	Habitat not present
Intermediate mariposa lily <i>Calochortus weedii</i> var. <i>intermedius</i>	MSHCP	Dry, rocky open slopes and rock outcrops in coastal scrub and chaparral. Elevation range: 120 to 850 m (390–2,790 ft)	Habitat not present
Smooth tarplant <i>Centromadia pungens</i> ssp. <i>laevis</i>	MSHCP	Valley and foothill grassland, chenopod scrub, meadows, playas, riparian woodland. Alkali meadow, alkali scrub; also in disturbed places. Elevation range: 0–480 m (0–1,575 ft)	Potential habitat present
Parry's spineflower <i>Chorizanthe parryi</i> var. <i>parryi</i>	MSHCP	Sandy places, generally in coastal or desert scrub. Elevation range: 200–1,200 m (650–3,940 ft)	Potential habitat present
San Jacinto Mountains bedstraw <i>Galium angustifolium</i> ssp. <i>jacinticum</i>	MSHCP	Mountain areas where roots are sheltered in open mixed forest. Elevation range: 1,350–2,100 m (4,430–6,890 ft)	Habitat not present. Project area is below species' elevation range
California bedstraw <i>Galium californicum</i> ssp. <i>primum</i>	MSHCP	Moist, shaded sites, open slopes, forests, canyons, and bluffs at the lower edge of the pine belt. Elevation range: 1,350–1,700 m (4,430–5,580 ft)	Habitat not present. Project area is below species' elevation range
Coulter's goldfields <i>Lasthenia glabrata</i> ssp. <i>coulteri</i>	MSHCP	Tidal marsh areas near the coast at the extreme upper end of tidal inundation, the periphery of vernal pools, and alkali marshes. Elevation range: below 1,000 m (3,280 ft)	Habitat not present
Little mousetail <i>Myosurus minimus</i> ssp. <i>apus</i>	MSHCP	Wet places, vernal pools, and marshes. Elevation range: below 1,500 m (4,920 ft)	Habitat not present
California beardtongue <i>Penstemon californicus</i>	MSHCP	Granitic and sandy soils and stony slopes in chaparral, coniferous forest, and pinyon-juniper woodland habitats. Elevation range: 1,000–2,100 m (3,280–6,890 ft)	Habitat not present. Project area is below species' elevation range
San Miguel savory <i>Satureja chandleri</i>	MSHCP	Rocky slopes and chaparral. Elevation range: 520–690 m (1,700–2,260 ft)	Habitat not present. Project area is below species' elevation range

**Table 2.** Special status species with the potential to occur in the general vicinity of the Horseshoe Grande Project Area.

Species Name	Status	Habitat	Potential to Occur in Project Area
Wright's trichocoronis <i>Trichocoronis wrightii</i> var. <i>wrightii</i>	MSHCP	Found in alkali vernal plains, associated with alkali playa, alkali annual grassland, and alkali vernal pool habitats; occurs in the more mesic portions of these habitats.	Habitat not present
<b>Reptiles</b>			
Coast (San Diego) horned lizard <i>Phrynosoma coronatum</i> ( <i>blainvillii</i> population)	MSHCP	Occurs in open country, especially sandy areas, washes, floodplains, and wind-blown deposits in valley-foothill hardwood, conifer, riparian, pine-cypress, juniper, and annual grassland habitats. Its elevation range extends up to 1,800 m (6,000 ft) in the mountains of southern California.	Potential habitat present
San Diego banded gecko <i>Coleonyx variegatus abbotti</i>	MSHCP	Prefers granite or rocky outcrops in coastal scrub and chaparral habitats	Habitat not present
Orange-throated whiptail <i>Aspidoscelis hyperythra</i>	MSHCP	Inhabits low-elevation coastal scrub, chaparral, and valley-foothill hardwood habitats. Prefers washes and other sandy areas with patches of brush and rocks. Perennial plants necessary for its major prey - termites	Potential habitat present
Northern red-diamond rattlesnake <i>Crotalus ruber ruber</i>	MSHCP	Chaparral, woodland, grassland, and desert areas from coastal San Diego County to the eastern slopes of the mountains. Occurs in rocky areas and dense vegetation. Needs rodent burrows, cracks in rocks, or surface cover objects.	Habitat not present
<b>Birds</b>			
Bell's sage sparrow <i>Amphispiza belli belli</i>	MSHCP	Generally prefers semi-open habitats with evenly spaced shrubs 1–2m high in dry chaparral and coastal sage scrub, chamise chaparral, and big sage brush	Habitat not present
California horned lark <i>Eremophila alpestris actia</i>	MSHCP	Commonly found in a variety of open habitats, shortgrass prairie, montane meadows, barren hills, open coastal plains, fallow grain fields, and alkali flats.	Potential habitat present
Coastal cactus wren <i>Campylorhynchus brunneicapillus sandiegensis</i>	MSHCP	Obligate inhabitants of coastal sage scrub found only in coastal and near-coastal portions of the state below 910 m (3,000 ft).	Habitat not present
Le Conte's thrasher <i>Toxostoma lecontei</i>	MSHCP	Found in open desert wash, desert scrub, alkali desert scrub, and desert succulent scrub habitats on sandy and often alkaline soils.	Habitat not present
Purple martin <i>Progne subis</i>	MSHCP	(Breeding) Typically in tall sycamores, pine, and other larger trees in or near woodlands or open coniferous forests.	Habitat not present
Southern California rufous-crowned sparrow <i>Aimophila ruficeps canescens</i>	MSHCP	Found on grass-covered hillsides, coastal sage scrub, and chaparral often near the edges of the denser scrub and chaparral association.	Potential habitat present

**Table 2.** Special status species with the potential to occur in the general vicinity of the Horseshoe Grande Project Area.

Species Name	Status	Habitat	Potential to Occur in Project Area
Cooper's hawk <i>Accipiter cooperii</i>	MSHCP	(Breeding and nesting) Throughout most of the wooded portion of the state. Requires dense stands of live oak, deciduous riparian or other forest habitats near water.	Limited habitat present
Tricolored blackbird <i>Agelaius tricolor</i>	MSHCP	(Nesting colony) Highly colonial species, most numerous in Central Valley and vicinity: essentially endemic to California. Requires open water, protected nesting substrate, and foraging area with insect prey within a few kilometers of the colony.	Breeding habitat is not present. Potential foraging habitat present
Western burrowing owl <i>Athene cunicularia hypugaea</i>	MSHCP	Found in a wide variety of arid and semi-arid environments. Nesting habitat consists of open areas with mammal burrows, ranging from native prairie to urban habitats. Burrows need to be located in well-drained, level to gently sloping areas characterized by sparse vegetation and bare ground.	Potential habitat present
Ferruginous hawk <i>Buteo regalis</i>	MSHCP	(Wintering) Open grasslands, sagebrush flats, desert scrub, low foothills and fringes of pinyon-juniper habitats with abundant small mammals.	Potential habitat present in the Project vicinity
Black swift <i>Cypseloides niger</i>	MSHCP	(Nesting) Coastal belt of Santa Cruz and Monterey Counties; central and southern Sierra Nevada; San Bernardino and San Jacinto Mountains. Breeds in small colonies on cliffs behind or adjacent to waterfalls in deep moist canyons and on sea-bluffs above surf; forages widely.	Habitat not present
White-faced ibis <i>Plegadis chihi</i>	MSHCP	(Nesting) Dense, fresh emergent wetland. Prefers to feed in fresh emergent wetland, muddy ground of wet meadows, shallow lacustrine waters and irrigated, or flooded, pastures and croplands. Currently not known to breed anywhere in California.	Habitat not present
<b>Mammals</b>			
Northwestern San Diego pocket mouse <i>Chaetodipus fallax fallax</i>	MSHCP	Coastal scrub, chaparral, grasslands, sagebrush in western San Diego County and western Riverside County. Sandy, herbaceous areas, usually in association with rocks or coarse gravel.	Potential habitat present
Dulzura pocket mouse <i>Chaetodipus californicus femoralis</i>	MSHCP	Montane hardwood, valley foothill hardwood-conifer, valley foothill hardwood, annual grassland, sagebrush, chamise-redshank, montane chaparral, and coastal scrub from sea level to 2,400 m (7,870 ft)	Habitat not present
San Diego black-tailed jackrabbit <i>Lepus californicus bennettii</i>	MSHCP	Desert scrub area and open, early stages of forest and chaparral habitats	Habitat not present
San Diego desert woodrat <i>Neotoma lepida intermedia</i>	MSHCP	Coastal scrub of Southern California from San Diego County to San Luis Obispo County. Moderate to dense canopies preferred. Particularly abundant in rock outcrops and rocky cliffs and slopes.	Potential habitat present

**Table 2.** Special status species with the potential to occur in the general vicinity of the Horseshoe Grande Project Area.

Species Name	Status	Habitat	Potential to Occur in Project Area
Southern grasshopper mouse <i>Onychomys torridus ramona</i>	MSHCP	Desert areas, especially scrub habitats with friable soils for digging. Prefers low to moderate shrub cover. Feeds almost exclusively on arthropods, especially scorpions and orthopteran insects.	Potential habitat present
Los Angeles pocket mouse <i>Perognathus longimembris brevinasus</i>	MSHCP	Lower elevation grasslands and coastal sage communities in the Los Angeles Basin. Open ground with fine sandy soils. May not dig extensive burrows, hiding under weeds and dead leaves instead.	Potential habitat present
American badger <i>Taxidea taxus</i>	MSHCP	Most abundant in drier open stages of most shrub, forest, and herbaceous habitats, with friable soils. Need sufficient food, friable soils and open, uncultivated ground. Prey on burrowing rodents. Dig burrows.	Potential habitat present

**Status Codes**

FC: Federal Candidate for listing

FE: Federally Endangered

FT: Federally Threatened

MSHCP: Species included in the Western Riverside County Multi-Species Habitat Conservation Plan

## 8.1 FEDERALLY LISTED SPECIES

### 8.1.1 FEDERALLY LISTED PLANTS

#### 8.1.1.1 Munz’s Onion (*Allium munzii*)

This Riverside County endemic species is known from 13 extant populations with an estimated population size of about 20,000–70,000 individuals. Munz’s onion is restricted to mesic clay soils of western Riverside County. This species is often found in association with southern needlegrass, mixed grassland, and grassy openings in coastal sage scrub. Occasionally, it can be found in cismontane juniper woodlands (FWS 1998a). Munz’s onion is situated in widely scattered populations from Estelle Mountain and Gavilan Plateau at Harford Springs Park southeast through the hills of Lake Elsinore, to the Paloma Valley, Skunk Hollow, and Lake Skinner area. This species can be found at elevations ranging from 300 to 1,035 meters (985 to 3,395 feet) above sea level. Munz’s onion, which is a member of the lily family, blooms from April through May producing white or pinkish flowers (Riverside County 2000).

Potential habitat for Munz’s onion occurs in the disclimax coastal sage scrub community, which is found on approximately 178 acres of the Project Site (Figure 4). While no occurrences for this species have been recorded in the area covered by the San Jacinto topographic map, two occurrences were recorded in the area covered by the eight adjacent topographic maps (CDFG 2006). Therefore, this species is potentially present in the Project Area.

#### 8.1.1.2 Slender-horned Spineflower (*Dodecahema leptoceras* [ *Centrostephia* L.]

The slender-horned spineflower is endemic to California’s southwestern cismontane, ranging from Los Angeles County east to San Bernardino County and south to southwestern Riverside

County in the foothills of the Transverse and Peninsular Ranges, at elevations ranging from 200 to 700 meters (655 to 2,495 feet) above sea level. There are only eight areas known to support the slender-horned spineflower throughout its range (Riverside County 2000). Four areas known to support slender-horned spineflower occur within western Riverside County. Populations have been reported in Temescal Wash, the upper San Jacinto River, central Bautista Creek, Arroyo Seco, and Kolb Creek (Riverside County 2000). This species is mostly found in sandy soils in association with mature alluvial scrub and cryptogamic crusts. Preferred habitat appears to be a terrace or bench that receives overbank deposits every 50 to 100 years. The slender-horned spineflower blooms from April through June and has white to pink flowers. Because it is an annual and a spring bloomer, germination is expected following winter precipitation (Riverside County 2000).

Habitat for the slender-horned spineflower is present in the Project Area adjacent to the San Jacinto River in the disturbed southern willow scrub community, which is found on approximately 68 acres of the Project Site (Figure 4). While no occurrences for this species have been recorded in the area covered by the San Jacinto topographic map, six occurrences were recorded in the area covered by the eight adjacent topographic maps (CDFG 2006). Therefore, this species is potentially present in the Project Area.

## **8.1.2 FEDERALLY LISTED BIRDS**

### **8.1.2.1 Coastal California Gnatcatcher (*Poliioptila californica californica*)**

This small gray songbird is a resident of scrub dominated plant communities from southern Ventura County southward through Los Angeles, Orange, Riverside, San Bernardino, and San Diego counties to approximately 30 degrees North Latitude near El Rosario (Atwood 1980, 1990; Jones and Ramirez 1995). The coastal California gnatcatcher is strongly associated with sage scrub as well as its various successional stages. They will also use chaparral, grassland, and riparian communities when they occur adjacent to or are intermixed with sage scrub. Coastal California gnatcatcher is most often associated with low, dense coastal scrub habitat in arid washes, on mesas, and on slopes of coastal hills. Breeding territories have also been documented in non-sage scrub habitat. This species is not migratory, but rather occurs year-round in the breeding habitat. Nests are constructed in shrubs 0.6–0.9 meters (2–3 feet) above the ground. Their breeding season extends from around mid-February through the end of August, with peak activity occurring from mid-March through mid-May. Incubation takes 14 days, and young fledge at 8–14 days of age, but are still dependent on their parents for several more weeks.

Potentially suitable habitat for the coastal California gnatcatcher is not currently present in the disclimax coastal sage scrub community because the vegetation is mostly low annuals with brittlebush sparsely dotting the landscape. The southern willow scrub community occurring on the Project Site would not provide suitable habitat because this area is much too sparse (Figure 4). However, potentially suitable habitat may be located along the San Jacinto River outside the Project boundaries, as close as 0.6 mile from the proposed construction area. Although, this area is not very dense and would be considered only marginally suitable; more suitable habitat occurs farther north along the San Jacinto River, approximately 1 mile from the proposed construction area. No project-specific surveys to determine coastal California gnatcatcher presence and/or breeding have been conducted. While no occurrences for this species have been recorded in the area covered by the San Jacinto topographic map, 20 occurrences were recorded

in the area covered by the eight adjacent topographic maps (CDFG 2006). Therefore, this species is potentially present in the Project Area. Proposed critical habitat is located about 10 miles southwest of the Project Area near Winchester (FWS 2003).

### **8.1.3 FEDERALLY LISTED MAMMALS**

#### **8.1.3.1 San Bernardino Kangaroo Rat (*Dipodomys merriami parvus*)**

The San Bernardino kangaroo rat, a subspecies of the Merriam's kangaroo rat (*Dipodomys merriami*), is typically found in Riversidean alluvial fan scrub along washes with nearby sage scrub. This relatively open vegetation type is adapted to periodic flooding and erosion. The range of the San Bernardino kangaroo rat has been drastically reduced by 95 percent due to agriculture and urban and industrial development. Historically, this subspecies was found west of the desert divide of the San Jacinto and San Bernardino Mountains from the San Bernardino Valley in San Bernardino County to the Meniffee Valley in Riverside County (Riverside County 2000). It now occupies approximately seven general locations. The three largest remaining blocks of suitable habitat include the Santa Ana River, Lytle/Cajon creeks, and the San Jacinto River. Threats affecting the remaining populations include habitat loss, destruction, degradation, fragmentation, and genetic isolation (FWS 1998b). The San Bernardino kangaroo rat is primarily found on sandy loam substrates, characteristic of alluvial fans, floodplains, and washes where it is able to dig simple, shallow burrows (FWS 2002). Due to the dynamic nature of the alluvial floodplain, a mosaic of alluvial deposits including upper and lower floodplain terraces is included in the definition of San Bernardino kangaroo rat habitat. This kangaroo rat is largely a granivore (i.e., seed eater) and often stores large quantities of seeds in surface caches, but green vegetation and insects are also important seasonal food sources (Reichman and Price 1993). This subspecies has a relatively low reproductive rate for a rodent, with the litter size averaging between two and three young; however, females may produce more than one litter per year (FWS 2002). Peak breeding occurs from mid-winter through spring, although breeding may be more frequent in wet years. Soil texture is a primary factor in this subspecies' occurrence, as it requires sandy loam soils that allow for digging simple, shallow burrows (FWS 1998b).

The San Bernardino kangaroo rat is listed as endangered under the ESA (FWS 1998b). Critical habitat has been designated in four units: the Santa Ana River, the Lytle and Cajon Creeks, Etiwanda Alluvial Fan and Wash, and the San Jacinto River-Bautista Creek (FWS 2002). The total amount of land designated as critical habitat for the San Bernardino kangaroo rat includes 33,295 acres in San Bernardino and Riverside counties. The San Jacinto River-Bautista Creek critical habitat unit contains all known remaining populations of the animal within Riverside County and includes 5,565 acres of critical habitat, of which 815 acres are not known to be occupied. Along the San Jacinto River, the San Bernardino kangaroo rat occurs upstream of State Route 79, within the confined portion of the floodplain, beyond the earthen flood control levee, along the river into the San Jacinto Valley, along tributaries of the San Jacinto River, and in foothills of the Badlands (FWS 2002). This area represents the southern extent of the currently known distribution of the animal.

Within the San Jacinto River-Bautista Creek critical habitat unit, critical habitat has been designated on approximately 710 acres of the Soboba Reservation. This designation includes portions of tribal lands along the San Jacinto River and two tributaries, Poppet Creek and Indian



Creek. These areas were determined to be essential to the conservation of the San Bernardino kangaroo rat because they support the largest known densities of animals. Also, the areas are least affected by flood control activities and, therefore, maintain the hydrological functions of the unit (FWS 2002).

In June 2007, FWS proposed a revision of currently designated critical habitat for the San Bernardino kangaroo rat. Under the new proposed critical habitat rule, approximately 9,079 acres of land located in San Bernardino and Riverside counties, California would fall within the boundaries of the revised critical habitat designation. However, the proposed rule would exclude from designation 2,544 acres of land that is currently covered by the Woolly-Star Preserve Area Management Plans, the Former Norton Air Force Base Conservation Management Plan, the Cajon Creek Habitat Conservation Management Area Habitat Enhancement and Management Plan, and the Western Riverside County MSHCP. If finalized, the proposed rule would designate 6,535 acres of critical habitat for the San Bernardino kangaroo rat (FWS 2007).

The San Jacinto River along the entire length of the Project Site is currently designated critical habitat; however, the proposed rule would remove designation along the river north of Lake Park Drive. Currently, on the Horseshoe Grande Property there is approximately 104 acres of designated critical habitat, including the dry river bottom and associated alluvial deposits; however, none occurs on the proposed Development Site. There would be no critical habitat on the property under the June 2007 proposed rule (Figure 5). The analysis in this document is based on the current designation of critical habitat.

In October 2008, FWS posted a Final Rule on SBKR critical habitat. All previously designated critical habitat within the boundaries of the Soboba Reservation have been removed. This reduction is a result of a lack of population data within the previously designated areas and a lack of the primary constituent elements necessary for support a core population. All previously designated critical habitat north of Lake Park Drive was removed as well. The final designation of critical habitat runs adjacent to the Reservation within the San Jacinto River southeast of Lake Park Drive. The Final Rule designated a total of 7,779 acres of critical habitat for the SBKR, reduced from the 25,516 acres in the 2002 ruling (FWS 2008).

Suitable habitat for the San Bernardino kangaroo rat is present on the Horseshoe Grande Property, along the San Jacinto River within the alluvial and disturbed southern willow scrub habitats, and appears that it could be occupied. The field survey conducted on July 19, 2007 located potential kangaroo rat den sites (Figure 6); although, very few appeared to be active. No animals were captured to determine conclusively that these were active San Bernardino kangaroo rat burrows; however, this is considered likely based on the species' known distribution and preferred habitat. The den sites were located within designated critical habitat on a terrace within the river bottom. Kangaroo rat habitat within the Horseshoe Grande Property has been severely degraded by a combination of activities, including off-road vehicle tracks within the wash bottom (Figure 7), blading, and development and maintenance of the golf course. Potentially suitable San Bernardino kangaroo rat habitat on the Horseshoe Grande property appears to be restricted to the San Jacinto River and adjacent alluvial terraces, which mainly occur within the limits of the currently designated critical habitat.

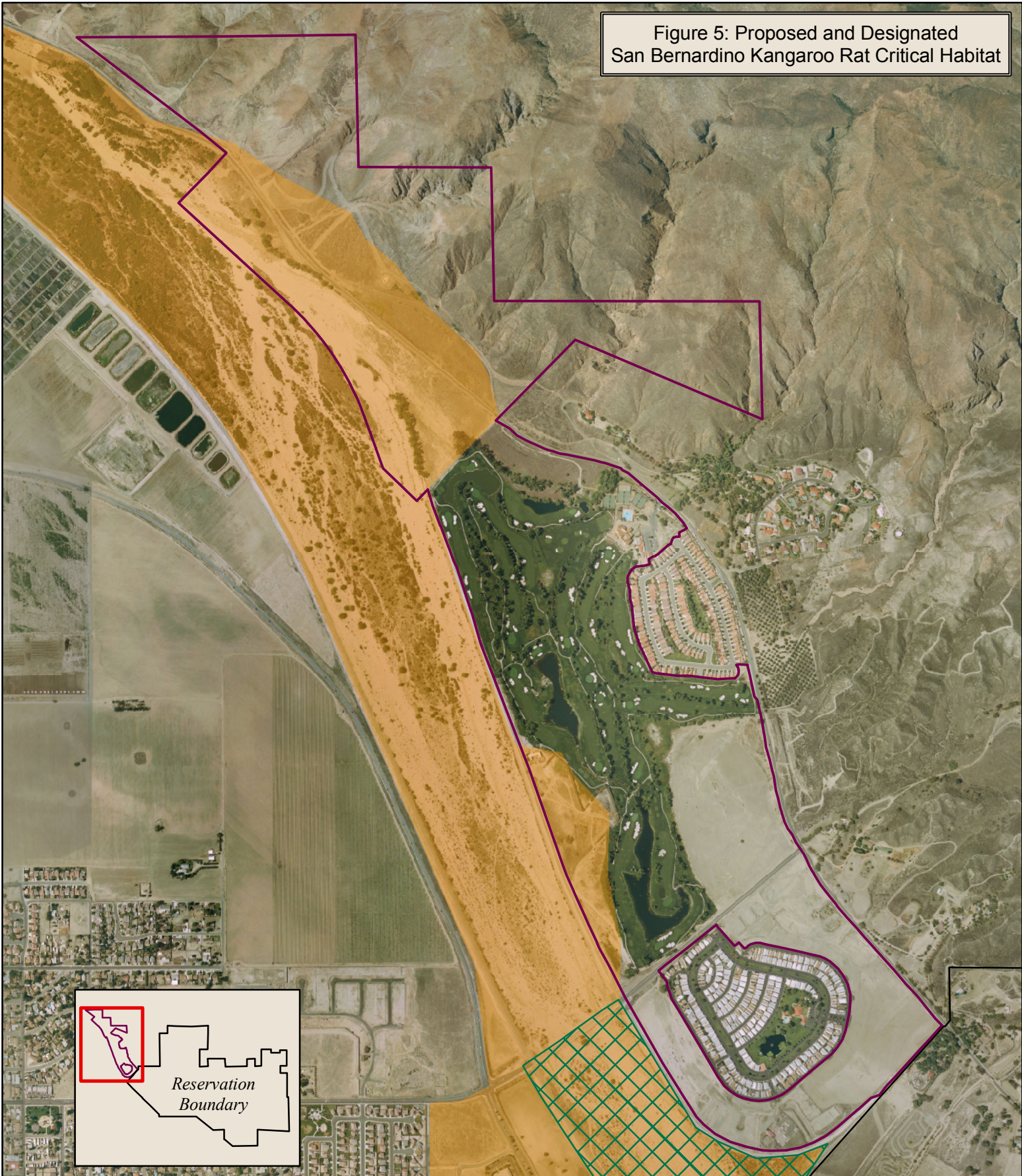
A field investigation was completed on December 3, 2008 to determine if the potential for SBKR was high enough to warrant trapping efforts. ENTRIX biologist Sara Fischer met with FWS biologists Eric Porter and Mark Pavelka in the field; after a thorough walk through of the property FWS determined trapping for the SBKR would be necessary to determine presence/absence of the species as part of the biological clearance process. Mr. Porter and Mr. Pavelka concluded that there is a low to medium probability for the SBKR to be present on the property based on the appropriate sized burrows observed at the site. FWS further concluded that trapping would help in making the final determination on whether or not the species is present, and what effects the proposed project may have on the species.





#### **8.1.3.2 Stephens' Kangaroo Rat (*Dipodomys stephensi*)**

The Stephens' kangaroo rat is known to occur in western Riverside County, with some of the largest populations occurring in established core areas (Riverside County 2000). This species occurs primarily in annual and perennial grassland habitats, but may occur in coastal scrub or sagebrush with sparse canopy cover, or in disturbed areas (CDFG 2005). The Stephens' kangaroo rat is found almost exclusively in open grasslands or sparse shrublands with cover of less than 50 percent during the summer (Grinnell 1933; Lackey 1967; Bleich 1973; Thomas 1973; Bleich and Schwartz 1974; O'Farrell 1990). O'Farrell (1990) suggests that the proportion of annual forbs and grasses is important because Stephens' kangaroo rats avoid dense grasses (e.g., non-native bromes [*Bromus* spp.]) and are more likely to inhabit areas where the annual forbs disarticulate in the summer and leave more open areas. He also noted a positive relationship between the presence of the annual forb red-stemmed filaree (*Erodium cicutarium*), grazing, and the Stephens' kangaroo rat. O'Farrell and Uptain (1987) noted a decline in the abundance of Stephens' kangaroo rat when the livestock were changed from mixed Hereford stock to Holstein dairy cattle, which reduced the grazing pressure and allowed the proliferation of three-awn grasses (*Aristida* spp.). However, the Stephens' kangaroo rat has also been found in coastal sage scrub dominated by brittlebush with an estimated shrub cover of greater than 50 percent (FWS 1997).

Soil type is an important habitat factor for the Stephens' kangaroo rat (O'Farrell and Uptain 1989; Price and Endo 1989). Because it is fossorial, the Stephens' kangaroo rat is typically found in sandy and sandy loam soils with a low clay-to-gravel content, although there are exceptions where it can utilize the burrows of Botta's pocket gopher (*Thomomys bottae*) and California ground squirrel (*Spermophilus beecheyi*).

Figure 5: Proposed and Designated San Bernardino Kangaroo Rat Critical Habitat

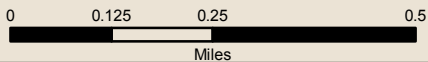


-  Proposed San Bernardino Kangaroo Rat Critical Habitat
-  Designated San Bernardino Kangaroo Rat Critical Habitat
-  Reservation Boundary
-  Project Site



ENTRIX

SEPTEMBER 2008 - DRAFT



Aerial Imagery - Digital Globe, Inc. September 2007  
 Designation of Critical Habitat - USFW 2002  
 Proposed Designation of Critical Habitat - USFW 2007

This map and all data contained within are supplied as is with no warranty. ENTRIX, Inc. expressly disclaims responsibility for damages or liability from any claims that may arise out of the use or misuse of this map. It is the sole responsibility of the user to determine if the data on this map meets the user's needs. This map was not created as survey data, nor should it be used as such. It is the user's responsibility to obtain proper survey data, prepared by a licensed surveyor, where required by law.



**Figure 6.** Potential San Bernardino kangaroo rat den site within the San Jacinto River corridor.



**Figure 7.** Disturbance within the San Jacinto River bed, including off-road vehicle tracks.

There is little information available regarding breeding; however, the Stephens' kangaroo rat probably breeds from April through June (CDFG 2005). The average litter size is 2.5, and young are born in nest burrows lined with dried plants such as mustards (CDFG 2005).

The diet of the Stephens' kangaroo rat includes perennials such as buckwheat and chamise. They also eat annuals, preferring brome grass and filaree (CDFG 2005). Habitat loss, through urbanization and cultivation, is responsible for the reduction in range over the last half century (CDFG 2005).

Suitable habitat is present for the Stephens' kangaroo rat on the Project Site in the disclimax coastal sage scrub community, which is found on approximately 178 acres of the Project Site (Figure 4). Three occurrences for this species have been recorded in the area covered by the San Jacinto topographic map and 39 additional occurrences were recorded in the area covered by the eight adjacent topographic maps (CDFG 2006). However, the dense annual vegetation present in the upland following the fire may preclude the species in these areas.

## **8.2 ADDITIONAL SPECIES CONSIDERED**

### **8.2.1 PLANTS**

#### **8.2.1.1 Smooth Tarplant (*Centromadia pungens* ssp. *laevis*)**

Smooth tarplant is an annual species that flowers from April to September (CNPS 2001). This tarplant is found in alkali meadows and scrub, as well as in disturbed places, in valley and foothill grassland, chenopod scrub, alkali meadows, playas, and riparian woodland at elevations from sea level to 480 meters (0 to 1,575 feet). Smooth tarplant is known from southwestern San Bernardino County, western Riverside County, and northern San Diego County.

Potential habitat for this species is present in the disturbed southern willow scrub habitat, which occurs on 68 acres of the Project Site (Figure 4). Two occurrences for this species have been recorded in the area covered by the San Jacinto topographic map and 43 additional occurrences were recorded in the area covered by the eight adjacent topographic maps (CDFG 2006). Therefore, this species is potentially present in the Project Area.

#### **8.2.1.2 Parry's Spineflower (*Chorizanthe parryi* var. *parryi*)**

Parry's spine flower occurs within the alluvial chaparral and scrub of the San Gabriel, San Bernardino and San Jacinto Mountains, at elevations of 100–1,300 meters (325–4,265 feet) (Reveal and Hardham 1989).

Parry's spine flower is an annual species and is known from the flats and foothills of the San Gabriel, San Bernardino and San Jacinto Mountains within Los Angeles, San Bernardino and Riverside Counties of southern California. It is believed that Parry's spine flower may have been extirpated from Los Angeles County (CNPS 2001). Parry's spine flower occurs within alluvial chaparral and scrub habitats. Parry's spine flower has white flowers and blooms from April

through June. Threats to this species include habitat loss due to urbanization, mining and flood control practices (Western Riverside County MSHCP 2003)

Potential habitat for Parry's spineflower is present in the Project Area within the disclimax coastal sage scrub community, which is found on approximately 178 acres of the Project Site (Figure 4). While no occurrences for this species have been recorded in the area covered by the San Jacinto topographic map, eight occurrences were recorded in the area covered by the eight adjacent topographic maps (CDFG 2006). Therefore, this species is potentially present on the Project Site.

## **8.2.2 REPTILES**

### **8.2.2.1 Orange-throated Whiptail Lizard (*Aspidoscelis hyperythra*)**

The orange-throated whiptail is uncommon to fairly common (Bostic 1965) in low-elevation coastal scrub, chamise-redshank chaparral, mixed chaparral and valley-foothill hardwood habitats. Its range incorporates portions of Orange, Riverside and San Diego counties west of the crest of the Peninsular Ranges from near sea level to 1,040 meters (0 to 3,412 feet) (Jennings and Hayes 1994), especially in areas where there is morning fog during the summer months. An extremely active species, the orange-throated whiptail prefers habitat with dense vegetation cover, as well as surface cover such as rocks, logs, and duff. Breeding and egg-laying activities begin in April and continue to mid-July, with hatchlings emerging from August to early September. The clutch size is small with approximately 2–3 eggs, but females may produce more than one clutch per year. The diet includes mostly termites (Bostic 1965; Jennings and Hayes 1994).

Potentially suitable habitat is present, in the Project Area, for the orange-throated whiptail along the San Jacinto River within the disclimax coastal sage scrub habitat as well as in the disturbed southern willow scrub community, which are found on approximately 246 acres of the Project Site (Figure 4). In addition, four occurrences for this species have been recorded in the area covered by the San Jacinto topographic map and 19 additional occurrences were recorded in the area covered by the eight adjacent topographic maps (CDFG 2006). Therefore, this species is potentially present on the Project Site.

### **8.2.2.2 Coast (San Diego) Horned Lizard (*Phrynosoma coronatum blainvillii*)**

The coast horned lizard is uncommon to common in open country, especially in sandy areas, washes, floodplains and wind-blown deposits in a wide variety of habitats, including valley foothill hardwood, conifer and riparian habitats, as well as in pine-cypress, juniper, and annual grass habitats. The coast horned lizard has a wide range in California, occurring in the Coastal Ranges from Sonoma County south, in the Central Valley from southern Tehama County south, in the Sierra foothills from Butte to Tulare County below 1,200 meters (3,937 feet), and in the southern California deserts and mountains below 1,800 meters (5,906 feet). The reproductive season for the coast horned lizard varies from year to year and is geographically dependent on local conditions. Horned lizards prefer to eat ants, but they will also eat many other types of invertebrates, such as grasshoppers, beetles, and spiders (Stebbins 1954).

Suitable habitat is present for the coast horned lizard within the disturbed southern willow scrub habitat, which is found on approximately 178 acres of the Project Site along the San Jacinto River on the Project Site (Figure 4). Four occurrences for this species have been recorded in the area covered by the San Jacinto topographic map and 31 additional occurrences were recorded in the area covered by the eight adjacent topographic maps (CDFG 2006). Therefore, this species is potentially present on the Project Site.

### **8.2.3 BIRDS**

#### **8.2.3.1 California Horned Lark (*Eremophila alpestris actia*)**

The California horned lark is a common to abundant yearlong resident found in a variety of open habitats, usually where trees and large shrubs are absent, from northern Baja California (south to about 30 degrees N latitude) and northward through California in the coast range north to Humboldt County and in the San Joaquin Valley, except the extreme southern end (AOU 1957). This species is found in open areas dominated by sparse low herbaceous vegetation or widely scattered low shrubs (NatureServe 2007). The California horned lark prefers to nest in a hollow on the ground, often next to a grass tuft or clod of earth or manure. It breeds from March through July, with peak activity in May. The female will lay 2–5 eggs, with an average of 3–4, and will frequently raise two broods in a season (Bent 1940).

Potentially suitable habitat for the California horned lark is present in the disclimax coastal sage scrub community, which is found on approximately 178 acres of the Project Site adjacent to the San Jacinto River (Figure 4). While no occurrences for this species have been recorded in the area covered by the San Jacinto topographic map, two occurrences have been recorded in the area covered by the eight adjacent topographic maps (CDFG 2006). Therefore, this species is potentially present on the Project Site.

#### **8.2.3.2 SOUTHERN CALIFORNIA RUFIOUS-CROWNED SPARROW (*AIMOPHILA RUFICEPS canescens*)**

Rufous-crowned sparrows are colloquially known as rock sparrows because of their distinct preference for open shrubby habitat on rocky, xeric slopes (DeSante and Geupel 1987; Rising 1996; Bolger 2002). Throughout their range, they are typically found between 3,000 and 6,000 feet in elevation (Borror 1971). In California, they breed in sparsely vegetated scrubland on hillsides and canyons ranging from 60 to 1,400 meters (200 to 4,600 feet) in elevation (Rising 1996, Collins 1999). Rufous-crowned sparrows appear to prefer coastal sage scrub dominated by California sagebrush (*Artemisia californica*) (Grinnell and Miller 1944), but they can also be found breeding in coastal bluff scrub, low-growing serpentine chaparral, and along the edges of tall chaparral habitats. Rufous-crowned sparrows thrive in areas that have recently been burned, and will stay in such open, disturbed habitats for years (Rising 1996, Collins 1999). Rufous-crowned sparrows exhibit high nest-site fidelity, returning to the same location to nest in subsequent years (Morrison et al. 2004).

Potentially suitable habitat for the rufous-crowned sparrow is present within the disclimax coastal sage scrub community, which is found on approximately 178 acres of the Project Site (Figure 4). While no occurrences for this species have been recorded in the area covered by the

San Jacinto topographic map, eleven occurrences have been recorded in the area covered by the eight adjacent topographic maps (CDFG 2006). Therefore, this species is potentially present on the Project Site.

#### **8.2.3.3 Cooper's Hawk (*Accipiter cooperii*)**

The Cooper's hawk is a breeding resident throughout most of the wooded portion of California. The Cooper's hawk, which can be found in elevations ranging from sea level to 2,700 meters (0 to 8,858 feet), requires dense stands of live oak, riparian deciduous or other forest habitats near water when nesting. The breeding season begins in March and continues through August, with average clutch sizes of four to five eggs. During this period, the female will incubate while the male provides food. The primary food source of the Cooper's hawk is small birds, with reptiles and amphibians taken as a supplement to their diet. More of an ambush predator, the Cooper's hawk will take prey from the ground, on branches, or in mid-flight (Johnsgard 1990). Hunting takes place in broken woodland and habitat edges. The Cooper's hawk is seldom found in areas without dense tree stands. Some individuals are year-long residents of California, while others from the more northern areas will migrate into California during the winter. Cooper's hawk is commonly found in the southern Sierra Nevada foothills, New York Mountains, Owens Valley, and other local areas in southern California (Zeiner et al. 1990).

Potentially suitable habitat for the Cooper's hawk is not present on the Project Site. However, potentially suitable nesting and wintering habitat for the Cooper's hawk is present outside the Project boundaries along the San Jacinto River approximately 1 mile north of the proposed construction areas (Figure 4). While no occurrences for this species have been recorded in the area covered by the San Jacinto topographic map, one occurrence has been reported in the area covered by the eight adjacent topographic maps (CDFG 2006). Due to the presence of potentially suitable habitat within the vicinity of the Project Site, this species is potentially present in the Project Area.

#### **8.2.3.4 Tricolored Blackbird (*Agelaius tricolor*)**

The tricolored blackbird ranges throughout the Central Valley of California, typically nesting in colonies numbering several hundred. An adequate breeding ground for the tricolored blackbird requires open water, protected nesting substrate that includes emergent wetland vegetation, and a foraging area with insect prey within a few kilometers of the colony. Tricolored blackbird foraging habitats in all seasons include pastures, agricultural fields, and dry seasonal pools with occasional foraging in riparian scrub, marsh borders, and grassland habitats. Egg laying generally begins within four days of the colony's arrival. A single egg is laid per day and clutch size is usually around three to four eggs. Tricolored blackbirds typically leave their wintering areas in late March and early April to head to their breeding locations (Beedy and Hamilton 1997).

There is limited potential nesting habitat located within the Project Area for the tricolored blackbird. There are three ponds located on the golf course. The middle pond, which is situated between the northern and southern ponds, appears to have cattails growing around its perimeter (habitat assessed through Google Earth aeriels), and could potentially house adequate breeding habitat. Emergent wetland vegetation was not observed in the pond detected in the proposed



construction area during the April 2008 site visit. Limited foraging habitat (i.e., grasslands and agricultural lands) for the tricolored blackbird also occurs within the Project Area. While no occurrences for this species have been recorded in the area covered by the San Jacinto topographic map, which incorporates the entire Project Site, three nesting occurrences have been recorded in the area covered by the eight adjacent topographic maps (CDFG 2006). Therefore, this species is potentially present in the Project Area.

#### **8.2.3.5 Western Burrowing Owl (*Athene cunicularia hypugaea*)**

The burrowing owl is a yearlong resident of open, dry grassland and desert habitats, as well as the grass, forb, and open shrub stages of pinyon-juniper and ponderosa pine habitats that can be found as high as 1,600 m (5,300 ft) in Lassen County. This previously common species could be found in appropriate habitats throughout the state, excluding the humid northwest coastal forests and high mountains; however, numbers have been greatly reduced in recent decades. The burrowing owl eats mostly insects; however, it will also consume small mammals, reptiles, birds, and carrion. It hunts from a perch, hovers, hawks, dives, and hops after prey on ground. It uses old abandoned rodent burrows for roosting and nesting cover. This owl will move perches in an effort to thermoregulate; it will perch in open sunlight in early morning, and move to shade, or to a burrow, when it gets hot (Coulombe 1971). Nests are usually in old ground squirrel or other small mammal burrows, and are lined with excrement, pellets, and other debris. Pipes, culverts, and nest boxes are used where burrows are scarce (Robertson 1929).

Potentially suitable habitat for the burrowing owl is present on the Project Site in the disclimax coastal sage scrub habitat, the disturbed areas, and the disturbed southern willow scrub community (Figure 4). These areas encompass approximately 320 acres of the Project Site. Ground squirrels and their burrows were noted during the July 19, 2007 site visit. While no occurrences for this species have been recorded in the area covered by the San Jacinto topographic map, which incorporates the entire Project Site, 15 occurrences have been recorded in the area covered by the eight adjacent topographic maps (CDFG 2006). Therefore, this species is potentially present on the Project Site.

#### **8.2.3.6 Ferruginous Hawk (*Buteo regalis*)**

The ferruginous hawk is an uncommon winter resident and migrant in the lower elevations and open grasslands of the Central Valley and Coast Ranges. It is a fairly common resident in the southern Californian grasslands and agricultural areas. Ferruginous hawks favor open grasslands, sagebrush flats, desert scrub, low foothills surrounding valleys, and fringes of pinyon-juniper habitats. Requiring open, treeless areas to hunt, the ferruginous hawk feeds on lagomorphs, ground squirrels, and mice, but also takes birds, reptiles and amphibians. It is speculated that the hawk's population trend follows the lagomorph population cycles. There are no records of the ferruginous hawk breeding in California. Ferruginous hawks prefer to roost in open areas, usually in a lone tree or other elevated structure. Migration to California usually occurs in September, where the ferruginous hawk will remain until mid-April (Zeiner et al. 1990).

Roosting and foraging winter habitat for the ferruginous hawk is present on the Project Site in the disturbed southern willow scrub habitat, as well as portions of the disturbed areas, in total encompassing approximately 150 acres of the Project Site (Figure 4). The species would not be

expected to nest within the Project Area. One occurrence for this species was recorded in the area covered by the San Jacinto topographic map, which incorporates the entire Project Site, and two additional occurrences were recorded in the area covered by the eight adjacent topographic maps (CDFG 2006). Therefore, this species potentially roosts and forages on the Project Site.

### **8.2.3.7 Migratory Birds**

Reconnaissance surveys of the Project Site resulted in the detection of a pair of Bullock's orioles potentially nesting in the cottonwood trees along the San Jacinto River in April 2008. Additionally, suitable nesting habitat is present throughout much of the Project Site for a variety of other migratory bird species. On the Development Site, no nesting migratory birds were observed. However, at the pond on the Development Site, where very young tamarisk and cottonwood trees were growing, nesting habitat for migratory birds may develop as the riparian vegetation matures. Male and female red-winged blackbirds were observed at this pond; however, marsh vegetation required for these birds to breed was not present. Although, breeding habitat for this species is present in the ponds on the golf course, which is part of the Project Site. Killdeer could potentially nest on the Development Site as this species was noted at the pond during the reconnaissance survey in April 2008. Killdeer nest in shallow depressions on the ground, which can be bare or lined with grass. A mallard duck pair was observed swimming on the pond on the Development Site. This species could breed on the Development Site and/or the Project Site in down-lined nests on the ground or in a tree.

## **8.2.4 MAMMALS**

### **8.2.4.1 Northwestern San Diego Pocket Mouse (*Chaetodipus fallax fallax*)**

A common resident in southwestern California, the northwestern San Diego pocket mouse is usually associated with sandy herbaceous areas with rocks or coarse gravel. This species occurs mainly in arid coastal and desert border areas in San Diego County, in Riverside County southwest of Palm Beach, and in San Bernardino County from Cactus Flat to Oro Grande and east to Twentynine Palms, at elevations ranging from sea level to 1,800 meters (0 to 5,906 feet). Habitats where the San Diego pocket mouse is found include coastal scrub, chamise-redshank chaparral, mixed chaparral, sagebrush, desert wash, desert scrub, desert succulent scrub, pinyon-juniper, and annual grassland (Grinnell 1933; Miller and Stebbins 1964). Burrows are excavated in gravelly or sandy soil, where they are used for daytime resting, predator escape, and care of young. Breeding occurs from March to May with an average litter of four young (Hayden et al. 1966).

Suitable habitat within the Project Area is present for the northwestern San Diego pocket mouse in areas of disturbed southern willow scrub habitat and disclimax coastal scrub habitat, in total encompassing approximately 246 acres of the Project Site (Figure 4). Three occurrences for this species have been recorded in the area covered by the San Jacinto topographic map, which incorporates the entire Project Site, and 19 additional occurrences were recorded in the area covered by the eight adjacent topographic maps (CDFG 2006). Therefore, this species is potentially present on the Project Site.

#### **8.2.4.2 San Diego Desert Woodrat (*Neotoma lepida intermedia*)**

The San Diego desert woodrat occurs from the southern California border north along the coastline to Monterey County (Verts and Carraway 2002). This species is common to abundant in Joshua tree, pinyon-juniper, mixed and chamise-redshank chaparral, sagebrush, and most desert habitats. It is most abundant in rocky areas with Joshua trees (CDFG 2005). The elevation range for the San Diego desert woodrat extends from sea level to 2,600 meters (0 to 8,530 feet). Its northern elevational distribution may be limited by temperature (Lee 1963; MacMillen 1964). The San Diego desert woodrat constructs houses with twigs, sticks, cactus parts, and/or rocks, depending on availability of building materials. The house is usually built against a rock crevice, at the base of creosote or cactus, or in the lower branches of trees. Nests consist of dried vegetation, usually fibrous grass parts or shredded stems, and are located within the stick house. Suitable nesting sites or nesting materials may limit this species' distribution. The San Diego desert woodrat breeds from October to May; the gestation period lasts 30 to 36 days (Egoscue 1957). Litter size ranges from one to five with an average of 2.7 young (Egoscue 1957; MacMillen 1964). This species is thought to breed once per year (Egoscue 1957). The young are weaned at 27 to 40 days (Egoscue 1957; Cameron 1973). Females may begin breeding at two to three months of age (CDFG 2005). The San Diego desert woodrat eats buds, fruits, seeds, bark, leaves, and young shoots of many plant species. In coastal scrub, it prefers live oak, chamise, and buckwheat as food plants (Meserve 1974). In the Mojave Desert, it feeds on creosote, cholla, and prickly-pear (MacMillen 1964; Cameron and Rainey 1972). In juniper/sagebrush habitats, Mormon-tea, rattlesnake weed, mustard, sagebrush, and buckwheat are consumed (Stones and Hayward 1968).

Suitable habitat is present for the San Diego desert woodrat within the disclimax coastal sage scrub community, which includes approximately 178 acres of the Project Site (Figure 4). One occurrence for this species was recorded in the area covered by the San Jacinto topographic map, which incorporates the entire Project Site, and two additional occurrences were recorded in the area covered by the eight adjacent topographic maps (CDFG 2006). Therefore, this species potentially occurs on the Project Site.

#### **8.2.4.3 Southern Grasshopper Mouse (*Onychomys torridus ramona*)**

The southern grasshopper mouse is common in arid desert habitats of the Mojave Desert and southern Central Valley of California. Alkali desert scrub and desert scrub habitats are preferred, with somewhat lower densities expected in other desert habitats, including succulent shrub, wash, and riparian areas. This species also occurs in coastal scrub, mixed chaparral, sagebrush, low sage, and bitterbrush habitats, and is uncommon in valley foothill and montane riparian habitats (CDFG 2005). Preferred habitat for the southern grasshopper mouse occurs in areas with low to moderate shrub cover. Nests are constructed in burrows abandoned by other rodents (Bailey and Sperry 1929), or may be excavated (CDFG 2005). Males begin to store sperm at 40 days of age and females can become receptive at six weeks of age (CDFG 2005). The peak breeding season occurs from May to July, but may start in January (Pinter 1970), and may continue year-round. The gestation period is 27 to 30 days. Litter size ranges from two to six, but averages four young. This species has as many as six litters per year. Both males and females care for the young (Horner 1961). The southern grasshopper mouse feeds almost exclusively on arthropods, especially scorpions and orthopteran insects (Horner et al. 1964). Bailey and Sperry (1929) found the diet composed of 56 percent grasshoppers, crickets, caterpillars, and moths and

21 percent ground and darkling beetles. Minor components of the diet include vertebrates such as salamanders, lizards, frogs, and small mammals (Bailey and Sperry 1929; Horner et al. 1964), and McCarty (1975) found that less than 5 percent of the diet was seeds.

Suitable habitat is present for the southern grasshopper mouse within the Project Area, primarily along the San Jacinto River in the disturbed southern willow scrub and the disclimax coastal sage scrub communities, encompassing approximately 246 acres of the Project Site (Figure 4). One occurrence for this species was recorded in the area covered by the San Jacinto topographic map, which incorporates the entire Project Site, and four additional occurrences were recorded in the area covered by the eight adjacent topographic maps (CDFG 2006). Therefore, this species potentially occurs on the Project Site.

#### **8.2.4.4 Los Angeles Pocket Mouse (*Perognathus longimembris brevinasus*)**

The Los Angeles pocket mouse is restricted to lower elevation grasslands and coastal sage associations in and around the Los Angeles Basin, from approximately Burbank and San Fernando on the northwest to San Bernardino on the northeast; and, Cabazon, Hemet, and Aguanga on the east and southeast. Its southwestern limit is unclear, but probably is near the Hollywood Hills (Williams 1986). Not much is known about this species' habitat requirements, except that it is found in areas with open ground and soils composed of fine sand (Grinnell 1933). Stephens (1906) suggested that the Los Angeles pocket mouse does not often dig burrows, but rather hides under weeds and dead leaves instead. However, this is very unusual for any *Perognathus* species. Apparently, females are capable of breeding in their natal season and are reproductively active by as early as 41 days of age. The gestation period lasts 22 to 23 days (Hayden et al. 1966). This species may produce one or two litters per year with typical litter sizes of three to four pups. The Los Angeles pocket mouse is a granivore (i.e., seed eater), possibly specializing more on grass seeds than other pocket mice do. Beyond seed specialization, little is known of the foraging behavior of the Los Angeles pocket mouse. Pocket mice, in general, tend to forage under shrub and tree canopies or around rock crevices (Reichman and Price 1993). Threats to the Los Angeles pocket mouse in the Project Area include habitat loss and fragmentation caused by urbanization and flood control projects (Riverside County 2000).

Suitable habitat present for the Los Angeles pocket mouse within the Project Area, primarily along the San Jacinto River in the disturbed southern willow scrub community, which includes approximately 68 acres of the Project Site (Figure 4). Two occurrences for this species have been recorded in the area covered by the San Jacinto topographic map, which incorporates the entire Project site, and twelve additional occurrences were recorded in the area covered by the eight adjacent topographic maps (CDFG 2006). Therefore, this species potentially occurs on the Project Site. However, the Project Area is at the extreme geographic limits of its known distribution.

#### **8.2.4.5 American Badger (*Taxidea taxus*)**

The American badger is an uncommon permanent resident throughout most of California. It most commonly occurs in dry, open stages of shrub, forest, and herbaceous habitats. The badger's diet consists of burrowing rodents including rats, mice, chipmunks, ground squirrels, pocket gophers, and occasionally reptiles, insects, earthworms, eggs, birds, and carrion. Reproduction occurs in

summer and early fall. The badger digs burrows in dry, sandy soil. Gestation, including delayed implantation, lasts approximately 183 to 265 days. Litters of two to three young are born in March and April.

Suitable habitat is present for the American badger in the disturbed southern willow scrub and disclimax coastal sage scrub communities on the Project Site, including both wash and upland habitats and encompassing approximately 246 acres (Figure 4). In addition, one occurrence for this species was recorded in the area covered by the San Jacinto topographic map and two additional occurrences were recorded in the area covered by the eight adjacent topographic maps (CDFG 2006). Therefore, this species potentially occurs on the Project Site.

## **9 IMPACTS ANALYSIS AND MITIGATION MEASURES**

Coastal sage scrub habitat has been highly modified across much of the lower, west-facing foothills of the San Jacinto Mountains. Following the fires of 2003 (and as a result of previous fires), extensive areas have been colonized by dense stands of non-native mustards that are often over one meter in height. Some native vegetation is recovering following the fire; however, little coastal sage scrub habitat remains and recovery will be limited due to conversion to a non-native mustard-dominated landscape. The changes in vegetation species composition, density, and structure within the coastal sage scrub habitat greatly diminishes the potential contribution by the Horseshoe Grande Property to the conservation of special status species associated with these habitats.

The riparian community provides habitat for much of the species diversity found on the Horseshoe Grande Property. In this habitat, numerous species of migratory and residential birds nest among the woodland trees, bats concentrate much of their foraging and roosting activities, seasonal breeding sites are available for amphibians, and many species of reptiles and small mammals are found. The riparian communities along the length the San Jacinto River are narrow, mature stands with minimal undergrowth. The riparian scrub community occurs in the Project Site along the northern portion of the river where there are scattered stands of cottonwood, sycamore, and willow with occasional oaks among a complex intermixing of various riparian scrub vegetation associations, braided stream channels, and alluvial deposits. However, this habitat is not in pristine condition and continues to be impacted by ongoing human activities in and around the San Jacinto River, as well as being subject to highly dynamic natural processes related to floods and fire.

Of the federally listed and special status species that may occur in these habitats, the habitat appears to be the most suitable for Cooper's hawk, San Diego horned lizard, orange-throated whiptail lizard, Los Angeles pocket mouse, and San Bernardino kangaroo rat. The hawk likely forages throughout the area and may occasionally nest within the trees along the San Jacinto River. The two lizard species and the Los Angeles pocket mouse may occur within the wash bottom and on adjacent slopes where open areas remain that are not dominated by non-native vegetation. The San Bernardino kangaroo rat is expected to occur among the alluvial deposits within and adjacent to the river. In addition to the species discussed above, habitat for the federally threatened coastal California gnatcatcher is present at the extreme northern end of the Project Site along the San Jacinto River.

The San Jacinto River, along the length of the Project Site, is designated critical habitat for the endangered San Bernardino kangaroo rat. This is within the 5,565-acre San Jacinto River-Bautista Creek critical habitat unit, of which approximately 710 acres are designated on the Soboba Reservation and an additional 104 acres are on the Horseshoe Grande Property.

Critical habitat designation provides protection to a listed species' habitat through the ESA interagency consultation (i.e., Section 7) process, whereby any action permitted, funded, or carried out by a federal agency that may affect the designated primary constituent elements of critical habitat would require consultation with FWS. The primary constituent elements for the San Bernardino kangaroo rat include, in part, soils, alluvial sage scrub vegetation, wash channels, floodplains, alluvial fans, and associated upland areas proximal to suitable habitat (FWS 2002). However, critical habitat on the Horseshoe Grande Property, as private property, has no regulatory application in the absence of a federal nexus (FWS 2002). On private property, the only ESA protections that apply are the prohibitions against take of a listed wildlife species (note: the definition of take includes harm, the loss of habitat that leads to mortality of individuals). With the approval for transfer of the Horseshoe Grande Property to trust status, the ESA take prohibitions remain applicable. However, under trust status, if future actions on the Horseshoe Grande Property may affect a listed species and/or its designated critical habitat and include a federal nexus such as involvement of the BIA, consultation with FWS would be required. The federal rule designating critical habitat (FWS 2002) acknowledges the relationship of FWS with the Soboba Tribe and the commitment by FWS to work with the Tribe on developing a resource management plan for the Reservation that includes conservation recommendations for the kangaroo rat. By including the Horseshoe Grande Property as part of the trust lands, it would increase the amount of critical habitat acres managed by the Tribe by approximately ten percent, and could improve management continuity throughout suitable habitat along the length of the San Jacinto River.

Because the fee-to-trust transfer of the Horseshoe Grande Property is purely an administrative action, this action would not impact the various special status species potentially occurring on the property. However, construction activities proposed as part of this Project have the potential to impact special status species if they occur in suitable habitat or have indirect impacts. With the transfer of the property to trust status, state and local wildlife requirements for species conservation will no longer apply to the property; however, ESA regulations remain in effect and are somewhat broadened through the trust responsibilities of the BIA. While designated critical habitat for the endangered San Bernardino kangaroo rat is currently present on the Horseshoe Grande Property, the June 2007 proposed rule would remove all land on the Project Site from this designation. However, the ESA prohibition against take of a listed species would still apply. Therefore, the proposed rule would effectively result in no change regarding compliance with the ESA because the area proposed for removal from designation as critical habitat is potentially occupied and should be considered as such unless surveys are conducted that indicate otherwise.

A total of 20 special status species have the potential to occur on or adjacent to the Horseshoe Grande Property, including four plants, two reptiles, seven birds, and seven mammals (Table 3). Table 3 identifies the potential distribution for these species by vegetation community type on the Horseshoe Grande Property. Some species occur across various habitat types, and for others, key habitat components include physical features such as rock outcrops or soil texture. For most

of these species, the potentially suitable habitat on the Horseshoe Grande Property is of limited extent and reduced quality.

**Table 3.** Special status plant and animal species for which potential habitat is found on the Horseshoe Grande Property.

Species	Primary Habitat on the Horseshoe Grande Property		
	Disturbed Southern Willow Scrub	Disturbed Areas	Disclimax Coastal Sage Scrub
<b>FEDERALLY LISTED SPECIES</b>			
<b>Plants</b>			
Munz's onion <i>Allium munzii</i>			X
Slender-horned spineflower <i>Dodecahema (Centrostegia) leptoceras</i>	X		X
<b>Birds</b>			
Coastal California gnatcatcher <i>Polioptila californica californica</i>	X		X
<b>Mammals</b>			
San Bernardino kangaroo rat <i>Dipodomys merriami parvus</i>	X		
Stephens' kangaroo rat <i>Dipodomys stephensi</i>			X
<b>ADDITIONAL SPECIES CONSIDERED</b>			
<b>Plants</b>			
Smooth tarplant <i>Centromadia pungens</i> ssp. <i>Laevis</i>			X
Parry's Spineflower			X
<b>Reptiles</b>			
Coast (San Diego) horned lizard <i>Phrynosoma coronatum</i> ( <i>blainvillii</i> population)	X		X
Orange-throated whiptail <i>Aspidoscelis hyperythra</i>	X		X
<b>Birds</b>			
California horned lark <i>Eremophila alpestris actia</i>			X
Southern California rufous-crowned sparrow <i>Aimophila ruficeps canescens</i>			X
Cooper's hawk <i>Accipiter cooperii</i>	X		
Tricolored blackbird <i>Agelaius tricolor</i>	X		
Western burrowing owl <i>Athene cunicularia hypugaea</i>		X	X
Ferruginous hawk <i>Buteo regalis</i>	X	X	X

**Table 3.** Special status plant and animal species for which potential habitat is found on the Horseshoe Grande Property.

Species	Primary Habitat on the Horseshoe Grande Property		
	Disturbed Southern Willow Scrub	Disturbed Areas	Disclimax Coastal Sage Scrub
<b>Mammals</b>			
Northwestern San Diego pocket mouse <i>Chaetodipus fallax fallax</i>		X	X
San Diego desert woodrat <i>Neotoma lepida intermedia</i>			X
Southern grasshopper mouse <i>Onychomys torridus ramona</i>	X		
Los Angeles pocket mouse <i>Perognathus longimembris brevinasus</i>	X		X
American badger <i>Taxidea taxus</i>	X		X

## 9.1 FEDERALLY LISTED SPECIES

### 9.1.1 FEDERALLY LISTED PLANTS

#### 9.1.1.1 Munz's Onion (*Allium munzii*)

##### Direct Effects

The proposed Project could directly affect Munz's onion if it is present on the Development Site. The proposed developments could permanently remove potential habitat for this species, as well as cause the death of any plants that may be present on the Development Site. However, the proposed Development Site is barren land that was bladed in the past; therefore, it is unlikely that this species would be present on the Development Site. Munz's onion was not observed during reconnaissance surveys of the Project Site; however, focused surveys for this species have not been conducted. No direct effects are anticipated as a result of fee-to-trust transfer of the Horseshoe Grande property or from construction of the casino/hotel Project.

##### Indirect Effects

Construction of the hotel and casino could lead to increased human traffic in the general vicinity as more people come to play at the casino or stay in the hotel. Some of these people may look for additional recreation activities, which may lead them outdoors into suitable habitat for the Munz's onion. Increased ground disturbance could lead to a loss of suitable habitat and/or the death of plants around the properties and adjacent areas where suitable habitat for the Munz's onion may be present. In addition, increased human traffic could cause an increase in trash and other pollutants around the developed areas and adjacent land, further degrading habitat for this species. Therefore, indirect effects may occur to the Munz's onion as a result of this Project.



## Determination

The proposed Project may affect, but is not likely to adversely affect the Munz's onion or its habitat.

### **9.1.1.2 Slender-horned Spineflower (*Dodecahema leptoceras* [ *Centrostegia l.*])**

#### Direct Effects

The proposed Project could directly affect the slender-horned spineflower if it is present on the Development Site. The proposed developments could permanently remove potential habitat for this species, as well as cause the death of any plants that may be present on the Development Site. However, the proposed Development Site is barren land that was bladed in the past; therefore, it is unlikely that these plants would be present on the Development Site. The slender-horned spineflower was not observed during reconnaissance surveys of the Project Site; however, focused surveys for this species have not been conducted. No direct effects are anticipated as a result of fee-to-trust transfer of the Horseshoe Grande property or from construction of the casino/hotel Project.

#### Indirect Effects

Construction of the hotel and casino could lead to increased human traffic in the general vicinity as more people come to play at the casino or stay in the hotel. Some of these people may look for additional recreation activities, which may lead them outdoors into suitable habitat for the slender-horned spineflower. Increased ground disturbance could lead to a loss of suitable habitat and/or the death of plants around the properties and adjacent areas where suitable habitat for the slender-horned spineflower may be present. In addition, increased human traffic could cause an increase in trash and other pollutants around the developed areas and adjacent land, further degrading habitat for this species. Therefore, indirect effects may occur to the slender-horned spineflower as a result of this Project.

## Determination

The proposed Project may affect, but is not likely to adversely affect the slender-horned spineflower or its habitat.

### **9.1.2 FEDERALLY LISTED BIRDS**

#### **9.1.2.1 Coastal California Gnatcatcher (*Polioptila californica californica*)**

#### Direct Effects

Construction activities could disturb nesting activities if they occur during the breeding season near an active nest. However, it is unlikely that the proposed activities would disturb the gnatcatcher because suitable habitat does not exist on the Development Site. The nearest suitable nesting habitat, which is marginally suitable, is along the San Jacinto River at the north end of the Horseshoe Grande property, approximately 1 mile from the Development Site. This species

was not observed during reconnaissance surveys of the Project Site; however, surveys according to approved protocol have not been conducted. Therefore, no direct effects are anticipated as a result of fee-to-trust transfer of the Horseshoe Grande property or from construction of the casino/hotel Project.

### Indirect Effects

Construction of the hotel and casino could lead to increased human traffic in the general vicinity where there is suitable habitat for the coastal California gnatcatcher. Disturbance during the breeding season, from increased human traffic, could disrupt nesting activities and lead to unsuccessful nesting attempts. In addition, increased human traffic could cause an increase in trash and other pollutants around the property and adjacent land, further degrading potentially suitable habitat for this species. Therefore, indirect effects may occur to the coastal California gnatcatcher as a result of this Project.

### Determination

The proposed Project may affect, but is not likely to adversely affect the coastal California gnatcatcher or its habitat.

## **9.1.3 FEDERALLY LISTED MAMMALS**

### **9.1.3.1 San Bernardino Kangaroo Rat (*Dipodomys merriami parvus*)**

#### Direct Effects

The proposed Development Site was previously bladed and/or farmed and is mostly barren land with some growth of non-native, invasive annuals; therefore, no suitable San Bernardino kangaroo rat habitat is present on the proposed Development Site. No modification of the river or adjacent alluvial habitats, where additional suitable habitat for this species is located, is being considered as part of this Project. The San Bernardino kangaroo rat was not observed during reconnaissance surveys of the Project Site; however, potential burrows were identified on the Project Site outside the Development Site. On December 3, 2008 a ENTRIX and FWS visited the project site to determine the need for formal surveys. It was determined that surveys be conducted to facilitate the final determination of the effects of the proposed project. Surveys according to approved protocol have not been conducted, but are currently be coordinated.

On-the-ground training to educate construction workers about the special status species potentially present on the Project Site, including San Bernardino kangaroo rat, would be conducted. Construction workers would be provided with information to help them identify San Bernardino kangaroo rats and instructions on what to do if a San Bernardino kangaroo rat is encountered during construction.

After the fee-to-trust transfer of the property, the approval process for future ground disturbing activities would no longer involve review through state and local regulatory processes; however, federal requirements remain. The application of ESA would be through both Section 9 (take prohibitions) and Section 7 (interagency consultation), somewhat broadening the umbrella of

protection for the species and its designated critical habitat in comparison to the No Action Alternative, where only Section 9 applies. Through the application of ESA protection, the same or higher conservation standards for the species and its habitat, including critical habitat, should be achieved than under state or local environmental regulations.

Therefore, no direct effects to the San Bernardino kangaroo rat are anticipated as a result of fee-to-trust transfer of the Horseshoe Grande property or from construction of the casino/hotel Project. In addition, the proposed Project would not result in direct effects that would adversely modify San Bernardino kangaroo rat critical habitat, which is present on the Project Site but outside the Development Site.

### Indirect Effects

Construction of the hotel and casino could lead to increased human traffic in the general vicinity where there is suitable habitat for the San Bernardino kangaroo rat. In addition, increased human traffic could cause an increase in trash and other pollutants around the property and adjacent land, further degrading potentially suitable habitat for this species. However, the proposed developments would not occur within or directly adjacent to suitable or critical habitat for this species; there would be a buffer of existing development that includes residential development south of Lake Park Drive. Foot traffic on the golf course would generally be monitored and restricted to those playing golf. Golfers would be spending most, if not all, of their time on the golf course, but may wander into San Bernardino kangaroo rat habitat looking for a golf ball that is hooked or sliced in that direction. It should be noted, however, that the area adjacent to the golf course is marginal habitat that is highly degraded. South of Lake Park Drive, the residential development would potentially be an impermeable buffer to foot traffic, requiring visitors to the hotel and casino to go around these private properties to get to suitable/critical habitat for the San Bernardino kangaroo rat. The riverbed in this area is already highly degraded, and the few extra people that may wander around the residential development and into San Bernardino kangaroo rat critical habitat are not likely to cause any significant changes to the habitat or critical habitat elements.

Fences and signs would be erected along the boundary of San Bernardino kangaroo rat critical habitat adjacent to the new development and the golf course. The signs would identify the importance of the area and prohibit trespassing into suitable/critical habitat for the San Bernardino kangaroo rat.

An increase in the amount of runoff and sediment deposition resulting from construction activities associated with the proposed developments could lead to a change in the San Bernardino kangaroo rat habitat by affecting alluvial deposits within the San Jacinto River. However, a 10-year flood basin will be installed to retain additional water runoff and Best Management Practices would be used for sediment control; thus, it is extremely unlikely that construction activities would result in any significant change in habitat.

Therefore, indirect effects are unlikely but may occur to the San Bernardino kangaroo rat as a result of this Project.

## Determination

The proposed Project may affect, but is not likely to adversely affect the San Bernardino kangaroo rat or its habitat. In addition, the Project will not result in adverse modification of San Bernardino kangaroo rat critical habitat.

These determinations were made prior to consultation with FWS. ENTRIX is currently in an on going consultation process with FWS in an effort to make a final determination for the SBKR because of the proposed project. ENTRIX has contracted out a biologist permitted to trap and handle the SBKR, and will be coordinating field efforts this summer. After field efforts are completed, a report of the trapping results will be compiled and submitted. After which a final determination will be made and a Biological Opinion released.

### **9.1.3.2 Stephens' Kangaroo Rat (*Dipodomys stephensi*)**

#### Direct Effects

Suitable habitat for the Stephens' kangaroo rat is present on the Project Site. However, the proposed Development Site was previously bladed and/or farmed and is mostly barren land with some growth of non-native, invasive annuals. Therefore, no suitable Stephens' kangaroo rat habitat is present, and this species would not be expected to occur, on the Development Site. The Stephens' kangaroo rat was not observed during reconnaissance surveys of the Project Site; however, surveys according to approved protocol have not been conducted. Therefore, no direct effects to the Stephens' kangaroo rat are anticipated as a result of fee-to-trust transfer of the Horseshoe Grande property or from construction of the casino/hotel Project.

#### Indirect Effects

Construction of the hotel and casino could lead to increased human traffic in the general vicinity where there is suitable habitat for the Stephens' kangaroo rat. In addition, increased human traffic could cause an increase in trash and other pollutants around the property and adjacent land, further degrading potentially suitable habitat for this species. Therefore, indirect effects may occur to the Stephens' kangaroo rat as a result of this Project.

## Determination

The proposed Project may affect, but is not likely to adversely affect the Stephens' kangaroo rat or its habitat.

## **9.2 ADDITIONAL SPECIES CONSIDERED**

### **9.2.1 PLANTS**

#### **9.2.1.1 Smooth Tarplant (*Centromadia pungens* ssp. *laevis*) and Parry's Spineflower (*Chorizanthe parryi* var. *parryi*)**

#### Direct Effects

The proposed action could directly affect these species if plants are present on the proposed Development Site. The proposed developments could permanently remove potential habitat for these species, as well as cause the death of any plants that may be present on the proposed Development Site. However, the Development Site was previously bladed and/or farmed and is mostly barren land with some growth of non-native, invasive annuals; therefore, it is unlikely that these species would be present on the Development Site. Smooth tarplant and Parry's spineflower were not observed during reconnaissance surveys of the Project Site; however, focused surveys for these species have not been conducted. No direct effects to smooth tarplant or Parry's spineflower are anticipated as a result of fee-to-trust transfer of the Horseshoe Grande property or from construction of the casino/hotel Project.

### Indirect Effects

Construction of the hotel and casino could lead to increased human traffic in the general vicinity. Increased ground disturbance could lead to a loss of suitable habitat and/or the death of plants around the property and adjacent areas where suitable habitat for these species may be present. In addition, increased human traffic could cause an increase in trash and other pollutants around the developed areas and adjacent land, further degrading habitat for these species. Therefore, indirect effects may occur to the smooth tarplant and Parry's spineflower as a result of this Project.

### Determination

The proposed Project may impact individuals of smooth tarplant and Parry's spineflower, but is not likely to result in a trend toward federal listing or loss of viability.

## **9.2.2 REPTILES**

### **9.2.2.1 Orange-throated Whiptail Lizard (*Aspidoscelis hyperythra*)**

#### Direct Effects

The orange-throated whiptail could be harmed or killed by heavy machinery used during construction activities if this species is present on the proposed Development Site. However, the proposed Development Site was previously bladed and/or farmed and is mostly barren land with some growth of non-native, invasive annuals; therefore, suitable habitat (i.e., dense vegetation and other ground covering, such as rocks, logs, and duff) is not present in these areas. It is highly unlikely that the orange-throated whiptail would be present on the Development Site. This species was not observed during reconnaissance surveys of the Project Site; however, focused surveys for the orange-throated whiptail have not been conducted. No direct effects to the orange-throated whiptail are anticipated as a result of this Project.

#### Indirect Effects

Construction of the hotel and casino could lead to increased human traffic in the general Project vicinity. Increased ground disturbance and habitat fragmentation could occur on the property and in adjacent areas where potentially suitable habitat is present. In addition, increased human traffic could cause an increase in trash and other pollutants around the developed areas and

adjacent land, further degrading habitat for this species. Therefore, indirect effects may occur to the orange-throated whiptail as a result of this Project.

#### Determination

The proposed Project may impact individuals of orange-throated whiptail, but is not likely to result in a trend toward federal listing or loss of viability.

### **9.2.2.2 Coast (San Diego) Horned Lizard (*Phrynosoma coronatum blainvillii*)**

#### Direct Effects

The coast horned lizard could be harmed or killed by heavy machinery used during construction activities if this species is present on the proposed Development Site. However, the proposed Development Site was previously bladed and/or farmed and is mostly barren land with some growth of non-native, invasive annuals; therefore, suitable habitat (i.e., sandy areas, washes, floodplains and wind-blown deposits) is not present on the Development Site. It is highly unlikely that the coast horned lizard would be present on the proposed Development Site. The coast horned lizard was not observed during reconnaissance surveys of the Project Site; however, focused surveys for this species have not been conducted. No direct effects to the coast horned lizard are anticipated as a result of this Project.

#### Indirect Effects

Construction of the hotel and casino could lead to increased human traffic in the general Project vicinity. Increased disturbance and habitat fragmentation could occur on the property and in adjacent areas where potentially suitable habitat is present. In addition, increased human traffic could cause an increase in trash and other pollutants around the developed areas and adjacent land, further degrading habitat for this species. Therefore, indirect effects may occur to the coast horned lizard as a result of this Project.

#### Determination

The proposed Project may impact individuals of coast horned lizard, but is not likely to result in a trend toward federal listing or loss of viability.

### **9.2.3 BIRDS**

#### **9.2.3.1 California Horned Lark (*Eremophila alpestris actia*), Southern California rufous-crowned sparrow (*Aimophila ruficeps canescens*), Cooper's Hawk (*Accipiter cooperii*), and Tricolored Blackbird (*Agelaius tricolor*)**

#### Direct Effects

The California horned lark, southern California rufous-crowned sparrow, Cooper's hawk, and tricolored blackbird could be harmed by construction activities planned as part of this Project if there is suitable habitat on the proposed Development Site. However, the proposed Development

Site was previously bladed and/or farmed and is mostly barren land with some growth of non-native, invasive annuals; therefore, it is unlikely that these species would be present on the Development Site. No nesting habitat for any of these birds is present on the Development Site. These species were not observed during reconnaissance surveys of the Project Site; however, focused surveys for these birds have not been conducted. Therefore, construction activities would not have a direct effect on breeding habitat or nesting birds. No direct effects to these avian species are anticipated as a result of fee-to-trust transfer of the Horseshoe Grande property or from construction of the casino/hotel Project.

#### Indirect Effects

Construction of the hotel and casino could lead to increased human traffic in the general Project vicinity where there is suitable habitat for these species. Disturbance during the breeding season could disrupt nesting activities and lead to unsuccessful nesting attempts if nests are located close to the constructions areas. In addition, increased human traffic could cause an increase in trash and other pollutants on the property and adjacent land, further degrading potentially suitable habitat for this species. Therefore, indirect effects may occur to these avian species as a result of this Project.

#### Determination

The proposed Project may impact individuals of California horned lark, southern California rufous-crowned sparrow, Cooper's hawk, and tricolored blackbird, but is not likely to result in a trend toward federal listing or loss of viability.

### **9.2.3.2 Western Burrowing Owl (*Athene cunicularia hypugaea*)**

#### Direct Effects

The western burrowing owl could be harmed by proposed construction activities if there is suitable habitat on the proposed Development Site. While the proposed Development Site was previously bladed and/or farmed and is mostly barren land with some growth of non-native, invasive annuals, there is the potential for burrowing owls to use old rodent dens for nesting. Therefore, construction activities could lead to the destruction and/or degradation of suitable nesting habitat. The construction activities could also be responsible for direct mortality of individual owls that might be present in the construction zone and could disturb nesting activities during the breeding season. However, it is likely that individuals would use more suitable habitat in the vicinity over the poor-quality habitat that is available on the proposed Development Site. The western burrowing owl was not observed during reconnaissance surveys of the Project Site; however, focused surveys for this species have not been conducted. Therefore, while it is unlikely, direct impacts to the western burrowing owl could occur as a result of this Project.

#### Indirect Effects

Construction of the hotel and casino could lead to increased human traffic in the general Project vicinity where there is suitable habitat for the western burrowing owl. Disturbance during the breeding season could disrupt nesting activities and lead to unsuccessful nesting attempts if nests

are located close to the constructions areas. In addition, increased human traffic could cause an increase in trash and other pollutants on the property and adjacent land, further degrading potentially suitable habitat for this species. Therefore, indirect effects may occur to the western burrowing owl as a result of this Project.

#### Determination

The proposed Project may impact individuals of western burrowing owl, but is not likely to result in a trend toward federal listing or loss of viability.

### **9.2.3.3 Ferruginous Hawk (*Buteo regalis*)**

#### Direct Effects

No suitable nesting habitat for the ferruginous hawk is present in the Project Area; therefore, no direct effects to breeding birds could occur. While, potentially suitable roosting and foraging habitat for this species is present on the Project Site, no suitable habitat occurs on the proposed Development Site. The ferruginous hawk was not observed during reconnaissance surveys of the Project Site; however, focused surveys for this species have not been conducted. Therefore, no direct effects to the ferruginous hawk are anticipated as a result of fee-to-trust transfer of the Horseshoe Grande property or from construction of the casino/hotel Project.

#### Indirect Effects

Construction of the hotel and casino could lead to increased human traffic in the general Project vicinity where there is suitable roosting and foraging habitat for the ferruginous hawk. The potential increase in disturbance could cause roosting or foraging birds to leave the area and roost or forage in adjacent areas where there is less disturbance. The amount of foraging and roosting habitat that would be lost is negligible relative to the amount of available foraging and roosting habitat in the surrounding areas. Therefore, no indirect effects to the ferruginous hawk are anticipated as a result of this Project.

#### Determination

The proposed Project may impact individuals of ferruginous hawk, but is not likely to result in a trend toward federal listing or loss of viability.

### **9.2.3.4 Migratory Birds**

Migratory birds were detected potentially nesting on the Project Site during reconnaissance surveys. However, none were detected nesting or displaying breeding behavior on the Development Site. Although, some of the birds observed on the Development Site could potentially nest there. Therefore, ground-disturbing construction activities could disturb nesting migratory birds if construction occurs during the breeding season, which varies by species.



## 9.2.4 MAMMALS

### 9.2.4.1 Los Angeles Pocket Mouse (*Perognathus longimembris brevinasus*), Southern Grasshopper Mouse (*Onychomys torridus ramona*), San Diego Desert Woodrat (*Neotoma lepida intermedia*), and Northwestern San Diego Pocket Mouse (*Chaetodipus fallax fallax*)

These four mammals have similar habitat requirements, and therefore, similar potential impacts could result from the proposed Project.

#### Direct Effects

The proposed Development Site was previously bladed and/or farmed and is mostly barren land with some growth of non-native, invasive annuals; therefore, no suitable habitat for these four species is present. These species were not observed during reconnaissance surveys of the Project Site; however, focused surveys for these four species have not been conducted. No direct effects to the Los Angeles pocket mouse, southern grasshopper mouse, San Diego desert woodrat, and northwestern San Diego pocket mouse are anticipated as a result of fee-to-trust transfer of the Horseshoe Grande property or from construction of the casino/hotel Project.

#### Indirect Effects

Construction of the hotel and casino could lead to increased human traffic in the general vicinity where there is suitable habitat for these four species. In addition, increased human traffic could cause an increase in trash and other pollutants around the property and adjacent land, further degrading potentially suitable habitat. Therefore, indirect effects may occur to the Los Angeles pocket mouse, southern grasshopper mouse, San Diego desert woodrat, and northwestern San Diego pocket mouse as a result of this Project.

#### Determination

The proposed Project may impact individuals of Los Angeles pocket mouse, southern grasshopper mouse, San Diego desert woodrat, and northwestern San Diego pocket mouse, but is not likely to result in a trend toward federal listing or loss of viability.

### 9.2.4.2 American Badger (*Taxidea taxus*)

#### Direct Effects

The proposed Development Site was previously bladed and/or farmed and is mostly barren land with some growth of non-native, invasive annuals; therefore, no suitable habitat is present on the Development Site. The American badger was not observed during reconnaissance surveys of the Project Site; however, focused surveys for this species have not been conducted. No direct effects to the American badger are anticipated as a result of fee-to-trust transfer of the Horseshoe Grande property or from construction of the casino/hotel Project.

## Indirect Effects

Construction of the hotel and casino could lead to increased human traffic in the general vicinity where there is suitable habitat for the American badger. In addition, increased human traffic could cause an increase in trash and other pollutants around the property and adjacent land, further degrading potentially suitable habitat. Therefore, indirect effects may occur to the American badger as a result of this Project.

## Determination

The proposed Project may impact individuals of American badger, but is not likely to result in a trend toward federal listing or loss of viability.

### **9.3 CUMULATIVE EFFECTS ANALYSIS**

Cumulative effects are effects of future tribal, state, and private activities, not involving federal activities, which are reasonably certain to occur within the vicinity of the Project. Cumulative biological impacts are defined as those impacts resulting from development, fire, flood, and other activities that could result in damage or loss of the natural environment.

The cumulative effects to both federally listed and special status species include the continued development of the areas surrounding the Project Site along with the increased water and waste management associated with an influx of people. Other potential effects include wildfire and floods, which can be exacerbated by human development and management methods.

Any actions that would include activities associated with the San Jacinto River would require compliance with the ESA, either through take prohibitions of a purely non-federal action or through consultation with FWS by a federal agency when there is a federal nexus (e.g., involvement of a federal agency such as BIA, or ACE with issuance of a CWA permit authorizing dredge and fill activities within waters of the United States). Conservation actions for the kangaroo rat would likely also benefit the habitat of other species associated with the San Jacinto River and adjacent lands, most notably the Los Angeles pocket mouse, which is a priority species for this area in the MSHCP.

### **9.4 MITIGATION MEASURES**

Transfer of the Horseshoe Grande property from fee to trust status is purely an administrative action that would have no on-the-ground impact and, thus, no impact to special status species. Proposed construction activities could have direct and indirect effects to various special status species. The following mitigation measures are recommended:

- Conduct focused preconstruction surveys according to approved FWS survey protocols, where applicable, for the following special status species: Munz's onion, slender-horned spineflower, coastal California gnatcatcher, San Bernardino kangaroo rat, Stephens' kangaroo rat, smooth tarplant, Parry's spineflower, orange-throated whiptail, coast horned lizard, California horned lark, Southern California rufous-crowned sparrow, Cooper's hawk, tricolored blackbird, western burrowing owl,

- ferruginous hawk, Los Angeles pocket mouse, southern grasshopper mouse, San Diego desert woodrat, northwestern San Diego pocket mouse, and American badger.
- If coastal California gnatcatchers are found to be nesting within 0.25 mile of the Development Site during preconstruction surveys, construction would be timed to avoid the breeding season (i.e., construction would not occur from February 15th through August 31st in any area that is within 0.25 mile of a coastal California gnatcatcher nest).
  - If Stephens' kangaroo rats are detected during preconstruction surveys, occupied habitat will be mapped and construction activities should avoid these locations, if possible. If it is not possible to avoid occupied habitat, a Biological Assessment will be submitted to FWS in order to obtain an incidental take statement.
  - Comply with all conditions recommended by FWS during Section 7 consultation.
  - Provide on-the-ground training to educate construction workers about the special status species potentially present in the Project Area. Construction workers should be provided with information to help them identify special status species and instructions on what to do if a special status species is found during construction.
  - Erect fences and signs along the border of San Bernardino kangaroo rat critical habitat adjacent to the new development and the golf course. The signs would identify the importance of the area and prohibit trespassing into suitable/critical habitat for the San Bernardino kangaroo rat.
  - Conduct preconstruction surveys on the Development Site to determine whether migratory birds are nesting there. If nesting birds are detected, the nest location(s) and immediately adjacent habitat will be avoided during construction activities until the breeding season is over (timing varies by species).
  - Avoid and/or minimize the use and storage of hazardous materials on the Project Site. Store hazardous materials in previously disturbed areas (i.e., within the construction area) and out of suitable habitat for special status species. Ensure hazardous materials are properly contained.
  - Staging areas for vehicles and heavy equipment should be in previously disturbed locations (i.e., construction areas) and out of suitable habitat for all special status species.
  - Install silt fencing.

### *San Bernardino kangaroo Rat*

Although consultation with FWS is on going, potential mitigation that may come out of this consultation may include:

- If the San Bernardino kangaroo rat is detected within the proposed project area the work area will be flagged or fenced prior to ground disturbing activities to prevent construction personnel and/or equipment from disturbing adjacent habitat;
- Grading, trenching, and associated activities are restricted to daylight hours;

- The perimeter of the construction area will be delineated with temporary exclusionary fencing buried to a depth of at least 12 inches to exclude the SBKR. The installation and removal of the fencing will avoid direct impacts to existing SBKR burrows;
- The area inside of the temporary exclusionary fencing will be cleared of SBKR prior to the start of construction by a qualified and permitted biologist. Any SBKR found will be translocated out of the construction area;
- Construction will be monitored by a qualified biologist(s) or their designee;
- If construction activities require trenching outside of the temporary exclusionary fence those trenches, will either be backfilled on the same day or be covered with rigid materials to prevent SBKR from entering the trench. If SBKR is detected in a trench, it shall be allowed to escape without harassment or the animal shall be removed from the trench by a qualified biologist; Following construction, all areas of temporary disturbance will be regraded, topsoil re-distributed, and the area restored according to an agency-approved plan; and
- A temporary pedestrian corridor within the construction area that avoids SBKR burrows will be established for all construction personnel to use.
- Purchase of San Bernardino Kangaroo Rat Mitigation Credits
  - To compensate for the temporary and permanent loss of San Bernardino Kangaroo Rat critical habitat, the project owner will purchase acres (or credits) from the Cajon Creek Conservation Bank or other USFWS approved mitigation bank.
  - Verification: Prior to the start of ground disturbance relating to the proposed project construction within San Bernardino Kangaroo Rat habitat, the project owner shall provide a copy of the check issued to the mitigation bank, the contact information for the mitigation bank, and any receipt issued by the mitigation bank to the project owner. Within 100 days after the purchase of credits, the project owner shall provide a geo-referenced electronic file which represents the outline of the bank.

However, FWS will have final say as to the exact mitigation, which will be presented in the Biological Opinion.

## **10 DOCUMENT PREPARATION**

This Biological Resources Assessment for the Soboba Horseshoe Grande Property was prepared by ENTRIX, Inc., an environmental consulting firm. Authors and field personnel included:

Sara Fischer, Staff Scientist  
 Kay Nicholson, Project Scientist  
 Bruce Palmer, Senior Consultant/Senior Ecologist

## 11 LITERATURE CITED

- American Ornithologists' Union (AOU). 1957. The A.O.U. Check-list of North American Birds, 5th ed. Port City Press, Inc., Baltimore, MD. 691 pp.
- Atwood, J. 1980. The United States distribution of the California black-tailed gnatcatcher. *Western Birds* 11:65–78.
- Atwood, J. 1990. Status review of the California gnatcatcher (*Polioptila californica*). Manomet Bird Observatory, Manomet, Massachusetts.
- Bailey, V., and C. C. Sperry. 1929. Life history and habits of the grasshopper mice, genus *Onychomys*. U.S. Department of Agriculture Technical Bulletin No. 145. 19 pp.
- Beedy, E. C., and W. J. Hamilton. 1997. Tricolored blackbird: status update and management guidelines. (Jones & Stokes Associates, Inc. 97-099.) Sacramento, CA. Prepared for U.S. Fish and Wildlife Service, Portland, OR and California Department of Fish and Game, Sacramento, CA.
- Bent, A. C. 1940. Life histories of North American cuckoos, goatsuckers, hummingbirds, and their allies. U.S. National Museum Bulletin 176: 506 pp.
- Bleich, V. C. 1973. Ecology of rodents at the United States Naval Weapons Station Seal Beach, Fallbrook Naval Weapons Annex, San Diego County, California. M.A. Thesis, California State University, Long Beach.
- Bleich, V. C., and O. A. Schwartz. 1974. Western range extension of Stephens' kangaroo rat (*Dipodomys stephensi*), a threatened species. *California Department of Fish and Game* 60:208–210.
- Bolger D.T. 2002. Habitat fragmentation effects on birds in southern California: contrast to the "top-down" paradigm. In T. L. George and D. S. Dobkin (Eds.) *Studies in Avian Biology* 25: 141–157
- Borrer, D. J. 1971. Songs of *Airnophila* sparrows occurring in the United States. *Wilson Bulletin* 83:132–151.
- Bostic, D. L. 1965. Home range of the teiid lizard, *Cnemidophorus hyperythrus beldingi*. *Southwestern Naturalist* 10:278–281.
- California Department of Fish and Game (CDFG). 2005. State of California Resources Agency, Department of Fish and Game, Habitat Conservation Division, Wildlife and Habitat Data Analysis Branch, California Natural Diversity Database. Special Animals. July 2005. Available at: <http://www.dfg.ca.gov/whdab/html/cawildlife.html>. Site accessed August 2006.

- California Department of Fish and Game, California Natural Diversity Database. 2006. Wildlife and Habitat Data Analysis Branch. Commercial database version dated January 4, 2006.
- California Native Plant Society (CNPS). 2001. Inventory of rare and endangered plants of California (6th edition, electronic version). Rare Plant Scientific Advisory Committee, David P. Tibor, convening editor. California Native Plant Society, Sacramento.
- Cameron, G. N. 1973. Effect of litter size on postnatal growth and survival in the desert woodrat. *Journal of Mammalogy* 54:489–493.
- Cameron, G. N., and D. G. Rainey. 1972. Habitat utilization by *Neotoma lepida* in the Mohave Desert. *Journal of Mammalogy* 53:251–266.
- City-data.com. 2007. San Jacinto, California. Available at: <http://www.city-data.com/city/San-Jacinto-California.html>.
- Collins, P. W. 1999. Rufous-crowned Sparrow. In A. Poole and F. Gill (Eds.), *Birds of North America* 472:1 – 27.
- Coulombe, N. H. 1971. Behavior and population ecology of the Burrowing Owl, *Speotyto cunicularia*, in the Imperial Valley of California. *Condor*. 73: 162-176.
- DeSante, D. E, and G. G. Geupel. 1987. Landbird productivity in central coastal California: The relationship to annual rainfall, and a reproductive failure in 1986. *Condor* 89:636-653.
- Egoscue, H. J. 1957. The desert woodrat: a laboratory colony. *Journal of Mammalogy* 38:472–481.
- Grinnell, J. 1933. Review of the recent mammal fauna of California. University of California Publications in Zoology 40:71–284.
- Grinnell J., and A. H. Miller. 1944. The distribution of the birds of California. *Pacific Coast Avifauna* 27:1– 610.
- Hayden, P., J. J. Gambino, and R. G. Lindberg. 1966. Laboratory breeding of the little pocket mouse, *Perognathus longimembris*. *Journal of Mammalogy* 47:412–423.
- Holland, R. F. 1986. Preliminary descriptions of the terrestrial natural communities of California. Sacramento: California Department of Fish and Game.
- Horner, B. E. 1961. Paternal care of the young and convulsive seizures in the grasshopper mouse. *American Zoologist* 1:360.
- Horner, B. E., J. M. Taylor, and H. A. Padykula. 1964. Food habits and gastric morphology of the grasshopper mouse. *Journal of Mammalogy* 45:513–535.
- Jennings, M. R., and M. P. Hayes. 1994. Amphibian and reptile Species of Special Concern in California. California Department of Fish and Game, Rancho Cordova, California.

- Johnsgard, P. A. 1990. Hawks, eagles, and falcons of North America. Smithsonian Institution Press. Washington and London.
- Jones, C. and R. Ramirez. 1995. 1995 sighting of the California gnatcatcher in Ventura County. Poster presented at the Symposium on the Biology of the California Gnatcatcher held 15–16 September 1995, University of California, Riverside.
- Lackey, J. A. 1967. Biosystematics of *heermanni* group kangaroo rats in southern California. Transactions of the San Diego Society of Natural History 14:313–344.
- Lee, A. K. 1963. The adaptations to arid environments in woodrats of the genus *Neotoma*. University of California Publications in Zoology 64:57–96.
- MacMillen, R. E. 1964. Population ecology, water relations, and social behavior of a southern California semidesert rodent fauna. University of California Publications in Zoology 71:1–59.
- McCarty, R. 1975. *Onychomys torridus*. Mammalian Species No. 59, pp 1–5.
- Meserve, P. L. 1974. Ecological relationships of two sympatric woodrats in a California coastal sage scrub community. Journal of Mammalogy 55:442–447.
- Miller, A. H., and R. C. Stebbins. 1964. The lives of desert animals in Joshua Tree National Monument. Univ. California Press, Berkeley. 452 pp.
- Morrison, S. A., D. T. Bolger, and T. S. Stille. 2004. Annual survivorship of the sedentary Rufous-crowned Sparrow (*Aimophila ruficeps*): no detectable effects of edge or rainfall in southern California. Auk 121(3):904–916.
- NatureServe. 2007. NatureServe Explorer: An online encyclopedia of life [web application]. Version 5.0. NatureServe, Arlington, Virginia. Available at: <http://www.natureserve.org/explorer>.
- O'Farrell, M. J. 1990. Stephens' kangaroo rat: natural history, distribution, and current status. In P. J. Bryant and J. Remington (eds.) Memoirs of the Natural History Foundation of Orange County 3:77–84.
- O'Farrell, M. J., and C. E. Uptain. 1987. Distribution and aspects of the natural history of Stephens' kangaroo rat (*Dipodomys stephensi*) on the Warner Ranch, San Diego County, California. Wassman Journal of Biology 45:34–48.
- O'Farrell, M. J., and C. E. Uptain. 1989. Assessment of population and habitat status of the Stephens' kangaroo rat (*Dipodomys stephensi*). California Department of Fish and Game Nongame Bird and Mammal Section, Report 72.
- Pinter, A. J. 1970. Reproduction and growth of two species of grasshopper mice (*Onychomys*) in the laboratory. Journal of Mammalogy 51:236–243.

- Price, M. V., and P. R. Endo. 1989. Estimating the distribution and abundance of a cryptic species, *Dipodomys stephensi* (Rodentia: Heteromyidae), and implications for management. *Conservation Biology* 3:293–301.
- Reichman, O. J., and M. V. Price. 1993. Ecological aspects of heteromyid foraging. *In* Genoways, H. H. and J. H. Brown (Eds.) *Biology of the Heteromyidae*, Special Publication No. 10 of the American Society of Mammalogists. Pp. 539–574.
- Reveal, J.L., and C.B. Hardham. 1989. A revision of the annual species of *Chorizanthe* (Polygonaceae: Eriogonoideae). *Phytologia* 66:98-198.
- Rising, J. D. 1996. A guide to the identification and natural history of the sparrows of the United States and Canada. Academic Press, San Diego, CA. 365 pp.
- Riverside County. 2000. Western Riverside County Multiple Species Habitat Conservation Plan (including the Riverside County Integrated Project).
- Robertson, J. 1929. Some observations on feeding habits of the burrowing owl. *Condor* 31:38–39.
- Sawyer, J. O., and T. Keeler-Wolf. 1995. A manual of California vegetation. Sacramento: California Native Plant Society.
- Stebbins, R. C. 1954. Amphibians of western North America. McGraw-Hill, New York. 536 pp.
- Stephens, F. 1906. California mammals. West Coast Publishing Company, San Diego, CA. 351 pp.
- Stones, R. C., and C. L. Hayward. 1968. Natural history of the desert woodrat, *Neotoma lepida*. *American Midland Naturalist* 80:458–476.
- Thomas, S. R. 1973. Stephens' kangaroo rat survey. California Department of Fish and Game, Special Wildlife Investigation, Job II-5.6 (final report). 10 pp.
- US Fish and Wildlife Service (FWS). 1997. Draft Recovery Plan for the Stephens' Kangaroo Rat. Region 1, U.S. Fish and Wildlife Service, Portland, OR. 71 pp.
- US Fish and Wildlife Service (FWS). 1998a. Endangered and Threatened Wildlife and Plants; Final Rule to list the Munz's onion as Endangered. *Federal Register* 63(197): 54975–54994.
- US Fish and Wildlife Service (FWS). 1998b. Endangered and Threatened Wildlife and Plants; Final Rule to list the San Bernardino Kangaroo Rat as Endangered. *Federal Register* 63(185):51005–51017.
- US Fish and Wildlife Service (FWS). 2002. Endangered and Threatened Wildlife and Plants; Final Designation of Critical Habitat for the San Bernardino kangaroo rat. *Federal Register* 67(78):19812–19845.



- US Fish and Wildlife Service (FWS). 2003. Endangered and Threatened Wildlife and Plants; Final Designation of Critical Habitat for the Coastal California Gnatcatcher (*Polioptila californica californica*) and Determination of Distinct Vertebrate Population Segment for the California Gnatcatcher (*Polioptila californica*); Proposed Rule. Federal Register 68(79):20228–20312.
- US Fish and Wildlife Service (FWS). 2007. Endangered and Threatened Wildlife and Plants; Revised Critical Habitat for the San Bernardino Kangaroo Rat (*Dipodomys merriami parvus*); Proposed Rule. Federal Register 72(117):33808–33842.
- US Fish and Wildlife Service (FWS). 2008. Endangered and Threatened Wildlife and Plants; Final Designation of Critical Habitat for the San Bernardino kangaroo rat. Federal Register 73(202):61936–62002.
- Verts, B. J., and L. N. Carraway. 2002. *Neotoma lepida*. Mammalian Species 699:1–12.
- White, S. D., and W. D. Padley. 1997. Coastal sage scrub series of western Riverside County, California. Madroño 44(1):95–105.
- Williams, D. F. 1986. Mammalian Species of Special Concern in California. California Department of Fish and Game. Turlock, California.
- Zeiner, D. C., W. F. Laudenslayer, Jr., K. Mayer, and M. White. 1990. California's wildlife: Volume II. birds. Sacramento, CA: California Department of Fish and Game.

**Appendix O:**  
**USFWS Biological Opinion**



## United States Department of the Interior




FISH AND WILDLIFE SERVICE  
Ecological Services  
Carlsbad Fish and Wildlife Office  
6010 Hidden Valley Road, Suite 101  
Carlsbad, California 92011

In Reply Refer To:  
FWS-WRIV-08B0367-11F0503

DEC 02 2011

### Memorandum

To: Chief, Division of Environmental Cultural Resources Management and Safety  
Bureau of Indian Affairs, Pacific Regional Office, Sacramento, California

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

Subject: Formal Section 7 Consultation for the Soboba Band of the Luiseño Indians' Proposed  
Horseshoe Grande Property Fee-to-Trust Application, Riverside County, California

This document transmits the U.S. Fish and Wildlife Service's (Service) biological opinion addresses the proposed Horseshoe Grande fee-to-trust application from the Soboba Band of the Luiseño Indians (Tribe) in Riverside County, California, and the associated tribal development of the Horseshoe Grande property, and its effects on the federally endangered San Bernardino kangaroo rat (*Dipodomys merriami parvus*, "SBKR") and its designated critical habitat, in accordance with section 7 of the Endangered Species Act of 1973 (Act), as amended (16 U.S.C. 1531 *et seq.*). Your agency, the Bureau of Indian Affairs (BIA), requested the initiation of formal consultation in a letter dated June 16, 2011, which we received on June 20, 2011.

This biological opinion is based on information provided in the *Horseshoe Grande Fee-to-Trust Project Biological Resources Assessment* (BIA 2011). In addition, other project information was provided during informal consultation to staff of the Carlsbad Fish and Wildlife Office (CFWO) and Palm Springs Fish and Wildlife Office (PSFWO) at various site visits and meetings. The complete project file for this consultation, including all written correspondence, electronic mail, and telephone communication, is maintained at the CFWO.

You have requested our concurrence with your determination that the proposed project may affect, but is not likely to adversely affect the federally endangered arroyo toad (*Anaxyrus californicus*) and Stephens' kangaroo rat (*Dipodomys stephensi*). Based on the lack of suitable habitat in the Development Project impact area and implementation of avoidance and minimization measures, we concur that the proposed project is not likely to adversely affect both species. As a result, this biological opinion does not address further the arroyo toad or Stephens' kangaroo rat.

Regarding SBKR critical habitat, the proposed project affects Unit 3, which encompasses approximately 5,565 acres (ac) in Riverside County and includes portions of the existing Soboba Band of the Luiseño Indian Reservation (Reservation), San Bernardino National Forest, Bautista

Creek, and areas along the San Jacinto River in the vicinity of San Jacinto, Hemet, and Valle Vista. As discussed below, approximately 72.2 ac of critical habitat (CFWO internal GIS) will be conveyed to the Western Riverside County Regional Conservation Authority (RCA) to be permanently conserved and managed for the benefit of the species as a result of this action. Approximately 46.8 ac of critical habitat (CFWO internal GIS) will be conveyed to Federal trust status and become part of the Reservation. However, these 46.8 ac of designated critical habitat are not subject to any proposed development at this time. The proposed Development Project footprint is not located within the designated critical habitat boundaries and no construction-related impacts to designated critical habitat are expected to occur. Because we also do not anticipate any indirect effects to adjacent SBKR critical habitat as a result of the proposed action, we conclude that the proposed action is not likely to adversely affect designated critical habitat for SBKR and, thus, this biological opinion does not address further the effect of the proposed project on critical habitat.

### **CONSULTATION HISTORY**

On August 20, 2008, the BIA submitted a biological resource assessment and request for concurrence on a “may affect, but not likely to adversely affect” determination for five federally protected species: Munz’s onion, slender-horned spineflower, coastal California gnatcatcher, Stephens’ kangaroo rat, and SBKR.

On October 8, 2008, CFWO biologist, Doreen Stadtlander, spoke to BIA environmental protection specialist, Patrick O’Mallan to request a copy of the draft Environmental Impact Statement (EIS), and to inform BIA that due to workload constraints the CFWO would not be able to review the biological resource assessment immediately.

On November, 5, 2008, Doreen Stadtlander requested a site visit due to possible SBKR issue identified during the review of the biological resource assessment.

On December 3, 2008, CFWO biologists, Eric Porter and Mark Pavelka, met with the Tribe’s consultant, Sarah Fischer (Entrix) at the proposed project site to evaluate the potential for suitable habitat and occupancy by SBKR. The proposed site was found to have a reasonable potential to be occupied by SBKR on several portions of the Horseshoe Grande property.

On December 9, 2008, Ms. Stadtlander recommended protocol surveys to confirm whether SBKR occurred on the property. She also provided SBKR trapping guidelines to BIA.

On December 17, 2008, CFWO sent BIA a letter stating that, based on the biological resource assessment and site visit on December 3, 2008, the Service could not concur with the “not likely to adversely affect” determination for SBKR. However, the Service did concur with BIA’s “not likely to adversely affect” determination for Munz’s onion, slender-horned spineflower, and coastal California gnatcatcher.

On June 21, 2009, the BIA submitted a copy of the draft EIS to CFWO for comment.

On August 6, 2009, Mr. Pavelka along with BIA and Entrix representatives visited the site to determine whether recent disking activities or other habitat disturbance had occurred in areas thought to be occupied by SBKR since the initial site visit. The meeting also addressed a non-permitted driving range that was constructed north of the Soboba Springs Golf Course, within the boundaries of the Horseshoe Grande property. An email summarizing the meeting/site visit were submitted to Entrix by Mr. Pavelka on August 14, 2009.

On September 15, 2009, CFWO submitted comments to the BIA regarding the draft EIS for the proposed project. CFWO expressed concerns regarding the impacts of the proposed fee-to-trust application to the Western Riverside County Multiple Species Habitat Conservation Plan (MSHCP). Specifically 462 ac of proposed to be placed in trust occur within MSHCP criteria areas and were targeted for conservation. Additionally CFWO addressed potential SBKR impacts and possible negative impacts from future flood control actions in the area.

CFWO and PSFWO staff met with the Tribe and their consultants multiple times over the past year, as the proposed project was refined. Our discussions during this time period addressed the potential impacts to SBKR and its designated critical habitat and conservation actions aimed at avoiding and minimizing those impacts. Service staff also addressed potential effects of the Tribe's proposed fee-to-trust application and Development Project on the MSHCP. Interagency negotiations resulted in substantial changes to the project to address concerns for listed species and to ensure consistency with the MSHCP.

On June 20, 2011, an updated biological resources assessment and a request for initiation of formal consultation were received by CFWO. Though the regulatory deadline for the biological opinion was November 2, 2011, PSFWO requested and received a 30-day extension from you due to workload constraints, which extended the deadline to December 2, 2011.

## **BIOLOGICAL OPINION**

### **DESCRIPTION OF THE PROPOSED ACTION**

The proposed action is the conveyance of 34 of the Tribe's fee-owned parcels, known collectively as the Horseshoe Grande property (see attached figure), to the United States Government to be held in trust for the Tribe and construction of the tribal commercial Development Project; a large, multi-facility entertainment complex located within the subject property boundaries. About 300 ac (56 percent) of the approximately 534.91-ac Horseshoe Grande property is within the city of San Jacinto, while the remainder is within unincorporated Riverside County. The subject property is contiguous with the existing Reservation, which is located at the base of the San Jacinto Mountains in the upper San Jacinto River basin. The Horseshoe Grande property is adjacent to the San Jacinto River, which flows along the western boundary of the Reservation. A portion of the property contains the existing Soboba Springs Golf Course and Country Club, which was purchased by the Tribe in 2004.

The 76.27-ac impact area associated with the Development Project will be subject to commercial development including relocation of the Tribe's existing casino, construction of a 300-room hotel, multiple restaurants and retail establishments, a special events arena, and a spa and fitness center. The proposed Development Project will also include a stand-alone tribal fire station and a 12-pump gas station with a 6,000 square foot convenience store that will be at a separate location within the proposed Development Project footprint. All proposed facilities will be located within a 729,500 square foot complex. To maximize available buildable land for the accommodation of the proposed developments, Lake Park Drive may be realigned. All Development Project impacts including temporary and permanent roads, stockpile zones, and staging areas will be located within the boundaries of the Development Project footprint on the Horseshoe Grande property. In the future, though the Tribe may propose a Phase II development project that would include construction of a convention center, this phase depends upon the success of the proposed Development Project and is not considered further in this biological opinion. Any such future Federal action proposed for areas within the boundaries of the Horseshoe Grande property, which may affect SBKR or its designated critical habitat, would be subject to section 7 of the Endangered Species Act.

Long-term conservation of three areas totaling 188.06 ac within the boundaries of the Horseshoe Grande property is also included in this action (see attached figure).

- Conservation Area B will include 33.5 ac of San Jacinto River floodplain habitat northwest of the proposed project site outside of the Horseshoe Grande property boundaries. The property was deeded to the RCA on December 20, 2010, and will be managed consistently with the MSHCP.
- Conservation Area C will include 5 parcels totaling 124.68 ac of habitat within the San Jacinto River floodplain and adjacent upland areas. The parcels are located within the Horseshoe Grande property boundaries northwest of the proposed Development Project site and the Soboba Springs Golf Course. The Tribe will convey the property in fee to the RCA for perpetual habitat conservation management under the MSHCP.
- Conservation Area D will include 29.88 ac of upland habitat located adjacent to the San Jacinto River, behind the flood control levee, and within the Horseshoe Grande property boundaries. The Tribe, under the terms of a memorandum of understanding with the RCA, will conserve this property in perpetuity and manage it consistent with the MSHCP.

#### *Conservation Measures*

The BIA and/or the Tribe will ensure these conservation measures are implemented to avoid and minimize impacts to SBKR and its designated critical habitat.

1. Permanent impacts to SBKR habitat will be offset through conservation and management of approximately 188.06 ac of land along the San Jacinto River. See “Description of the Proposed Action” above for more detail on Conservation Areas B, C, and D.
2. The Tribe and/or its contractor will retain a Service-authorized biological monitor on site during initial ground disturbance and during construction activities. The biological monitor will ensure compliance with the project description evaluated in this biological opinion, including all conservation measures and terms and conditions, and will have the authority to halt/suspend all activities until appropriate corrective measures have been taken. The biological monitor will report any non-compliance immediately to PSFWO (see address and phone number below). The biological monitor will have expertise with SBKR and its habitat. At least 30 days prior to the start of any project-related activities, the name(s) and permit number(s) of the prospective biological monitor(s) will be submitted to PSFWO.
3. The biological monitor will develop and conduct an environmental awareness education program for all construction personnel (including temporary contractors and subcontractors) before any work is begun on or adjacent to the project site. At a minimum, the information presented will include (1) a description of SBKR and its habitat; (2) delineation and flagging of the project area, and limitations on movement of personnel and equipment; and (3) legal status of SBKR and the meaning of “take” under the Act.
4. Before any ground disturbance begins the contractor will delineate and mark all limits of construction to be clearly visible to all personnel. All construction-related activities by contractors, subcontractors, or their agents and equipment (including staging, materials storage, and personnel parking areas) will be restricted to the designated limits of construction and staging areas.
5. To minimize incidental take of SBKR and assess impacts to SBKR within the footprint of the proposed Development Project, SBKR will be trapped and relocated prior to ground-disturbing activities;
  - a. Prior to vegetation clearance or other ground-disturbing activities, the approximately 14-ac occupied area will be fenced to exclude SBKR from the construction area and delineate the work area. An SBKR biologist will be present when the fence is installed to ensure that the occupied area is enclosed and all possible SBKR burrows are included in the fenced area;
  - b. The fence will be constructed of 0.25-inch (in) gauge hardware cloth backed by silt fencing or other material if approved by the CFWO. No gaps greater than 0.5-in will be allowed within the exclusionary fence, and the SBKR biologist or other designated staff will check the temporary exclusionary fencing at the close of each work day. If gaps greater than 0.5-in are detected, they will be repaired

immediately. The exclusionary fencing will remain in place, be inspected regularly, and be maintained without gaps until project construction is completed;

- c. Immediately preceding vegetation clearing and/or ground disturbing activities within the fenced areas, pre-construction trapping of SBKR will be conducted by an SBKR biologist for a minimum of 5 nights or until no SBKR have been captured within the fenced construction area for 2 consecutive nights. Trapping locations will be selected at the discretion of the SBKR biologist, in coordination with the PSFWO. SBKR trapped within the project footprint will be released within suitable habitat immediately outside of the fenced construction area. Results of the trapping effort will be provided to the PSFWO within 24 hours of completing the trapping; and
  - d. Construction will be monitored by a qualified biologist or their designated staff for the duration of the project to ensure that measures are being employed to avoid incidental disturbance of SBKR and/or their habitat outside the construction footprint.
6. Best management practices to prevent discharge of hazardous materials associated with use and maintenance of construction equipment will be followed pursuant to the guidelines in the Riverside County Flood Control and Water Conservation District management plans.
7. No construction activity will take place at night.

#### *Action Area*

According to 50 CFR§ 402.2, pursuant to section 7 of the Act, the “action area” includes all areas to be affected directly or indirectly by the Federal action and not merely the immediate area involved in the action. Analysis of the environmental baseline, effects of the action, and levels of incidental take are based on the action area as determined by our agency. For the Project, we consider the 568.41-ac action area to include the 534.91-ac Horseshoe Grande fee-to-trust project area and 33.5-ac Conservation Area B.

#### STATUS OF THE SPECIES

##### *Listing Status*

SBKR was emergency listed as endangered on January 27, 1998 (63 FR 3835), and listed as endangered on September 24, 1998 (63 FR 51005). Critical habitat for SBKR was initially proposed on December 8, 2000 (65 FR 77178), and designated on April 22, 2002 (67 FR 19812). Critical habitat for SBKR was subsequently re-proposed on June 19, 2007, and a final designation of the revised critical habitat was published on October 17, 2008 (72 FR 33808 and 73 FR 61936, respectively). In 2009, a lawsuit was filed challenging the 2008 critical habitat designation. On



January 8, 2011, the court ruled for the plaintiffs, vacated the 2008 critical habitat designation, and reinstated the 2002 critical habitat designation.

We completed a 5-year review of the status of SBKR in August 2009, which recommended no change in its listing status (Service 2009). Further information on SBKR and its habitat affinities, life history, status and distribution, threats, and conservation needs across its current range is available at <http://ecos.fws.gov/speciesProfile/profile/speciesProfile.action?sPCODE=A0G8>.

### *Habitat Affinities*

In our recent 5-year review and critical habitat rules we described the preferred substrate used by SBKR as well-drained, sandy substrates where they are able to dig simple, shallow burrow systems (Service 2009). This preference has been further supported by recent studies in which the distribution and abundance of SBKR was negatively correlated with a high percentage of rock and cobble in the substrate (Service 2010), which is thought to prevent successful burrow construction. Comparisons of capture locations over time suggest that SBKR may not use the rocky, active channel habitats year-round, but instead only for travel or seasonal foraging (Service 2010).

We have previously described the dominant vegetation type in which SBKR occurs as Riversidean alluvial fan sage scrub (Service 2002, Service 2009). We now use the term “scalebroom scrub” (*Lepidospartum squamatum* Alliance, Sawyer *et al.* 2009) to identify the dominant vegetation type in floodplain areas occupied by SBKR.

### *Threats to the Species in the Vicinity of the Action Area*

In the San Jacinto River system, flood control facilities and related activities threaten SBKR habitat quantity and populations. Flood control structures often confine, isolate, or fragment SBKR populations by creating movement barriers within scalebroom scrub, thereby making the fragmented populations more vulnerable to extirpation from catastrophes and other risks faced by small populations. Conversion of floodplains into narrow, monotypic channels removes the physical structure (i.e., terracing) and reduces the size of the active floodplain (Service 2009). Historically, large floodplains supported various phases of scalebroom scrub characterized by the frequency of scouring from flooding events. With channelization, many floodplains have become more homogeneous than in the past with either active channels that experience frequent flooding (open channel and pioneer scalebroom scrub) or historic floodplains that now experience infrequent to nonexistent flooding (mature scalebroom scrub). The channel walls or levees that separate active channels from mature scalebroom scrub also fragment SBKR populations and serve as a barrier to recolonization of in-channel habitats from surrounding mature scalebroom scrub following a flood event (Service 2009).

No active aggregate mining operations exist within the SBKR-occupied stretch of the San Jacinto River, though an approximately 73-ac in-stream aggregate mining operation was abandoned and an approximately 35-ac pit remains. The central location of the mining operation within the San Jacinto wash and the impacts of the mining pit coupled with disturbance in adjacent habitat have

effectively bisected the remaining SBKR into two disjunct populations with restricted opportunity for movement of individuals (Service 2009).

Long-term groundwater pumping has severely depleted groundwater reserves within western Riverside County and has resulted in an increased need to recharge groundwater supplies by percolating either imported or local water supplies into local groundwater basins. Groundwater recharge areas are generally unsuitable for SBKR because of the periodic presence of standing water and the degradation of scalebroom scrub (Service 2009). These activities are ongoing in and proposed for the San Jacinto River and its tributary, Bautista Creek.

Disking for agricultural and fuel reduction, is a common practice in this region, including in the vicinity of the proposed project. Disking destroys SBKR habitat by crushing the burrows and degrading remaining vegetation. These activities have greatly increased the susceptibility of SBKR populations to extinction during catastrophic events by restricting it to areas most vulnerable (e.g., floodplain) during floods (Service 2009).

Human activities that threaten SBKR include dumping and recreational activities. Off-highway vehicle (OHV) use directly damages plant communities, the soil crust, and burrow systems of SBKR. OHV use continues to destroy and degrade many acres of scalebroom scrub occupied by SBKR in the San Jacinto River (Service 2009).

#### *Conservation Needs in the Vicinity of the Action Area*

Conservation and recovery of SBKR within the action area will depend upon the same sort of actions required to conserve and recover the species within its extant range (67 FR 19816). To conserve and recover SBKR, occupied areas must be protected and managed to increase the local abundance of animals and to secure existing populations across the species' range, especially within the three major watershed populations.

The natural ecosystem processes necessary to maintain a dynamic mosaic of habitats for SBKR should be maintained or improved to restore the natural fluvial regime, or alternatively management should be provided to replace natural scour, sand transport and deposition, and the associated plant community responses. In some areas, maintenance of appropriate habitat conditions may require active management to sustain SBKR over time, like periodic removal of nonnative plants, particularly annual grasses, and thinning of shrubs and overall vegetative cover.

Long-term viability for all populations also depends on maintaining occupied refugia habitat adjacent to active floodplains as sources of animals to recolonize river wash habitat after major flood events. Ameliorating the threats such as the ongoing OHV use in the San Jacinto River and adjacent upland habitat would benefit the conservation of SBKR in the area. In addition, establishment and restoration of upland refugia habitat, and protection and management of additional areas throughout its range would help conserve this animal.

## ENVIRONMENTAL BASELINE

Regulations implementing the Act (50 CFR §402.02) define the environmental baseline as the past and present impacts of all Federal, State, or private actions and other human activities in the action area. Also included in the environmental baseline are the anticipated impacts of all proposed Federal projects in the action area that have undergone section 7 consultation and the impacts of State and private actions that are contemporaneous with the consultation in progress.

The 568.41-ac action area spans the north-south distance of approximately 4 miles and is located between the San Jacinto River and Soboba Road. One or more levees separate the San Jacinto River from the adjoining areas to the east, beginning at the Soboba Springs Golf Course and continuing across the southern edge of Conservation Area D. The soils within the proposed project site are loamy sands and sandy loams derived from the alluvial floodplain system. The proposed project area includes river bottom, scalebroom scrub, riparian, and ruderal disturbed annual grassland (Entrix 2010). Within Conservation Areas B and C, suitable SBKR habitat includes primary habitat located outside of the low-flow channel of the San Jacinto River; adjacent upland habitat containing scattered shrubs and forbs; and secondary habitat located within the low-flow channel which contains minimal shrubs and forbs. Conservation Area D and the Development Project footprint consist of disturbed upland habitat. Disturbances include disking, development, and recreational use.

Focused protocol surveys were conducted on August 27-30, and October 8-13, 2009, by Stephen Montgomery and Phillip Brylski according to Service and California Department of Fish and Game permit conditions. The live-trapping survey was designed to determine the presence/absence of SBKR within the proposed project site by focusing on areas containing signs of SBKR presence and by sampling representative habitat for the project area where signs of presence were not obvious or clearly identifiable. The survey area was derived from the boundaries of the proposed project and suitable habitat presence within the boundaries. Two separate areas of the proposed project site were surveyed. The northern survey area is north and west of the Soboba Springs Golf Course and includes the river wash and the adjoining upland areas between the San Jacinto River and Soboba Road. The southern survey area is west and east of the golf course north of Lake Park Drive and includes an area that surrounds the San Jacinto Mobile Home Park, south of Lake Park Drive.

A focused protocol survey was conducted in the northern section of the proposed project area between August 27-30, 2009, using three small grids and a single transect, set in habitat in the river channel and at multiple higher levels of upland habitat adjoining the channel. Although this section has deep sandy soils typical of occupied SBKR habitat, only three SBKR were captured in this area (Entrix 2010). The northern section of the project area is occupied, and appears to be supporting SBKR at low densities.

The southern section of the proposed project area was surveyed between October 8-12, 2009, using transects set in 19 different areas designed to sample various habitats in the section. The southern survey section is bisected by Lake Park Drive, which runs east-west from Soboba Road

to the San Jacinto River. North of Lake Park Drive is undeveloped open space on either side of the Soboba Springs Golf Course. No SBKR were captured in the area north of Lake Park Drive. The San Jacinto Mobile Home Park is south of Lake Park Drive and is surrounded by undeveloped open space. This entire area was trapped extensively during the October 2009 protocol surveys. Thirty-nine SBKR were captured south of Lake Park Drive. Six of these were captured in the area proposed for development by the Tribe. The other 33 SBKR captured were located in proposed Conservation Area D (Entrix 2010). Based on the trapping surveys, approximately 14 ac of the Development Project footprint is considered occupied by SBKR at low densities.

Protocol surveys were not designed to estimate SBKR density or distribution. Nonetheless, we use the survey results as a course indication that, overall, SBKR could inhabit the proposed project area in low densities, or 1-5 SBKR per ac according to general SBKR density categories (McKernan 1997). Thus, based on the low density of 1-5 SBKR per ac within the Development Project footprint and considering the level of disturbance within and adjacent to this area, we calculate that between 14 and 70 SBKR could inhabit the approximately 14-ac occupied portion of the Development Project footprint.

In July 2011, protocol surveys were conducted within the river adjacent to proposed Conservation Area D (located between the Development Project and the river) in association with the Hemet-San Jacinto Integrated Recharge and Recovery Program (Formal Section 7 Consultation; FWS-WRIV-08B0106-12F0024). Trapping in this area resulted in a density estimate of 6.3 SBKR per ac. Although we believe the 14-ac area of the Development Project footprint is occupied at low densities due to the disturbed condition of the habitat, in consideration of the near-by 2011 survey results, we believe it is prudent to assume SBKR densities could be near the high end of the 1-5 SBKR per ac range. Therefore, we estimate that the number of SBKR within occupied portion of the Development Project footprint to be approximately 70.

Vegetation communities within the proposed Horseshoe Grande fee-to-trust project boundaries vary greatly and include river wash and adjacent upland habitat. However, past and present impacts have reduced and degraded habitat for SBKR in the vicinity of the proposed project footprint. Both primary and secondary habitats have various levels of disturbance and decreased suitability for the SBKR.

### *Disturbance*

Several factors contribute to the level of habitat disturbance within the proposed project area. Flood control activities and levee maintenance can cause a degree of ongoing disturbance to the San Jacinto River floodplain and adjacent uplands. Historically, SBKR occupied floodplains and adjacent uplands containing appropriate habitat. Animals from the upper terraces of the floodplain and adjacent uplands were available to recolonize extirpated areas that were flooded and scoured during storm events. However, conversion of floodplains into constricted channels controlled by levees has removed terracing and areas of active floodplain from the system (Service 2009). The floodplain and upland habitat of the San Jacinto River are also subject to degradation from OHV use. OHV use can result in crushing of animals and burrows, and destruction of vegetative cover

and food sources (Service 2009). The upland habitat has been disturbed by commercial development such as the existing golf course and associated maintenance activities, residential development, and excessive noise and traffic from the nearby roads and highways. These types of disturbance can impact SBKR either directly through mortality or indirectly due to loss of habitat for breeding, feeding, or sheltering.

### *Connectivity*

SBKR floodplain habitat within and adjacent to the proposed project boundaries is constrained, and connectivity to the adjacent uplands is reduced, due to multiple human-made barriers like roads, housing and commercial structures, and flood protection levees.

### *Conservation*

A portion of the action area lies within criteria cells of the MSHCP. On June 22, 2004, a section 10(a)(1)(B) permit was issued for the MSHCP (Dudek and Associates 2003, Service 2004). The MSHCP was designed to address the impacts of urbanization on “covered species” in a 1.2 million-ac plan area. The MSHCP established a multiple species conservation program to minimize and mitigate habitat loss and the incidental take of covered species in association with activities covered under the permit. The SBKR, which is a covered species, is subject to impacts associated with development and other “covered activities” conducted by the Permittees outside of the defined MSHCP Conservation Area. The known SBKR locations and habitat along the San Jacinto River, including the area of the proposed action, were anticipated to be incorporated within the MSHCP Conservation Area as either new reserve lands or existing Public/Quasi Public Lands to meet the permit issuance criteria for the SBKR (Service 2004). The Tribe has already conveyed 33.5 ac (Conservation Area B) of the proposed action area to the RCA to be managed consistently with the conservation strategy of the MSHCP.

## EFFECTS OF THE ACTION

Effects of the action refer to the direct and indirect effects of an action on the species, together with the effects of other activities that are interrelated and interdependent with that action, which will be added to the environmental baseline. Interrelated actions are those that are part of a larger action and depend on the larger action for their justification. Interdependent actions are those that have no independent utility apart from the action under consideration. Indirect effects are those that are caused by the proposed action, are later in time, and still reasonably certain to occur.

### **San Bernardino Kangaroo Rat**

#### *Direct Effects*

Implementation of the Horseshoe Grande fee-to-trust project will permanently impact (i.e., grade and fill) approximately 14 ac of occupied habitat within the Development Project footprint of the action area. These impacts will be offset by the conservation of approximately 93.4 ac of

occupied or suitable habitat along the San Jacinto River (Conservation Areas B and D and the portion of Conservation Area C south of Soboba Road). The remaining approximately 94 ac of upland habitat of these conservation areas are also being conserved.

To minimize the number of SBKR injured or killed by construction activities, the contractor will install exclusionary fencing around the 14-ac occupied area of the Development Project footprint to prevent SBKR from entering the construction area from adjacent occupied habitat. Any SBKR found during fence installation, and subsequently found within the fenced area throughout the course of construction activities, will be captured and released in nearby suitable habitat by an approved biologist. Trenching completed in order to install the exclusionary fence may directly injure and/or kill SBKR through crushing of the burrows by movement of personnel, vehicles, and equipment. Injury and death may result from the effects of trapping and relocation in order to maintain the SBKR-free enclosed action area. Despite risks associated with the exclusionary fencing, trapping, and release of SBKR to adjacent habitat, we believe these activities will minimize the number of animals that otherwise would be killed by construction activities. Additionally, although captured SBKR may be injured or killed during live-trapping or relocation, such take rarely occurs during trapping conducted by biologists approved by our agency (CFWO Listing and Recovery Branch, internal database).

We expect that SBKR likely will not enter the construction area after initial clearing and grading due to high levels of disturbance and human activity, though SBKR may be attracted to newly turned or stockpiled soils in the construction area or seek shelter in pipes or other materials left onsite overnight. To minimize injury to these SBKR, all trenches, pipes, and stockpiled soils will be backfilled or covered. The construction area will be monitored by a permitted biological monitor for the duration of the project to ensure that measures are being employed to avoid incidental disturbance of SBKR and/or their habitat.

With the above measures we expect that most SBKR will be removed from the area prior to grade and fill activities. However, any SBKR remaining within the Development Project impact area will be crushed or buried within their burrows as a result of Project-related construction activities. The SBKR habitat within the Development Project footprint is degraded and populated by SBKR at low densities. Additionally, only 14 ac of the 76.27-ac footprint is considered occupied habitat based on trapping data.

### *Indirect Effects*

Indirect adverse impacts to SBKR may result from trapping and release activities. After release, some animals likely will not survive displacement owing to increased vulnerability to predation, while others will suffer from reduced fitness resulting from competitive exclusion by SBKR or other small mammals already established within the release area. Physiological stress associated with inability to successfully reestablish a new home range for obtaining food and shelter will result in reduced individual fitness, as manifested by reduced survival or reproduction after release. Individual SBKR now inhabiting the adjacent habitat also may suffer from these competition-related stresses, including reduced reproduction, for some time after new animals are

released into their territories. However, we conclude that the existing degraded state of the habitat suggests a low number of SBKR will be captured and relocated, thus limiting the risk of decreased survival, fitness, and reproduction of either relocated or resident SBKR in the adjacent habitat.

### **Effect on Recovery**

According to section 2(b), the primary purposes of the Act are to provide a means whereby the ecosystems upon which listed species depend may be conserved, and to provide a program for the recovery of listed species. Under section 2(c), Congress established a policy requiring all Federal agencies to use their authorities in seeking to recover listed species in furtherance of the purposes of the Act. Consistent with these purposes and Congressional policy, sections 3(5), 4(f), 7(a)(1), the implementing regulations to section 7(a)(2) at 50 CFR § 402.02 and related preamble at 51 FR 19926 (June 3, 1986) generally require Federal agencies to further the survival and recovery of listed species in the use of their authorities. According to these mandates, our analysis below assesses (1) whether the proposed action adequately offsets its adverse effects to the environmental baselines for SBKR, and (2) the extent to which the proposed action would cause “significant impairment of recovery efforts” or adversely affect the “species’ chances for survival to the point that recovery is not attainable” (51 FR 19926).

While the Service has not developed a recovery plan for SBKR, our conservation and recovery strategy is to conserve and manage as much remaining habitat as possible according to our 5-year review for the species (Service 2009). In particular, the 5-year review contains recommendations for actions that should be implemented over the next 5 years to assist in SBKR recovery. The 5-year review also recommends that the Service work with partners to identify opportunities for habitat management, restoration, and enhancement, and to protect additional SBKR habitat. Habitat protection should include upland refugia to support SBKR during floods, and occupied floodplains and adjacent upland habitats should be conserved to ensure protection of populations large enough to remain viable in the long term (Service 2009). However, owing to the lack of adequate demographic data, we do not know how large a sustainable SBKR population must be or how large a habitat area is needed to support a viable population.

Overall, implementation of the proposed project will result in an increase in permanently conserved SBKR habitat including designated critical habitat. In addition, Area D is located above a flood control levee and is expected to function as upland refugia for the SBKR. We believe that the proposed conservation measures avoid and minimize adverse effects to SBKR that may be in the action area to the maximum extent possible. Not only will this proposed action not impede recovery of SBKR, we conclude that the proposed conservation measures likely will contribute to recovery.

### **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 Act. We are unaware of any non-Federal actions that are reasonably certain to occur within the action area and may affect SBKR

## CONCLUSION

After reviewing the current status of SBKR, environmental baseline for the action area, effects of the proposed action, and cumulative effects, it is our biological opinion that the proposed action is not likely to jeopardize the continued existence of SBKR. Our conclusion is based on the following:

1. Injury/death to SBKR within the action area will be minimized through installation and maintenance of exclusionary fencing, and release of SBKR trapped within the fenced area to adjacent appropriate habitat.
2. Permanent loss of 76.27 ac of SBKR habitat in the action area will be minimized by the permanent conservation and management of 188.06 ac of San Jacinto River and upland habitat that will support SBKR.

## INCIDENTAL TAKE STATEMENT

Section 9 of the Act and Federal regulations pursuant to section 4(d) of the Act prohibit the take of endangered and threatened species, respectively, without special exemption. Take is defined as to harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, collect, or attempt to engage in any such conduct. Harm is further defined to include significant habitat modification or degradation that actually kills or injures listed wildlife by significantly impairing essential behavioral patterns such as breeding, feeding, or sheltering. Harass is further defined as an intentional or negligent act or omission that creates the likelihood of injury to listed wildlife by annoying it to such an extent as to significantly disrupt normal behavioral patterns which include, but are not limited to, breeding, feeding, or sheltering. Incidental take is defined as take that is incidental to, and not the purpose of, the carrying out of an otherwise lawful activity. Under the terms of section 7(b)(4) and 7(o)(2) of the Act, such incidental take is not considered a prohibited taking under the Act, provided that such taking is in compliance with this incidental take statement.

The measures described below are non-discretionary, and must be undertaken by the BIA so that they become binding conditions of any permit or grant documents issued to the permittee, as appropriate, for the exemption in section 7(o)(2) to apply. The BIA and/or the Tribe have a continuing duty to regulate the activity covered by this incidental take statement. If the BIA and/or the Tribe fail to assume and implement the terms and conditions of the incidental take statement or to make them enforceable terms of permit or grant documents, the protective coverage of section 7(o)(2) may lapse. To monitor the impact of the incidental take, The BIA or the Tribe must report the progress of the action and its impact on the species to the PSFWO as specified in the incidental take statement [50 CFR §402.14(i)(3)].



## AMOUNT OR EXTENT OF TAKE

The disturbance of up to 76.27 ac of SBKR habitat, of which, 14 ac are known to be occupied, from vegetation clearing, soil removal, trenching to install exclusionary fencing, and construction activities may result in accidental death or injury of all SBKR within the Development Project footprint from crushing, trampling, or burial. We anticipate most juvenile and adult SBKR will be found during pre-construction clearance surveys and released to adjacent habitat. We expect incidental take of individual SBKR will be difficult to detect because SBKR burrow underground and project-related injuries or deaths may be masked by seasonal or annual fluctuations in numbers. Because immature SBKR are almost never found during surveys, we assume virtually all will be killed or injured by construction activities within the Development Project footprint. While we cannot provide the precise number of SBKR that may be taken, we have estimated the number of adult SBKR in the proposed Development Project footprint to be between 14 and 70. Considering recent protocol surveys conducted in nearby floodplain habitat that yielded SBKR densities of 6 SBKR per ac, we believe SBKR densities could be at the high end of our estimated range, or 70 SBKR.

Although reproductive behavior peaks in June and July, SBKR in breeding condition have been found throughout the year (Service 2009). Therefore, we anticipate that immature SBKR (pups) will be underground in burrows during all phases of construction and will be taken during project construction. Assuming a 1:1 sex ratio, and that all 35 adult females have a maximum litter size of 3 kits per female (Service 2009), up to 105 pups could be present within burrows. Although it is unlikely that all female SBKR within the project footprint would be of reproductive age during construction, it is not possible to determine the extent to which we may have overestimated the actual number of breeding SBKR within the construction footprint. As a result, we likely have overestimated the number of pups that could be taken during project implementation, but have no other information with which to further refine our analysis. Moreover, dependent upon the season, some unknowable number of juveniles (young SBKR mature enough to be above ground) may be active outside the burrows at the time of trapping and relocation activities and, therefore, captured and relocated to nearby suitable habitat.

Using our best professional judgment, we have established the following take threshold for SBKR which, if exceeded, will trigger reinitiation of consultation. Incidental take of SBKR is anticipated and exempted as follows:

- We anticipate that up to 105 of the SBKR pups residing in underground burrows within the construction footprint will be crushed and buried due to construction activities within the footprint. While take in the form of harm, injury, or death for 105 SBKR pups is exempted, the take threshold will be exceeded if grading or disturbance occurs beyond the defined 76.27-ac Development Project impact area.
- Assuming that trenching for installation of the exclusionary fence will impact about 10 percent of the proposed project footprint, we conservatively anticipate that about 10 percent, or 7 individuals, of the estimated 70 juvenile and adult SBKR could be crushed by

backhoe operations associated with exclusionary fence installation. While take in the form of harm, injury, or death for 7 juvenile and/or adult SBKR is exempted for the installation of the fence, the take threshold will be exceeded if trenching for exclusionary fence installation impacts more area than necessary to fence the 14-ac occupied area.

- We anticipate that 90 percent, or 63 individuals, of the estimated 70 juvenile and/or adult SBKR residing within the Development Project footprint could be captured and relocated outside of the exclusionary fencing. If more than 63 SBKR are captured and relocated to areas outside of the exclusionary fence, the take threshold will be exceeded.
- While injury or death of SBKR during trapping and relocation is expected to be unlikely because the capture or collection, relocation, and release of SBKR will be conducted by a Service-approved biologist, we anticipate the injury or death of 1 SBKR during trapping and relocation. If more than 1 SBKR is injured or killed during collection, trapping, relocation and release, the take threshold will be exceeded.

If any of these take thresholds are reached the BIA, Tribe, and/or their agents (i.e., biological monitor) shall immediately contact the PSFWO to review the activities resulting in take and to determine if additional protective measures are required.

#### EFFECT OF THE TAKE

In the accompanying biological opinion, we have determined the level of anticipated take noted above would not result in an appreciable reduction in the number, distribution, or reproduction of the SBKR as a whole, and is thus not likely to result in jeopardy to the SBKR.

#### REASONABLE AND PRUDENT MEASURES

The BIA and/or the Tribe shall implement the conservation measures included as part of the proposed action analyzed in this biological opinion to minimize the incidental take of SBKR. In addition to these conservation measures, we consider the following reasonable and prudent measures are necessary to minimize the effects of incidental take on SBKR:

1. The BIA and/or Tribe shall monitor and report on compliance with the established take thresholds for SBKR associated with the proposed action.
2. The BIA and/or Tribe shall monitor and report on compliance with, and the effectiveness of, the conservation measures of the proposed project.

#### TERMS AND CONDITIONS

To be exempt from the prohibitions of section 9 of the Act, the BIA and/or the Tribe shall comply with the following terms and conditions, which implement the reasonable and prudent measures described above. These terms and conditions are non-discretionary.

To implement reasonable and prudent measure number 1 (monitor and report on compliance with established SBKR take thresholds), the BIA and/or Tribe shall:

- 1.1 Implement the conservation measures described in the project description and evaluated in this biological opinion. If the biological monitor detects impacts to SBKR from project-related activities in excess of that described in the above incidental take statement, the BIA and/or Tribe, their agents, or biological monitor will contact the PSFWO immediately.
- 1.2 Ensure the biological monitor (and any project biologists who will trap or handle SBKR or their burrows) has a valid section 10(a)(1)(A) permit. In addition to the conservation measures outlined in this biological opinion, when trapping, collecting, and releasing any SBKR found in the construction area or vicinity during the course of work, the biological monitor/biologist will implement the following measures:
  - a. Locate all traps in areas that best typify SBKR habitat, and place them in sufficient numbers to provide adequate coverage of suitable habitat. Mark all trap locations with flagging, reflective tape, or other technique that is visible under day and night conditions, and at a distance of at least 16.3 feet.
  - b. Use only 12-in Sherman or wire-mesh live traps; 9-in models may be used only if obtained before March 13, 1990. Ensure all trap models are modified to eliminate or substantially reduce the risk of SBKR injury (e.g., tail lacerations or excisions). Do not place any batting in the traps.
  - c. Sterilize traps previously used outside of Riverside County.
  - d. Conduct trapping only if the nightly low temperature is forecast to be 50 degrees Fahrenheit or above, and if no extended periods of wind, rain, fog, or other inclement weather will occur to make conditions unsuitable for trapping or will unduly imperil the lives of the animals.
  - e. Adjust traps by hand each time they are placed, set, and baited, at a sensitivity level appropriate for capturing SBKR. Visually inspect all traps before closing, and close them by hand.
  - f. Check all traps at least twice each night, once near midnight and again at sunrise.
  - g. Identify all trap locations with a unique identification code on a log sheet, note the date and time each trap is checked, and periodically review the log sheet to ensure no traps are inadvertently missed. Field documentation shall be available to Service personnel upon request.
  - h. Hold individual SBKR for no longer than 1 hour before release, and relocate as quickly as possible. Do not place the animal in a plastic bag; transfer it in a clean,

structurally sound, breathable container with adequate ventilation. Do not allow the animal to become stressed due to temperature extremes (either hot or cold).

To implement reasonable and prudent measure number 2 (monitor and report on compliance/ effectiveness of conservation measures), the BIA and/or Tribe shall:

- 2.1 Submit a quarterly report to PSFWO covering results of the biological monitor's visits to the project site during all phases of project construction, until construction is complete.
- 2.2 Ensure Service personnel have the right to access and inspect the project site during project implementation (with prior notification from us) for compliance with the project description, conservation measures, and terms and conditions of this biological opinion.

#### DISPOSITION OF SICK, INJURED, OR DEAD SPECIMENS

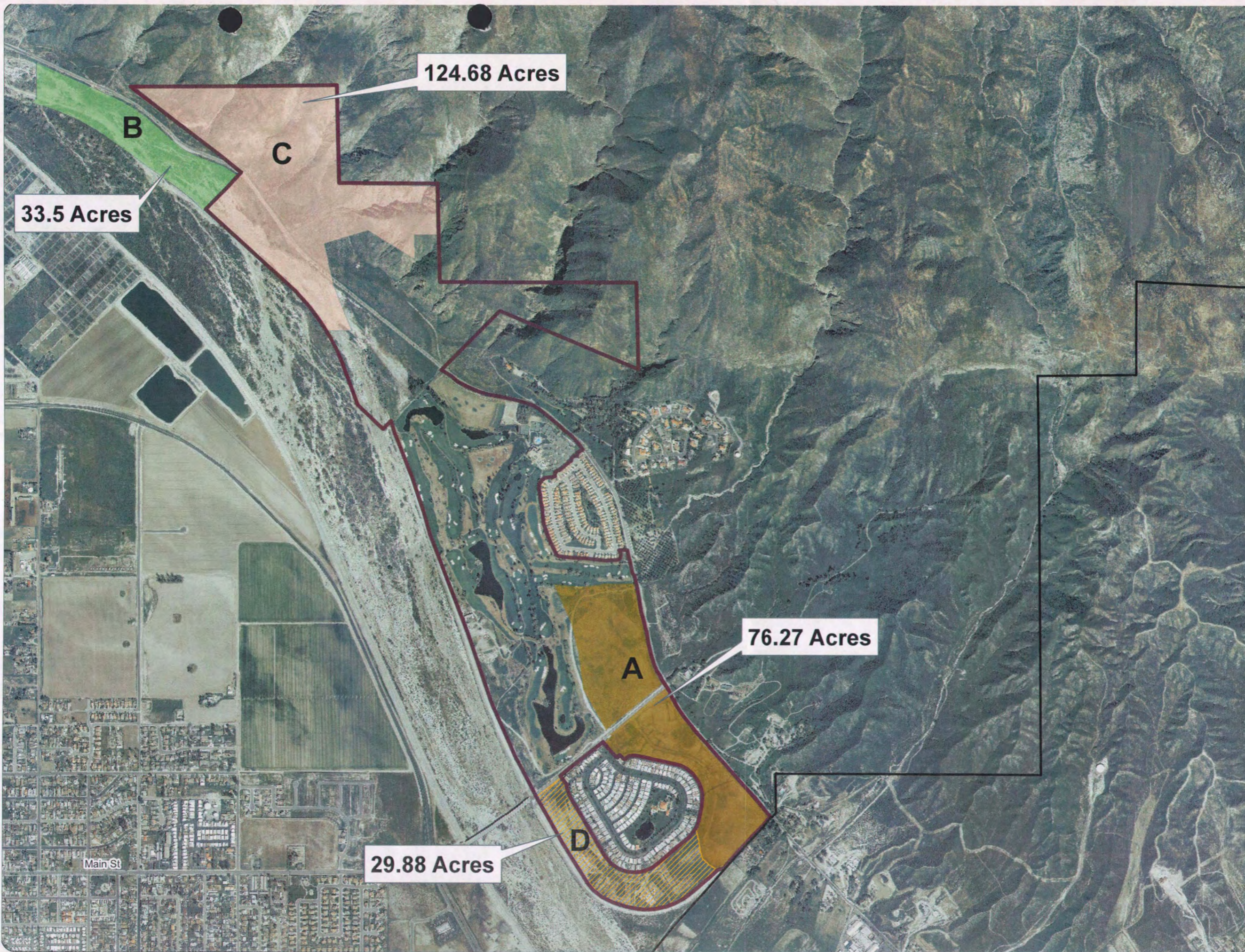
The BIA and/or Tribe shall notify PSFWO (see address and phone number below) within 3 work days if any endangered species are found dead or injured as a direct or indirect result of project implementation. Notification must include the date, time, and location of the injured animal or carcass, and any other pertinent information. In addition, mark dead animals appropriately, photograph, and leave the carcass on site; transport injured animals to a qualified veterinarian; and contact the PSFWO regarding the final disposition of any treated animals that survive.

#### REINITIATION NOTICE

This concludes formal consultation regarding the Horseshoe Grande fee-to-trust project as described in materials submitted to us. As provided in 50 CFR § 402.16, reinitiation 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 or 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 that may be affected by the action. In all instances where the amount or extent of incidental take is exceeded, any operations causing such take must cease pending reinitiation. For further information about this biological opinion, please contact Heather Dyer of the PSFWO at 760-322-2070 x210 (777 East Tahquitz Canyon Way, Suite 208, Palm Springs, California 92262).

## LITERATURE CITED

- Bureau of Indian Affairs (BIA). 2011. Horseshoe Grande fee-to-trust project, biological resources assessment.
- Entrix, Inc. (Entrix). 2010. Trapping survey results for San Bernardino kangaroo rat (*Dipodomys merriami parvus*) and Los Angeles Pocket Mice (*Perognathus longimembris brevinasus*) for the Soboba Horseshoe Grande fee-to-trust project. Report prepared by SJM Biological Consultants, Inc., Flagstaff, Arizona.
- Dudek and Associates. 2003. Final Western Riverside County Multiple Species Habitat Conservation Plan dated June 17, 2003. Prepared for County of Riverside Transportation and Land Management Agency.
- McKernan, R. L. 1997. The status and known distribution of the San Bernardino kangaroo rat (*Dipodomys merriami parvus*): field surveys conducted between 1987 and 1996. Prepared for the U.S. Fish and Wildlife Service by the San Bernardino County Museum; September 1997. 62 pp.
- Sawyer, J. O., T. Keeler-Wolf, and J. Evens. 2009. A manual of California vegetation, Second edition. California Native Plant Society, Sacramento, California. 1,300 pp.
- U.S. Fish and Wildlife Service (Service). 2002. Endangered and threatened wildlife and plants; Final designation of critical habitat for the San Bernardino kangaroo rat; Final rule, April 23, 2002 (67 FR 19812).
- U.S. Fish and Wildlife Service (Service). 2004. Intra-Service formal section 7 consultation/conference for issuance of an Endangered Species Act section 10(a)(1)(B) permit (TE-088609-0) for the Western Riverside County Multiple Species Habitat Conservation Plan, Riverside County, California (FWS-WRIV-870.19).
- U.S. Fish and Wildlife Service (Service). 2009. San Bernardino kangaroo rat (*Dipodomys merriami parvus*) 5-year review: Summary and evaluation. U.S. Fish and Wildlife Service, Region 8, Carlsbad, California. 32 pp.
- U.S. Fish and Wildlife Service (Service). 2010. 2005-2009 San Bernardino kangaroo rat survey analyses from the Woolly Star Preserve Area, San Bernardino County, California. Prepared for the U.S. Army Corps of Engineers, Los Angeles District, 915 Wilshire Blvd., Los Angeles California 90017 by the U. S. Fish and Wildlife Service, Carlsbad Fish and Wildlife Office, 6010 Hidden Valley Road, Suite 101, Carlsbad, CA 92011. September 2010. 159 pp.



33.5 Acres

124.68 Acres

76.27 Acres

29.88 Acres

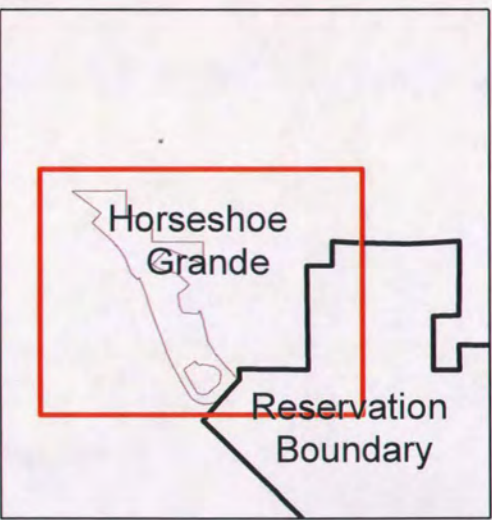
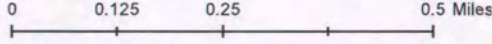


Figure 4

Potential Conservation Properties

- Proposed Development A
- Conservation Area B
- Conservation Area C
- Conservation Area D
- Project Area (Horseshoe Grande)
- Reservation Boundary



Attorney-Client Confidential Communication  
Do Not Copy or Disclose

Data Sources:  
Aerial Imagery: Eagle Aerial  
Imaging March 2010



12009 NE 99th St, Suite 1410  
Vancouver, WA 98682  
ph (360) 883-0191  
fax (360) 883-0252  
www.entrix.com

Coordinate System:  
NAD 1983 UTM Zone 11N

This map and all data contained within is supplied as is with no warrant Cardno ENTRIX expressly disclaims responsibility for damages or liability from any claims that may arise out of the use or misuse of this map. It is the sole responsibility of the user to determine if the data on this map meets the user's needs. This map was not created as survey data, nor should it be used as such. It is the user's responsibility to obtain proper survey data, prepared by a licensed surveyor, where required by law.

**Appendix P:**

**Survey Report for San Bernardino Kangaroo Rat and Las Angeles  
Pocket Mouse (New Appendix)**

# Trapping Survey Results for San Bernardino Kangaroo Rats & Los Angeles Pocket Mice

Soboba Horseshoe Grande Fee-to-Trust Project

Riverside County, California



June 2010

Project No. 41119001

*Prepared by*





SOBOBA HORSESHOE GRANDE FEE-TO-TRUST PROJECT, RIVERSIDE COUNTY, CALIFORNIA

Trapping Survey Results for San  
Bernardino Kangaroo Rats (*Dipodomys  
merriami parvus*) and Los Angeles Pocket  
Mice (*Perognathus longimembris  
brevinasus*)

---

FINAL DRAFT  
JUNE 2010

PREPARED BY

Stephen J. Montgomery  
SJM Biological Consultants, Inc.  
8455 Slayton Ranch Road  
Flagstaff, AZ 86004  
T 928-527-1604

ENTRIX, Inc.  
111 SW Columbia Street, Suite 950  
Portland, OR 97210  
T 503.233.3608



# Table of Contents

---

<b>S E C T I O N 1</b>	<b>Introduction</b> .....	<b>1-1</b>
1.1	Background on the San Bernardino kangaroo rat (SBKR) and Los Angeles Pocket Mouse (LAPM) .....	1-1
1.1.1	San Bernardino Kangaroo Rat .....	1-1
1.1.2	Los Angeles Pocket Mouse.....	1-1
1.2	Project AREA in Relation to SBKR Historical Range and Critical Habitat.....	1-3
1.3	Project Area Description.....	1-3
<b>S E C T I O N 2</b>	<b>Methods</b> .....	<b>2-1</b>
2.1	Literature Review .....	2-1
2.2	Field Surveys .....	2-1
<b>S E C T I O N 3</b>	<b>Results</b> .....	<b>3-1</b>
<b>S E C T I O N 4</b>	<b>Discussion and Recommendations</b> .....	<b>4-1</b>
4.1	Discussion.....	4-1
4.2	Recommendations.....	4-1
<b>S E C T I O N 5</b>	<b>References</b> .....	<b>5-2</b>

## Tables

Table 3-1.	Weather Conditions During 2009 Soboba Trapping Surveys .....	3-2
Table 3-2.	Summary of Small Mammal Captures, August 27-31.....	3-3
Table 3-3.	Summary of Small Mammal Captures, October 8-13 .....	3-4
Table 3-4.	Summary of Small Mammal Captures at All Trapping Areas, in Aug, Oct, and Dec 2009.....	3-4
Table A-1	Summary Of San Bernardino Kangaroo Rat And Los Angeles Pocket Mouse Captures At The Proposed Horseshoe Grande Fee-to-Trust Property – August and October 2009 .....	A-1

## Figures

Figure 1-1	San Bernardino Kangaroo Rat and Los Angeles Pocket Mouse Trap Line Sessions Project Area.....	1-2
Figure 2-1	San Bernardino Kangaroo Rat and Los Angeles Pocket Mouse Trap Session 1, August 27-31, 2009 .....	2-3
Figure 2-2	San Bernardino Kangaroo Rat and Los Angeles Pocket Mouse Trap Session 2, October 8-13, 2009 .....	2-5
Figure 3-1	San Bernardino Kangaroo Rat and Los Angeles Pocket Mouse Captures, August 27-31, 2009 .....	3-5

Figure 3-2 San Bernardino Kangaroo Rat and Los Angeles Pocket Mouse Captures, October 8-13, 2009 ..... 3-7

## Appendices

Appendix A Summary Of San Bernardino Kangaroo Rat And Los Angeles Pocket Mouse Captures At Project Area – August and October 2009

# Introduction

---

This report presents the results of a focused survey for the San Bernardino kangaroo rat (SBKR, *Dipodomys merriami parvus*) on the property proposed for Federal trust status by the Soboba Band of Luiseno Indians. The State sensitive (CSC) Los Angeles pocket mouse (*Perognathus longimembris brevinasus*) was a secondary focus of the trapping effort. The survey project area was derived from the boundaries of the proposed Trust property, which has been referred to as the Horseshoe Grande property (project area). The project area is located immediately west of the existing Soboba Reservation, eastward of the San Jacinto River and mostly westward of Soboba Road, adjacent to the City of San Jacinto. The project area occurs in various sections (mostly unmarked) in Township 4 South, Range 1 West, on the San Jacinto 7.5" USGS Quadrangle Map (Figure 1-1 below). The NAD 83 UTM coordinates for the approximate center of the project area are 11S 0506759E/3738235N. The project area is generally surrounded by open space.

## 1.1 BACKGROUND ON THE SAN BERNARDINO KANGAROO RAT (SBKR) AND LOS ANGELES POCKET MOUSE (LAPM)

### 1.1.1 San Bernardino Kangaroo Rat

The San Bernardino kangaroo rat (SBKR) is a federally endangered species and a California Species of Special Concern (CSC). The outline of the historical range of the SBKR extends from the San Bernardino Valley in San Bernardino County to the Meniffee Valley in Riverside County (Lidicker 1960). The project area is in the southeastern part of this general distribution. SBKR occur on sandy soils and sandy loam soils within relatively open vegetation, generally along rivers and streams. The general habitat preference for the species is alluvial scrub, where it occurs mainly in early and intermediate seral stages of this plant community (McKernan 1997).

### 1.1.2 Los Angeles Pocket Mouse

The Los Angeles pocket mouse (LAPM) is designated by the state of California as a CSC. Historically, the LAPM occurred in the coastal basins of southern California, from San Fernando and Burbank in the San Fernando Valley east to Cabazon, and south through the San Jacinto and Temecula Valleys to Aguanga, Warner Pass, Vail Lake, and Temecula. LAPM occur on sandy and gravelly soils in lower elevation grassland, alluvial sage scrub, and relatively open coastal sage scrub vegetation. Like all *Perognathus*, LAPM hibernates in the winter, generally from October to February, and also becomes torpid when deprived of food for 24 to 36 hours. Pocket mice periodically emerge from hibernation to feed on seed caches stored in their burrows.

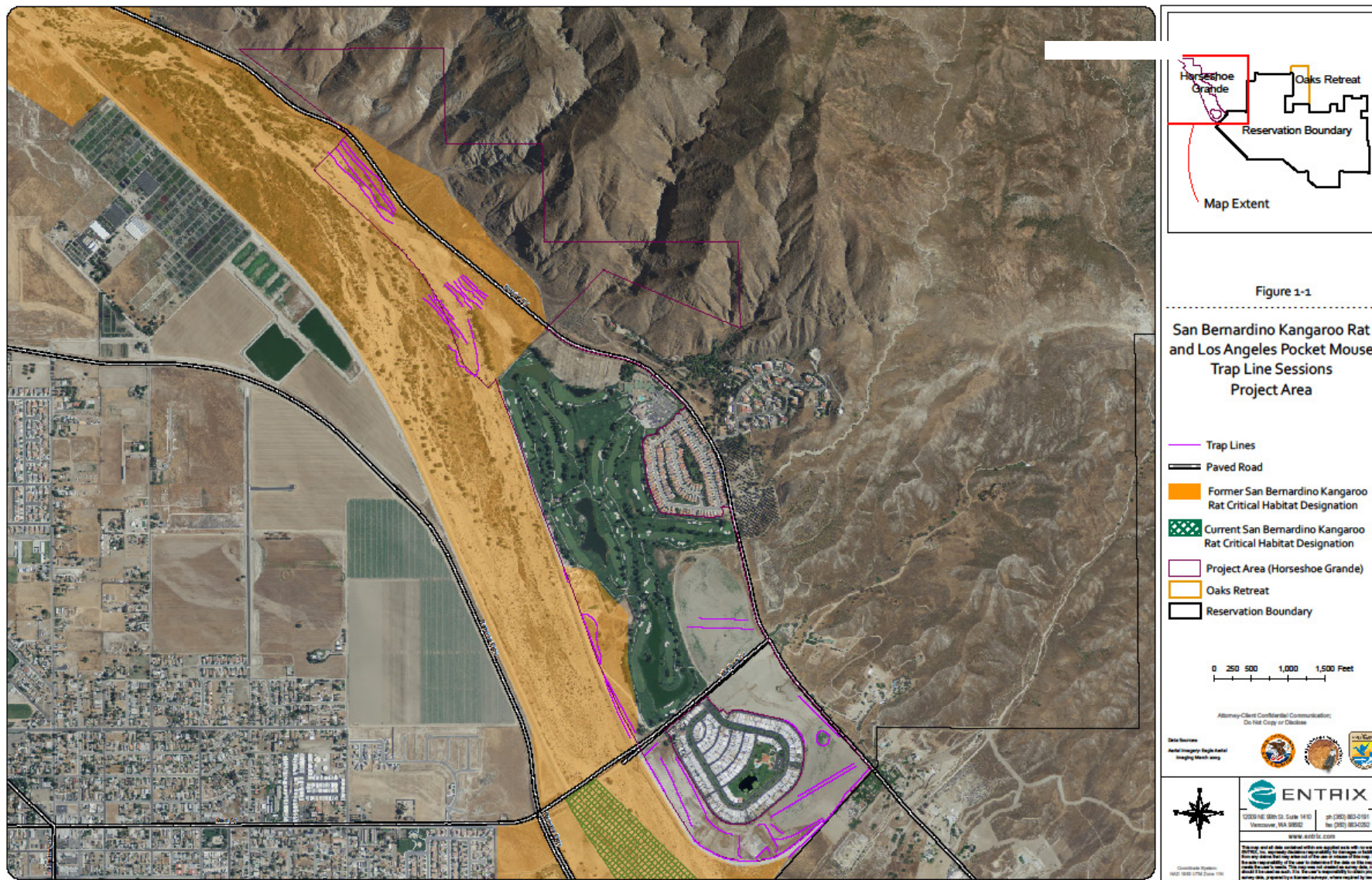


Figure 1-1 San Bernardino Kangaroo Rat and Los Angeles Pocket Mouse Trap Line Sessions Project Area

## 1.2 PROJECT AREA IN RELATION TO SBKR HISTORICAL RANGE AND CRITICAL HABITAT

The project area is within the historical range of SBKR. No SBKR records on the project area were found in the California Natural Diversity Database (CNDDDB; CDFG 2009) or in the online database of museum mammal specimens (MANIS 2010). The SBKR records from Manis and the CNDDDB from the project vicinity are as follows:

- “1 mile east of intersection of Ramona Expressway and Main Street, southeast of San Jacinto”. 16 individuals were captured here in 1994.
- “San Jacinto River Area, East of Valle Vista”. 10 adults were captured here in 2000.
- Vicinity of Bautista Creek. There are several localities in the general area: (1) “Bautista Creek, 2.5 miles south of Highway 78, 3 miles SE of Valle Vista”. One adult was captured here in 1999, and (2) North of Bautista Creek, along a dirt road 2.5 miles SE of Valle Vista” where three adults were captured 1994-1995.

In addition, Vergne (2006) recorded a single SBKR capture in the San Jacinto River channel immediately north of the northern project property boundary.

The original U.S. Fish and Wildlife Service’s (USFWS) designation of critical habitat for the San Bernardino kangaroo rat included portions of the San Jacinto River channel and adjacent drainages within the project area. The final critical habitat designation excluded many of these areas and the project area now falls outside of critical habitat for this species (FWS 1998, 2008).

## 1.3 PROJECT AREA DESCRIPTION

The project area spans a north-south distance of approximately 4 miles and is located between the San Jacinto River (to the west) and Soboba Road (to the east). The foothills of the San Jacinto Mountains rise immediately to the east of Soboba Road. One or more levees separate the San Jacinto River from the adjoining areas to the east, starting from the golf course area through to the southern end. The elevation of the project area is approximately 1,650 feet above mean sea level.

The northern part of the project area is located north and west of the Soboba Springs Golf Course, and includes river bottom and adjoining upland areas for the most part between the San Jacinto River and Soboba Road. The southern part of the project area occurs to the west and east of the golf course northward of Lake Park Street, as well as the lands surrounding the San Jacinto Mobile Home Park to the south of Lake Park Drive.

The soils in the project area are loamy sands and sandy loams from the following several soil map units. These are alluvial soils derived from granite located on channel, alluvial fan, and floodplain landforms.

- Dello loamy fine sand (DrA), gravelly substratum, 0 to 2 percent slopes, somewhat poorly drained
- Dello loamy sand (DnB), gravelly substratum, 0 to 5 percent slopes, somewhat poorly drained
- Dello loamy sand (DgB), 0 to 5 percent slopes, somewhat poorly drained
- Grangeville loamy fine sand (GoB), 0 to 5 percent slopes, moderately well drained
- Hanford coarse sandy loam (HcD2), 8 to 15 percent slopes, eroded, somewhat excessively drained
- Metz loamy fine sand (MhB, MhB), 0 to 5 percent slopes, sandy loam substratum,



- Riverwash (RsC, in the streambed), 0 to 8 percent slopes, excessively drained
- San Emigdio fine sandy loam (SeC2), 2 to 8 percent slopes, eroded
- Chino silt loam (Cf), drained, saline-alkali.

The project area contains river bottom, alluvial fan sage scrub, riparian, and ruderal disturbed annual grassland plant communities. The channel and riparian habitats occur mainly in the northern part of the project area, where narrow-leaved willow (*Salix exigua*) grows commonly along the edges of the channels, in other slightly raised areas, and in disturbed fields away from the channel.

The shrubs found on the channel edges and ruderal upland areas include Acton encelia (*Encelia actoni*), scalebroom (*Lepidospartum squamatum*), interior flat-topped buckwheat (*Eriogonum fasciculatum* var. *foliolosum*), and red-stemmed filaree (*Erodium cicutarium*). The grasses found in these areas include red brome (*Bromus madritensis* ssp. *rubens*), cheatgrass (*B. tectorum*), dense-flowered sprangletop (*Leptochloa uninervia*), wild oat (*Avena fatua*), rattail fescue (*Vulpia myuros*), and foxtail barley (*Hordeum murinum* ssp. *leporinum*).

Other annuals typical of the project area are telegraph weed (*Heterotheca grandiflora*), annual burweed (*Ambrosia acanthicarpa*), fiddleneck (*Amsinckia tessellata*), Tocalote (*Centaurea melitensis*), California croton (*Croton californica*), common sand aster (*Lessingia filaginifolia*), ash-colored aster (*Machaeranthera asteroides* var. *asteroides*), Sahara mustard (*Brassica tournefortii*), summer mustard (*Hirschfeldia incana*, formerly *Brassica geniculata*), and yellow sweet clover (*Melilotus indicus*). One of the ruderal areas surveyed (transects D1 and D2 in the middle part of the project area) was vegetated mainly with Russian thistle (*Salsola tragus*).

# Methods

---

## 2.1 LITERATURE REVIEW

Prior to the field survey, the literature was reviewed to determine whether SBKR have been recorded on or adjacent to the proposed project area. Records were examined in the California Natural Diversity Database (CNDDDB, CDFG 2009, San Bernardino North and Devore quadrangles) and the online database of museum mammal specimens (MANIS 2009). The information in the USFWS listing SBKR as endangered (USFWS 1998) and supporting reports (McKernan 1997), and the final rule on SBKR critical habitat (USFWS 2008) also were reviewed. Soils information for the project area was obtained from an online database (<http://websoilsurvey.nrcs.usda.gov/app/HomePage.htm>) and the USDA soil survey (USDA 1971).

## 2.2 FIELD SURVEYS

The focused survey for SBKR was carried out by Stephen J. Montgomery and Dr. Phillip Brylski, according to USFWS and CDFG permit conditions. The principal investigator for this survey was Stephen J. Montgomery, who holds permits from the USFWS (TE745541-10) for SBKR live-trapping surveys, and a Memorandum of Understanding (MOU) from the California Department of Fish and Game (CDFG) for trapping/handling the SBKR and LAPM. Dr. Phil Brylski is also permitted by USFWS (TE148555-2) and CDFG (MOU) for trapping/handling these species.

The live-trapping survey was designed to determine presence/absence of SBKR within the project area, by focusing on areas with kangaroo rat sign (burrows, dusting sites, and scat) but also by sampling representative habitats in the project area where sign was not obvious or was not clearly identifiable. This survey also was designed to detect LAPM by trapping areas exhibiting habitat conditions typical of those occupied by this pocket mouse, which fortunately are very similar to those of SBKR in the project area. However, the final trapping session in December 2009 was conducted at a time of year when LAPM can be partially or completely inactive above ground. Nonetheless, LAPM were not the primary focus of the current trapping effort, and we reasoned that the abundance of LAPM in the southern and northern areas of the project area reflected the overall abundance of this pocket mouse in this general area of the San Jacinto River system. Thus, other sandy habitats adjacent to the river system in the area of Poppet Creek would exhibit similar abundances of the species, even if trapping results did not fully confirm such abundances.

The live-trapping effort used only large (3 x 3.75 x 12") Sherman live-traps with doors shortened to avoid tail damage. Traps were opened and baited with bird seed within one hour of sunset and checked twice each day near midnight and in the morning. Animals were identified and released immediately at the point of capture.

The trapping survey, totaling 2345 trap-nights, occurred during the following two five-day (night) sessions:

- Northern section (Brylski). The northern part of the project area, located north and west of the Soboba Springs Golf Course, was surveyed in three small grids (A, B, C) and a single transect, set in habitats in the river channel and at different slightly higher levels of upland habitat adjoining the channel. Total trap-nights: 1200. Trapping dates: August 27-31 (Figure 2-1 below).
- Southern Section (Brylski). The middle part of the project area is bordered by the golf course to the west and east north of Lake Park Drive, and south of Lake Park Drive surrounds a residential area, the San

Jacinto Mobile Home Park. Traps were set in transect sets in 19 different areas designed to sample various habitats in this area. Total trap-nights: 1145. Trapping dates: October 8-13 (Figure 2-2 below).

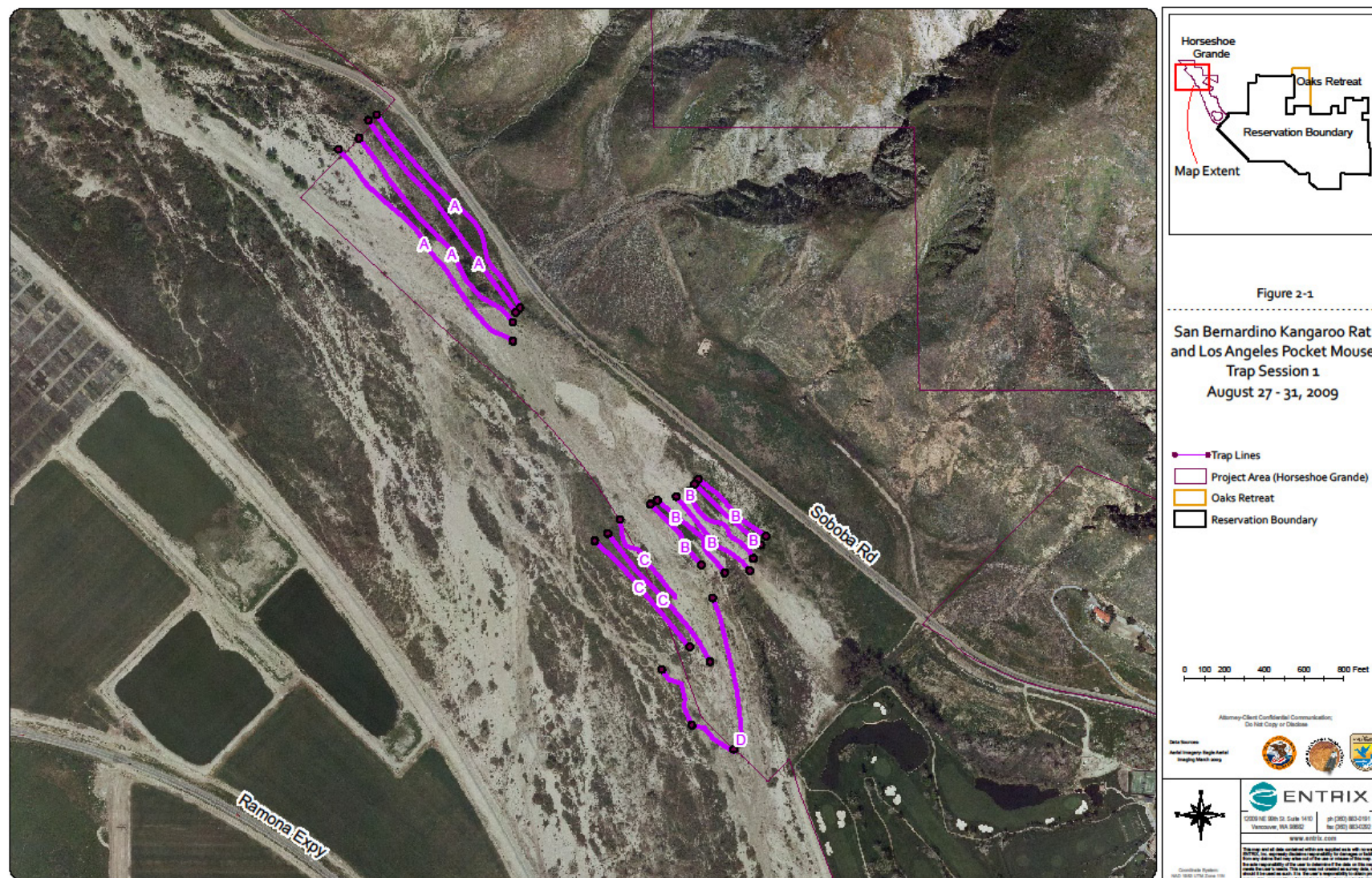


Figure 2-1 San Bernardino Kangaroo Rat and Los Angeles Pocket Mouse Trap Session 1, August 27-31, 2009

*This page intentionally left blank.*

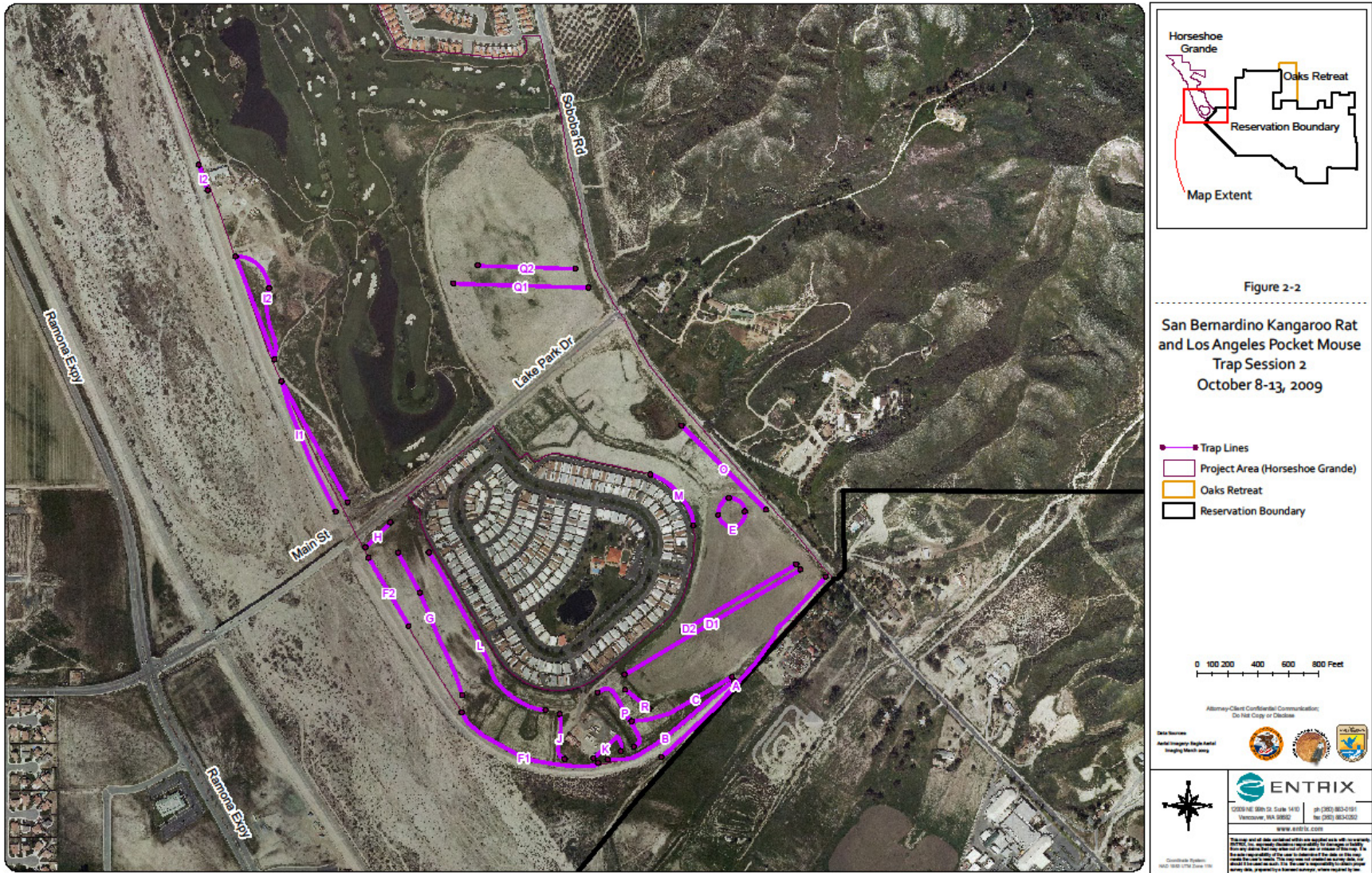


Figure 2-2 San Bernardino Kangaroo Rat and Los Angeles Pocket Mouse Trap Session 2, October 8-13, 2009

*This page intentionally left blank.*

# Results

---

Weather conditions during the trapping sessions varied considerably, as expected from the time periods covered by each survey (Table 3-1). In general, air temperatures ranged from the high 40's (in December) to the high 80's (in August). Cloud cover ranged from 0-100%, and wind speeds were typically low between 0 and 5 mph. No precipitation was present during any of the trapping sessions.

San Bernardino kangaroo rats were captured in both the northern and southern trap areas, typically in sandy habitats expected to harbor the species but also in some less sandy loams adjacent to classic sandy soils (Tables 3-2 through 3-4; Figures 3-1 through 3-2).

Although the northern trapping area exhibits deep sandy soils typically occupied by SBKR, only one SBKR was captured in this area. It is assumed that the scant number of SBKR in this location is due to regular disturbances (e.g. flooding, ORV activity) to the substrates in this part of the San Jacinto River wash system. Numerous SBKR were captured in the southern area to the south of Lake Park Drive, but none were captured to the north of Lake Park Drive. Reasons for the disparity of SBKR captured on the north and south sides of Lake Park Drive are not apparent, but likely are related to the high disturbance levels north of Lake Park Drive.

Los Angeles pocket mice also were captured in both trap areas, in sandy and sandy-loam soil types. This species occurred in abundance in the northern and southern parts of the project area,(Figures 3-1 through 3-2).

Also captured during the trapping sessions were Dulzura kangaroo rats (DKR), San Diego and California pocket mice, deer mice, cactus mice, harvest mice, and house mice (Tables 3-2 through 3-4). Dulzura kangaroo rats were captured in some of the project area yielding SBKR, often in immediately adjacent traps.



**Table 3-1. Weather Conditions During 2009 Soboba Trapping Surveys**

Date	Time	Cloud Cover (%)	Air Temp (°F)	Wind Speed (mph)
27-Aug-09	0600	0%	63	0
27-Aug-09	0800	0%	75	0
28-Aug-09	0605	0%	66	0
28-Aug-09	0820	0%	79	0
29-Aug-09	0600	5%	69	0
29-Aug-09	0805	2%	79	0
30-Aug-09	0610	0%	71	0
30-Aug-09	0810	0%	78	0
31-Aug-09	0600	0%	70	0
31-Aug-09	0900	0%	86	0
8-Oct-09	0630	80%	54	2
9-Oct-09	0630	50%	55	1
10-Oct-09	0635	5%	55	1.5
11-Oct-09	0630	100%	56	5
12-Oct-09	0620	100%	59	2
13-Oct-09	0645	100%	61	0
17-Dec-09	1315	0-10%	45-48	0-2
17-Dec-09	0630	50%	46	0
18-Dec-09	1300	90%	48	0-2
18-Dec-09	1715	90%	56	2-5
19-Dec-09	1300	30%	50	0-2
19-Dec-09	1700	60%	68	3-7
20-Dec-09	1315	50%	49	0-2
21-Dec-09	1110	50%	55	0-2

**Table 3-2. Summary of Small Mammal Captures, August 27-31**

Animals Captures									
	SBKR	DKR	LAPM	CHFA	PEMA	REME	MUMU	CHCA	PEER
Transect									
A	0	0	47	97	62	9	2	0	1
B	0	0	34	2	53	0	0	8	0
C	3	3	32	9	42	6	0	0	0
D	0	0	21	5	43	1	0	0	0
<b>Total</b>	<b>3</b>	<b>3</b>	<b>134</b>	<b>113</b>	<b>200</b>	<b>16</b>	<b>2</b>	<b>8</b>	<b>1</b>

Species names:

SBKR, San Bernardino kangaroo rat (*Dipodomys merriami parvus*)

DKR, Dulzura kangaroo rat (*Dipodomys simulans*)

CHCA, California pocket mouse (*Chaetodipus californicus*)

CHFA, San Diego pocket mouse (*Chaetodipus fallax fallax*)

REME, harvest mouse (*Reithrodontomys megalotis*)

PEMA, deer mouse (*Peromyscus maniculatus*)

PEER, Cactus mouse (*Peromyscus maniculatus*)

MMUS, house mouse (*Mus musculus*)

**Table 3-3. Summary of Small Mammal Captures, October 8-13**

Animals Captures							
	SBKR	DKR	LAPM	CHFA	PEMA	REME	MUMU
Transects							
A	10	0	0	6	18	0	0
B	4	0	2	1	9	1	0
C	0	0	3	2	3	0	0
D1	1	0	0	0	10	0	2
D2	1	0	1	0	7	0	2
E	0	0	1	0	3	0	0
F1	8	0	2	0	3	0	0
F2	3	0	0	0	2	0	0
G	5	0	0	0	17	0	0
H	1	0	0	0	2	0	0
I1	0	0	7	2	35	0	0
I2	0	0	10	1	22	0	3
J	5	0	0	0	2	0	0
K	0	0	1	4	0	0	0
L	1	0	1	0	1	0	0
M	0	0	0	0	2	0	1
N	0	0	0	18	9	0	0
O	0	0	0	5	11	0	0
P	0	0	4	2	5	0	0
Q	0	0	0	3	22	0	2
<b>Total</b>	<b>39</b>	<b>0</b>	<b>32</b>	<b>44</b>	<b>183</b>	<b>1</b>	<b>10</b>

See Table 3-2 for species names.

**Table 3-4. Summary of Small Mammal Captures at All Trapping Areas, in Aug, Oct, and Dec 2009**

Animals Captures									
	SBKR	DKR	LAPM	CHFA	CHCA	PEMA	REME	MUMU	PEER
Dates									
Aug 27-31	3	3	134	113	8	200	16	2	1
Oct 8-13	39	0	32	44	0	183	1	10	0
<b>Total</b>	<b>59</b>	<b>20</b>	<b>167</b>	<b>242</b>	<b>8</b>	<b>557</b>	<b>17</b>	<b>12</b>	<b>1</b>

See Table 3-2 for species names.

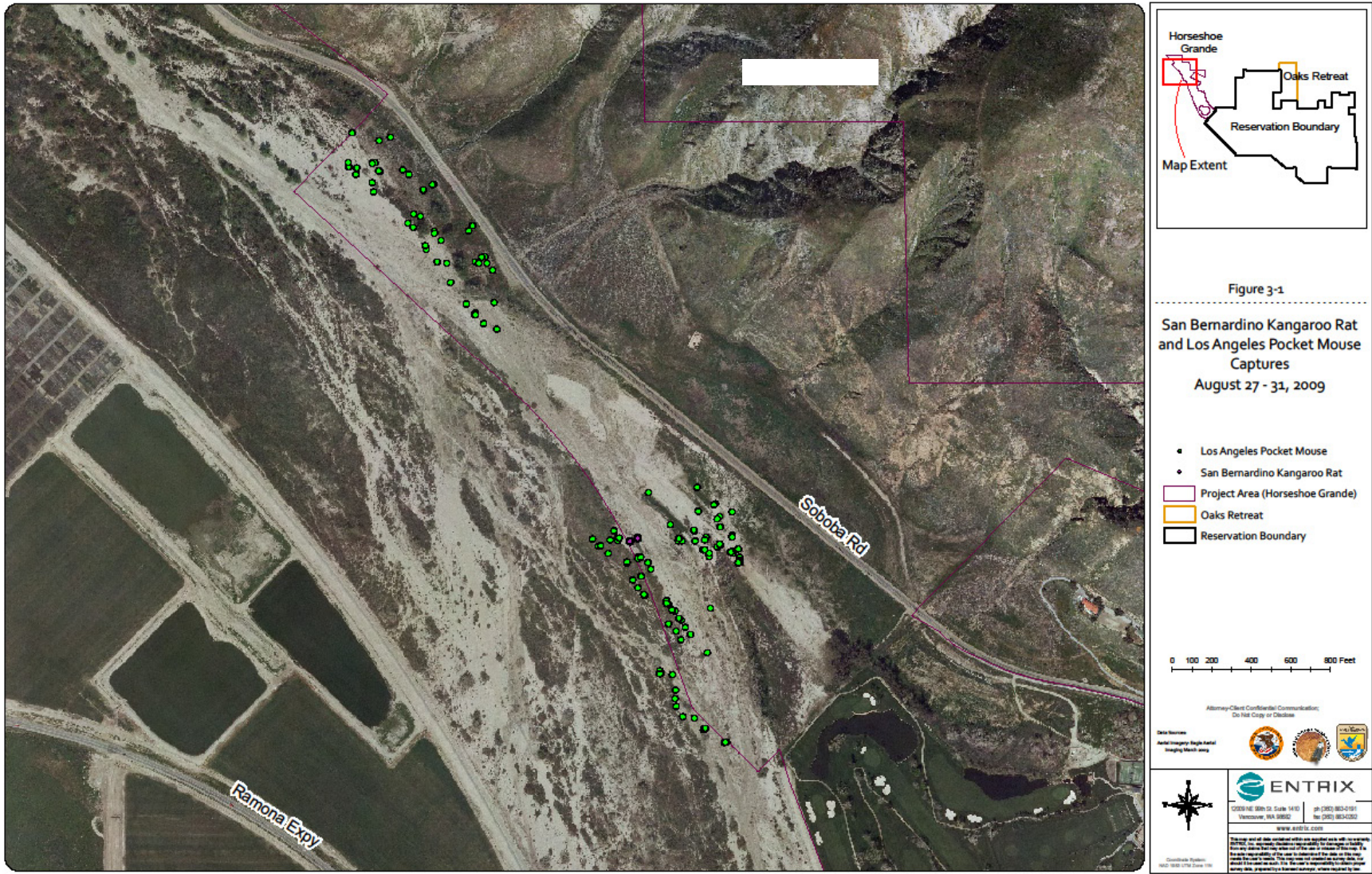


Figure 3-1 San Bernardino Kangaroo Rat and Los Angeles Pocket Mouse Captures, August 27-31, 2009



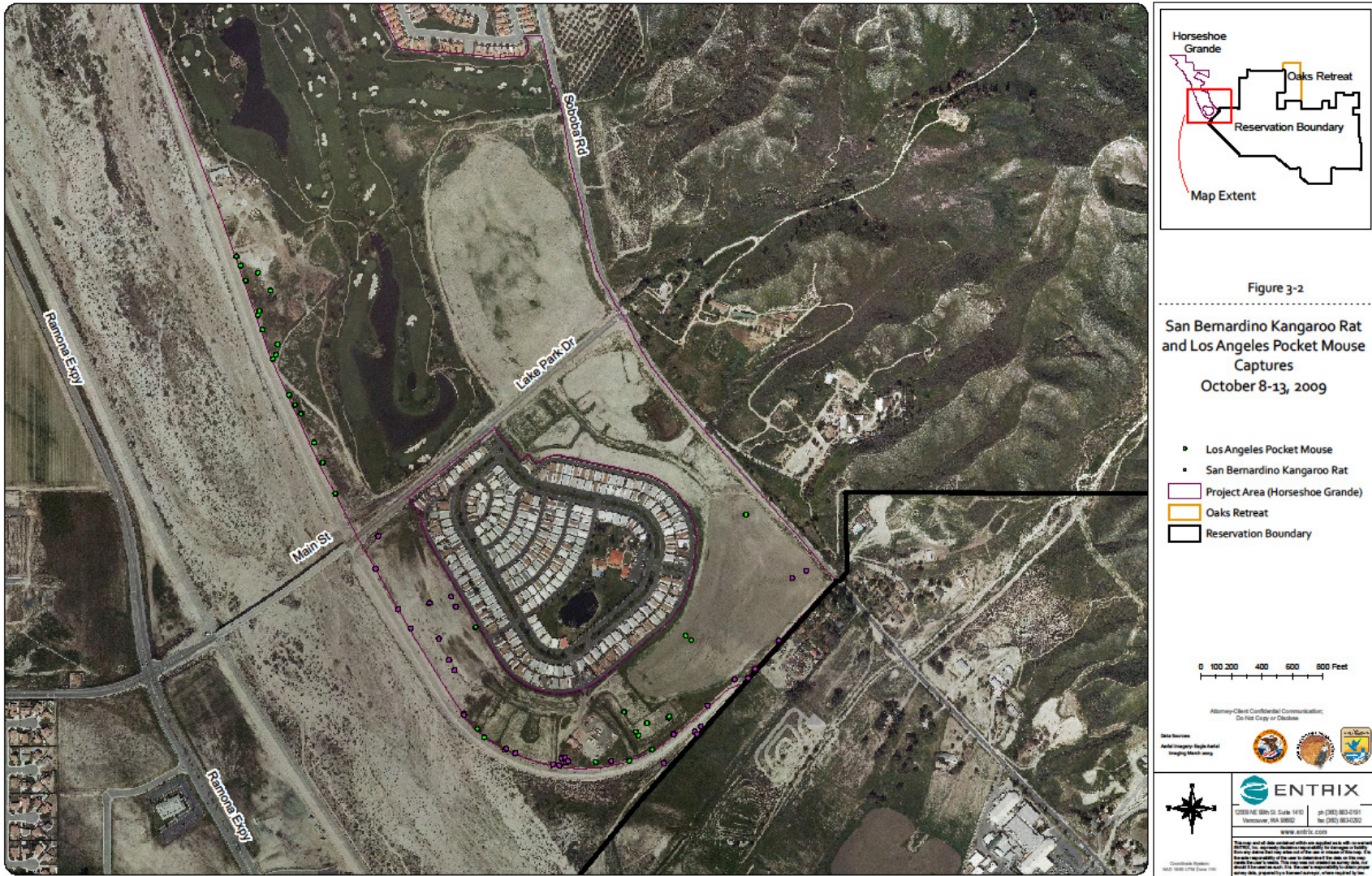


Figure 3-2 San Bernardino Kangaroo Rat and Los Angeles Pocket Mouse Captures, October 8-13, 2009



# Discussion and Recommendations

---

## 4.1 DISCUSSION

Northern Section - The trapping survey confirmed that SBKR are extremely rare in the northern project area. Land disturbance activities in this area would result in little or no take of this species. However, since LAPM captures were abundant in this part of the project area, land disturbance would result in the take of numerous individuals of this species. Take of LAPM would be unavoidable if land disturbance occurred in this area.

Southern Section - The trapping survey confirmed that SBKR are present in this portion of the project area but are concentrated in area southward of Lake Park Drive, in the open lands to the immediate west, south and southeast of the Trailer Park. The State Sensitive LAPM also occurs in high numbers in this area. Any kind of substrate disturbance and/or development in this area, wherever SBKR and/or LAPM captures were recorded during the survey, will eliminate both SBKR and LAPM in and adjacent to specific development locations. Thus, take of one or both of these species would be unavoidable in most of this southern project area.

## 4.2 RECOMMENDATIONS

- Avoid land disturbances in areas identified as occupied by SBKR and/or LAPM.
- Avoid land disturbances in and immediately adjacent to Poppet Creek
- To the maximum extent practical, restrict land disturbances to where habitat has already been eliminated (e.g. roads and/or road right of ways).
- If land disturbance activities are unavoidable in some locations occupied by SBKR and/or LAPM, consult with USFWS regarding how to mitigate for such habitat loss. Possible alternatives include:
  - fencing construction area, trapping SBKR and LAPM out of fenced area, relocating trapped animals to nearby suitable unoccupied habitat areas, and
  - purchasing nearby suitable unoccupied (or minimally occupied) habitat and transferring ownership of purchased property to conservation group for long term maintenance/management.



# References

---

- California Department of Fish and Game (CDFG) Natural Diversity Database. 2009. California Natural Diversity Database, Element reports for the San Bernardino kangaroo rat and Los Angeles pocket mouse. California Department of Fish and Game, Natural Heritage Division, Sacramento, California.
- Mammal Networked Information System (Manis). 2009. [www.manis.org](http://www.manis.org)
- McKernan, R.L. 1997. The Status and Known Distribution of the San Bernardino Kangaroo Rat (*Dipodomys merriami parvus*): Field surveys conducted between 1987 and 1996. Report prepared for the U.S. Fish and Wildlife Service, Carlsbad Field Office.
- U.S. Department of Agriculture. 1971. Soil Survey. Western Riverside County, California. 174pp.
- U.S. Fish and Wildlife Service. 1998. Final rule to list the San Bernardino kangaroo rat, San Bernardino and Riverside Counties in Southern California, as Endangered. Federal Register 63 (17): 51005-51017.
- U.S. Fish and Wildlife Service. 2008. Designation of critical habitat for the San Bernardino kangaroo rat (*Dipodomys merriami parvus*); final rule. Federal Register 73 (202): 61936-62002.
- Vergne, F. 2006. San Bernardino kangaroo rat and Los Angeles pocket mouse presence/absence trapping studies for the San Jacinto River levee proposed project in Riverside County, California. Prepared for Ecological Sciences, Inc., Santa Paula, CA. August 26, 2006.

Summary of San Bernardino Kangaroo  
Rat and Los Angeles Pocket Mouse  
Captures at the Proposed Horseshoe  
Grande Fee-to-Trust Property – August  
and October 2009



**APPENDIX A**  
**SUMMARY OF SAN BERNARDINO KANGAROO RAT AND LOS ANGELES POCKET MOUSE CAPTURES, SOBOBA INDIAN RESERVATION, 2009**

**Table A-1 Summary Of San Bernardino Kangaroo Rat And Los Angeles Pocket Mouse Captures At The Proposed Horseshoe Grande Fee-to-Trust Property – August and October 2009**

DATE CAPTURED	SPECIES	GENERAL AREA	AGE	SEX	UTM (NAD 83) 11S
28-Aug	SBKR	North of golf course in sandy wash	A	M	0505410, 3740367
29-Aug	SBKR		A	M	0505398, 3740362
8-Oct	SBKR	In fields adjacent to trailer park, southward of lake street	A	F	0506853, 3738122
	SBKR		A	M	0506729, 3738067
	SBKR		SA	F	0506896, 3738126
9-Oct	SBKR		A	M	0507015, 3738251
	SBKR		SA	F	0506908, 3738136
	SBKR		A	M	0506900, 3738121
	SBKR		A	F	0506834, 3738064
	SBKR		A	F	0506921, 3738178
	SBKR		A	M	0506853, 3738120
	SBKR		A	F	0506613, 3738061
	SBKR		A	M	0506537, 3738083
	SBKR		A	M	0506516, 3738090
	SBKR		A	F	0506435, 3738161
	SBKR		A	F	0506416, 3738249
	SBKR		A	F	0506385, 3738312
SBKR	A	F	0506263, 3738516		
SBKR	SA	M	0506633, 3738072		
10-Oct	SBKR	A	F	0507001, 3738231	
	SBKR	SA	M	0506625, 3738059	
	SBKR	A	M	0506538, 3738083	
	SBKR	SA	F	0506520, 3738092	
	SBKR	A	F	0506435, 3738159	
	SBKR	A	F	0506405, 3738269	
	SBKR	A	M	0506366, 3738383	
	SBKR	A	M	0506328, 3738332	
	SBKR	A	F	0506304, 3738370	
	SBKR	A	M	0506258, 3738451	
	SBKR	SA	F	0506410, 3738395	
	SBKR	A	F	0506419, 3738375	
11-Oct	SBKR	A	M	0507090, 3738432	
	SBKR	A	M	0507063, 3738308	
	SBKR	A	M	0507017, 3738249	
	SBKR	J	F	0507002, 3738233	
	SBKR	A	F	0506639, 3738065	

**Table A-1 Summary Of San Bernardino Kangaroo Rat And Los Angeles Pocket Mouse Captures At The Proposed Horseshoe Grande Fee-to-Trust Property – August and October 2009**

DATE CAPTURED	SPECIES	GENERAL AREA	AGE	SEX	UTM (NAD 83) 11S		
	SBKR		SA	M	0506630, 3738073		
12-Oct	SBKR		SA	M	0507118, 3738447		
	SBKR		A	M	0506975, 3738230		
	SBKR		A	M	0507016, 3738251		
	SBKR		A	F	0506637, 3738075		
	SBKR		A	M	0506642, 3738067		
	SBKR		A	M	0506642, 3738067		
27-Aug	LAPM	North of golf course in sandy wash	A	F	0505174, 3740802		
	LAPM		A	F	0505149, 3740842		
	LAPM		A	M	0505074, 3740864		
	LAPM		A	F	0505096, 3740841		
	LAPM		A	F	0505567, 3740338		
	LAPM		A	M	0505555, 3740347		
	LAPM		A	F	0505532, 3740354		
	LAPM		A	M	0505515, 3740369		
	LAPM		A	F	0505520, 3740343		
	LAPM		A	F	0505555, 3740372		
	LAPM		A	M	0505537, 3740385		
	LAPM		A	M	0505393, 3740329		
	LAPM		A	F	0505467, 3740255		
	LAPM		A	F	0505512, 3740074		
	LAPM		A	M	0505497, 3740090		
	LAPM		A	M	0505479, 3740092		
	LAPM		A	M	0505463, 3740157		
	LAPM		A	F	0505445, 3740160		
	28-Aug		LAPM		A	M	0505095, 3740914
			LAPM		A	F	0505057, 3740929
LAPM			A	M	0504975, 3740929		
LAPM			A	F	0505028, 3740986		
LAPM			A	F	0505121, 3740762		
LAPM			A	F	0505159, 3740715		
LAPM			A	F	0505568, 3740333		
LAPM			A	M	0505556, 3740344		
LAPM			A	M	0505529, 3740421		
LAPM			A	F	0505536, 3740401		
LAPM			A	F	0505555, 3740369		
LAPM			A	F	0505565, 3740351		

**APPENDIX A**  
**SUMMARY OF SAN BERNARDINO KANGAROO RAT AND LOS ANGELES POCKET MOUSE CAPTURES, SOBOBA INDIAN RESERVATION, 2009**

**Table A-1 Summary Of San Bernardino Kangaroo Rat And Los Angeles Pocket Mouse Captures At The Proposed Horseshoe Grande Fee-to-Trust Property – August and October 2009**

DATE CAPTURED	SPECIES	GENERAL AREA	AGE	SEX	UTM (NAD 83) 11S
	LAPM		A	M	0505426, 3740438
	LAPM		A	M	0505420, 3740279
	LAPM		A	F	0505349, 3740355
	LAPM		A	F	0505340, 3740366
	LAPM		A	F	0505367, 3740365
	LAPM		A	F	0505454, 3740271
	LAPM		A	M	0505491, 3740219
	LAPM		A	F	0505511, 3740072
	LAPM		A	M	0505444, 3740163
	LAPM		A	F	0505411, 3740339
	LAPM		A	F	0505378, 3740368
	LAPM		A	M	0505373, 3740379
29-Aug	LAPM		A	M	0505169, 3740801
	LAPM		A	F	0505155, 3740850
	LAPM		A	M	0505047, 3740936
	LAPM		A	F	0505159, 3740794
	LAPM		A	F	0505188, 3740731
	LAPM		A	F	0505001, 3740947
	LAPM		A	M	0504964, 3740941
	LAPM		A	M	0505145, 3740729
	LAPM		A	F	0505158, 3740713
	LAPM		A	M	0505522, 3740259
	LAPM		A	F	0505472, 3740363
	LAPM		A	F	0505460, 3740388
	LAPM		A	M	0505498, 3740363
	LAPM		A	F	0505537, 3740357
	LAPM		A	F	0505532, 3740397
	LAPM		A	F	0505510, 3740349
	LAPM		A	F	0505519, 3740342
	LAPM		A	F	0505568, 3740330
	LAPM		A	M	0505419, 3740281
	LAPM		A	F	0505463, 3740256
	LAPM		A	F	0505425, 3740330
	LAPM		A	F	0505410, 3740336
	LAPM		A	F	0505379, 3740364
	LAPM		A	M	0505547, 3740053

**Table A-1 Summary Of San Bernardino Kangaroo Rat And Los Angeles Pocket Mouse Captures At The Proposed Horseshoe Grande Fee-to-Trust Property – August and October 2009**

DATE CAPTURED	SPECIES	GENERAL AREA	AGE	SEX	UTM (NAD 83) 11S
	LAPM		A	F	0505512, 3740072
	LAPM		A	M	0505469, 3740108
	LAPM		A	F	0505467, 3740120
	LAPM		A	F	0505443, 3740158
30-Aug	LAPM		A	M	0505177, 3740792
	LAPM		A	M	0505093, 3740913
	LAPM		A	M	0505010, 3740981
	LAPM		A	M	0505079, 3740904
	LAPM		A	F	0505164, 3740792
	LAPM		A	F	0505096, 3740838
	LAPM		A	F	0505064, 3740868
	LAPM		A	F	0505012, 3740933
	LAPM		A	F	0505004, 3740947
	LAPM		A	F	0505962, 3740946
	LAPM		A	F	0505055, 3740854
	LAPM		A	M	0505083, 3740813
	LAPM		A	M	0505100, 3740794
	LAPM		A	M	0505192, 3740690
	LAPM		A	M	0505543, 3740052
	LAPM		A	F	0505445, 3740159
	LAPM		A	F	0505476, 3740211
	LAPM		A	M	0505469, 3740224
	LAPM		A	F	0505402, 3740303
	LAPM		A	M	0505364, 3740344
	LAPM		A	F	0505393, 3740331
	LAPM		A	F	0505457, 3740266
	LAPM		A	M	0505477, 3740241
	LAPM		A	F	0505478, 3740363
	LAPM		A	M	0505497, 3740379
	LAPM		A	M	0505512, 3740350
	LAPM		A	F	0505520, 3740339
	LAPM		A	F	0505261, 3740326
	LAPM		A	M	0505513, 3740365
	LAPM		A	F	0505553, 3740346
	LAPM		A	M	0505527, 3740419
	LAPM		A	F	0505501, 3740446

**APPENDIX A**

**SUMMARY OF SAN BERNARDINO KANGAROO RAT AND LOS ANGELES POCKET MOUSE CAPTURES, SOBOBA INDIAN RESERVATION, 2009**

**Table A-1 Summary Of San Bernardino Kangaroo Rat And Los Angeles Pocket Mouse Captures At The Proposed Horseshoe Grande Fee-to-Trust Property – August and October 2009**

DATE CAPTURED	SPECIES	GENERAL AREA	AGE	SEX	UTM (NAD 83) 11S
	LAPM		A	M	0505555, 3740408
	LAPM		A	F	0505564, 3740329
	LAPM		A	M	0505186, 3740781
	LAPM		A	M	0505079, 3740905
	LAPM		A	M	0505115, 3740792
	LAPM		A	F	0505106, 3740827
	LAPM		A	M	0505010, 3740935
	LAPM		A	F	0505000, 3740946
	LAPM		A	F	0504969, 3740993
	LAPM		A	M	0504963, 3740947
	LAPM		A	F	0504976, 3740939
	LAPM		A	F	0505000, 3740916
	LAPM		A	NR	0505002, 3740902
	LAPM		A	NR	0505063, 3740847
31-Aug	LAPM		A	F	0505082, 3740819
	LAPM		A	F	0505159, 3740712
	LAPM		A	M	0505172, 3740699
	LAPM		A	F	0505545, 3740053
	LAPM		A	M	0505514, 3740074
	LAPM		A	M	0505468, 3740133
	LAPM		A	F	0505444, 3740158
	LAPM		A	M	0505517, 3740191
	LAPM		A	F	0505483, 3740230
	LAPM		A	M	0505473, 3740244
	LAPM		A	M	0505462, 3740257
	LAPM		A	F	0505454, 3740267
	LAPM		A	F	0505414, 3740338
	LAPM		A	F	0505381, 3740368
	LAPM		A	M	0505352, 3740356
	LAPM		A	F	0505410, 3740291
	LAPM		A	M	0505457, 3740235
	LAPM		A	M	0505415, 3740309
	LAPM		A	F	0505430, 3740320
	LAPM		A	F	0505473, 3740367
	LAPM		A	M	0505496, 3740380
	LAPM		A	M	0505513, 3740350



**Table A-1 Summary Of San Bernardino Kangaroo Rat And Los Angeles Pocket Mouse Captures At The Proposed Horseshoe Grande Fee-to-Trust Property – August and October 2009**

DATE CAPTURED	SPECIES	GENERAL AREA	AGE	SEX	UTM (NAD 83) 11S
	LAPM		A	F	0505520, 3740344
	LAPM		A	F	0505565, 3740330
	LAPM		A	M	0505536, 3740359
	LAPM		A	F	0505503, 3740409
	LAPM		A	M	0505501, 3740446
8-Oct	LAPM	In fields adjacent to trailer park, southward of lake street - and west of golf course to the north of lake street	A	M	0506810, 3738091
	LAPM		A	F	0506764, 3738068
	LAPM		A	M	0506843, 3738154
9-Oct	LAPM		A	F	0506800, 3738144
	LAPM		A	F	0506475, 3738115
	LAPM		A	M	0506097, 3738778
10-Oct	LAPM		A	M	0506777, 3738126
	LAPM		A	F	0506697, 3738066
	LAPM		A	F	0506461, 3738132
	LAPM		A	F	0506457, 3738335
	LAPM		A	F	0506152, 3738663
	LAPM		A	M	0506106, 3738604
11-Oct	LAPM		A	F	0506085, 3738798
	LAPM		A	M	0506135, 3738703
	LAPM		A	M	0506059, 3738878
	LAPM		A	F	0506062, 3738899
	LAPM		A	F	0506048, 3739006
	LAPM		A	F	0505988, 3739056
	LAPM		A	F	0505999, 3739026
	LAPM		A	F	0506997, 3738559
	LAPM		A	F	0506888, 3738309
	LAPM		A	M	0506754, 3738166
	LAPM		A	F	0506783, 3738119
	LAPM		A	M	0506844, 3738157
12-Oct	LAPM		A	F	0506026, 3738966
	LAPM		A	F	0505980, 3739074
	LAPM		A	M	0506032, 3738928
	LAPM		A	F	0506178, 3738601
	LAPM		A	M	0506877, 3738318
	LAPM		A	F	0506783, 3738119
13-Oct	LAPM		A	M	0506053, 3738870

**APPENDIX A**

**SUMMARY OF SAN BERNARDINO KANGAROO RAT AND LOS ANGELES POCKET MOUSE CAPTURES, SOBOBA INDIAN RESERVATION, 2009**

**Table A-1 Summary Of San Bernardino Kangaroo Rat And Los Angeles Pocket Mouse Captures At The Proposed Horseshoe Grande Fee-to-Trust Property – August and October 2009**

DATE CAPTURED	SPECIES	GENERAL AREA	AGE	SEX	UTM (NAD 83) 11S
	LAPM		A	M	0506023, 3739042
	LAPM		A	M	0506109, 3738761
	LAPM		A	F	0505980, 3739075
	LAPM		A	F	0506023, 3738957
	LAPM		A	M	0506109, 3738761

## **Appendix Q:**

### **Survey Report for Burrowing Owl (New Appendix)**

# Monitoring Survey Results for Burrowing Owl

Soboba Horseshoe Grande Fee-to-Trust Project  
Riverside County, California



June 2010

Project No. 41119001

*Prepared by*



SOBOBA HORSESHOE GRANDE FEE-TO-TRUST PROJECT, RIVERSIDE COUNTY, CALIFORNIA

# Monitoring Survey Results for Burrowing Owl (*Athene Cunicularia*)

---

DRAFT  
JUNE 2010

*prepared by*



ENTRIX, Inc.  
2300 Clayton Road, Suite 200  
Concord, CA 94520  
T 925.935.9920 • F 925.935.5368



# Table of Contents

---

<b>S E C T I O N 1</b>	<b>Background</b> .....	<b>1-1</b>
1.1	Purpose .....	1-1
1.2	Project Area .....	1-1
1.3	Burrowing Owl .....	1-1
1.4	Methods .....	1-1
1.4.1	Sampling Timeframe .....	1-5
1.4.2	Sampling Protocol .....	1-5
1.4.2.1	Phase I - Habitat Assessment.....	1-5
1.4.2.2	Phase II - Locating Burrows and Burrowing Owls.....	1-5
1.4.2.3	Part A - Focused Burrow Surveys .....	1-5
1.4.2.4	Part B - Focused Burrowing Owl Surveys.....	1-6
1.4.2.5	Surveyed Area .....	1-6
<b>S E C T I O N 2</b>	<b>Results</b> .....	<b>2-1</b>
2.1	Monitoring .....	2-1
2.2	Presence of Burrowing Owls .....	2-1
2.3	Habitat.....	2-2
<b>S E C T I O N 3</b>	<b>References</b> .....	<b>3-1</b>
<b>S E C T I O N 4</b>	<b>Report Preparers &amp; Field Survey Scientists</b> .....	<b>4-1</b>
	ENTRIX, Inc.....	4-1

## Appendices

Appendix A	Western Riverside MSHCP Burrowing Owl Survey Protocol
Appendix B	Burrowing Owl Consortium Burrowing Owl Survey Protocol
Appendix C	Burrowing Owl Transect Coordinates
Appendix D	Burrowing Owl Species Information

## Tables

Table 2-1	Sampling Dates and Associated Burrow Monitoring Information .....	2-1
Table C-1	Coordinates (NAD27) from associated burrowing owl transect lines sets A-D .....	C-1



## Figures

Figure 1-1	Project Area .....	1-3
Figure 1-2	Burrowing Owl Suitable Habitat .....	1-7
Figure 1-3	Burrowing Owl Survey Transect Lines .....	1-9
Figure 2-1	Burrowing Owl Field Observations.....	2-3
Figure 2-2	Habitat Observations .....	2-5

# Background

---

## 1.1 PURPOSE

The purpose of this report is to present the results of a survey that evaluated the presence/absence of burrowing owl (*Athene cunicularia*) within the boundaries of the defined project area and surrounding burrowing owl habitat.

## 1.2 PROJECT AREA

The basis of the project area is the property proposed for Federal trust status by the Soboba Band of Luiseno Indians (**Figure 1-1**). The proposed property has been referred to as the Horseshoe Grande property, but is identified as the project area in this report. The area around the Horseshoe Grande property was also surveyed for potential habitat and is defined as a habitat buffer around the project area. The project area was developed in consultation with the U.S. Fish & Wildlife (USFWS) Carlsbad Office and Western Riverside County Regional Conservation Authority (WRCRCA). See Section 1.4.2.5 below for additional information on the development of the project area.

## 1.3 BURROWING OWL

The burrowing owl is a small, ground-dwelling bird with long-legs, white chin stripe, round head, and stubby tail; adults are boldly spotted and barred with brown and white; juveniles are buffy below; average length is 24 centimeters (cm) [about 9.5 inches (in)]. Burrowing owls are found throughout open landscapes of North and South America. Burrowing owls can be found in grasslands, especially prairie, plains, and savanna. They are sometimes found in open areas such as vacant lots near human habitation or airports. They nest and roost in burrows and spend much of their time on the ground or on low perches such as fence posts or dirt mounts (NatureServe 2009). Unlike most owls, burrowing owls are often active during the day, although they tend to avoid the mid-day heat. Most hunting is performed from dusk until dawn.

The burrowing owl has been considered a Species of Special Concern by the California Department of Fish and Game (CDFG) since 1992. The WRCRCA implements the Western Riverside County Regional Multi-Species Habitat Conservation Plan (MSHCP) and includes the burrowing owl as a Covered Species. The USFWS permitted the Western Riverside MSHCP in June 2004. The USFWS and CDFG participate in a joint project review process where each agency offers comments to WRCRCA's review of permit applications.

## 1.4 METHODS





This protocol is based on the burrowing owl survey guidance developed for the Western Riverside MSHCP (Appendix A) with modifications from the Burrowing Owl Consortium guidelines (1993) (Appendix B).

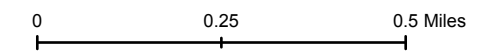
*This page intentionally left blank.*



Figure 1-1

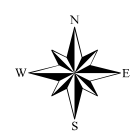
Project Area

-  Paved Road
-  Potential Maximum Perimeter
-  Horseshoe Grande Property
-  Reservation Boundary



Attorney-Client Confidential Communication;  
Do Not Copy or Disclose

Data Sources:  
NAIP 2009



12009 NE 99th St, Suite 1410  
Vancouver, WA 98682  
ph (360) 883-0191  
fax (360) 883-0292  
[www.entrix.com](http://www.entrix.com)

This map and all data contained within are supplied as is with no warranty. ENTRIX, Inc. expressly disclaims responsibility for damages or liability from any claims that may arise out of the use or misuse of this map. It is the sole responsibility of the user to determine if the data on this map meets the user's needs. This map was not created as survey data, nor should it be used as such. It is the user's responsibility to obtain proper survey data, prepared by a licensed surveyor, where required by law.

Coordinate System:  
NAD 1983 UTM Zone 11N



### 1.4.1 Sampling Timeframe

Burrowing owl nesting season begins as early as February 1 and continues through August 31 (Thomsen 1971, Zam 1974). Nesting surveys can be conducted March 1–August 31. It is preferable, however, that surveys are conducted during the peak of the breeding season, between April 15 and July 15. ENTRIX conducted surveys from April 26–30.

Surveys were conducted during weather that was favorable for observing owls outside their burrows and detecting burrowing owl signs. Surveys were not conducted during rain, high wind (>20 mph), dense fog, or temperatures over 90°F.

### 1.4.2 Sampling Protocol

The recommended protocol consists of two phases:

*Phase I:* Determination of whether or not burrowing owl habitat exists on the project area.

*Phase II:* If burrowing owl habitat is identified, surveys are performed to determine species presence.

#### 1.4.2.1 Phase I - Habitat Assessment

The first phase of survey work involves identification of suitable burrowing owl habitat within the project area. This is generally done by a biologist walking the property to identify presence of acceptable habitat. For the purpose of this project, ENTRIX obtained from the USFWS (Mr. Tony McKinney, Carlsbad ES Office) a GIS layer of the burrowing owl survey areas identified in the Western Riverside MSHCP (see Figure 6-4, Burrowing Owl Survey Areas with Criteria Area, in USFWS 2002). This burrowing owl survey areas dataset was developed by identifying suitable habitat for burrowing owl within lands covered by the Western Riverside MSHCP. It identifies areas where burrowing owl surveys are required to be conducted for the Western Riverside MSHCP project review process (USFWS 2002). We overlaid this GIS layer on the project area (**Figure 1-2**). For the purposes of this survey, we assumed that this dataset identified areas of suitable habitat for burrowing owl in and around the project area that would require on-the-ground surveys (Phase II).

#### 1.4.2.2 Phase II - Locating Burrows and Burrowing Owls

Burrow surveys are required if burrowing owl habitat occurs in the project area. If burrowing habitat is not present in the project area and buffer zone, the Phase II burrow survey is not necessary. ENTRIX assumed the presence of burrowing owl habitat on the project area based on suitable habitat data provided by the USFWS (**Figure 1-2**). Phase II, locating burrows and burrowing owls, is composed of two parts: A) focused burrow surveys; and B) focused burrowing owl surveys.

#### 1.4.2.3 Part A - Focused Burrow Surveys

- Systematic surveys for burrows and owls are conducted by walking through suitable habitat over the entire project area and in areas within 150 meters (m) [approximately 500 (ft)] of the project area. This 150-m buffer accounts for adjacent burrows and foraging habitats outside the project area and impacts from factors such as noise and vibration due to construction.
- To complete pedestrian survey transects, the distance between transect center lines must be no greater than 30 m (approximately 100 ft). Surveyors try to maintain a minimum distance of 50 m (approximately 160 ft) from any owls or known occupied burrows to reduce disturbance (California Burrowing Owl Consortium 1993).

- Surveyors record GPS coordinates of potential owl burrows and photograph associated sites (see Appendix D for examples of burrowing owl sign).
- If the survey area (project area and 150-m wide buffer zone) contains natural or man-made structures that could potentially support burrowing owls, or if owls are observed, surveyors must complete Part B, focused burrowing owl surveys.

#### 1.4.2.4 Part B - Focused Burrowing Owl Surveys

A complete burrowing owl survey consists of four site visits. Site visits to burrows are repeated on four separate days. The first burrow observation is conducted concurrently with the focused burrow surveys (Part A). Subsequent surveys are conducted from one hour before sunrise to two hours after and two hours before sunset to one hour after. While conducting surveys, disturbance near occupied burrows is minimized

- Upon arrival at the survey area and prior to initiation of walking surveys, surveyors use binoculars or a spotting scope to scan all suitable habitats, location of mapped burrows, sign, and perches to establish owl presence. All observations are recorded.
- Surveyors perform pedestrian surveys to look for owls and owl sign. Surveyors walk through suitable habitat over the entire project area following mapped transects that are spaced 30 m (approximately 100 ft) apart (**Figure 1-3**, Appendix C). The adjacent 150 m (approximately 500 ft) buffer zone is only walked during the first day of surveys. Burrows identified as potentially occupied are monitored for 4 days.
- If access is not granted to any adjacent areas to the project area surveyors use binoculars to determine if owls are present in the area.
- If it is determined that no owls are present on the site, no further surveys are required until 30 days prior to grading.

#### 1.4.2.5 Surveyed Area

The project area and surrounding buffer zone contain burrowing owl habitat based on the suitable habitat GIS layer provided by the USFWS were designated as potential survey areas (**Figure 1-3**, Appendix C). The “max line” indicates area in addition to the project area boundary that may later serve as mitigation property. To this end, the survey was designed to search for burrows in areas within and outside of the project area, extending out to the “max line.” However, in this survey, only burrows found in the project area (transects C and D) would be monitored as defined in the protocol. GIS coordinates and photographs would be obtained for burrows outside the project area and inside the “max line” (transects A and B).

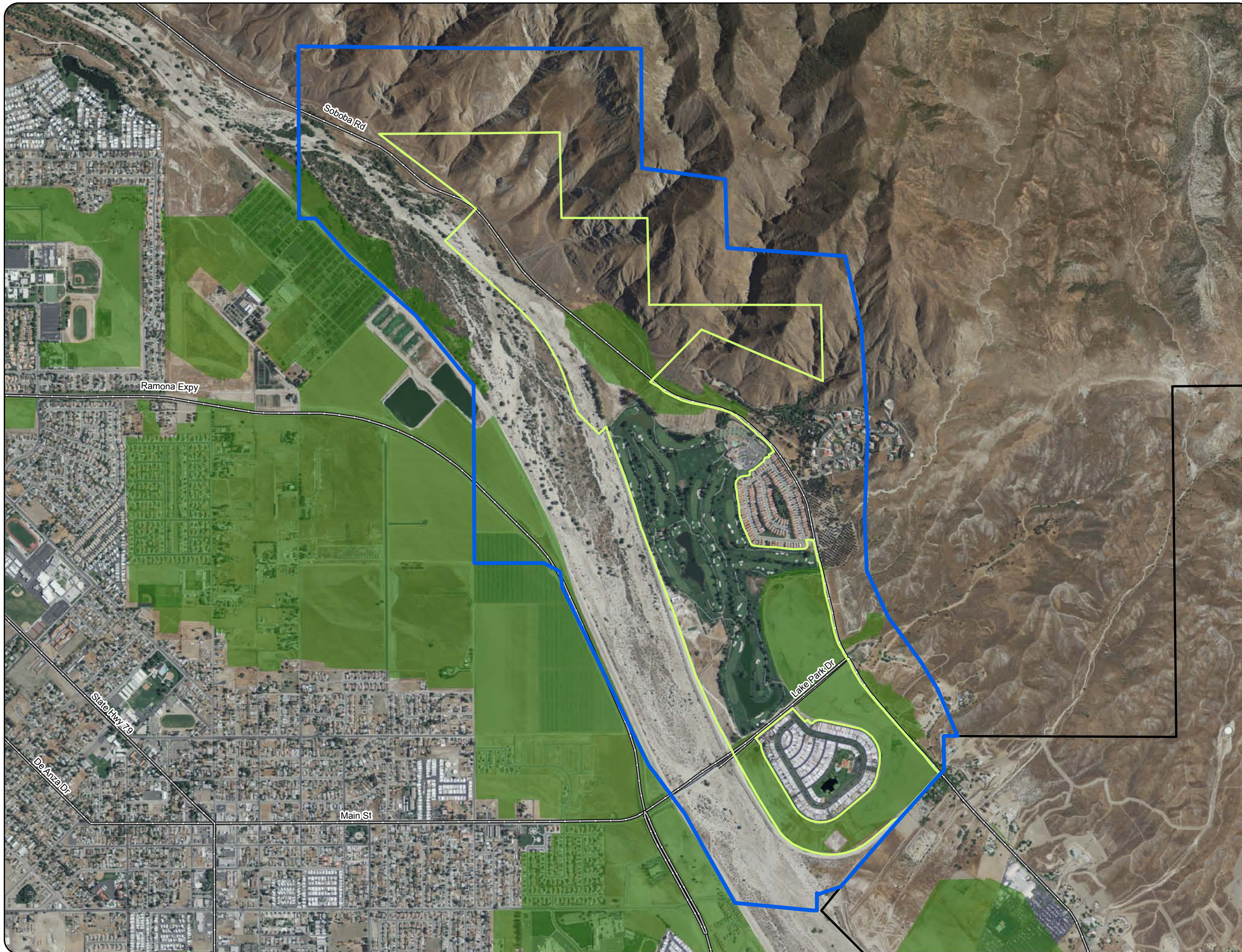
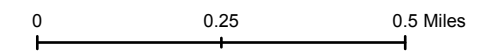


Figure 1-2  
 Suitable  
 Burrowing Owl Habitat

- Paved Road
- Potential Maximum Perimeter
- Horseshoe Grande Property
- Reservation Boundary
- Potential Burrowing Owl Habitat within the Western Riverside County MSHP Owl Survey Areas (USFWS, 2002)



Attorney-Client Confidential Communication;  
 Do Not Copy or Disclose

Data Sources:  
 NAIP 2009



12009 NE 99th St, Suite 1410 ph (360) 883-0191  
 Vancouver, WA 98682 fax (360) 883-0292  
[www.entrix.com](http://www.entrix.com)

This map and all data contained within are supplied as is with no warranty. ENTRIX, Inc. expressly disclaims responsibility for damages or liability from any claims that may arise out of the use or misuse of this map. It is the sole responsibility of the user to determine if the data on this map meets the user's needs. This map was not created as survey data, nor should it be used as such. It is the user's responsibility to obtain proper survey data, prepared by a licensed surveyor, where required by law.





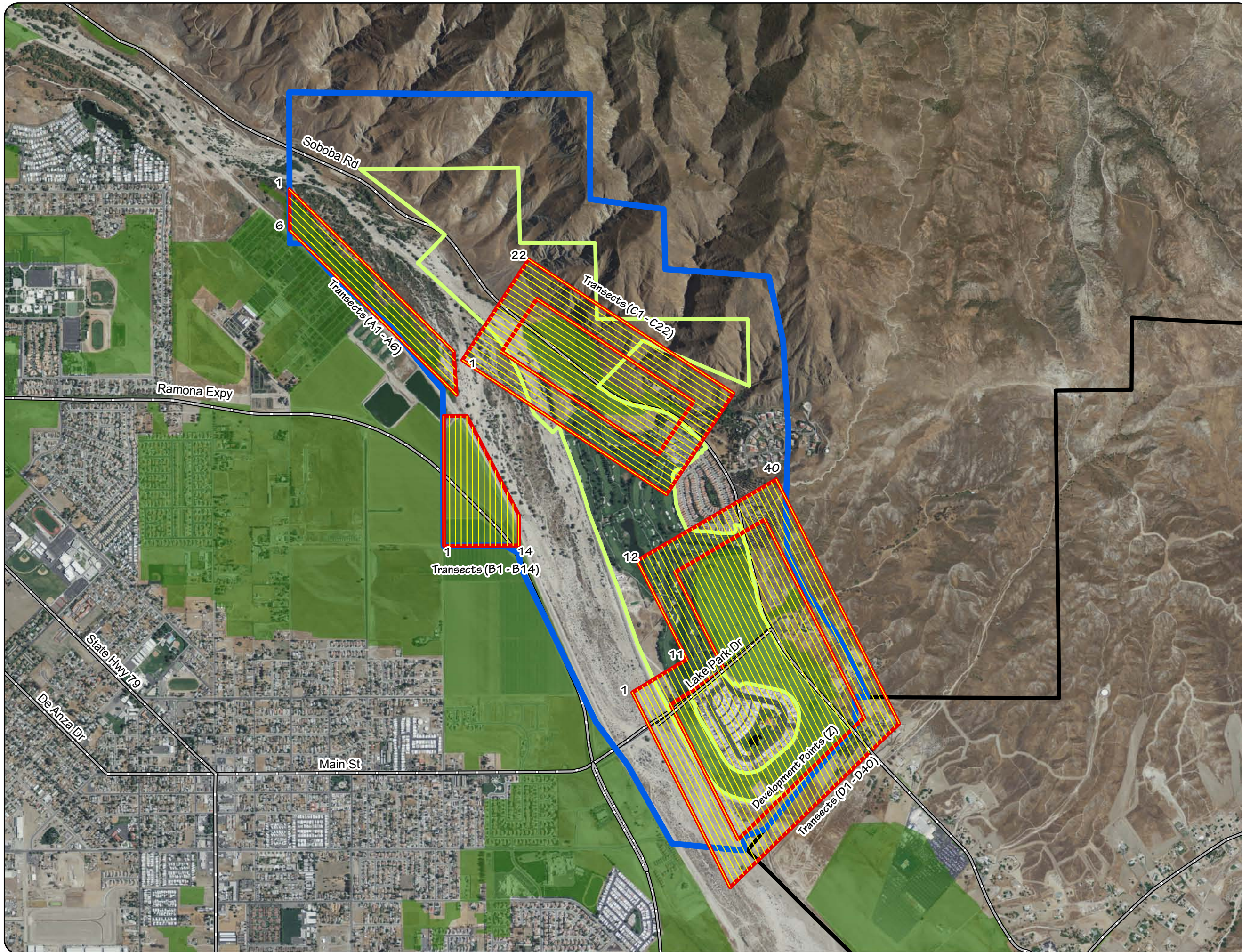

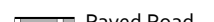


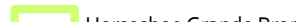

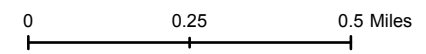


Figure 1-3  
 Burrowing Owl Habitat  
 Field Transects

-  Field Transects
-  Paved Road
-  Potential Maximum Perimeter
-  Horseshoe Grande Property
-  Reservation Boundary
-  Potential Burrowing Owl Habitat within the Western Riverside County MSHP Owl Survey Areas (USFWS, 2002)



Attorney-Client Confidential Communication;  
 Do Not Copy or Disclose

Data Sources:  
 NAIP 2009



**ENTRIX**  
 12009 NE 99th St, Suite 1410 | ph (360) 883-0191  
 Vancouver, WA 98682 | fax (360) 883-0292  
[www.entrix.com](http://www.entrix.com)

This map and all data contained within are supplied as is with no warranty. ENTRIX, Inc. expressly disclaims responsibility for damages or liability from any claims that may arise out of the use or misuse of this map. It is the sole responsibility of the user to determine if the data on this map meets the user's needs. This map was not created as survey data, nor should it be used as such. It is the user's responsibility to obtain proper survey data, prepared by a licensed surveyor, where required by law.



# Results

## 2.1 MONITORING

Sites were surveyed and burrows monitored from April 26 to April 30, 2010 (Table 2-1). Several potential burrows considered unoccupied were identified and 19 burrows (some adjacent to each other) were considered likely to have owls present were detected (**Figure 2-1**). The determination of whether or not a burrow was considered potentially occupied was based upon several factors such as indicators of presence or absence, whether or not the burrow was partially collapsed, or had spider webs over the main entry site. Burrows considered potentially occupied were monitored according to the directed protocol.

**Table 2-1 Sampling Dates and Associated Burrow Monitoring Information**

Burrows Monitored	GPS Coordinates (NAD 27)		Description	Monitoring Dates (2010)
1	505975	3739738	Retention pond in golf course area	April 27-30
2	505721	3739784	Side of sandy berm near vegetation	April 27-30
3	505811	3740102	Beneath shrub in grassy habitat	April 27-30
4	505850	3740222	In grassy habitat on northern side of Soboba Highway	April 27-30
5	505616	3740333	In grassy habitat on northern side of Soboba Highway	April 27-30
6	505649	3740299	In grassy habitat on northern side of Soboba Highway	April 27-30
7	505680	3740272	In grassy habitat on northern side of Soboba Highway	April 27-30
8	505697	3740260	In grassy habitat on northern side of Soboba Highway	April 27-30
19	506805	3737637	Potential burrow complex on large vegetated dirt mound	April 26-29
21	506294	3738381	In rocky area near small wash	April 26-29
22	506243	3738570	In vegetated area, somewhat disturbed off golf course	April 26-29
23	506231	3738680	In vegetated area, somewhat disturbed off golf course	April 27-30
24	506178	3738763	In vegetated area, somewhat disturbed off golf course	April 27-30
25	506332	3739145	In retention pond near golf course	April 27-30
26	506380	3739147	In retention pond near golf course	April 27-30
27	506464	3739047	In vegetated area near golf course path	April 27-30
28	505736	3740253	In grassy habitat on northern side of Soboba Highway	April 27-30
29	505755	3740241	In grassy habitat on northern side of Soboba Highway	April 27-30
30	505855	3740164	In grassy habitat on northern side of Soboba Highway	April 27-30
31	506678	3737975	In small wash on edge of berm	April 26-29

## 2.2 PRESENCE OF BURROWING OWLS

No owls were seen during pedestrian transect surveys. No owls were observed at any potentially occupied burrows.

## 2.3 HABITAT

Habitat was assessed in areas with potential habitat and the surrounding area. A large portion of the habitat predicted to be suitable for burrowing owl is no longer suitable. The various habitat types were mapped (**Figure 2-2**).

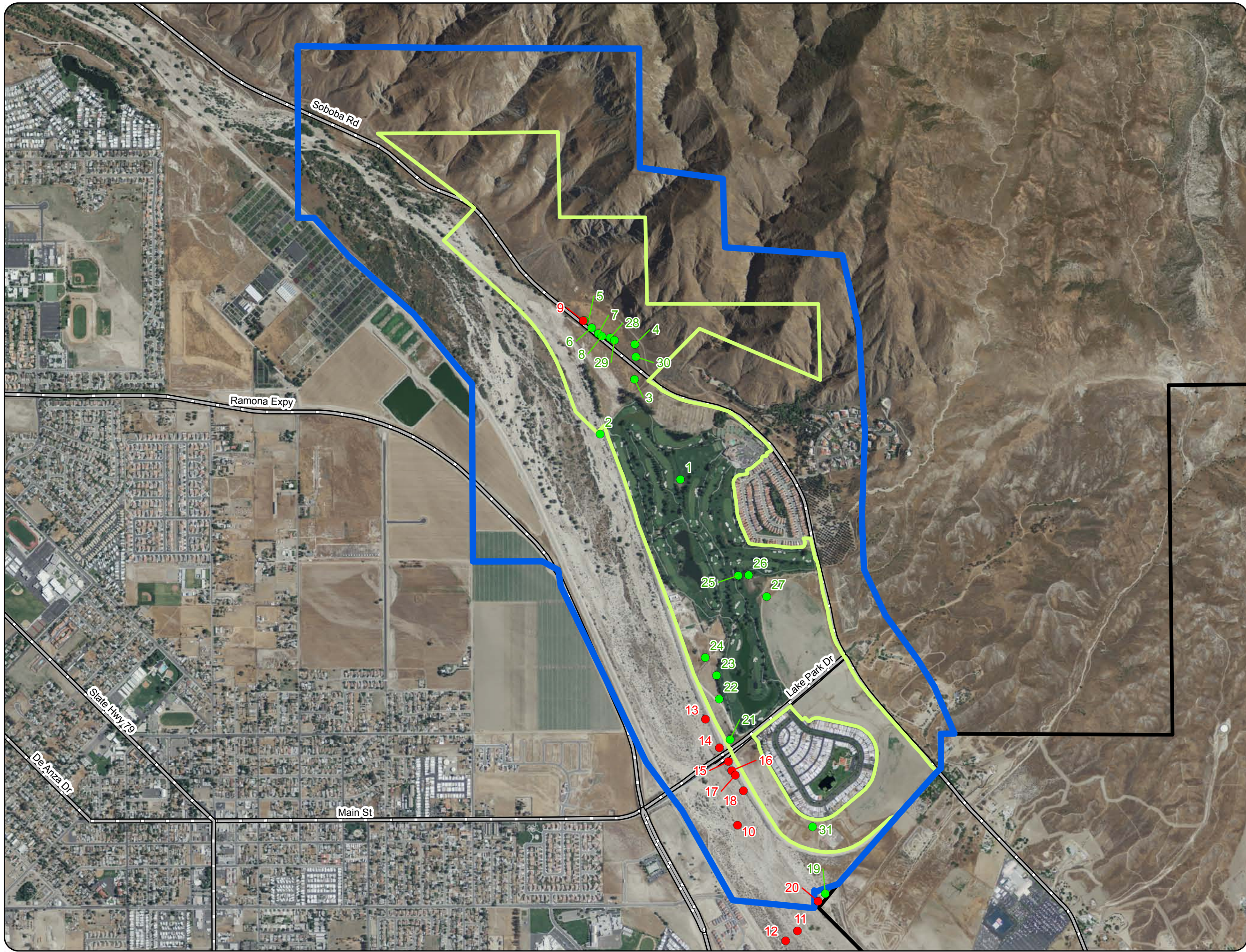
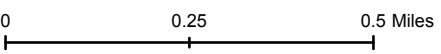


Figure 2-1

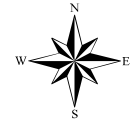
### Burrowing Owl Field Observations

- Burrowing Owl Activity Absent
- Burrowing Owl Activity Present
- Paved Road
- Potential Maximum Perimeter
- Horseshoe Grande Property
- Reservation Boundary



Attorney-Client Confidential Communication;  
Do Not Copy or Disclose

Data Sources:  
NAIP 2009



12009 NE 99th St, Suite 1410  
Vancouver, WA 98682  
ph (360) 883-0191  
fax (360) 883-0292  
[www.entrix.com](http://www.entrix.com)

This map and all data contained within are supplied as is with no warranty. ENTRIX, Inc. expressly disclaims responsibility for damages or liability from any claims that may arise out of the use or misuse of this map. It is the sole responsibility of the user to determine if the data on this map meets the user's needs. This map was not created as survey data, nor should it be used as such. It is the user's responsibility to obtain proper survey data, prepared by a licensed surveyor, where required by law.

Coordinate System:  
NAD 1983 UTM Zone 11N



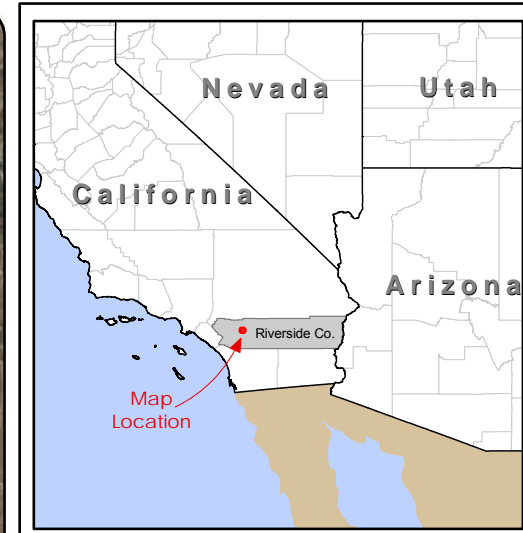
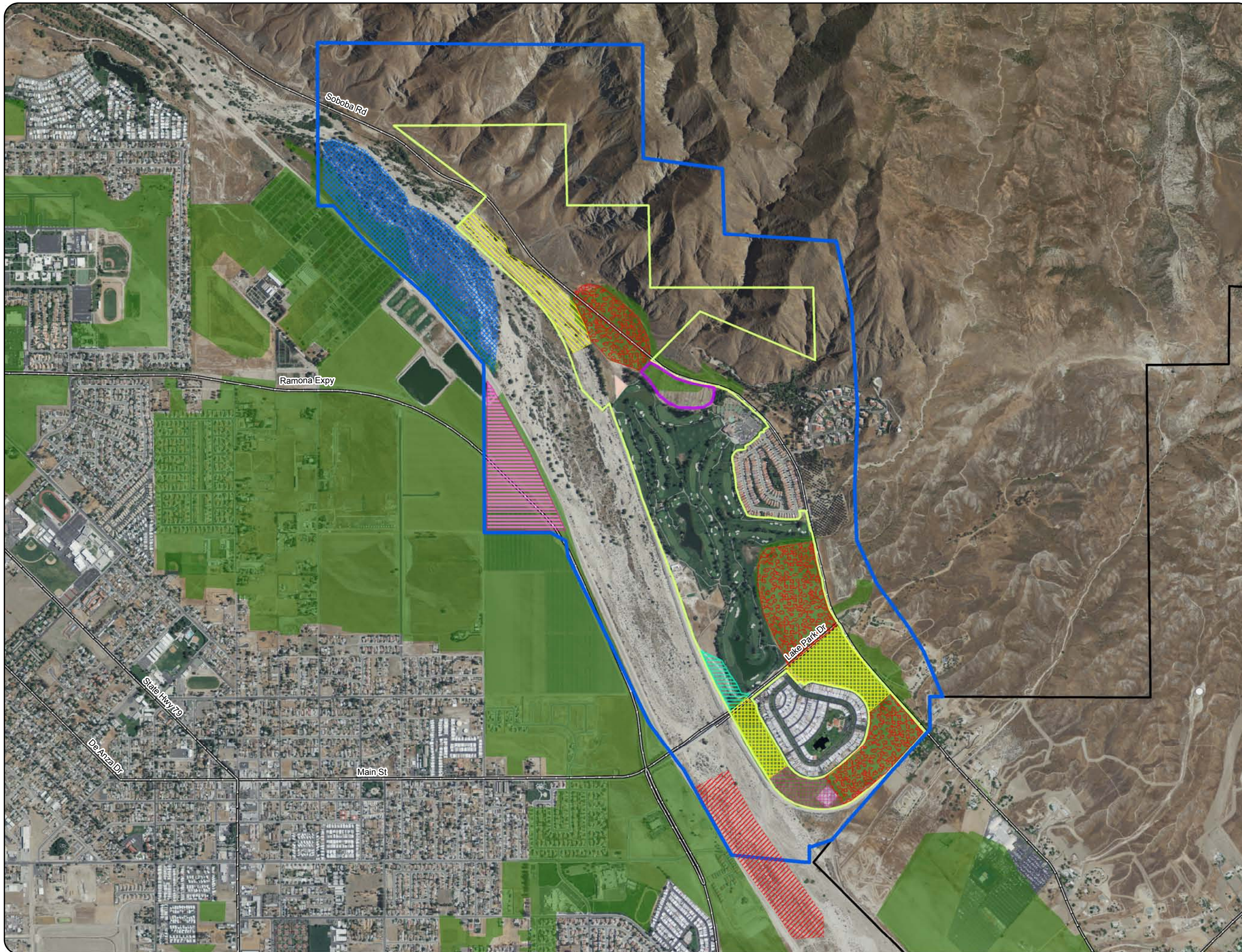
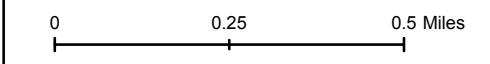


Figure 2-2  
**Burrowing Owl  
 Surveyed Habitat**

- Paved Road
- Potential Maximum Perimeter
- Horseshoe Grande Property
- Reservation Boundary
- Potential Burrowing Owl Habitat within the Western Riverside County MSHP Owl Survey Areas (USFWS, 2002)
- Habitat Type**
- Agriculture
- Dense Vegetation
- Densely Packed Soil
- Golf Driving Range
- Invasive Grass
- Invasive Grass Brush Mix
- Marginal Burrowing Owl Habitat
- Potential Burrowing Owl Habitat
- Recently Disturbed
- Soft Sand



Data Sources: Attorney-Client Confidential Communication; Do Not Copy or Disclose  
 NAIP 2009

12009 NE 99th St, Suite 1410  
 Vancouver, WA 98682  
 www.entrix.com

ph (360) 883-0191  
 fax (360) 883-0292

This map and all data contained within are supplied as is with no warranty. ENTRIX, Inc. expressly disclaims responsibility for damages or liability from any claims that may arise out of the use or misuse of this map. It is the sole responsibility of the user to determine if the data on this map meets the user's needs. This map was not created as survey data, nor should it be used as such. It is the user's responsibility to obtain proper survey data, prepared by a licensed surveyor, where required by law.





## References

---

- California Burrowing Owl Consortium. 1993. Burrowing Owl Survey Protocol and Mitigation Guidelines.
- California Department of Fish and Game. 1992. Bird species of special concern. Unpublished list, July 1992, Calif. Dept. Fish & Game, 1414 Ninth St., Sacramento, CA 95814.
- NatureServe. 2009. NatureServe Explorer: An online encyclopedia of life [web application]. Version 7.1. NatureServe, Arlington, Virginia. Available at <http://www.natureserve.org/explorer>. Accessed: March 25, 2010.
- Thomsen, L. 1971. Behavior and ecology of burrowing owls on the Oakland Municipal Airport. *Condor* 73: 177-192.
- U.S. Fish and Wildlife Service (USFWS). 2002. Western Riverside County Multiple Species Habitat Conservation Plan. Available at <http://www.tlma.co.riverside.ca.us/mshcp/volume1/sec9.html#table9.3>.
- Zam, M. 1974. Burrowing owl. U. S. Department of Interior, Bureau of Land Management. Technical Note T-N 250. Denver, Colorado. 25 pp.



# Report Preparers & Field Survey Scientists

---

## **ENTRIX, INC.**

Leo Lentsch, Technical Director and Vice-President, M.S., Fishery and Wildlife Biology

Anna Toline, Senior Project Scientist, Ph.D., Ecology

Scott Crosbie, Senior Staff Biologist, Ph.D., Animal Biology

Sara Fisher, Staff Scientist, B.S., Biology

Melissa Shotwell, Staff Scientist, B.S., Fisheries and Wildlife Management



# Western Riverside MSHCP Burrowing Owl Survey Guidelines



**BURROWING OWL SURVEY INSTRUCTIONS**  
**For the**  
**Western Riverside Multiple Species Habitat Conservation Plan Area**

**PURPOSE OF THE SURVEYS**

According to the Multiple Species Habitat Conservation Plan (MSHCP), surveys for the burrowing owl are to be conducted as part of the environmental review process. The MSHCP Additional Surveys Needs and Procedures identify a specific burrowing owl survey area within the MSHCP Plan Area. The MSHCP also identifies species-specific objectives for the burrowing owl, namely species-specific objectives 5 and 6, both of which require burrowing owl surveys if suitable habitat occurs on a proposed project site.

Although the MSHCP references the California Department of Fish and Game Staff report which is based on the Burrowing Owl Consortium Guidelines, the purpose of the following instructions is to clarify the methods necessary to obtain sufficient information to address consistency with; 1) specific conservation requirements of the MSHCP as identified in species-specific Objective 5, and 2) ensure direct mortality of burrowing owls is avoided through implementation of species-specific objective 6 (Pre-construction surveys). Note that surveys conducted to address burrowing owl species-specific objective 5 are necessary during the project design phase while surveys to address species-specific objective 6 are to be conducted just prior to project construction. Habitat assessments and burrowing owl surveys should be conducted by a biologist knowledgeable in burrowing owl habitat, ecology, and field identification of the species and burrowing owl sign.

**STEP I: HABITAT ASSESSMENT**

**Burrowing Owl Habitat Description:** Burrowing owls use a variety of natural and modified habitats for nesting and foraging that is typically characterized by low growing vegetation. Burrowing owl habitat includes, but is not limited to, native and non-native grassland, interstitial grassland within shrub lands, shrub lands with low density shrub cover, golf-courses, drainage ditches, earthen berms, unpaved airfields, pastureland, dairies, fallow fields, and agricultural use areas.

Burrowing owls typically use burrows made by fossorial (adapted for burrowing or digging) mammals, such as ground squirrels (*Spermophilus beecheyi*) or badgers (*Taxidea taxus*), they often utilize manmade structures, such as earthen berms; cement culverts; cement, asphalt, rock, or wood debris piles; or openings beneath cement or asphalt pavement. Burrowing owls are often found within, under, or in close proximity to man-made structures.

The first step in the assessment process is to walk the property to identify the presence of burrowing owl habitat on the project site. If habitat is found on the site, then walk a 150-meter (approximately 500 feet) buffer zone around the project boundary. If permission to access the buffer area cannot be obtained, do not trespass on adjacent property but visually inspect the adjacent habitat areas with binoculars and/or spotting scopes. Habitat assessments that do not include walking the property will not be accepted. Driving by a site and reporting it as disturbed or under agricultural/dairy use is not acceptable.



If burrowing owl habitat occurs on-site, both Step II (focused surveys, census, and mapping) and Preconstruction Surveys are required. If burrows are found during the habitat assessment then suitable habitat is present and Step II is required. However, lack of identifying burrows during the habitat assessment does not negate the need for the systematic search for burrows included as part of the Step II survey instructions. If burrowing owl habitat is not present on-site (i.e. if the site is completely covered by chaparral, cement or asphalt) Step II of the survey is not necessary. No Pre-construction surveys are necessary if there is no suitable habitat on-site.

A written report (with photographs of the site) detailing results of the habitat assessment should be prepared, indicating whether or not the project site contains suitable burrowing owl habitat. Simply reporting that the site is disturbed or under agricultural/dairy use is not acceptable.

## **STEP II- LOCATING BURROWS AND BURROWING OWLS**

Completion of the following will constitute an acceptable burrowing owl survey. A minimum of one site visit must occur, but additional visits may be warranted depending on the results of the first site visit. Surveys conducted during the breeding season March 1 - August 31 are required to describe if, when, and how the site is used by burrowing owls. Negative results during surveys outside the breeding season are not conclusive proof that owls do not use the project site and may not provide an accurate picture of the number of owls that may utilize the site. Surveys that are conducted outside the breeding season will likely need to be repeated during the breeding season; therefore, it is recommended that surveys only be conducted during the breeding season (unless conducting Preconstruction surveys).

All surveys shall be conducted as described in Parts A and B below. Surveys should be conducted during weather that is conducive to observing owls outside their burrows and detecting burrowing owl sign. Surveys will not be accepted if they are conducted during rain, high winds (> 20 mph), dense fog, or temperatures over 90 °F. Part B surveys should be conducted in the morning one hour before sunrise to two hours after sunrise or in the early evening two hours before sunset to one hour after sunset. Count and map all burrowing owl sightings, occupied burrows, and burrows with owl sign. Record the location of all owls including numbers of pairs and juveniles and any behavior such as courtship and mating. Map the extent of all suitable habitat. It should be noted that owl sign may not be detectable if surveys under Part A are conducted within 5 days following rain. Absence of burrowing owl sign cannot be used to confirm absence of the species if the focused burrow survey (Part A) is conducted within 5 days of rain; therefore, in this instance, completion of all four focused burrowing owl surveys (Part B) is required.

### ***Part A: Focused Burrow Surveys***

A focused burrow survey that includes natural burrows or suitable man-made structures needs to be conducted as described below.

1. A systematic survey for burrows including burrowing owl sign should be conducted by walking through suitable habitat over the entire survey area (i.e. the project site and within 150 meters). Pedestrian survey transects need to be spaced to allow 100% visual coverage of the ground surface.

The distance between transect center lines should be no more than 30 meters (approximately 100 ft.) and should be reduced to account for differences in terrain, vegetation density, and ground surface visibility. To efficiently survey projects larger than 100 acres, it is recommended that two or more qualified surveyors conduct concurrent surveys.

2. The location of all suitable burrowing owl habitat, potential owl burrows, burrowing owl sign, and any owls observed should be recorded and mapped, including GPS coordinates. If the survey area contains natural or man-made structures that could potentially support burrowing owls, or owls are observed during the burrow surveys, the systematic surveys should continue as prescribed in Part B. If no potential burrows are detected, no further surveys are required. A written report including photographs of the project site, location of burrowing owl habitat surveyed, location of transects, and burrow survey methods should be prepared. If the report indicates further surveys are not required, then the report should state the reason(s) why further focused burrowing owl surveys are not necessary.

### ***Part B: Focused Burrowing Owl Surveys***

Focused Burrowing Owl Surveys will consist of site visits on four separate days. The first one may be conducted concurrent with the Focused Burrow Survey.

1. Upon arrival at the survey area and prior to initiating the walking surveys, surveyors using binoculars and/or spotting scopes should scan all suitable habitat, location of mapped burrows, owl sign, and owls, including perch locations to ascertain owl presence. This is particularly important if access has not been granted for adjacent areas with suitable habitat.
2. A survey for owls and owl sign should then be conducted by walking through suitable habitat over the entire project site and within the adjacent 150 m (approx. 500 feet). These “pedestrian surveys” should follow transects (i.e. Survey transects that are spaced to allow 100% visual coverage of the ground surface. The distance between transect center lines should be no more than 30 meters (approx 100 feet.) and should be reduced to account for differences in terrain, vegetation density, and ground surface visibility. To efficiently survey projects larger than 100 acres, it is recommended that two or more qualified surveyors conduct concurrent surveys.) It is important to minimize disturbance near occupied burrows during all seasons.

3. If access is not obtained, then the area adjacent to the project site shall also be surveyed using binoculars and/or spotting scopes to determine if owls are present in areas adjacent to project site. This 150-meter buffer zone is included to fully characterize the population. If the site is determined not to be occupied, no further surveys are required until 30 days prior to grading (see Pre-construction Surveys below).

### **STEP III: REPORTING REQUIREMENTS**

After completion of appropriate surveys, a final report shall be submitted to the Riverside County Environmental Programs Department and the RCA Monitoring Program Administrator, which discusses the survey methodology, transect width, duration, conditions, and results of the survey. Appropriate maps showing burrow locations shall be included.

### **PRE-CONSTRUCTION SURVEYS**

All project sites containing burrows or suitable habitat (based on Step I/Habitat Assessment) whether owls were found or not, require pre-construction surveys that shall be conducted within 30 days prior to ground disturbance to avoid direct take of burrowing owls (MSHCP Species-Specific Objective 6).

APPENDIX B

---

# Burrowing Owl Consortium Survey Guidelines



BURROWING OWL SURVEY PROTOCOL  
AND MITIGATION GUIDELINES

Prepared by:

The California Burrowing Owl Consortium

April 1993



## INTRODUCTION

The California Burrowing Owl Consortium developed the following Survey Protocol and Mitigation Guidelines to meet the need for uniform standards when surveying burrowing owl (*Speotyto cunicularia*) populations and evaluating impacts from development projects. The California Burrowing Owl Consortium is a group of biologists in the San Francisco Bay area who are interested in burrowing owl conservation. The following survey protocol and mitigation guidelines were prepared by the Consortium's Mitigation Committee. These procedures offer a decision-making process aimed at preserving burrowing owls in place with adequate habitat.

California's burrowing owl population is clearly in peril and if declines continue unchecked the species may qualify for listing. Because of the intense pressure for development of open, flat grasslands in California, resource managers frequently face conflicts between owls and development projects. Owls can be affected by disturbance and habitat loss, even though there may be no direct impacts to the birds themselves or their burrows. There is often inadequate information about the presence of owls on a project site until ground disturbance is imminent. When this occurs there is usually insufficient time to evaluate impacts to owls and their habitat. The absence of standardized field survey methods impairs adequate and consistent impact assessment during regulatory review processes, which in turn reduces the possibility of effective mitigation.

These guidelines are intended to provide a decision-making process that should be implemented wherever there is potential for an action or project to adversely affect burrowing owls or the resources that support them. The process begins with a four-step survey protocol to document the presence of burrowing owl habitat, and evaluate burrowing owl use of the project site and a surrounding buffer zone. When surveys confirm occupied habitat, the mitigation measures are followed to minimize impacts to burrowing owls, their burrows and foraging habitat on the site. These guidelines emphasize maintaining burrowing owls and their resources in place rather than minimizing impacts through displacement of owls to an alternate site.

Each project and situation is different and these procedures may not be applicable in some circumstances. Finally, these are not strict rules or requirements that must be applied in all situations. They are guidelines to consider when evaluating burrowing owls and their habitat, and they suggest options for burrowing owl conservation when land use decisions are made.

Section 1 describes the four phase Burrowing Owl Survey Protocol. Section 2 contains the Mitigation Guidelines. Section 3 contains a discussion of various laws and regulations that protect burrowing owls and a list of references cited in the text.

We have submitted these documents to the California Department of Fish and Game (CDFG) for review and comment. These are untested procedures and we ask for your comments on improving their usefulness.





## SECTION 1 BURROWING OWL SURVEY PROTOCOL

### PHASE I: HABITAT ASSESSMENT

The first step in the survey process is to assess the presence of burrowing owl habitat on the project site including a 150-meter (approx. 500 ft.) buffer zone around the project boundary (Thomsen 1971, Martin 1973).

#### **Burrowing Owl Habitat Description**

Burrowing owl habitat can be found in annual and perennial grasslands, deserts, and scrublands characterized by low-growing vegetation (Zarn 1974). Suitable owl habitat may also include trees and shrubs if the canopy covers less than 30 percent of the ground surface. Burrows are the essential component of burrowing owl habitat: both natural and artificial burrows provide protection, shelter, and nests for burrowing owls (Henny and Blus 1981). Burrowing owls typically use burrows made by fossorial mammals, such as ground squirrels or badgers, but also may use man-made structures, such as cement culverts; cement, asphalt, or wood debris piles; or openings beneath cement or asphalt pavement.

#### **Occupied Burrowing Owl Habitat**

Burrowing owls may use a site for breeding, wintering, foraging, and/or migration stopovers. Occupancy of suitable burrowing owl habitat can be verified at a site by an observation of at least one burrowing owl, or, alternatively, its molted feathers, cast pellets, prey remains, eggshell fragments, or excrement at or near a burrow entrance. Burrowing owls exhibit high site fidelity, reusing burrows year after year (Rich 1984, Feeney 1992). A site should be assumed occupied if at least one burrowing owl has been observed occupying a burrow there within the last three years (Rich 1984).

The Phase II burrow survey is required if burrowing owl habitat occurs on the site. If burrowing owl habitat is not present on the project site and buffer zone, the Phase II burrow survey is not necessary. A written report of the habitat assessment should be prepared (Phase IV), stating the reason(s) why the area is not burrowing owl habitat.

### PHASE II: BURROW SURVEY

1. A survey for-burrows and owls should be conducted by walking through suitable habitat over the entire project site and in areas within 150 meters (approx 500 ft.) of the project impact zone. This 150-meter buffer zone is included to account for adjacent burrows and foraging habitat outside the project area and impacts from factors such as noise and vibration due to heavy equipment which could impact resources outside the project area.

2. Pedestrian survey transects should be spaced to allow 100 percent visual coverage of the ground surface. The distance between transect center lines should be no more than 30 meters (approx. 100 ft.), and should be reduced to account for differences in terrain, vegetation density, and ground surface visibility. To efficiently survey projects larger than 100 acres, it is recommended that two or more surveyors conduct concurrent surveys. Surveyors should maintain a minimum distance of 50 meters (approx. 160 ft.) from any owls or occupied burrows. It is important to minimize disturbance near occupied burrows during all seasons.
3. If burrows or burrowing owls are recorded on the site, a map should be prepared of the burrow concentration areas. A breeding season survey and census (Phase III) of burrowing owls is the next step required.
4. Prepare a report (Phase IV) of the burrow survey stating whether or not burrows are present.
5. A preconstruction survey may be required by project-specific mitigations no more than 30 days prior to ground disturbing activity.

### **PHASE III: BURROWING OWL SURVEYS, CENSUS AND MAPPING**

If the project site contains burrows that could be used by burrowing owls, then survey efforts should be directed towards determining owl presence on the site. Surveys in the breeding season are required to describe if, when, and how the site is used by burrowing owls. If no owls are observed using the site during the breeding season, a winter survey is required.

#### **Survey Methodology**

A complete burrowing owl survey consists of four site visits. During the initial site visit examine burrows for owl sign and map the locations of occupied burrows. Subsequent observations should be conducted from as many fixed points as necessary to provide visual coverage of the site using spotting scopes or binoculars. It is important to minimize disturbance near occupied burrows during all seasons. Site visits must be repeated on four separate days. Conduct these visits from two hours before sunset to one hour after or from one hour before to two hours after sunrise. Surveys should be conducted during weather that is conducive to observing owls outside their burrows. Avoid surveys during heavy rain, high winds (> 20 mph), or dense fog.

**Nesting Season Survey.** The burrowing owl nesting season begins as early as February 1 and continues through August 31 (Thomsen 1971, Zam 1974). The timing of nesting activities may vary with latitude and climatic conditions. If possible, the nesting season survey should be conducted during the peak of the breeding season, between April 15 and July 15. Count and map all burrowing owl sightings, occupied burrows, and burrows with owl sign. Record numbers of pairs and juveniles, and behavior such as courtship and copulation. Map the approximate territory boundaries and foraging areas if known.

**Survey for Winter Residents (non-breeding owls).** Winter surveys should be conducted between December 1 and January 31, during the period when wintering owls are most likely to be present. Count and map all owl sightings, occupied burrows, and burrows with owl sign.

Surveys Outside the Winter and Nesting Seasons. Positive results, (i.e., owl sightings)- outside of the above survey periods would be adequate to determine presence of owls on site. However, results of these surveys may be inadequate for mitigation planning because the numbers of owls and their pattern of distribution may change during winter and nesting seasons. Negative results during surveys outside the above periods are not conclusive proof that owls do not use the site.

**Preconstruction Survey.** A preconstruction survey may be required by project-specific mitigations and should be conducted no more than 30 days prior to ground disturbing activity.

## **PHASE IV: RESOURCE SUMMARY, WRITTEN REPORT**

A report should be prepared for CDFG that gives the results of each Phase of the survey protocol, as outlined below.

### **Phase I: Habitat Assessment**

1. Date and time of visit(s) including weather and visibility conditions; methods of survey.
2. Site description including the following information: location, size, topography, vegetation communities, and animals observed during visit(s).
3. An assessment of habitat suitability for burrowing owls and explanation.
4. A map of the site.

### **Phase II: Burrow Survey**

1. Date and time of visits including weather and visibility conditions; survey methods including transect spacing.
2. A more detailed site description should be made during this phase of the survey protocol including a partial plant list of primary vegetation, location of nearest freshwater (on or within one mile of site), animals observed during transects.
3. Results of survey transects including a map showing the location of concentrations of burrow(s) (natural or artificial) and owl(s), if present.

### **Phase III: Burrowing Owl Surveys, Census and Mapping**

1. Date and time of visits including weather and visibility conditions; survey methods including transect spacing.
2. Report and map the location of all burrowing owls and owl sign. Burrows occupied by owl(s) should be mapped indicating the number of owls at each burrow. Tracks, feathers, pellets, or other items (prey remains, animal scat) at burrows should also be reported.
3. Behavior of owls during the surveys should be carefully recorded (from a distance) and reported. Describe and map areas used by owls during the surveys. Although not required, all behavior is valuable to document including feeding, resting, courtship, alarm, territorial, parental, or juvenile behavior.
4. Both winter and nesting season surveys should be summarized. If possible include information regarding productivity of pairs, seasonal pattern of use, and include a map of the colony showing territorial boundaries and home ranges.
5. The historical presence of burrowing owls on site should be documented, as well as the source of such information (local bird club, Audubon society, other biologists, etc.).

# Burrowing: Owl Survey Protocol

April 1993

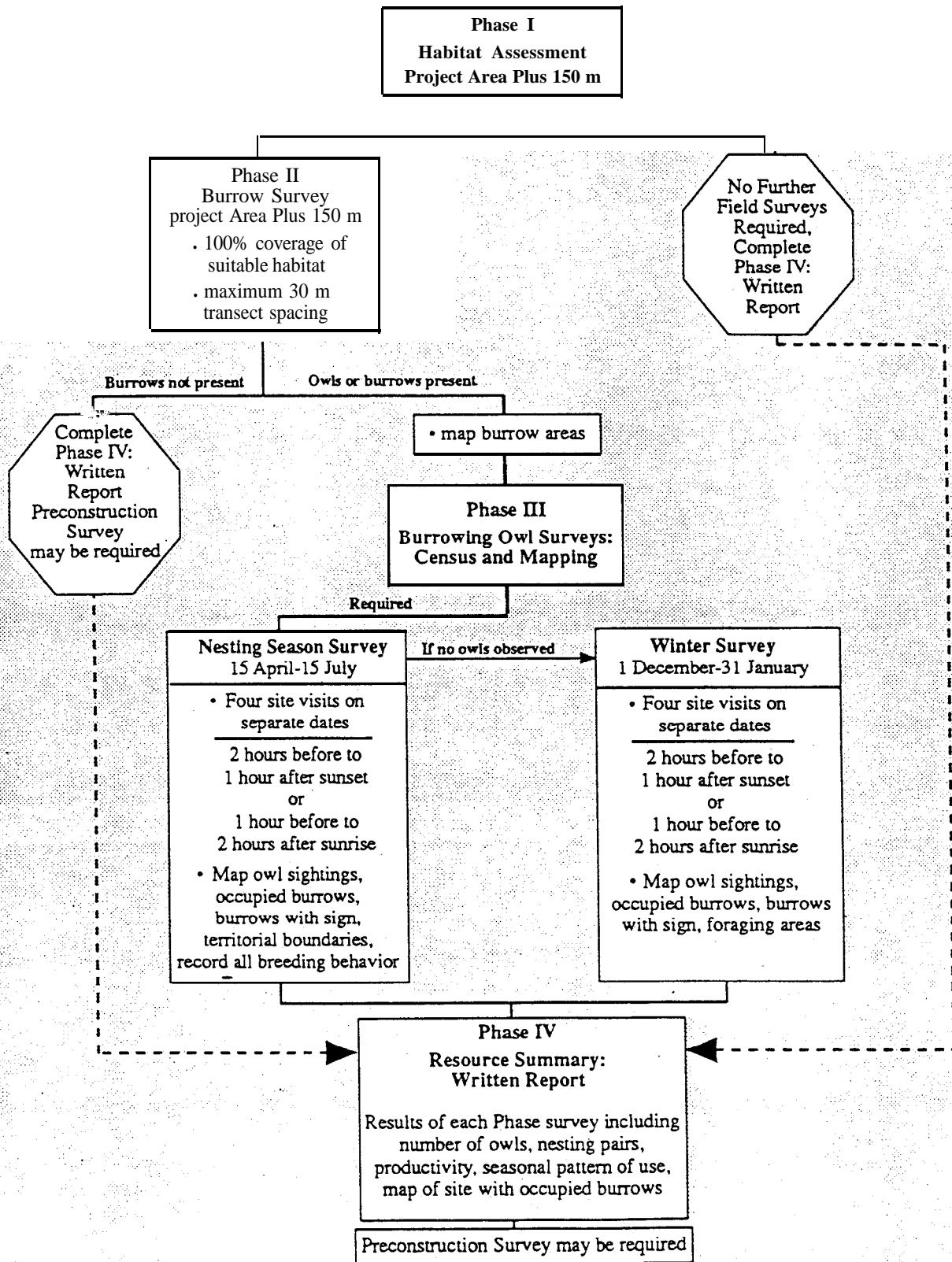


Figure 1.

## SECTION 2 BURROWING OWL MITIGATION GUIDELINES

The objective of these mitigation guidelines is to minimize impacts to burrowing owls and the resources that support viable owl populations. These guidelines are intended to provide a decision-making process that should be implemented wherever there is potential for an action or project to adversely affect burrowing owls or their resources. The process begins with a four-step survey protocol (see *Burrowing Owl Survey Protocol*) to document the presence of burrowing owl habitat, and evaluate burrowing owl use of the project site and a surrounding buffer zone. When surveys confirm occupied habitat, the mitigation measures described below are followed to minimize impacts to burrowing owls, their burrows and foraging habitat on the site. These guidelines emphasize maintaining burrowing owls and their resources in place rather than minimizing impacts through displacement of owls to an alternate site.

Mitigation actions should be carried out prior to the burrowing owl breeding season, generally from February 1 through August 31 (Thomsen 1971, Zarn 1974). The timing of nesting activity may vary with latitude and climatic conditions. Project sites and buffer zones with suitable habitat should be resurveyed to ensure no burrowing owls have occupied them in the interim period between the initial surveys and ground disturbing activity. Repeat surveys should be conducted not more than 30 days prior to initial ground disturbing activity.

### DEFINITION OF IMPACTS

1. Disturbance or harassment within 50 meters (approx. 160 ft.) of occupied burrows.
2. Destruction of burrows and burrow entrances. Burrows include structures such as culverts, concrete slabs and debris piles that provide shelter to burrowing owls.
3. Degradation of foraging habitat adjacent to occupied burrows.

### GENERAL CONSIDERATIONS

1. Occupied burrows should not be disturbed during the nesting season, from February 1 through August 31, unless the Department of Fish and Game verifies that the birds have not begun egg-laying and incubation or that the juveniles from those burrows are foraging independently and capable of independent survival at an earlier date.
2. A minimum of 6.5 acres of foraging habitat, calculated on a 100-m (approx. 300 ft.) foraging radius around the natal burrow, should be maintained per pair (or unpaired resident single bird) contiguous with burrows occupied within the last three years (Rich 1984, Feeney 1992). Ideally, foraging habitat should be retained in a long-term conservation easement.

3. When destruction of occupied burrows is unavoidable, burrows should be enhanced (enlarged or cleared of debris) or created (by installing artificial burrows) in a ratio of 1:1 in adjacent suitable habitat that is contiguous with the foraging habitat of the affected owls.
4. If owls must be moved away from the disturbance area, passive relocation (see below) is preferable to trapping. A time period of at least one week is recommended to allow the owls to move and acclimate to alternate burrows.
5. The mitigation committee recommends monitoring the success of mitigation programs as required in Assembly Bill 3180. A monitoring plan should include mitigation success criteria and an annual report should be submitted to the California Department of Fish and Game.

## **AVOIDANCE**

### **Avoid Occupied Burrows**

No disturbance should occur within 50 m (approx. 160 ft.) of occupied burrows during the non-breeding Season of September 1 through January 31 or within 75 m (approx. 250 ft.) during the breeding Season of February 1 through August 31. Avoidance also requires that a minimum of 6.5 acres of foraging habitat be preserved contiguous with occupied burrow sites for each pair of breeding burrowing owls (with or without dependent young) or single unpaired resident bird (Figure 2).

## **MITIGATION FOR UNAVOIDABLE IMPACTS**

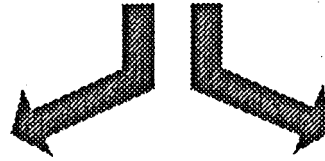
### **On-site Mitigation**

On-site passive relocation should be implemented if the above avoidance requirements cannot be met. Passive relocation is defined as encouraging owls to move from occupied burrows to alternate natural or artificial burrows that are beyond 50 m from the impact zone and that are within or contiguous to a minimum of 6.5 acres of foraging habitat for each pair of relocated owls (Figure 3). Relocation of owls should only be implemented during the non-breeding season. On-site habitat should be preserved in a conservation easement and managed to promote burrowing owl use of the site.

Owls should be excluded from burrows in the immediate impact zone and within a 50 m (approx. 160 ft.) buffer zone by installing one-way doors in burrow entrances: One-way doors should be left in place 48 hours to insure owls have left the burrow before excavation. One alternate natural or artificial burrow should be provided for each burrow that will be excavated in the project impact zone. The project area should be monitored daily for one week to confirm owl use of alternate burrows before excavating burrows in the immediate impact zone. Whenever possible, burrows should be excavated using hand tools and refilled to prevent reoccupation. Sections of flexible plastic pipe or burlap bags should be inserted into the tunnels



# AVOIDANCE



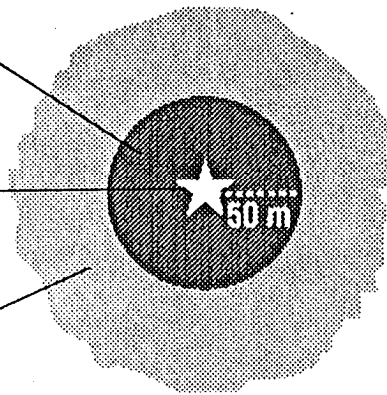
## Non-breeding season

1 Sept. - 31 Jan.

No impacts within  
50 m of occupied  
burrow

Occupied  
burrow

Maintain  
at least 6.5 acres  
foraging habitat



## Breeding season

1 Feb. - 31 Aug.

No impacts within  
75 m of occupied  
burrow

Occupied  
burrow

Maintain  
at least 6.5 acres  
foraging habitat

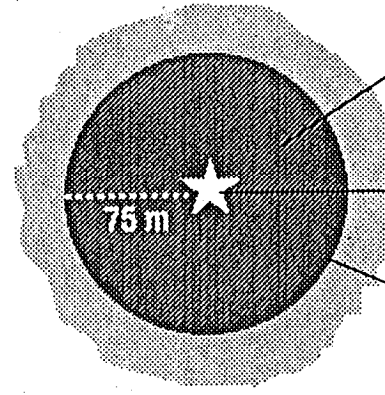


Figure 2. Burrowing owl mitigation guidelines.

## ON-SITE MITIGATION IF AVOIDANCE NOT MET

(More than 6.5 acres suitable habitat available)

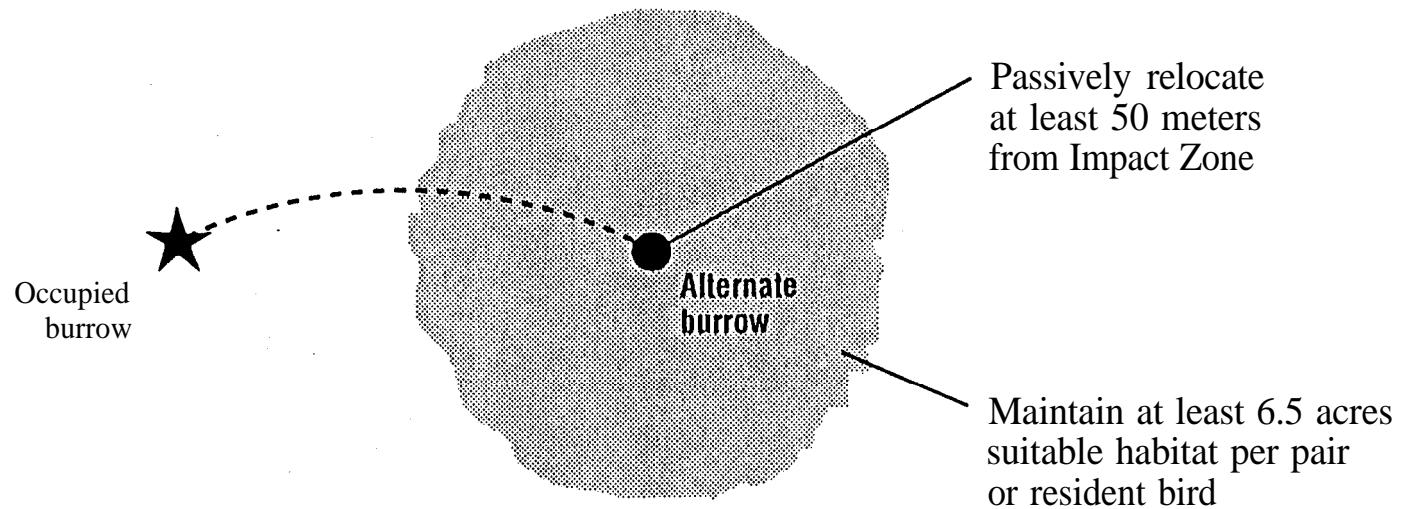


Figure 3. Burrowing owl mitigation guidelines.

during excavation to maintain an escape route for any animals inside the burrow.

### **Off-site Mitigation**

If the project will reduce suitable habitat on-site below the threshold level of 6.5 acres per relocated pair or single bird, the habitat should be replaced off-site. Off-site habitat must be suitable burrowing owl habitat, as defined in the *Burrowing Owl Survey Protocol*, and the site approved by CDFG. Land should be purchased and/or placed in a conservation easement in perpetuity and managed to maintain suitable habitat. Off-site mitigation should use one of the following ratios:

1. Replacement of occupied habitat with occupied habitat: 1.5 times 6.5 (9.75) acres per pair or single bird.
2. Replacement of occupied habitat with habitat contiguous to currently occupied habitat: 2 times 6.5 (13.0) acres per pair or single bird.
3. Replacement of occupied habitat with suitable unoccupied habitat: 3 times 6.5 (19.5) acres per pair or single bird.

## SECTION 3 LEGAL STATUS

The burrowing owl is a migratory bird species protected by international treaty under the Migratory Bird Treaty Act (MBTA) of 1918 (16 U.S.C. 703-711). The MBTA makes it unlawful to take, possess, buy, sell, purchase, or barter, any migratory bird listed in 50 C.F.R. Part 10, including feathers or other parts, nests, eggs, or products, except as allowed by implementing regulations (50 C.F.R. 21). Sections 3503, 3503.5, and 3800 of the California Department of Fish and Game Code prohibit the take, possession, or destruction of birds, their nests or eggs. Implementation of the take provisions requires that project-related disturbance at active nesting territories be reduced or eliminated during critical phases of the nesting cycle (March 1 - August 15, annually). Disturbance that causes nest abandonment and/or loss of reproductive effort (e.g., killing or abandonment of eggs or young) or the loss of habitat upon which the birds depend is considered “taking” and is potentially punishable by fines and/or imprisonment. Such taking would also violate federal law protecting migratory birds (e.g., MBTA).

The burrowing owl is a Species of Special Concern to California because of declines of suitable habitat and both localized and statewide population declines. Guidelines for the Implementation of the California Environmental Quality Act (CEQA) provide that a species be considered as endangered or “rare” regardless of appearance on a formal list for the purposes of the CEQA (Guidelines, Section 15380, subsections b and d). The CEQA requires a mandatory findings of significance if impacts to threatened or endangered species are likely to occur (Sections 21001(c), 21083. Guidelines 15380, 15064, 15065). Avoidance or mitigation must be presented to reduce impacts to less than significant levels.

### CEQA AND SUBDIVISION MAP ACT

CEQA Guidelines Section 15065 directs that a mandatory finding of significance is required for projects that have the potential to substantially degrade or reduce the habitat of, or restrict the range of a threatened or endangered species. CEQA requires agencies to implement feasible mitigation measures or feasible alternatives identified in EIR’s for projects which will otherwise cause significant adverse impacts (Sections 21002, 21081, 21083; Guidelines, sections 15002, subd. (a)(3), 15021, subd. (a)(2), 15091, subd. (a)).

To be legally adequate, mitigation measures must be capable of “avoiding the impact altogether by not taking a certain action or parts of an action”; “minimizing impacts by limiting the degree or magnitude of the action and its implementation”; “rectifying the impact by repairing, rehabilitating or restoring the impacted environment”; “or reducing or eliminating the impact over time by preservation and maintenance operations during the life of the action.” (Guidelines, Section 15.370).

Section 66474 (e) of the Subdivision Map Act states “a legislative body of a city or county shall deny approval of a tentative map or parcel map for which a tentative map was not required, if

it makes any of the following findings:... (e) that the design of the subdivision or the proposed improvements are likely to cause substantial environmental damage or substantially and avoidably injure fish and wildlife or their habitat". In recent court cases, the court upheld that Section 66474(e) provides for environmental impact review separate from and independent of the requirements of CEQA (Topanga Assn. for a Scenic Community v. County of Los Angeles, 263 Cal. Rptr. 214 (1989).). The finding in Section 66174 is in addition to the requirements for the preparation of an EIR or Negative Declaration.

## LITERATURE CITED

- Feeney, L. 1992. Site fidelity in burrowing owls. Unpublished paper presented to Raptor Research Annual Meeting, November 1992. Seattle, Washington.
- Haug, E. A. and L. W. Oliphant. 1990. Movements, activity patterns, and habitat use of burrowing owls in Saskatchewan. J. Wildlife Management 54:27-35.
- Henny, C. J. and L. J. Blus. 1981. Artificial burrows provide new insight into burrowing owl nesting biology. Raptor Research 15:82-85.
- Martin, D. J. 1973. Selected aspects of burrowing owl ecology and behavior. Condor 75:446-456.
- Rich, T. 1984. Monitoring burrowing owl populations: Implications of burrow re-use. Wildlife Society Bulletin 12: 178- 180.
- Thomsen, L. 1971. Behavior and ecology of burrowing owls on the Oakland Municipal Airport. Condor 73: 177-192.
- Zam, M. 1974. Burrowing owl. U. S. Department of Interior, Bureau of Land Management. Technical Note T-N 250. Denver, Colorado. 25pp.

# Burrowing Owl Transect Coordinates





**Table C-1 Coordinates (NAD27) from associated burrowing owl transect lines sets A-D**

POINT ID	POINT X	POINT Y
<b>Set A</b>		
A-1A	504280.64	3741096.49
A-1C	504715.22	3740666.80
A-1E	505149.80	3740237.11
A-2A	504281.10	3741053.68
A-2C	504716.82	3740622.79
A-2E	505152.53	3740191.90
A-3A	504280.51	3741011.77
A-3C	504718.36	3740578.77
A-3E	505156.22	3740145.77
A-4A	504280.95	3740968.56
A-4C	504721.18	3740533.15
A-4E	505161.40	3740097.73
A-5A	504282.17	3740924.96
A-5C	504721.55	3740490.31
A-5E	505160.93	3740055.66
A-6A	504282.11	3740881.84
A-6C	504723.48	3740445.15
A-6E	505164.85	3740008.46
<b>Set B</b>		
B-10A	505371.39	3739606.39
B-10C	505371.78	3739408.66
B-10E	505372.16	3739210.92
B-11A	505401.94	3739548.25
B-11C	505402.28	3739379.65
B-11E	505402.62	3739211.05
B-12A	505432.49	3739490.10
B-12C	505432.79	3739350.63
B-12E	505433.08	3739211.17
B-13A	505463.06	3739431.92
B-13C	505463.30	3739321.61
B-13E	505463.54	3739211.30
B-14A	505493.63	3739373.73
B-14C	505493.82	3739292.58
B-14E	505494.00	3739211.42
B-1A	505097.18	3739896.73
B-1C	505097.60	3739553.26
B-1E	505098.03	3739209.79
B-2A	505127.58	3739896.76
B-2C	505128.03	3739553.33
B-2E	505128.49	3739209.91
B-3A	505157.99	3739896.78
B-3C	505158.47	3739553.41

POINT ID	POINT X	POINT Y
B-3E	505158.95	3739210.04
B-4A	505188.39	3739896.80
B-4C	505188.90	3739553.48
B-4E	505189.40	3739210.17
B-5A	505218.80	3739896.83
B-5C	505219.33	3739553.56
B-5E	505219.86	3739210.29
B-6A	505249.30	3739838.78
B-6C	505249.81	3739524.60
B-6E	505250.32	3739210.42
B-7A	505279.81	3739780.71
B-7C	505280.30	3739495.63
B-7E	505280.78	3739210.54
B-8A	505310.33	3739722.62
B-8C	505310.79	3739466.65
B-8E	505311.24	3739210.67
B-9A	505340.85	3739664.52
B-9C	505341.28	3739437.66
B-9E	505341.70	3739210.79
<b>Set C</b>		
C-10A	505345.32	3740421.17
C-10B	505471.36	3740338.55
C-10C	505886.77	3740066.25
C-10D	506300.77	3739794.87
C-10E	506428.21	3739711.33
C-11A	505362.00	3740446.59
C-11B	505488.23	3740363.87
C-11C	505903.53	3740091.68
C-11D	506317.68	3739820.25
C-11E	506445.06	3739736.76
C-12A	505378.69	3740472.01
C-12B	505505.09	3740389.18
C-12C	505920.29	3740117.11
C-12D	506333.98	3739846.02
C-12E	506461.90	3739762.20
C-13A	505395.37	3740497.43
C-13B	505521.35	3740414.89
C-13C	505937.06	3740142.54
C-13D	506351.05	3739871.30
C-13E	506478.75	3739787.64
C-14A	505412.05	3740522.85
C-14B	505538.07	3740440.30
C-14C	505953.82	3740167.96
C-14D	506367.96	3739896.68
C-14E	506495.59	3739813.08
C-15A	505428.73	3740548.27
C-15B	505554.46	3740465.92
C-15C	505970.58	3740193.39



**APPENDIX C**  
**BURROWING OWL TRANSECT COORDINATES**

POINT ID	POINT X	POINT Y	POINT ID	POINT X	POINT Y
D-18B	506348.37	3739084.93	D-27C	506863.36	3738671.38
D-18C	506641.42	3738501.77	D-27D	507139.91	3738121.43
D-18D	506932.59	3737922.35	D-27E	507210.87	3737980.31
D-18E	507004.16	3737779.92	D-28A	506542.28	3739377.91
D-19A	506305.67	3739239.41	D-28B	506611.82	3739239.62
D-19B	506374.98	3739101.43	D-28C	506888.09	3738690.28
D-19C	506666.56	3738520.95	D-28D	507162.19	3738145.24
D-19D	506955.63	3737945.46	D-28E	507233.90	3738002.64
D-19E	507027.44	3737802.49	D-29A	506568.69	3739393.37
D-1A	506095.16	3738434.02	D-29B	506638.19	3739255.13
D-1C	506354.24	3737917.51	D-29C	506912.71	3738709.07
D-1E	506613.32	3737401.01	D-29D	507185.95	3738165.56
D-20A	506331.68	3739254.64	D-29E	507256.73	3738024.77
D-20B	506401.33	3739116.06	D-2A	506122.05	3738450.23
D-20C	506691.02	3738539.67	D-2C	506379.62	3737937.19
D-20D	506978.81	3737967.08	D-2E	506637.18	3737424.15
D-20E	507050.36	3737824.71	D-30A	506594.81	3739408.66
D-21A	506357.81	3739269.93	D-30B	506664.39	3739270.26
D-21B	506427.43	3739131.44	D-30C	506937.15	3738727.76
D-21C	506715.51	3738558.40	D-30D	507207.72	3738189.62
D-21D	507001.72	3737989.08	D-30E	507279.50	3738046.85
D-21E	507073.22	3737846.87	D-31A	506621.19	3739424.10
D-22A	506384.31	3739285.44	D-31B	506690.63	3739286.00
D-22B	506454.12	3739146.52	D-31C	506961.84	3738746.62
D-22C	506740.18	3738577.22	D-31D	507230.58	3738212.13
D-22D	507024.23	3738011.93	D-31E	507302.48	3738069.13
D-22E	507096.05	3737869.00	D-32A	506647.62	3739439.58
D-23A	506410.66	3739300.87	D-32B	506717.60	3739300.35
D-23B	506480.69	3739161.56	D-32C	506986.49	3738765.44
D-23C	506764.93	3738596.16	D-32D	507253.76	3738233.73
D-23D	507047.49	3738034.11	D-32E	507325.35	3738091.30
D-23E	507119.21	3737891.45	D-33A	506673.99	3739455.01
D-24A	506436.83	3739316.18	D-33B	506743.48	3739316.78
D-24B	506506.70	3739177.17	D-33C	507011.17	3738784.31
D-24C	506789.35	3738614.81	D-33D	507276.86	3738255.82
D-24D	507070.63	3738055.18	D-33E	507348.36	3738113.60
D-24E	507141.88	3737913.43	D-34A	506700.40	3739470.47
D-25A	506463.50	3739331.80	D-34B	506770.34	3739331.38
D-25B	506533.16	3739193.30	D-34C	507035.93	3738803.23
D-25C	506814.46	3738634.02	D-34D	507299.22	3738279.65
D-25D	507093.27	3738079.67	D-34E	507371.46	3738136.00
D-25E	507165.41	3737936.24	D-35A	506726.55	3739485.78
D-26A	506489.62	3739347.09	D-35B	506796.22	3739347.23
D-26B	506559.33	3739208.42	D-35C	507060.38	3738821.92
D-26C	506838.73	3738652.54	D-35D	507322.45	3738300.77
D-26D	507116.37	3738100.18	D-35E	507394.22	3738158.06
D-26E	507187.84	3737957.99	D-36A	506752.83	3739501.16
D-27A	506515.86	3739362.45	D-36C	507084.92	3738840.67
D-27B	506585.67	3739223.63	D-36E	507417.02	3738180.17

**MONITORING SURVEY RESULTS FOR BURROWING OWL  
SOBOBA HORSESHOE GRANDE FEE-TO-TRUST PROJECT RIVERSIDE COUNTY, CALIFORNIA**

**DRAFT  
JUNE 2010**

POINT ID	POINT X	POINT Y	POINT ID	POINT X	POINT Y
D-37A	506778.27	3739516.05	D-Z19	506876.86	3738102.27
D-37C	507109.22	3738859.34	D-Z20	506901.26	3738121.36
D-37E	507440.17	3738202.62	D-Z21	506925.63	3738140.44
D-38A	506805.26	3739530.98	D-Z22	506950.25	3738159.17
D-38C	507133.87	3738877.51	D-Z23	506966.64	3738194.94
D-38E	507462.47	3738224.04	D-Z24	506982.13	3738231.26
D-39A	506831.57	3739546.28	D-Z25	506983.49	3738297.94
D-39C	507158.42	3738896.22			
D-39E	507485.28	3738246.15			
D-3A	506148.40	3738466.12			
D-3C	506404.39	3737956.37			
D-3E	506660.37	3737446.63			
D-40A	506857.07	3739561.12			
D-40C	507182.75	3738914.86			
D-40E	507508.43	3738268.60			
D-4A	506174.65	3738481.94			
D-4C	506429.16	3737975.57			
D-4E	506683.66	3737469.21			
D-5A	506201.08	3738497.87			
D-5C	506453.84	3737994.65			
D-5E	506706.60	3737491.44			
D-6A	506226.35	3738513.11			
D-6B	506298.37	3738369.48			
D-6C	506477.24	3738012.71			
D-6D	506655.68	3737656.83			
D-6E	506728.13	3737512.32			
D-7A	506253.06	3738529.21			
D-7B	506324.91	3738386.21			
D-7C	506502.64	3738032.44			
D-7D	506680.38	3737678.66			
D-7E	506752.22	3737535.67			
D-8A	506279.16	3738544.94			
D-8B	506350.60	3738402.72			
D-8C	506527.10	3738051.37			
D-8D	506703.48	3737700.24			
D-8E	506775.04	3737557.80			
D-9A	506305.72	3738560.95			
D-9B	506376.59	3738419.82			
D-9C	506551.96	3738070.60			
D-9D	506726.38	3737723.29			
D-9E	506798.21	3737580.26			
D-Z11	506649.08	3738013.00			
D-Z12	506687.89	3738003.85			
D-Z13	506721.53	3738003.91			
D-Z14	506752.42	3738010.51			
D-Z15	506778.64	3738026.07			
D-Z16	506802.94	3738045.60			
D-Z17	506827.66	3738064.37			
D-Z18	506852.11	3738082.50			

APPENDIX D

---

# Burrowing Owl Species Information



## Burrowing Owl Description



### Adult

- Small owl
- No ear tufts
- Long legs
- Short tail
- Spots on back
- Bars on front
- Found on ground in open country

### Immature

- Juveniles have an unstreaked chest and few spots on back. Chest buff or dirty white, with dark collar

## Burrow Examples

Burrowing owl burrows are commonly round in shape and may have a sandy apron around the burrow entrance. Burrowing owls may also decorate the entrance area with feathers, bug parts, grass clippings, and owl pellets. Burrowing owls will sometimes use abandoned burrows constructed by other animals. Below are pictures of both natural and man made burrows.

## Natural Burrows





### Man-Made Burrows



## Owl Sign

Active burrows can be identified by the presence of excrement (whitewash) and prey pellets at their entrance. Burrowing owls often use fence posts and other structures as perches for roosting and hunting. These perches are typically covered with whitewash and may also have several prey pellets at their base.



Whitewash at a perch



Owl pellet



Whitewash at a Man-Made Burrow



Whitewash at a Natural Burrow

**Appendix R:**  
**Executive Orders**

34, and 35, in township numbered 8 south, of range numbered 2 west, of the San Bernardino meridian, be, and the same hereby are, withdrawn from sale and settlement, and set apart for Indian purposes: *Provided, however,* That any tract or tracts the title to which has passed out of the United States, or to which valid, legal rights have attached under existing laws of the United States providing for the disposition of the public domain, are hereby excluded from the reservation hereby created.

CHESTER A. ARTHUR.

EXECUTIVE MANSION, *July 24, 1882.*

It is hereby ordered that the Executive order dated December 27, 1875, setting aside certain described lands in the State of California, for the use and occupancy of the Mission Indians, be, and the same hereby is, canceled so far as relates to the northwest quarter of the northeast quarter and the northeast quarter of the northwest quarter of section 34, township 9 south, range 2 west of the San Bernardino meridian.

CHESTER A. ARTHUR.

EXECUTIVE MANSION, *February 5, 1883.*

It is hereby ordered that the following lands, situate in California, viz, the southeast quarter of the northeast quarter, the north half of the southeast quarter, and the southeast quarter of the southeast quarter of section 3, township 12 south, range 2 east of San Bernardino meridian, being lands withdrawn from the public domain for the Mission Indians by Executive order of December 27, 1875, be, and the same are hereby, restored to the public domain.

CHESTER A. ARTHUR.

EXECUTIVE MANSION, *June 19, 1883.*

It is hereby ordered that the following-described land, situate in the State of California, San Bernardino base and meridian, viz: Section 28, the northeast quarter of the northeast quarter, and lots 1, 2, 3, 4, and 5 of section 31; the north half, the southeast quarter, the northeast quarter of the southwest quarter, and lots 1 and 2 of section 32, and the north half of section 33, township 4 south, range 1 east; section 2; the south half of section 3, the fractional south half of section 4, the fractional north half of section 10, and the fractional northeast quarter of section 9, township 5 south, range 1 east; the east half of the southeast quarter of section 8, and the southwest quarter of the southwest quarter of section 9, township 12 south, range 2 east, and sections 10, 11, 14, 15, 22, 23, 28, and 33, township 14 south, range 2 east, be, and the same are hereby, withdrawn from sale and set apart for the permanent use and occupation of the Mission Indians in the State of California: *Provided,* That this withdrawal shall not affect any existing valid rights of any party.

CHESTER A. ARTHUR.

EXECUTIVE MANSION, *January 25, 1886.*

It is hereby ordered that the Executive order dated June 27, 1882, setting aside certain described lands in the State of California for Indian purposes be, and the same is hereby, canceled, so far as it relates to lot 2 in section 28, township 8 south, range 2 west of the San Bernardino meridian.

GROVER CLEVELAND.

**Appendix S:**  
**Cultural Resources Report (Confidential)**

# Appendix Q

---

## Cultural Resources Section 106 Technical Report

Confidential Report

**Appendix T:**

**SHPO Compliance Request and Concurrence Letter**



## United States Department of the Interior

### BUREAU OF INDIAN AFFAIRS

Pacific Regional Office  
2800 Cottage Way  
Sacramento, California 95825

JUL 11 2008

Mr. Milford Wayne Donaldson, F.A.I.A.  
State Historic Preservation Officer  
Office of Historic Preservation  
Department of Parks and Recreation  
PO Box 942896  
Sacramento, CA 94296-0001

Dear Mr. Donaldson:

The Bureau of Indian Affairs (BIA), Pacific Regional Office, wishes to initiate Section 106 consultation with the State Historic Preservation Officer (SHPO) concerning the proposed fee-to-trust transfer of approximately 535 acres of land for the Soboba Band of Luiseño Mission Indians (Tribe), Riverside County, California. The implementation of this proposed action, pursuant to 25 CFR 151 (Land Acquisitions), is contingent in part on the BIA meeting its obligations under Section 106 of the National Historic Preservation Act (NHPA) as amended.

The Area of Potential Effects (APE) for this undertaking includes 34 parcels of land known as the Horseshoe Grande property, which are located 1.5 miles east of downtown San Jacinto and contiguous with the northwestern boundary of the existing Soboba Reservation. In addition to taking the land into trust, the Tribe is proposing to relocate their existing casino onto this property. Future development would include a 300-room hotel and casino complex, a Tribal fire station, a 12-pump gas station and convenience store, and a convention center (see enclosed schematics illustrating Proposed Actions A & B and Alternatives 1-3). It is estimated that the total square footage for all of these elements would be around 730,000ft<sup>2</sup>. Alternative 1 would reduce the size of the hotel-casino complex and convention center by approximately 20 percent, while Alternative 2 would retain the 300-room hotel development, but the casino would remain in its existing location on the original reservation. Finally, under Alternative 3 the Tribe would develop a 6,000 square-foot gas station and convenience store, a 200 space RV park, a Tribal fire station, and a 122,950 square-foot retail shopping center. The "no action" alternative is Alternative 4.

Entrix, Inc. completed a cultural resources study of the APE that included a records search and intensive-level pedestrian survey (report enclosed). The Soboba Springs Golf Course and Country Club comprises five of the parcels in the project area covering approximately 150 acres. The golf course was excluded from Entrix's pedestrian survey due to the extremely low probability of locating intact cultural deposits in such a disturbed setting. One additional parcel, totaling 74 acres, was also exempted from the current survey because CRM Tech had already inventoried this area for cultural resources in 2001. CRM Tech recorded one historic-period resource on this parcel, a post-World War II era stable that was evaluated as ineligible for listing



on the National Register of Historic Places (NRHP). Your office concurred with this determination in a letter dated April 2, 2002 (BIA020219A). Entrix's records search indicated that one historic structure had been previously recorded within the current APE. Site 33-7313, a vernacular ranch house, was recorded in 1981. The site was visited by CRM Tech in 2004. The house had been demolished sometime after its' initial recordation.

Entrix conducted a pedestrian survey of the remaining 29 parcels on November 14, 2006 and July 11-12, 2007. Their survey resulted in the relocation of the demolished ranch house (33-7313) as well as the identification and recordation of six new resources. They include the following: the remains of a water pump with associated concrete pads (HR-1); a deteriorated stable constructed sometime prior to 1949 (HR-2); a water retention basin with a historic glass scatter (RJ-1); an intact lime kiln reportedly constructed in the 1880s (RJ-2); a dam and water pipe with associated containment features (RJ-3); and a section of the Old Soboba Road (RJ-4).

Entrix conducted significance evaluations for all seven cultural resources located within the APE. They recommended all of the sites except the lime kiln as ineligible for listing on the NRHP. The lime kiln was evaluated as eligible "under Criterion D for its potential to contribute information to further our understanding of the lime kiln industry in southern California and the extent of industrial development in the San Jacinto River valley in the late 19<sup>th</sup>/early 20<sup>th</sup> century." The BIA agrees with ENTRIX's significance evaluation. As is clearly shown in the enclosed development plans, the lime kiln (RJ-2) falls well outside the proposed Areas of Direct Impact. The Tribe has no plans that would compromise the integrity of this resource that has been evaluated as eligible to the NRHP. As such, it is the BIA's determination that there will be **No Adverse Effect** to Historic Properties as the result of this undertaking. Your concurrence with this determination evidences BIA fulfillment of federal regulations pursuant to 36 CFR Part 800. 5(c)(1), and Section 106 of the National Historic Preservation Act, as amended.

If you have any questions or require additional information, please contact Jennifer Thomas, Assistant Regional Archeologist, at (916) 978-6165 or John Rydzik, Chief, Division of Environmental, Cultural Resources Management and Safety, at (916) 978-6051.

Sincerely,



Regional Director

Enclosures

cc: [REDACTED]  
Regional Director, Southern California Agency  
Vice-Spokesperson, Soboba Band of Luiseno Mission Indians

**OFFICE OF HISTORIC PRESERVATION  
DEPARTMENT OF PARKS AND RECREATION**

P.O. BOX 942896  
SACRAMENTO, CA 94296-0001  
(916) 653-6624 Fax: (916) 653-9824  
calshpo@ohp.parks.ca.gov  
www.ohp.parks.ca.gov



*On 10/15/08*  
*T* ✓  
*RPM* ✓ *Super*  
*No*

October 6, 2008



In Reply Refer To: BIA080715A

Dale Morris  
Regional Director  
United States Department of the Interior  
Bureau of Indian Affairs, Pacific Regional Office  
2800 Cottage Way  
Sacramento, California 95825

*RES 10/16/08*  
*Fwd to DECEMS*  
*10/16/08*

Re: Continued Consultation Regarding Section 106 Consultation for the Proposed Fee-to-Trust Transfer of 535 Acres of Land for the Soboba Band of Luiseño Mission Indians, Riverside County, California

Dear Mr. Morris:

Thank you for continuing consultation with me regarding the proposed undertaking, the Fee-To-Trust Transfer of 535 acres of land for the Soboba Band of Luiseño Mission Indians. Pursuant to 36 CFR Part 800 (as amended 8-05-04) regulations implementing Section 106 of the National Historic Preservation Act (NHPA), the Bureau of Indian Affairs (BIA), Pacific Regional Office, is seeking my comments on its determination of effect that the subject undertaking will have on historic properties. The implementation of the proposed project, pursuant to 25 CFR 151 (Land Acquisitions), is contingent in part on the BIA meeting its obligations under Section 106 of the NHPA.

Previously in this consultation I requested that you provide additional documentation regarding three historic properties (Field #'s RJ-1, RJ-2, and RJ-3) identified within the project Area of Potential Effects (APE). Additionally, I requested that, based on the additional documentation, that you provide determinations of whether these historic properties were eligible under the criteria of the National Register of Historic Places (NRHP). At this time you are informing me that the BIA has decided to treat all three historic properties as eligible for the NRHP for the purposes of this undertaking and ensure that they are avoided during any future development of the subject parcel. Based on my review of your letter of September 16, 2008, and the documentation previously submitted in this consultation, I have no objection to your proposed finding of No Adverse Effect.

Be advised that under certain circumstances, such as unanticipated discovery or a change in project description, the BIA may have additional future responsibilities for this undertaking under 36 CFR Part 800. Thank you for seeking my comments and for considering historic properties in planning your project. If you require further information, please contact William Soule, Associate State Archeologist, at phone 916-654-4614 or email [wsoule@parks.ca.gov](mailto:wsoule@parks.ca.gov).

Sincerely,

*Lusian K Shattler for*  
Milford Wayne Donaldson, FAIA  
State Historic Preservation Officer

RECEIVED  
OCT 15 9 11 AM '08  
PACIFIC REGIONAL  
OFFICE