

Appendix A

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## AIR QUALITY INPUT ASSUMPTIONS

## **Appendix A**

### **AIR QUALITY INPUT ASSUMPTIONS**

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The following appendix details the parameters utilized to predict air emissions resulting from the proposed Apple Valley Airport Master Plan improvements. Both long-term (operational) and short-term (construction) related emissions are addressed.

#### ***EMISSION MODELING AND ASSUMPTIONS***

##### **Operational Emissions**

Operational emissions were modeled using FAA's Emissions and Dispersion Modeling System (EDMS) version 5.1.3. Aircraft operational levels by aircraft type were based upon a noise analysis conducted for this report using the Federal Aviation Administration's (FAA) Integrated Noise Model (INM) discussed in **Appendix D**. EDMS aircraft and engine assignments were based primarily upon FAA's list of approved aircraft, engines, and substitutions included in INM.

##### **Construction Emissions**

Air emissions occurring due to construction activity vary based on the project's duration and level of activity. Construction emissions occur mostly as exhaust products from the operation of construction equipment and vehicles, but can also occur as fugitive dust emissions from land disturbance during material staging, demolition, and movement. Evaporative emissions also result from asphalt paving operations. The type of construction equipment commonly used can

be categorized as both off- and on-road equipment. Off-road equipment is normally used for earthwork, paving, demolition, and other on-site activities, while on-road equipment is typically used to transport and deliver supplies and materials and also includes contractor employee trips to the site.

The equipment activity levels and vehicle parameters associated with the proposed improvements (i.e., horsepower, fuel type, expected hours of use) were estimated based on the expected construction schedule for the Apple Valley Airport improvements and daily output assumptions described in *RSM Means Building Construction Cost Data, 2008*. Equipment/vehicle emission factors were developed using the CARB-approved emissions models OFFROAD2007 (for off-road equipment) and EMFAC2007 (for on-road equipment). The emission factors were applied to the schedule-specific equipment parameters to calculate the total level of emissions expected from equipment use. The assumptions used for off-road and on-road equipment are included in **Tables A1** and **A2** for projects anticipated to occur in 2012, 2013, 2014, and 2016, which represent the first five years of the airport’s capital improvement program. There are no construction activities programmed for 2013, 2015, or 2017.

**TABLE A1**  
**Off-Road Equipment Construction Assumptions Input for OFFROAD2007**  
**Apple Valley Airport**

Off-Road Equipment	Hours			
	2012	2013	2014	2016
Pavers	2.9	6.3	7.3	57.8
Rollers	8.6	18.7	29.2	57.8
Graders	20.2	43.4	76.6	0.0
Crushing/Proc. Equipment	0.0	0.0	0.0	76.3
Rubber Tired Dozers	5.8	12.4	21.9	0.0

Source: Coffman Associates analysis.

**TABLE A2**  
**On-Road Equipment Construction Assumptions Input for EMFAC2007**  
**Apple Valley Airport**

On-Road Vehicles (Miles)	2012	2013	2014	2016
Medium-Duty Trucks (MDV)	9750	150	775	0
Light-Duty Trucks (LDT1)	19500	300	1650	0
Medium-Heavy-Duty (MHDT)	29250	450	2875	0
Heavy-Heavy-Duty (HHDT)	2400	80	8390	7520

Source: Coffman Associates analysis.

Following are the modeling outputs generated from the EDMS, OFFROAD, and EMFAC2007 emissions models.

## Emissions Inventory Summary (Short Tons per Year) Baseline - Apple Valley 2010

Category	CO2	CO	THC	NM...	VOC	TOG	NOx	SOx	PM-...	PM-...	Fuel Cons...
Aircraft	1,261.817	312.573	8.581	8.579	8.378	9.087	1.170	0.517	0.033	0.033	399.942
GSE	N/A	1.268	N/A	0.048	0.051	0.055	0.192	0.005	0.005	0.005	N/A
APUs	N/A	0.025	0.000	0.001	0.001	0.001	0.004	0.001	0.001	0.001	N/A
Parking Facilities	N/A	0.000	N/A	0.000	0.000	0.000	0.000	0.000	0.000	0.000	N/A
Roadways	N/A	0.000	N/A	0.000	0.000	0.000	0.000	0.000	0.000	0.000	N/A
Stationary Sources	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Training Fires	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Grand Total	1,261.817	313.866	8.581	8.628	8.429	9.142	1.367	0.522	0.039	0.038	399.942

## Emissions Inventory Summary (Short Tons per Year) Future - Apple Valley 2030

Category	CO2	CO	THC	NM...	VOC	TOG	NOx	SOx	PM-...	PM-...	Fuel Cons...
Aircraft	2,441.814	418.214	18.323	19.588	19.299	20.192	2.589	1.000	0.231	0.231	773.951
GSE	N/A	1.280	N/A	0.044	0.046	0.050	0.102	0.013	0.007	0.007	N/A
APUs	N/A	0.197	0.004	0.004	0.004	0.004	0.034	0.006	0.006	0.006	N/A
Parking Facilities	N/A	0.153	N/A	0.017	0.017	0.018	0.007	0.000	0.000	0.000	N/A
Roadways	N/A	0.000	N/A	0.000	0.000	0.000	0.000	0.000	0.000	0.000	N/A
Stationary Sour...	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Training Fires	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Grand Total	2,441.814	419.844	18.327	19.653	19.366	20.264	2.732	1.019	0.244	0.244	773.951

**OFFROAD Emissions Factors**  
**Class: Construction and Mining**  
**Area: Mojave Desert Air Quality Management District**

	Pounds/Day						
	VOG	CO	NOX	CO2	SO2	PM	CH4
<b>2012</b>							
Pavers	0.220	0.614	1.443	98.076	0.001	0.098	0.020
Rollers	0.814	2.064	3.770	266.009	0.003	0.446	0.073
Graders	1.206	3.370	7.922	538.436	0.006	0.539	0.109
Crushing/Proc. Equipment	0.019	0.040	0.249	19.938	0.000	0.007	0.002
Rubber Tired Dozers	0.215	0.448	2.798	223.669	0.002	0.077	0.019

<b>2013</b>							
Pavers	0.220	0.614	1.443	98.076	0.001	0.098	0.020
Rollers	0.814	2.064	3.770	266.009	0.003	0.446	0.073
Graders	1.206	3.370	7.922	538.436	0.006	0.539	0.109
Crushing/Proc. Equipment	0.019	0.040	0.249	19.938	0.000	0.007	0.002
Rubber Tired Dozers	0.215	0.448	2.798	223.669	0.002	0.077	0.019

<b>2014</b>							
Pavers	0.220	0.614	1.443	98.076	0.001	0.098	0.020
Rollers	0.814	2.064	3.770	266.009	0.003	0.446	0.073
Graders	1.206	3.370	7.922	538.436	0.006	0.539	0.109
Crushing/Proc. Equipment	0.019	0.040	0.249	19.938	0.000	0.007	0.002
Rubber Tired Dozers	0.215	0.448	2.798	223.669	0.002	0.077	0.019

<b>2016</b>							
Pavers	0.220	0.614	1.443	98.076	0.001	0.098	0.020
Rollers	0.814	2.064	3.770	266.009	0.003	0.446	0.073
Graders	1.206	3.370	7.922	538.436	0.006	0.539	0.109
Crushing/Proc. Equipment	0.019	0.040	0.249	19.938	0.000	0.007	0.002
Rubber Tired Dozers	0.215	0.448	2.798	223.669	0.002	0.077	0.019

Title : Apple Valley

Version : Emfac2007 V2.3 Nov 1 2006

Run Date : 2012/05/16 11:50:47

Scen Year: 2012 -- All model years in the range 1968 to 2012 selected

Season : Annual

Area : Mojave Desert AQMD

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Table 1: Running Exhaust Emissions (grams/mile)

Pollutant Name: Reactive Org Gases

Speed	MDV	LHD1	MHD	HHD
MPH	ALL	ALL	ALL	ALL
45	0.085	0.055	0.154	0.553

Pollutant Name: Carbon Monoxide

Speed	MDV	LHD1	MHD	HHD
MPH	ALL	ALL	ALL	ALL
45	2.902	0.743	1.899	3.011

Pollutant Name: Oxides of Nitrogen

Speed	MDV	LHD1	MHD	HHD
MPH	ALL	ALL	ALL	ALL
45	0.415	0.892	4.35	10.498

Pollutant Name: Carbon Dioxide

Speed	MDV	LHD1	MHD	HHD
MPH	ALL	ALL	ALL	ALL
45	488.393	466.632	1343.041	1688.091

Pollutant Name: Sulfur Dioxide

Speed	MDV	LHD1	MHD	HHD
MPH	ALL	ALL	ALL	ALL
45	0.005	0.004	0.013	0.016

Pollutant Name: PM30

Speed	MDV	LHD1	MHD	HHD
MPH	ALL	ALL	ALL	ALL
45	0.023	0.008	0.144	0.362

Title : Apple Valley

Version : Emfac2007 V2.3 Nov 1 2006

Run Date : 2012/05/16 11:50:47

Scen Year: 2013 -- All model years in the range 1969 to 2013 selected

Season : Annual

Area : Mojave Desert AQMD

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Table 1: Running Exhaust Emissions (grams/mile)

Pollutant Name: Reactive Org Gases

Speed	MDV	LHD1	MHD	HHD
MPH	ALL	ALL	ALL	ALL
45	0.077	0.05	0.144	0.502

Pollutant Name: Carbon Monoxide

Speed	MDV	LHD1	MHD	HHD
MPH	ALL	ALL	ALL	ALL
45	2.717	0.664	1.748	2.773

Pollutant Name: Oxides of Nitrogen

Speed	MDV	LHD1	MHD	HHD
MPH	ALL	ALL	ALL	ALL
45	0.381	0.818	3.915	9.159

Pollutant Name: Carbon Dioxide

Speed	MDV	LHD1	MHD	HHD
MPH	ALL	ALL	ALL	ALL
45	488.341	466.257	1340.758	1687.411

Pollutant Name: Sulfur Dioxide

Speed	MDV	LHD1	MHD	HHD
MPH	ALL	ALL	ALL	ALL
45	0.005	0.004	0.013	0.016

Pollutant Name: PM30

Speed	MDV	LHD1	MHD	HHD
MPH	ALL	ALL	ALL	ALL
45	0.023	0.008	0.137	0.32

Title : Apple Valley

Version : Emfac2007 V2.3 Nov 1 2006

Run Date : 2012/05/16 11:50:47

Scen Year: 2014 -- All model years in the range 1970 to 2014 selected

Season : Annual

Area : Mojave Desert AQMD

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Table 1: Running Exhaust Emissions (grams/mile)

Pollutant Name: Reactive Org Gases

Speed	MDV	LHD1	MHD	HHD
MPH	ALL	ALL	ALL	ALL
45	0.069	0.046	0.134	0.452

Pollutant Name: Carbon Monoxide

Speed	MDV	LHD1	MHD	HHD
MPH	ALL	ALL	ALL	ALL
45	2.553	0.603	1.616	2.543

Pollutant Name: Oxides of Nitrogen

Speed	MDV	LHD1	MHD	HHD
MPH	ALL	ALL	ALL	ALL
45	0.352	0.761	3.505	7.916

Pollutant Name: Carbon Dioxide

Speed	MDV	LHD1	MHD	HHD
MPH	ALL	ALL	ALL	ALL
45	488.295	465.961	1338.185	1686.793

Pollutant Name: Sulfur Dioxide

Speed	MDV	LHD1	MHD	HHD
MPH	ALL	ALL	ALL	ALL
45	0.005	0.004	0.013	0.016

Pollutant Name: PM30

Speed	MDV	LHD1	MHD	HHD
MPH	ALL	ALL	ALL	ALL
45	0.024	0.008	0.131	0.281

Title : Apple Valley

Version : Emfac2007 V2.3 Nov 1 2006

Run Date : 2012/05/16 11:50:47

Scen Year: 2016 -- All model years in the range 1972 to 2016 selected

Season : Annual

Area : Mojave Desert AQMD

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Table 1: Running Exhaust Emissions (grams/mile)

Pollutant Name: Reactive Org Gases

Speed	MDV	LHD1	MHD	HHD
MPH	ALL	ALL	ALL	ALL
45	0.057	0.041	0.119	0.371

Pollutant Name: Carbon Monoxide

Speed	MDV	LHD1	MHD	HHD
MPH	ALL	ALL	ALL	ALL
45	2.265	0.517	1.406	2.17

Pollutant Name: Oxides of Nitrogen

Speed	MDV	LHD1	MHD	HHD
MPH	ALL	ALL	ALL	ALL
45	0.299	0.671	2.827	5.932

Pollutant Name: Carbon Dioxide

Speed	MDV	LHD1	MHD	HHD
MPH	ALL	ALL	ALL	ALL
45	488.213	465.484	1333.552	1685.978

Pollutant Name: Sulfur Dioxide

Speed	MDV	LHD1	MHD	HHD
MPH	ALL	ALL	ALL	ALL
45	0.005	0.004	0.013	0.016

Pollutant Name: PM30

Speed	MDV	LHD1	MHD	HHD
MPH	ALL	ALL	ALL	ALL
45	0.025	0.008	0.121	0.219

Appendix B

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## HABITAT ASSESSMENT REPORT

# **Habitat Assessment for the Apple Valley Airport Master Plan Update**

Prepared for

**Coffman Associates**

Prepared by

**SWCA Environmental Consultants**

December 2011

# Habitat Assessment for the Apple Valley Airport Master Plan Update

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## **Project Area Location:**

USGS 7.5" Topographical Quadrangle Apple Valley North, CA

Prepared for

### **COFFMAN ASSOCIATES**

237 NW Blue Parkway, Suite 100  
Lee's Summit, MO 64063

Contact:

Eric Pfeifer

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Michael Tuma - Senior Biologist

### **SWCA Field Investigators:**

Michael Tuma, M.S. – Senior Biologist  
Kimberly Oldehoeft, M.S. - Biologist  
Michael Cady, B.S. – Biologist

**December 2011**

SWCA Project Number: 21218

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## **EXECUTIVE SUMMARY**

**Purpose and Scope:** SWCA Environmental Consultants (SWCA) was retained by Coffman and Associates to provide biological resource services in support of the Apple Valley Master Plan for the Apple Valley County Airport located in San Bernardino County, California. SWCA was tasked with providing a habitat assessment for the entire 962-acre project area (project area) that is owned and operated by the County of San Bernardino. This habitat assessment report follows guidelines recommended by the Advanced Planning Division of the County of San Bernardino's Land Use Services Department, and is intended to fulfill requirements of the California Environmental Quality Act (CEQA), with the County of San Bernardino as the lead agency. Additionally, the Federal Aviation Administration (FAA) may use data from this study to support future National Environmental Policy Act (NEPA) projects.

**Dates of Investigation:** SWCA biologists reviewed existing sources of information regarding occurrences of special-status species and assessed the potential for occurrence of these species within the project area in November 2011. SWCA biologist Kimberly Oldehoeft conducted a site visit to the project area on December 1, 2011 to assess the biological conditions within the project area, including vegetation community and habitat mapping.

**Findings of the Investigation:** A total of 26 plants and 27 wildlife special-status species was identified from federal, state, and local lists and databases and found to occur in the project vicinity. During the site visit, natural vegetation communities identified in the project area included Mojave creosote bush scrub (232 acres), desert saltbush scrub (68 acres), and rabbitbrush scrub (46 acres); anthropogenically-modified habitats included ruderal (402 acres), maintained (106 acres), and developed lands (86 acres). One area contained an intergrade of Mojave creosote bush scrub and desert saltbush scrub communities (21 acres). Based on the character of the vegetation communities and habitats, as well as the known occurrences of the 53 special-status species that were recorded in the project vicinity, four (Joshua tree, desert tortoise, burrowing owl, and California horned lark) are present on the project area, and seven (Mojave yucca, barrel cactus, honey mesquite, screw bean mesquite, Mojave monkeyflower, loggerhead shrike, and le Conte's thrasher) may occur on the project area. The remaining special-status species were assessed as not like to occur on the project area or absent from the project area.

**Recommendations:** In order to attain a better understanding of how any of the proposed projects implemented under the Master Plan Update may impact sensitive biological resources, the following studies are recommended as part of each biological resource assessment:

- protocol desert tortoise surveys;
- protocol burrowing owl surveys;
- nesting bird surveys;
- focused rare plant surveys that sample the entire blooming period of species that may occur in the project area;
- spring plant surveys;
- jurisdictional waters delineations; and
- an impact-mitigation analysis.

## **1 INTRODUCTION**

SWCA Environmental Consultants (SWCA) was retained by Coffman and Associates to provide biological resource services in support of the Apple Valley Master Plan for the Apple Valley County Airport located in San Bernardino County, California. SWCA was tasked with providing a habitat assessment for the entire 962-acre project area (project area) that is owned and operated by the County of San Bernardino. This habitat assessment report follows guidelines recommended by the Advanced Planning Division of the County of San Bernardino's Land Use Services Department, and is intended to fulfill requirements of the California Environmental Quality Act (CEQA), with the County of San Bernardino as the lead agency. Additionally, the Federal Aviation Administration (FAA) may use data from this study to support future National Environmental Policy Act (NEPA) projects.

## **2 PROJECT AND PROPERTY DESCRIPTION**

### **2.1 PROJECT DESCRIPTION**

San Bernardino County's Department of Airports (County), the owner and operator of Apple Valley Airport, has initiated the preparation of a Master Plan Update for the Apple Valley Airport (Master Plan Update) in order to assess its existing and future role, while also providing direction and guidance for future development. The Master Plan Update will be designed to provide guidance for future development and provide updated justification for projects for which the airport may receive funding participation through federal and state airport improvement programs. The County has hired Coffman Associates, an airport consulting firm which specializes in master planning and environmental studies, to complete the Master Plan Update.

The Master Plan Update is intended to be a proactive document that identifies future facility needs and provides a planning framework for their implementation well in advance of their actual need. This is done to ensure that the County can coordinate project approvals, design, financing, and construction to avoid experiencing detrimental effects due to inadequate facilities. The Master Plan Update will be prepared in accordance with FAA requirements, including Advisory Circular 150/5300-13, Airport Design (as amended) and Advisory Circular 150/5070-6B, Airport Master Plans.

The goal of the Master Plan Update is to accommodate the airport's needs in an environmentally and fiscally responsible manner while adhering to appropriate safety design standards. Alternative development scenarios will be devised, each satisfying projected needs in a unique way. Through coordinated review by the County, the Town of Apple Valley, California Department of Transportation (CALTRANS), the FAA, airport users, and the public, a recommended development concept will evolve which serves as a guide to realistic and achievable airport development. The plan then acts as a guide to aid local, state, and federal decision-makers when considering airport improvements.

The Master Plan Update is necessary as a timely reassessment of the development direction of the airport to meet the needs of a dynamic local economy and an ever-changing air transportation industry. Airport Master Plans are commonly updated every five to ten years. The previous Master Plan for Apple Valley Airport was updated in 1992. An airport layout plan update was completed in 2006, which re-evaluated the airport's needs. In order to ensure that the airport is meeting the demands of general aviation users and continuing to be an economic asset to the region, reassessment of the current development direction is especially beneficial. The Master Plan Update will include an evaluation of airport-related development areas with regard to aviation forecasts, demand/capacity, airport design standards, facility requirements,

land use, costs, environmental reviews, and opportunities. It will also serve as a strategic tool for establishing airport improvement priorities and obtaining funding.

Future airport projects will be initiated when demand dictates the need for development. The forecasts will identify a timeline in which development might reasonably be anticipated; however, if activity does not materialize as quickly as forecast, then development envisioned by the Master Plan Update would be delayed accordingly. Conversely, if demand were to accelerate, projects could be initiated prior to the timeline associated with the Master Plan Update. The County will monitor aviation activity at Apple Valley Airport annually to determine whether activity is tracking as projected and which projects from the Master Plan Update should be programmed into the airport’s five-year Capital Improvement Program. Each project will still need to be individually approved for funding and development, first by the County Board of Supervisors, then by the FAA.

## **2.2 PROPERTY DESCRIPTION**

The project area consists of approximately 962 acres of land located 6 miles north of the community of Apple Valley in the high desert region of San Bernardino County, California (Figures 1 and 2; Photographs 1 and 2). Specifically, the project area is situated in Sections 21, 22, 27, 28, 33, and 34, Township 6 North, Range 3 West, of the Apple Valley North, California 7.5-minute U.S. Geological Survey (USGS) quadrangle. The project area is bounded by Papago Road to the south, the base of Bell Mountain to the west, a dirt access road to the north, and the Fairview Mountains to the east. The project includes the following Assessor’s Parcel Numbers:

43720104	43720102	43720120	46338150	46335208	46332204	46335301	46338114	46336203	46336201
43720106	43721309	43720103	46338177	46337234	46332205	46332102	46338176	46323209	46323214
43720101	43721301	43720107	46337249	46337233	46332101	46332202	46338152	46323210	46323213
43720118	43720105	46337301	46337224	46335205	46334201	46332207	46338151	46323211	46336304
43720119	43721232	46337223	46337232	46334202	46332203	46332103	46323252	46323215	46336303
43720117	43721337	46337222	46337231	46332201	46332206	46333102	46323249	46333101	46336302

The project area is composed of both developed lands associated with the airport and natural areas, along with areas that have been disturbed by human activities. The topography of the project area is nearly flat, with elevations ranging from 963 to 895 meters (m) (3,161–2,937 feet) above mean sea level (msl) and a south-facing aspect along an approximate gradient of 20%. The project area is located in Apple Valley, approximately 3.4 kilometers (km) (5.5 miles) north of the city of Apple Valley and 2.7 km (1.7 mile) west of the Fairview Mountains. Apple Valley is a broad, flat alluvial plain. According to the University of California Davis Soil Resource Laboratory, several soil types have been mapped in the vicinity of the project area: Helendale loamy sand, 0%–2% slopes; Helendale loamy sand, 2%–5% slopes; Cajon sand, 0%–2% slopes; and Cajon-Arizo complex, 10%–15% slopes. All of the mapped soil types are moderately well drained, and most precipitation immediately infiltrates the ground, although surficial sheet flow may traverse the project area during large precipitation accumulations. Such flow in the project area would eventually drain to a concrete culvert (Figure 4), just to the south of the project area. Two substantial exposures of bedrock outcrops consisting of granite, quartz monzonite, and hornblende gabbro are located approximately .32 km (0.2 mile) and .9 km (0.58 mile) north of the project area. Both rock outcrops contain evidence of modern graffiti art.

The project area is situated in the southern Mojave Desert and is subject to the rain shadow of the San Bernardino Mountains, with annual precipitation totals ranging from 3.1 to 31.0 centimeters (cm) (1.22 to 12.2 inches [in]) and an average of 13.7 cm (5.4 in) (USGS Fact Sheet 117-03). Seasonal precipitation

patterns consist of occasional winter storm fronts powerful enough to cross the mountains, and infrequent summer monsoonal cells that originate in the Gulf of Mexico. Temperatures in the Mojave Desert vary widely among seasons and throughout individual days. Low winter temperatures can drop to below 0 degrees Fahrenheit (°F) at some of the higher elevations, and below 20°F in valley bottoms. Summer temperatures can reach highs of above 120°F in locations such as Death Valley and are commonly above 100°F throughout the Mojave Desert region.



**Photograph 1. Project Area Overview**  
**(facing south on APN 46336304, overlooking APNs 46336304 and 46333101)**

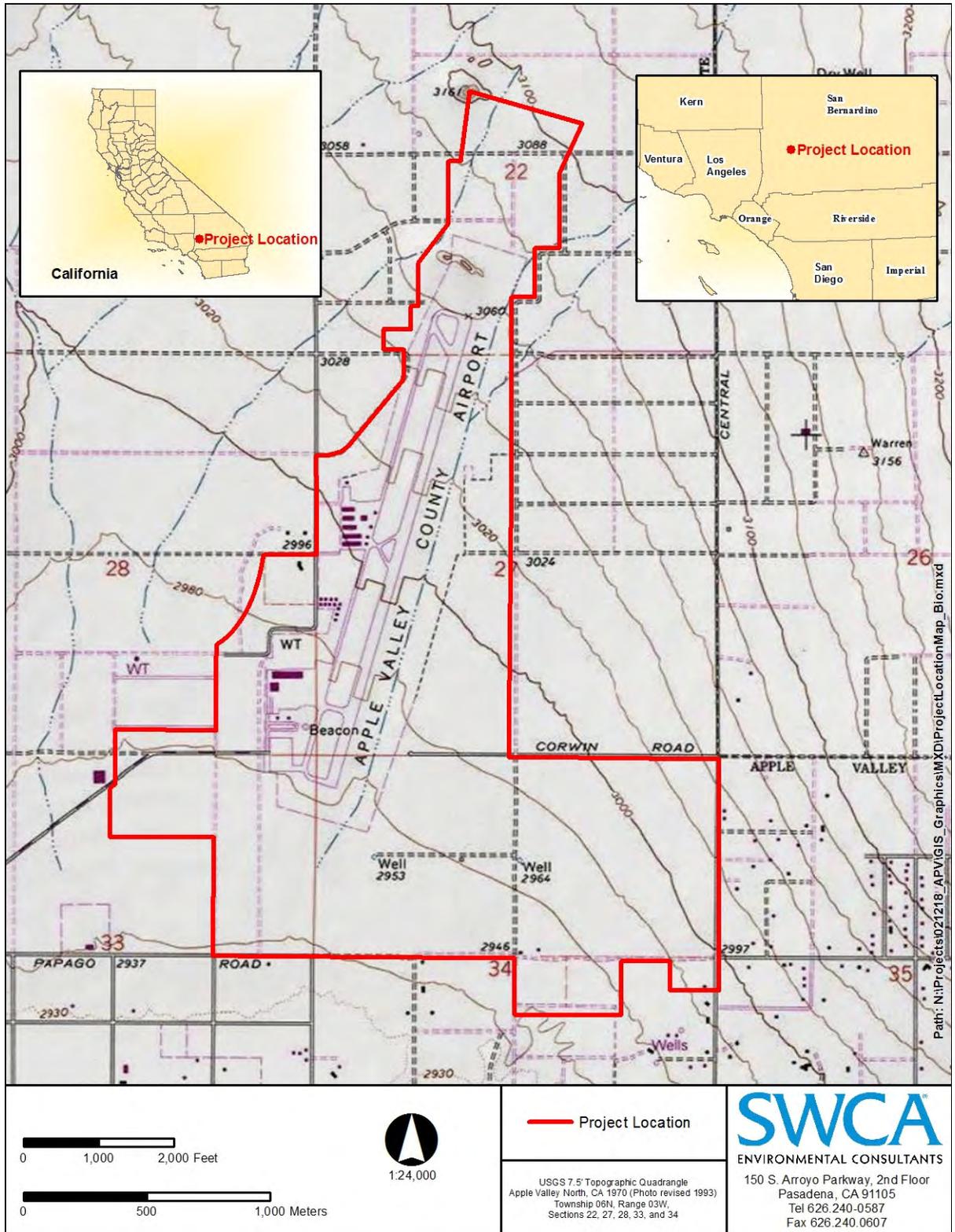


Figure 1. Project Location

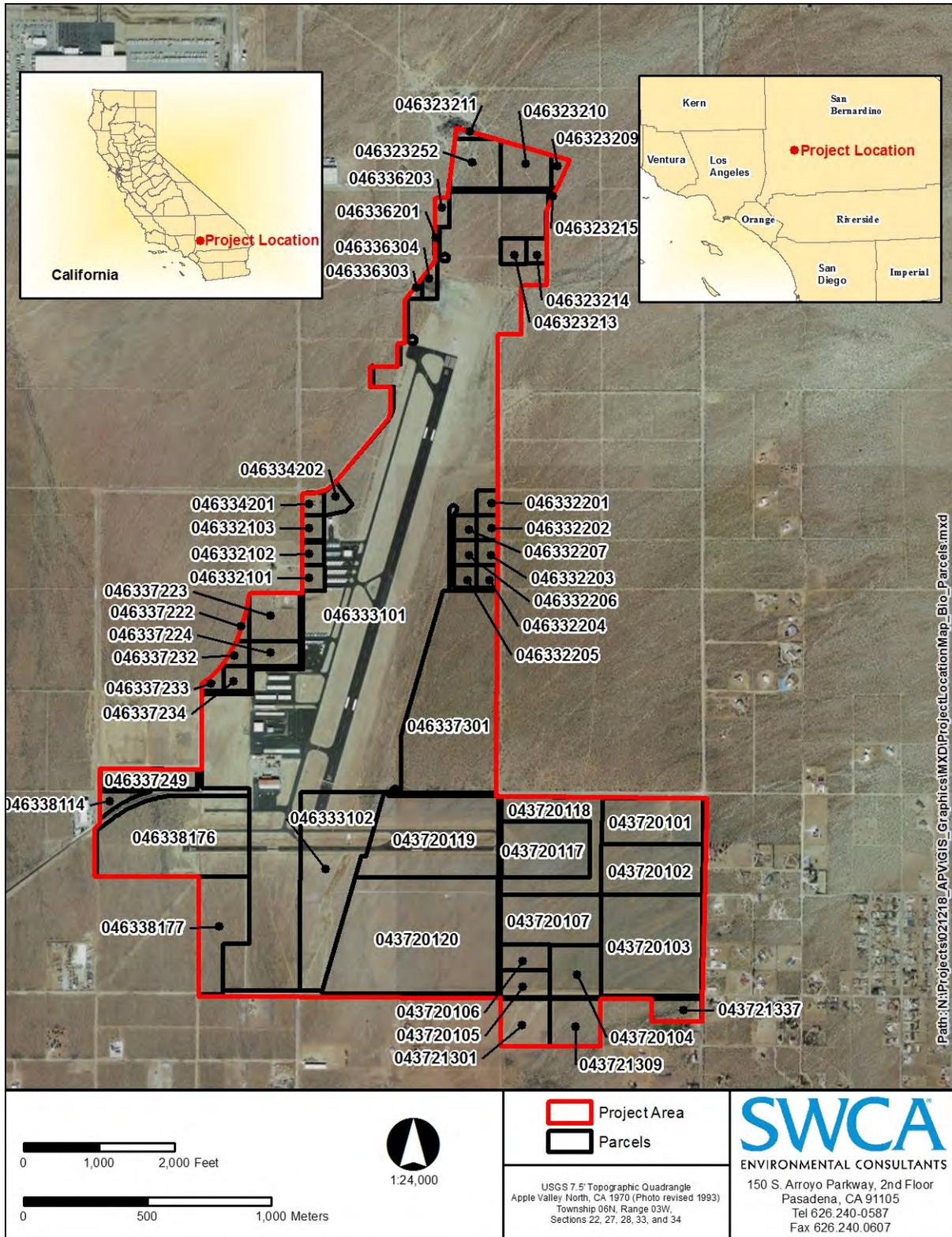


Figure 2. Project Area Overview



**Photograph 2. Saltbush Scrub Community**  
**(facing north on APN 46338176, overlooking APNs 463381144 and 46337249)**



**Photograph 3. Ruderal Habitat**  
**(facing southwest on APN 46333102, overlooking APNs 46333102 and 46333101)**



**Photograph 4. Developed and Maintained Habitat along the Airstrip  
(facing southeast on APN 46333101, overlooking central portion of APN 46333101)**

### 3 FOCUS STUDY/SPECIES OF CONCERN

To determine which special-status species could be present on the project area, and for which habitat assessments should be made, SWCA biologists reviewed existing sources of information regarding the occurrences of special-status species in the project vicinity.

#### 3.1 DEFINITION OF SPECIAL-STATUS SPECIES

Special-status species are plants and animals in one or more of the following categories:

- Species listed or proposed for listing as threatened or endangered under the federal Endangered Species Act (ESA) (50 Code of Federal Regulations [CFR] 17.12 [listed plants], 50 CFR 17.11 [listed animals], and various notices in the Federal Register [FR] [proposed species]).
- Species that are candidates for possible future listing as threatened or endangered under ESA (67 FR 40657, June 13, 2002).
- Species listed or proposed for listing by the State of California as threatened or endangered under the California Endangered Species Act (California ESA) (14 California Code of Regulations [CCR] 670.5).
- Species that meet the definitions of rare or endangered under CEQA (State CEQA Guidelines Section 15380).
- Plants listed as rare under the California Native Plant Protection Act (California Fish and Game Code Section 1900 et seq.).
- Plants considered by the California Native Plant Society (CNPS) to be “rare, threatened, or endangered in California” (Lists 1B and 2 in CNPS 2001).
- Plants listed by CNPS as plants about which more information is needed to determine their status and plants of limited distribution (Lists 3 and 4 in CNPS 2001), which may be included as special-status species on the basis of local significance or recent biological information.
- Native plants protected by Chapters 9.76.020 and 9.76.040 of the Town of Apple Valley Development Code
- Animal species of special concern as listed by California Department of Fish and Game (CDFG) (CDFG 2011).
- Animals fully protected in California (California Fish and Game Code Sections 3511 [birds], 4700 [mammals], 5050 [amphibians and reptiles], and 5515 [fish]).
- Animals included on the California Special Animals List (CDFG 2011) because of inclusion on one or more of several “watch lists,” including the International Union for Conservation of Nature (IUCN) Red List, the American Bird Conservancy (ABC) Green List, the Audubon WatchList, the Bureau of Land Management (BLM) Sensitive Species list, the California Department of Forestry and Fire Protection Sensitive Species list, the U.S. Forest Service (USFS) Sensitive Species list, the U.S. Fish and Wildlife Service (USFWS) Birds of Conservation Concern list, the United States Bird Conservation (USBC) Watch List, bat species included on the Western Bat Working Group’s (WBWG) Regional Priority Matrix as High or Medium, and the Xerces Society Red list of pollinators.

## 3.2 DATABASES/LISTS REVIEWED

### 3.2.1 Federal Lists

SWCA accessed the USFWS–Carlsbad Office Endangered and Threatened Species List in November 2011 to determine the ESA-listed species that occur in San Bernardino County. Nineteen plants, two invertebrates, six fish, three amphibians, one reptile, nine birds, and two mammals listed as federally endangered or threatened occur in the County; however, many of these were eliminated from consideration because of lack of basic habitat elements (i.e., wetlands) within the project area or if the project area is located outside of the known range of the species. Just one federally listed species, desert tortoise, was deemed as potentially occurring within the project area.

### 3.2.2 State Databases

SWCA queried CDFG’s California Natural Diversity Database (CNDDDB) (CDFG 2011) and CNPS’s Online Inventory of Rare and Endangered Plants (CNPS 2011) in November 2011 to determine the occurrence of sensitive biological resources in the project vicinity, which included the United States Geologic Survey’s Apple Valley North 7.5-minute topographic quadrangle, and surrounding eight quadrangles: Turtle Valley, Helendale, Victorville, Hesperia, Apple Valley South, Fifteenmile Valley, Fairview Valley, and Stoddard Well (nine-quad vicinity). According to the CNDDDB, a total of 40 special-status species have been recorded in the nine-quad vicinity. Eighteen special-status plant species were identified in the nine-quad vicinity according to the CNPS inventory, including an additional five species not identified in the CNDDDB results.

### 3.2.3 Local Lists

SWCA reviewed the Town of Apple Valley Development Code to determine the plant species protected under this local ordinance. A total of eight special-status plant species are protected under the Desert Native Plant Protection code (Chapter 9.76.020 of the Town of Apple Valley Development Code) and/or Joshua Tree Protection code (Chapter 9.76.040 of the Town of Apple Valley Development Code) that occur in the project vicinity.

## 3.3 FOCAL SPECIES IDENTIFIED

A comprehensive list of special-status species, identified in the federal, state, and local lists and databases that occur in the project vicinity is summarized in Table 1. In total, including 26 plants and 27 wildlife species occur in the nine-quad project vicinity.

**Table 1. Special-status Plant and Wildlife Species with Recorded Occurrences in the Project Vicinity, Organized Alphabetically by Scientific Name.**

Common Name	Scientific Name	Federal Status	State Status	Other Status
<b>PLANTS</b>				
Cushenbury oxytheca	<i>Acanthoscyphus parishii</i> var. <i>goodmaniana</i>	Endangered	None	CNPS: 1B.1
California androsace	<i>Androsace elongata</i> ssp. <i>acuta</i>	None	None	CNPS: 4.2
Pinyon rock cress	<i>Boechera dispar</i>	None	None	CNPS: 2.3

**Table 1. Special-status Plant and Wildlife Species with Recorded Occurrences in the Project Vicinity, Organized Alphabetically by Scientific Name.**

Common Name	Scientific Name	Federal Status	State Status	Other Status
Plummer's mariposa lily	<i>Calochortus plummerae</i>	None	None	CNPS: 1B.2
Booth's evening-primrose	<i>Camissonia boothii</i> ssp. <i>boothii</i>	None	None	CNPS: 2.3
White pygmy-poppy	<i>Canbya candida</i>	None	None	CNPS: 4.2
Mojave paintbrush	<i>Castilleja plagiotoma</i>	None	None	CNPS: 4.3
Desert cymopterus	<i>Cymopterus deserticola</i>	None	None	CNPS: 1B.2
Purple-nerve cymopterus	<i>Cymopterus multinervatus</i>	None	None	CNPS: 2.2
Barstow wooly sunflower	<i>Eriophyllum mohavense</i>	None	None	CNPS: 1B.2
Barrel cactus	<i>Ferocactus cylindraceus</i>	None	None	Apple Valley Code
Creosote bush (rings over 10 feet in diameter)	<i>Larrea tridentata</i>	None	None	Apple Valley Code
Mojave monkeyflower	<i>Mimulus mohavensis</i>	None	None	CNPS: 1B.2
Short-joint beavertail	<i>Opuntia basilaris</i> var. <i>brachyclada</i>	None	None	CNPS: 1B.2
Beaver Dam breadroot	<i>Pediomelum castoreum</i>	None	None	CNPS: 1B.2
Parish's phacelia	<i>Phacelia parishii</i>	None	None	CNPS: 1B.1
Honey mesquite	<i>Prosopis glandulosa</i>	None	None	Apple Valley Code
Screw bean mesquite	<i>Prosopis pubescens</i>	None	None	Apple Valley Code
Smoketree	<i>Psoralea spinosa</i>	None	None	Apple Valley Code
Latimer's woodland-gilia	<i>Saltugilia latimeri</i>	None	None	CNPS: 1B.2
Mojave fish-hook cactus	<i>Sclerocactus polyanctistrus</i>	None	None	CNPS: 4.2
Southern mountains skullcap	<i>Scutellaria bolanderi</i> ssp. <i>austromontana</i>	None	None	CNPS: 1B.2

**Table 1. Special-status Plant and Wildlife Species with Recorded Occurrences in the Project Vicinity, Organized Alphabetically by Scientific Name.**

Common Name	Scientific Name	Federal Status	State Status	Other Status
San Bernardino aster	<i>Symphyotrichum defoliatum</i>	None	None	CNPS: 1B.2
Joshua tree	<i>Yucca brevifolia</i>	None	None	Apple Valley Code
Mohave Yucca	<i>Yucca schidigera</i>	None	None	Apple Valley Code
Chaparral Yucca	<i>Hesperoyucca whipplei</i>	None	None	Apple Valley Code
<b>WILDLIFE</b>				
Cooper's hawk	<i>Accipiter cooperii</i>	None	None	None
Long-eared owl	<i>Asio otus</i>	None	None	CDFG: SSC
Burrowing owl	<i>Athene cunicularia hypugaea</i>	None	None	CDFG: SSC
Pallid San Diego pocket mouse	<i>Chaetodipus fallax pallidus</i>	None	None	CDFG: SSC
Western yellow-billed cuckoo	<i>Coccyzus americanus occidentalis</i>	Candidate	Endangered	None
Townsend's big-eared bat	<i>Corynorhinus townsendii</i>	None	None	CDFG: SSC
Yellow warbler	<i>Dendroica petechia brewsteri</i>	None	None	CDFG: SSC
Southwestern willow flycatcher	<i>Empidonax traillii extimus</i>	Endangered	Endangered	None
Western pond turtle	<i>Emys marmorata</i>	None	None	CDFG: SSC
Prairie falcon (nesting)	<i>Falco mexicanus</i>	None	None	CDFG: WL
Desert tortoise	<i>Gopherus agassizii</i>	Threatened	Threatened	None
Victorville shoulderband	<i>Helminthoglypta mohaveana</i>	None	None	None
Yellow-breasted chat	<i>Icteria virens</i>	None	None	CDFG: SSC
Loggerhead shrike (nesting)	<i>Lanius ludovicianus</i>	None	None	CDFG: SSC
Silver-haired bat	<i>Lasiycteris noctivagans</i>	None	None	None
Hoary bat	<i>Lasiurus cinereus</i>	None	None	CDFG: SSC
Mohave river vole	<i>Microtus californicus mohavensis</i>	None	None	CDFG: SSC
Coast horned lizard	<i>Phrynosoma blainvillii</i>	None	None	CDFG: SSC
Summer tanager	<i>Piranga rubra</i>	None	None	CDFG: SSC
San Emigdio blue butterfly	<i>Plebulina emigdionis</i>	None	None	None

**Table 1. Special-status Plant and Wildlife Species with Recorded Occurrences in the Project Vicinity, Organized Alphabetically by Scientific Name.**

Common Name	Scientific Name	Federal Status	State Status	Other Status
California red-legged frog	<i>Rana draytonii</i>	Threatened	None	CDFG: SSC
Mohave tui chub	<i>Siphateles bicolor mohavensis</i>	Endangered	Endangered	None
Bendire's thrasher	<i>Toxostoma bendirei</i>	None	None	CDFG: SSC
Le Conte's thrasher	<i>Toxostoma lecontei</i>	None	None	CDFG: WL
Least Bell's vireo	<i>Vireo bellii pusillus</i>	Endangered	Endangered	None
Gray vireo	<i>Vireo vicinior</i>	None	None	CDFG: SSC
Mohave ground squirrel	<i>Xerospermophilus mohavensis</i>	None	Threatened	None

CNPS Status:

1A CNPS Priority List 1A: plant presumed extinct in California.

1B CNPS Priority List 1B: plant Rare, Threatened, or Endangered in California and elsewhere; eligible for state listing.

2 CNPS Priority List 2: plant rare, threatened, or Endangered in California, but more common elsewhere; eligible for state listing.

3 CNPS Priority List 3: more information is needed about this species; some eligible for state listing.

4 CNPS Priority List 4: on watch list for plants of limited distribution.

The CNPS Threat Rank is an extension added onto the CNPS List and designates the level of endangerment by a 1 to 3 ranking as follows:

- .1 - Seriously threatened in California (high degree/immediacy of threat)
- .2 - Fairly threatened in California (moderate degree/immediacy of threat)
- .3 - Not very threatened in California (low degree/immediacy of threats or no current threats known)

CDFG Status:

SSC: Species of Special Concern; native species not having state or federal Threatened or Endangered Species status, but thought to warrant monitoring due to declining population numbers. (Includes those species tracked in the CNDDDB but not given any other special status.)

WL: Watch List. The species warrants further monitoring and review, but no actions or legal protection are given.

Apple Valley Code:

Protected plant under Desert Native Plant Protection code (Chapter 9.76.020 of the Town of Apple Valley Development Code) and/or Joshua Tree Protection code (Chapter 9.76.040 of the Town of Apple Valley Development Code)

## 4 METHODOLOGY

SWCA biologists conducted a site visit to the project area to assess habitats, followed by an assessment of special-status species occurrence potential.

### 4.1 SITE VISIT

SWCA biologist Kimberly Oldehoeft conducted a site visit to the project area on December 1, 2011. During the survey, weather conditions were consistent: 51 degrees Fahrenheit, 100% cloud cover with very light precipitation, and northern winds from 15-25 miles per hour with gusts up to 30 miles per hour. During the site visit, she described vegetation communities and habitats and compared them against aerial photographs; photographed representative vegetation communities and habitats within the project area

and described them in field notes; and compiled a list of observed plant and wildlife species. Ms. Oldehoeft conducted the vegetation community and habitat mapping by accompanying an Apple Valley Airport staff member (Patrick Maroney), who drove a vehicle to access the airport parcels. Mr. Maroney drove slowly through accessible habitats and stopped in various parts of the project area to allow Ms. Oldehoeft to take photographs, make species observations, and record vegetation community and habitat characteristics. Ms. Oldehoeft used binoculars to view areas with dense vegetation or hazardous terrain that could not be accessed by the vehicle. Following the site visit, SWCA biologists classified the vegetation communities according to both Holland (1986; 1992) and Sawyer et al. (2009), and compared them to habitat requirements of special-status species known to occur in the project vicinity.

## **4.2 SPECIAL-STATUS SPECIES OCCURRENCE ASSESSMENT**

SWCA biologists assessed the potential for occurrence of special-status species within and adjacent to the project area by assessing its biological conditions and the known occurrences of special-status species within the general project vicinity (nine-quad vicinity). During the assessment, each species was assigned to one of the categories listed below.

**Present:** Species is known to occur within the project area, based on recent (within 20 years) CNDDDB or other records, and/or was observed within the project area during the site visit.

**May occur:** Species is known to occur in the project vicinity (based on recent [within 20 years] CNDDDB or other records within 5 miles [10 miles for butterfly, bird, and bat species] and/or based on professional expertise specific to the study area or species), and there is suitable habitat within the project area. Alternatively, there is suitable habitat within the project area and the project area is within the known range of the species. For avian species, a distinction was made between occurrence potential on the project area as a forager, nester, and/or transient.

**Not likely to occur:** Species is known to occur in the project vicinity (within 5 miles for plants and terrestrial animals or 10 miles for butterfly, bird, and bat species); however, there is poor quality or marginal habitat in the project area. If the species occurs at the project area, it would likely be as a migrant, and the species is not likely to reproduce (breed or nest) within the project area due to a lack of suitable habitat or because the project area is outside of their known breeding range.

**Absent:** There is no suitable habitat for the species within the project area, or the project area is located outside of the known range of the species. Alternatively, a species was surveyed for during the appropriate season with unequivocal negative results for species occurrence.

## **5 GENERAL BIOLOGICAL SURVEY RESULTS**

### **5.1 VEGETATION COMMUNITIES AND PLANTS**

Three natural vegetation communities were mapped within the project area: Mojave creosote bush scrub, desert saltbush scrub, and rabbitbrush scrub (Figure 3). Three other anthropogenically-disturbed habitats were observed on the project area: ruderal, maintained, and developed lands. No sensitive habitats were observed on the project area. Descriptions for each of the natural vegetation communities and disturbed habitats are provided below.

### 5.1.1 Mojave Creosote Bush Scrub

Mojave creosote bush scrub (Creosote Bush–Shadscale 33.010.17) is composed of medium-sized shrubs dominated by creosote (*Larrea tridentata*) and white bursage (*Ambrosia dumosa*) that are widely spaced with little vegetation in between. Many species of ephemeral herbs may flower in late March and April if the winter rains are sufficient. Other less numerous species of annuals appear following summer thundershowers. Growth is prevented by cold in winter and limited by drought in other seasons (Holland 1986). Mojave creosote bush scrub typically occurs on well-drained secondary soils with very low available water holding capacity on slopes, fans, and valleys rather than upland sites with thin residual soils or sites with high soil salinity. This community intergrades at higher elevations with shadscale scrub or Joshua tree woodland, and at lower elevations, or more osmotic sites, with desert saltbush scrub. The community is found extensively from the Death Valley region southward across the Mojave Desert to the little San Bernardino Mountains, eastward to northwestern Arizona and southern Nevada. It is the dominant plant community below 3,000 or 4,000 feet in the Mojave Desert region (Holland 1986). Within the project area, the Mojave creosote bush scrub vegetation community comprises a total of 232 acres. The predominant anthropogenic disturbance to the community is the widespread occurrence of invasive plant species, including *Bromus* and *Schizmus* grasses and Sahara mustard (*Brassica tournefortii*). No wildlife species were observed in this habitat during the site visit; however a single burrowing owl was detected by SWCA archaeologists during the cultural resources survey of the site (Figure 3). Additionally, airport personnel provided information pertaining to the occurrence of reptiles on the airport grounds, which likely occur in this vegetation community. The observed reptiles included: long-nosed leopard lizard (*Gambelia wislizenii*), desert banded gecko (*Coleonyx variegatus variegatus*), western zebra-tailed lizard (*Callisaurus draconoides rhodostictus*), southern desert horned lizard (*Phrynosoma platyrhinos calidiarum*), desert spiny lizard (*Sceloporus magister*), long-tailed brush lizard (*Urosaurus graciosus*), western side-blotched lizard (*Uta stansburiana elegans*), Great Basin whiptail (*Aspidoscelis tigris tigris*), desert night lizard (*Xantusia vigilis*), desert glossy snake (*Arizona elegans eburnata*), red racer (*Coluber flagellum piceus*), California kingsnake (*Lampropeltis getula californiae*), Great Basin gopher snake (*Pituophis catenifer deserticola*), long-nosed snake (*Rhinocheilus lecontei*), Mohave patch-nosed snake (*Salvadora hexalepis mojavensis*), northern Mojave rattlesnake (*Crotalus scutulatus scutulatus*), and desert tortoise (*Gopherus agassizii*). Other commonly-occurring species that are expected to occur in this vegetation community include mourning dove (*Zenaida macroura*), northern mockingbird (*Mimus polyglottos*), sage sparrow (*Amphispiza belli*), white crowned sparrow (*Zonotrichia leucophrys*), common raven (*Corvus corax*), California quail (*Callipepla californica*), greater roadrunner (*Geococcyx californianus*), cactus wren (*Campylorhynchus brunneicapillus*), desert cottontail (*Sylvilagus audubonii*), black-tailed jackrabbit (*Lepus californicus*), valley pocket gopher (*Thomomys bottae*), white-tailed antelope squirrel (*Ammospermophilus leucurus*), Merriam's kangaroo rat (*Dipodomys merriami*), desert woodrat (*Neotoma lepida*), desert kit fox (*Vulpes macrotis*), and coyote (*Canis latrans*).

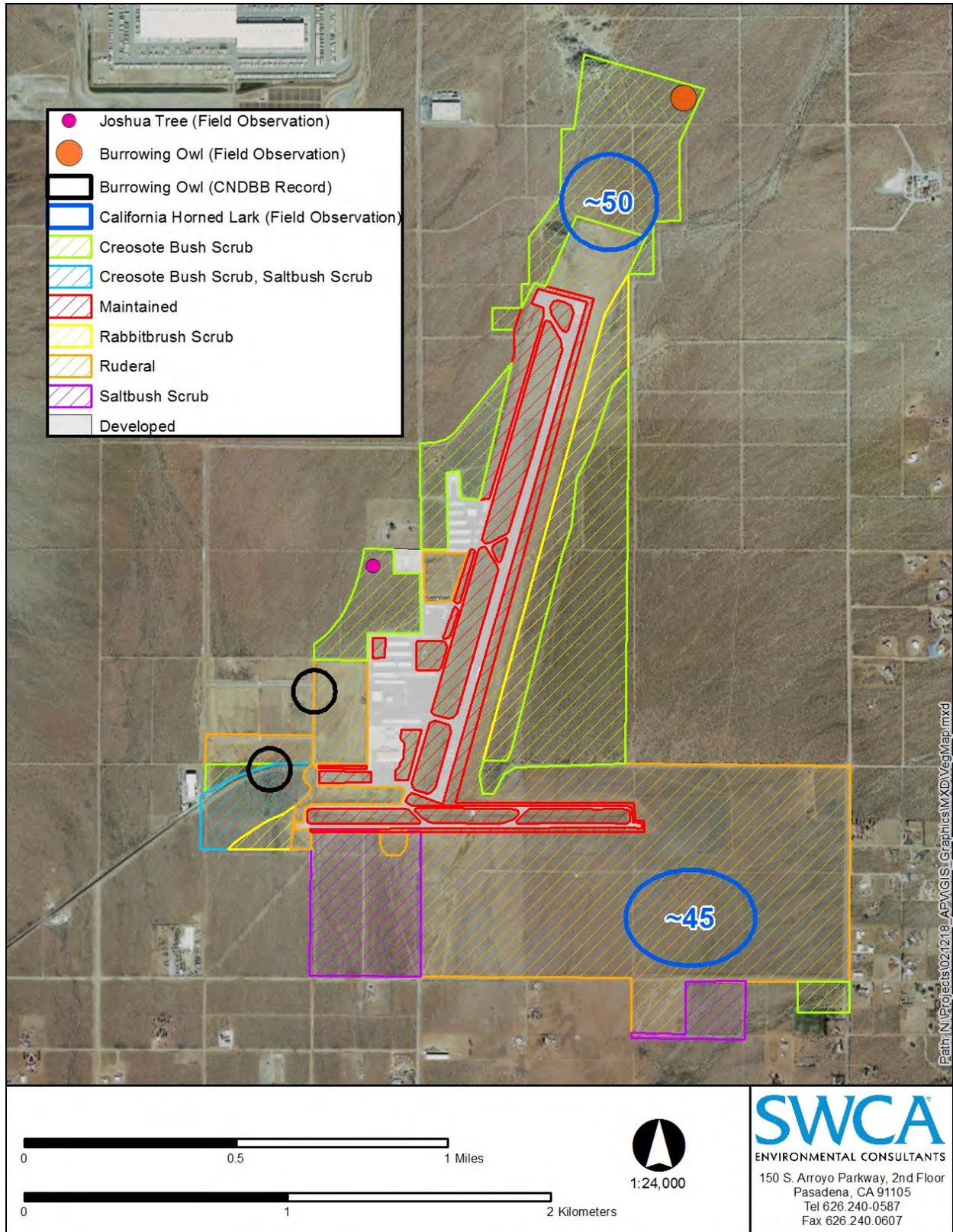


Figure 3. Vegetation Communities, Habitats, and Special-status Species Observations

### **5.1.2 Desert Saltbush Scrub**

Desert saltbush scrub community (Desert Saltbush Scrub 36.301.00) is usually strongly dominated by one of several species of saltbush (*Atriplex* spp.), with other characteristic species, including spiny hopsage (*Grayia spinosa*), cheesebush (*Hymenoclea salsola*), and boxthorn (*Lycium* spp.). Desert saltbush scrub is found in poorly drained alkaline and/or saline soils, widely distributed above and on the margins of dry desert lake beds in the Mojave, Great Basin, and Colorado Deserts. Saltbush scrub usually is composed of fine-scale mosaics of vegetation series and associations with different component species becoming dominant. The distribution of this community is dependent on small changes in topography and water table depth. Within the project area, desert saltbush scrub vegetation community comprises a total of 68 acres. The predominant anthropogenic disturbance to the community is the widespread occurrence of invasive plant species, including *Bromus* and *Schizmus* grasses and Sahara mustard (*Brassica tournefortii*). Wildlife observed in this community during the site visit included black-tailed jackrabbit and common raven. Many of the species that were observed or are expected to occur in the Mojave creosote bush scrub community are also expected to occur in the desert saltbush scrub community.

### **5.1.3 Mojave Creosote Bush Scrub/Desert Saltbush Scrub**

Mojave creosote bush Scrub/desert saltbush scrub community is composed of creosote scrub and saltbush as co-dominants. Within the project area, this mixed vegetation community is located in areas that are generally undisturbed, and comprises a total of 21 acres. Wildlife observed in this community during the site visit included black-tailed jackrabbit, common raven, and white-tailed antelope squirrel. Many of the species that were observed or are expected to occur in the Mojave creosote bush scrub community are also expected to occur in this mixed scrub community, including invasive plant species.

### **5.1.4 Rabbitbrush Scrub**

Rabbitbrush scrub (Rubber Rabbitbrush Scrub 35.310.00) is a disturbance-maintained community (fire, grazing, soil tilling) that is dominated by rubber rabbitbrush (*Ericameria nauseosus*). California stands are dominated by any of eight subspecies of rubber rabbitbrush. Some species are local, whereas others have extensive ranges. Rabbitbrush species are often the dominant species in disturbed areas such as abandoned agricultural land and over-grazed pastures. These subspecies are usually less than 1 m in height and fairly evenly spaced. This community is found in the Great Basin and western margin of the Mojave Desert, reaching west across the Sierra–Cascade axis into the drainages of Kern, Feather, and Pit rivers (Holland 1986, 1992). Within the project area, rabbitbrush scrub vegetation community is located in areas that have received infrequent anthropogenic disturbance, and comprises a total of 46 acres. Wildlife observed in this community during the site visit included common raven, California horned lark (*Eremophila alpestris actia*), and western meadowlark (*Sturnella neglecta*).

### **5.1.5 Ruderal**

Ruderal habitats occur in areas subjected to a high degree of anthropogenic disturbance or modification, and are dominated by opportunistic, non-native, and often invasive species. Although ruderal habitat is not pristine, it does provide some limited wildlife value by serving as food and cover for insects, reptiles, small mammals, songbirds, and raptors. Within the project area, ruderal habitat occurs adjacent to airport runways where vegetation is disturbed on a regular basis, and comprises a total of 402 acres. Wildlife observed in this habitat during the site visit included common raven, California horned lark, western meadowlark, white-crowned sparrow, and mourning dove. Burrowing owls have previously been observed in ruderal habitat on the project area (Figure 3).

### **5.1.6 Maintained**

Maintained areas are characterized by transition from one land use activity to another (Anderson et al. 1976). Within the project area, maintained areas adjacent to airport runways have been recently disturbed through mechanical means, and are devoid of vegetation aside from a few opportunistic species such as redstem filaree and brome grasses. A total of 106 acres of this habitat occurs within the project area. No wildlife species were observed in this habitat during the site visit.

### **5.1.7 Developed Lands**

Developed lands are areas of intensive use with much of the land covered by structures or pavement. Included in this category are cities; transportation, power, and communications facilities and infrastructure; and areas occupied by mills, shopping centers, industrial and commercial complexes, and institutions that may, in some instances, be isolated from urban areas. These areas are characterized by buildings, asphalt, concrete, suburban gardens, and a systematic street pattern (Anderson et al. 1976). Developed lands were identified throughout much of the project area and included infrastructure associated with the airport. These areas, comprising 86 acres, are almost entirely paved and predominantly devoid of vegetation, with the exception of landscaping. Wildlife observed in this habitat during the site visit included Say's phoebe (*Sayornis saya*). Other species that are expected to occur in this habitat include mourning dove and common raven.

## **6 RARE, ENDANGERED, OR SENSITIVE SPECIES AND HABITAT RESULTS**

Based on the existing biological conditions within and adjacent to the project area, the known occurrences of special-status species in the nine-quad vicinity, and SWCA biologists' local knowledge of the project vicinity, the occurrence potentials of the 53 focal species were assessed (Appendix A). The following is a discussion of those special-status species that are present within or immediately adjacent to the project area, as well as those species assessed as 'may occur,' 'not likely to occur,' and 'absent' within the project area. For each species, we provide a discussion of the habitat elements within the project area that aided in our assessment of their potential for occurrence. We provide expanded species descriptions for those that are present or may occur in the project area.

### **6.1 SPECIAL-STATUS SPECIES THAT ARE PRESENT**

One special-status plant species and three special-status wildlife species were directly observed within the project area, and were assessed as being present there. These include species with recent CNDDDB records within the project area, and/or species that were observed within the project area or in its immediate vicinity by airport staff and/or SWCA staff:

- Joshua tree
- desert tortoise
- burrowing owl
- California horned lark

#### **6.1.1 Joshua Tree**

Joshua trees are protected under two chapters of the Town of Apple Valley Development Code: the Desert Native Plant Protection code (Chapter 9.76.020) and the Joshua Tree Protection code (Chapter

9.76.040). This species is endemic to the Mojave Desert, and occurs at elevations between 1,600 and 6,600 feet above mean sea level in a variety of vegetation communities, including sagebrush scrub, desert shrub, southwestern shrubsteppe, pinyon-juniper woodlands, and desert grasslands. One Joshua tree was observed on the project area in the Mojave creosote bush scrub vegetation community (Figure 3).

### **6.1.2 Desert Tortoise**

The desert tortoise (*Gopherus agassizii*) is a long-lived, medium-sized, burrowing, terrestrial turtle in the Family Testudinidae. Populations north and west of the Colorado River (“Mojave population;” Lamb et al. 1989 or “Agassiz’s desert tortoise;” Murphy et al. 2011) are listed as federally Threatened and California Threatened. This species is widely distributed through a broad array of desert scrub habitats in the Mojave and Colorado Deserts, primarily creosote bush scrub, saltbush scrub, and succulent scrub vegetation communities. Desert tortoises inhabit topographic situations as diverse as bajadas, alluvial fans, washes, canyons, and hillsides from below sea level to 1,250 m (4,130 feet) or higher. Friable soils are an important habitat component, particularly for burrow excavation and nesting. Caliche exposures in wash banks and on hillsides are another important habitat component, where tortoises reside in caliche caves excavated under indurated caliche deposits. Food items include primarily spring annual plants, and to a lesser extent summer annuals, cacti, perennial grasses, and the blooms of perennial shrubs.

Desert tortoises have previously been observed in the project area by airport personnel (Patrick Maroney, personal communication, December 1, 2011). Additionally, there are 12 previously-recorded occurrences for this species in the nine-quad vicinity, recorded between 1986 and 2008 (CNDDDB 2011). Four of these occurrences are within 5 miles of the project area, including three that were recorded recently (2004 and 2005) (CNDDDB 2011; Figure 4). The Mojave creosote bush scrub and desert saltbush scrub are vegetation communities that desert tortoises may inhabit, and these communities appear to support appropriate habitat for the species within the project area. The site visit was conducted during a period when spring annual plants were not visible, but the natural vegetation communities appeared not to have been disturbed to a level that would eliminate common annual species. Soils over the majority of the project area are loamy sands, which provide opportunities for burrowing. Additionally, the project area is located within the elevation limits of the species.

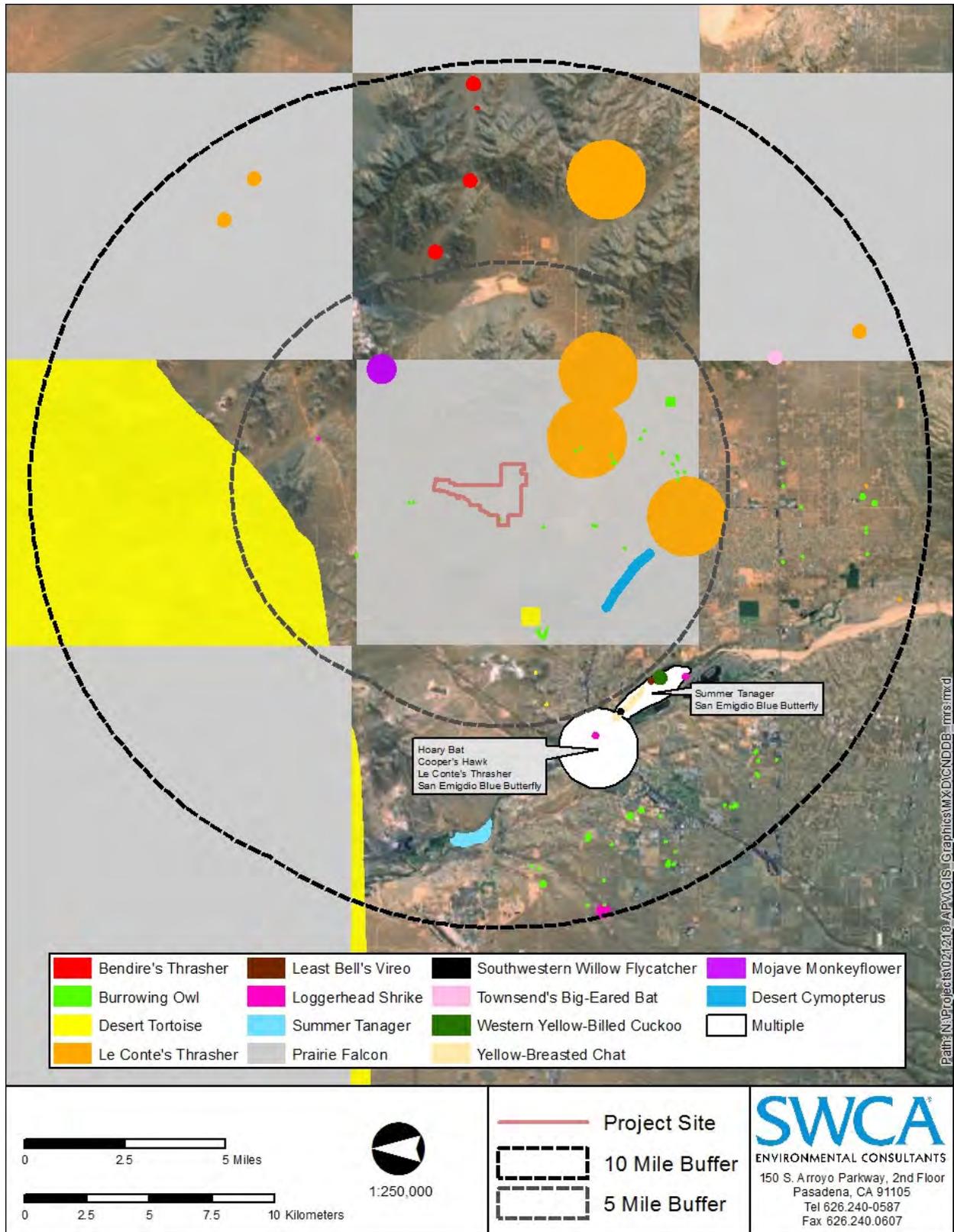


Figure 4. CNDDDB Record Occurrences in the Project Area

### **6.1.3 Burrowing Owl**

The burrowing owl is a California Species of Special Concern, and its nests protected under the Migratory Bird Treaty Act (MTBA). Within the California desert region, the western burrowing owl occurs primarily in agricultural fields and desert scrub habitats in the Mojave and Colorado Deserts. Burrowing owls require large, open expanses of sparsely vegetated areas on gently rolling or level terrain, with an abundance of active small mammal burrows, particularly those of the California ground squirrel. The burrows of these rodents are an important habitat feature for burrowing owls, as they modify and use squirrel (and other rodent) burrows for refugia, roosting, and nesting. They sometimes use artificial features, such as pipes, culverts, and nest boxes in areas where squirrel burrows are scarce (Robertson 1929).

Breeding occurs from March through August, with a peak in April and May. The male attracts a female to the burrow and defends the nest site by calling in front of the burrow. One burrow is typically used for nesting; however, satellite burrows are usually found within the immediate vicinity of the nest burrow within the owl's territory. Within California, clutch size ranges from one to eleven eggs, with an average of seven (Landry 1979). The young emerge from the burrow at about two weeks and can fly by about four weeks (Zarn 1974). Martin (1973) reported that 95 percent of the young fledged in one population, with a mean reproductive success of 4.9 young per pair. Burrowing owls in southern California may winter in the nesting burrow or a nearby burrow following successful fledging of juveniles, but are more likely to disperse from the nesting area if the nest fails (Catlin et al. 2005; Rosier et al. 2006). Little is understood about the migratory movements of this species. Breeding populations from the northern range of the species are apparently migratory, though southern California populations are probably year-round residents (Thomsen 1971). Increases in winter population sizes within southern California are probably the result of immigration of owls from more northerly areas (Coulombe 1971). Nesting burrowing owls banded in Idaho have been observed wintering in southern California (Brian W. Smith, personal communication, November 2006). Male burrowing owls that are year-round residents in southern California may overwinter in burrows within nesting areas, as this allows them to retain possession of their burrows and territories, as well as maintain the burrows (Johnsgard 2002:165). Thus, burrowing owls may occur in the project area as year-round residents and breeders, and/or as winter residents from populations that breed further north, and/or as transients during dispersal and migration.

A single burrowing owl was observed by SWCA staff during archeological surveys of the project area (Figure 3). Additionally, there are two previously-recorded observations of this species within the project area boundaries (CNDDB 2011; Figure 3). Within the nine-quad project vicinity there are 44 occurrences, recorded between 1997 and 2010. In the more immediate project vicinity, 12 of the records are within 5 miles of the project area, and an additional 27 are between 5 and 10 miles from the project (CNDDB 2011; Figure 4). Vegetation communities and habitats within the project area where burrowing owls may occur and nest include Mojave creosote desert scrub, saltbush scrub, and rabbitbrush scrub communities, and ruderal habitat. Within the scrub communities, burrowing owls are more likely to occupy areas with lower shrub density. Multiple burrowing mammal species were observed on the project area, including antelope ground squirrel and kangaroo rat species; the burrows of these species could provide suitable starting burrows for modification and occupancy by burrowing owls.

### **6.1.4 California Horned Lark**

The California horned lark is a California Species of Special Concern, and its nests protected under the MBTA. This species is a short-distance migrant that occupies short-grass prairie, "bald" hills, mountain meadows, open coastal plains, fallow grain fields and alkali flats. It prefers open, sparsely vegetated grasslands, ruderal habitats, and desert scrub communities with wide shrub spacing, and is a ground-

nesters in these locations. There are no previously recorded occurrences of this species within 10 miles of the project area (CNDDDB 2011), but a flock of approximately 45 individuals was observed in the ruderal habitat, and another flock of approximately 50 individuals was observed in the Mojave creosote bush scrub community on the project area during the site visit (Figure 3). This species may occur and nest in ruderal habitat, and open, sparsely vegetated portions of Mojave creosote bush scrub, saltbush scrub, and rabbitbrush scrub vegetation communities on the project area.

## 6.2 SPECIAL-STATUS SPECIES THAT MAY OCCUR

Based on the analysis provided in Appendix A, the occurrence potential for the following five special-status plants and two wildlife species was assessed as “may occur” within the project area due to the presence of suitable habitat and recent known occurrences in the immediate project vicinity:

- Mojave yucca
- barrel cactus
- honey mesquite
- screw bean mesquite
- Mojave monkeyflower
- loggerhead shrike (nesting)
- Le Conte’s thrasher

### 6.2.1 Mojave Yucca

Mojave yucca (*Yucca schidigera*) is a perennial shrub-tree found in gravelly and calcareous soils on dry rocky slopes, flats, or washes throughout Mojavean desert scrub communities, including Mojave creosote bush scrub. Although records for this species are not maintained in the CNDDDB or CNPS databases, they commonly occur in the vegetation communities present on site. In particular, this species could occur in the Mojave creosote bush scrub community within the project area.

### 6.2.2 Barrel Cactus

Barrel cactus (*Ferocactus cylindraceus*) is a perennial stem succulent found sandy or rocky soils in Mojavean desert scrub communities including Mojave creosote bush scrub and Joshua tree woodland. Although records for this species are not maintained in the CNDDDB or CNPS databases, they commonly occur in the vegetation communities present on site. In particular, this species could occur in the Mojave creosote bush scrub community within the project area.

### 6.2.3 Honey Mesquite

Honey mesquite (*Prosopis glandulosa*) is a perennial tree that is found in a variety of soils within creosote bush scrub or alkali sink vegetation communities. Although records for this species are not maintained in the CNDDDB or CNPS databases, they commonly occur in the vegetation communities present on site. In particular, this species could occur in the Mojave creosote bush scrub and saltbush scrub communities within the project area.

### 6.2.4 Screw Bean Mesquite

Screw bean mesquite (*Prosopis pubescens*) is a perennial tree that is found in a variety of soils within creosote bush scrub or wetland-riparian vegetation communities. Although records for this species are not maintained in the CNDDDB or CNPS databases, they commonly occur in the vegetation communities present on site. In particular, this species could occur in the Mojave creosote bush scrub community within the project area.

### **6.2.5 Mojave Monkeyflower**

Mojave monkeyflower (*Mimulus mohavensis*) is an annual herb found in sandy or gravelly soils, often in washes, in Mojavean desert scrub communities, including Mojave creosote bush scrub. There are 23 records of the species in the nine-quad project vicinity. One of these records is within 5 miles of the project area, recorded in 2005 (CNDDDB 2011; Figure 4). This occurrence was a population distributed on a south-facing compound alluvial fan in creosote-dominated shrubland with compacted and rocky, fine soil. Because similar habitat (Mojave creosote bush scrub community on alluvial soils) occurs within the project area, this species may occur there.

### **6.2.6 Le Conte's Thrasher**

Le Conte's thrasher (*Toxostoma lecontei*) is a California Species of Special Concern. This species is a year-round resident that inhabits and nests in washes in sparse creosote scrub and saltbush scrub communities. There are 12 records of the species in the nine-quad project vicinity, ten of which are within 10 miles of the project area, including three within 5 miles (CNDDDB 2011; Figure 4). Although eight of these ten observations are older than 20 years (recorded in 1916, 1921, 1925, 1932, 1963, 1986 (2), and 1987), two occurrences were recorded in 1991 within 10 miles of the project site. This species may occur there as a year-round resident and breeder within the Mojave creosote bush scrub on the project area.

### **6.2.7 Loggerhead Shrike**

The loggerhead shrike (*Lanius ludovicianus*) is a California Species of Special Concern, and protection is afforded to this species as a nester by the CDFG. This species is a year-round resident that prefers open habitats interspersed with shrubs, trees, poles, fences, or other perches from which they can hunt. Nests are built in densely-vegetated shrubs or trees, often containing thorns or near fences with barbs, which offer protection from predators and upon which prey items are impaled. There are four recent records of the species within 10 miles of the project site, including two from 2006 within the riparian area of the Mojave Narrows, and two (recorded in 2005 and 2009) within creosote scrub with Joshua trees near disturbed areas (e.g. housing, recreational vehicle trails) (CNDDDB 2011; Figure 4). None of the occurrences within 10 miles of the project area are nesting occurrences. This species may occur and nest within the Mojave creosote bush scrub community on the project area.

## **6.3 SPECIAL-STATUS SPECIES THAT ARE NOT LIKELY TO OCCUR**

Based on the analysis for each species provided in Appendix A, ten special-status plant species and six wildlife species were assessed as "not likely to occur" in the project area because: 1) although there may or may not be any recent local records of their occurrence as determined through the CNDDDB within the vicinity of the project area, habitat within the project area was determined to be marginal, limited, or otherwise unfavorable; or 2) the project area does not likely provide suitable habitat for a sustaining population of this species. The following species are not likely to occur in the project area:

- chaparral yucca
- Barstow wooly sunflower
- desert cymopterus
- purple-nerve cymopterus
- pinyon rock cress
- short-joint beavertail
- Beaver Dam breadroot
- Parish's phacelia
- white pygmy-poppy
- Latimer's woodland-gilia
- gray vireo
- Bendire's thrasher

- Townsend's big-eared bat
- hoary bat
- Mohave ground squirrel
- pallid San Diego pocket mouse

## **6.4 SPECIAL-STATUS SPECIES THAT ARE ABSENT**

Based on the analysis for each species provided in Appendix A, eight special-status plant species and 16 special-status wildlife species were assessed as "absent" from the project area because: 1) there is no suitable habitat within the project area and there are no local records in the immediate project vicinity, and/or 2) the project area is outside of their known range. Alternatively, although there are records of these species within the immediate project vicinity, there is no suitable habitat within the project area to support the occurrence of these species. The following species are absent in the project area:

- San Bernardino aster
- smoketree
- southern mountains skullcap
- Cushenbury oxytheca
- California androsace
- Booth's evening-primrose
- Mojave paintbrush
- Plummer's mariposa lily
- Victorville shoulderband
- Mohave tui chub
- California red-legged frog
- western pond turtle
- coast horned lizard
- Cooper's hawk
- prairie falcon (nesting)
- western yellow-billed cuckoo
- southwestern willow flycatcher
- least Bell's vireo
- long-eared owl
- yellow warbler
- yellow-breasted chat
- summer tanager
- silver-haired bat
- Mohave river vole

## **7 SUMMARY AND RECOMMENDATIONS**

Suitable habitat is present within the project area for the following species that are present or may occur in there:

- Joshua tree
- Mojave yucca
- Mojave monkeyflower
- barrel cactus
- honey mesquite
- screw bean mesquite
- desert tortoise
- burrowing owl
- California horned lark
- loggerhead shrike (nesting)

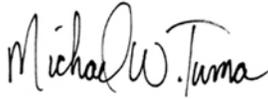
- Le Conte's thrasher

In order to attain a better understanding of how any of the proposed projects implemented under the Master Plan Update may impact sensitive biological resources, the following studies are recommended as part of each biological resource assessment:

- protocol desert tortoise surveys;
- protocol burrowing owl surveys;
- nesting bird surveys;
- focused rare plant surveys that sample the entire blooming period of species that may occur in the project area;
- spring plant surveys;
- jurisdictional waters delineations; and
- an impact-mitigation analysis.

## **8 CERTIFICATION**

CERTIFICATION: “I hereby certify that the statements furnished above and in the attached exhibits present the data and information required for this biological evaluation, and that the facts, statements, and information presented are true and correct to the best of my knowledge and belief. Field work conducted for this assessment was performed by me or under my supervision. I certify that I have not signed a non-disclosure or consultant confidentiality agreement with the project applicant or applicant’s representative and I that I have no financial interest in the project.”

Date: December 21, 2011 Signed: 

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**APPENDIX A:  
Special-status Plants and Wildlife Occurrence Assessments**

NOTES FOR SENSITIVE BIOLOGICAL RESOURCES TABLES

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Federal Status – The Federal Endangered Species Act is administered by the United States Fish and Wildlife Service (FWS) and the National Oceanic and Atmospheric Administration Fisheries (NOAA).

- E Endangered: Species is in immediate danger of extirpation or extinction from existing pressures.
- T Threatened: Species not presently in eminent danger of extinction, but is likely to become an Endangered species in the foreseeable future in the absence of special protection and management efforts.
- C Candidate: Candidate species are plants and animals for which the Service has sufficient information on their biological status and threats to propose them as endangered or threatened under the Endangered Species Act, but for which development of a listing regulation is precluded by other higher priority listing activities.
- D Delisted: Species is no longer in immediate danger of extirpation or extinction nor is it likely to reach this status in the foreseeable future. Delisted species are monitored according to a post-delisting monitoring plan.

State Status – The California Endangered Species Act of 1984 (CESA) (Fish & Game Code §§2050, *et seq.*) and the Native Plant Protection Act of 1977 (NPPA) (Fish & Game Code §§1900-1913) generally parallel the main provisions of the Federal Endangered Species Act and are administered by the California Department of Fish and Game.

- E Endangered: a species of plant, fish, or wildlife which is "in serious danger of becoming extinct throughout all, or a significant portion of its range." This designation is limited to species or subspecies native to California. (CESA)
- T Threatened: a native species or subspecies of a bird, mammal, fish amphibian, reptile or plant that, although not presently threatened with extinction, is likely to become an endangered species in the foreseeable future in the absence of special protection and management efforts. (CESA)
- R Rare: (applies to plants only) a species, subspecies, or variety is rare when, although not presently threatened with extinction, it is in such small numbers throughout its range that it may become endangered if its present environment worsens. (This designation was replaced by "threatened" for all animal species in 1985) (NPPA)

CDFG - The Wildlife Branch, Nongame Wildlife Program is responsible for producing and updating SSC publications for mammals, birds, reptiles, and amphibians. The Fisheries Branch is responsible for updates to the Fish Species of Special Concern document.

SSC: Species of Special Concern; native species not having state or federal Threatened or Endangered Species status, but thought to warrant monitoring due to declining population numbers. (Includes those species tracked in the CNDDDB but not given any other special status.)

FP: Fully Protected; The classification of Fully Protected was the State's initial effort to identify and provide additional protection to those animals that were rare or faced possible extinction. Lists were created for fish, amphibians and reptiles, birds and mammals. Most of the species on these lists have subsequently been listed under the state and/or federal endangered species acts. The Fish and Game Code sections dealing with Fully Protected species state that these species "...may not be taken or possessed at any time and no provision of this code or any other law shall be construed to authorize the issuance of permits or licenses to take any fully protected" species, although take may be authorized for necessary scientific research. This language arguably makes the "Fully Protected" designation the strongest and most restrictive regarding the "take" of these species. In 2003 the code sections dealing with fully protected species were amended to allow the Department to authorize take resulting from recovery activities for state-listed species.

WL: Watch List. The species warrants further monitoring and review, but no actions or legal protection are given.

CNPS – The California Native Plant Society tracks the conservation status of hundreds of plant species and maintains the CNPS *Inventory of Rare and Endangered Plants of California*. The CNPS Rare Plant Program's data are widely accepted as the standard for information on the rarity and endangerment status of the California flora.

1A CNPS Priority List 1A: plant presumed extinct in CA.

- 1B CNPS Priority List 1B: plant Rare, Threatened, or Endangered in CA and elsewhere; eligible for state listing.
- 2 CNPS Priority List 2: plant rare, threatened, or Endangered in CA, but more common elsewhere; eligible for state listing.
- 3 CNPS Priority List 3: more information is needed about this species; some eligible for state listing.
- 4 CNPS Priority List 4: on watch list for plants of limited distribution.

The CNPS Threat Rank is an extension added onto the CNPS List and designates the level of endangerment by a 1 to 3 ranking as follows:

- .1 - Seriously threatened in California (high degree/immediacy of threat)
- .2 - Fairly threatened in California (moderate degree/immediacy of threat)
- .3 - Not very threatened in California (low degree/immediacy of threats or no current threats known)

Apple Valley Code:

Protected plant under Desert Native Plant Protection code (Chapter 9.76.020 of the Town of Apple Valley Development Code) and/or Joshua Tree Protection code (Chapter 9.76.040 of the Town of Apple Valley Development Code)

**Table A-1. Potential for Occurrence of Special-status Species in the Nine-Quad Project Vicinity**

Scientific Name	Common Name	Federal Status	State Status	Other Status*	Habitats	Micro-Habitats	Status of Occurrence in the Project Area
<b>PLANTS</b>							
<b>Angiospermae</b>		<b>Monocotyledon</b>					
<b>Agavaceae</b>		<b>Agave family</b>					
<i>Yucca brevifolia</i>	Joshua tree	None	None	Apple Valley Code	Joshua tree woodland in arid mesas and mountain slopes of the Mojave desert	From 500 – 2000 m.	<b>Present</b> ; one Joshua tree was observed on the project area.
<i>Yucca schidigera</i>	Mohave yucca	None	None	Apple Valley Code	Chaparral and creosote bush scrub	Below 2500 m.	<b>May Occur</b> ; there is suitable habitat on the project area.
<i>Hesperoyucca whipplei</i>	chaparral yucca	None	None	Apple Valley Code	Slopes in chaparral, coastal sage scrub, creosote bush scrub, Joshua tree woodland, pinyon-juniper woodland, and yellow pine forest	Below 1220 m.	<b>Not Likely to Occur</b> ; habitat on the project area is marginal for this species.
<b>Liliaceae</b>		<b>Lily family</b>					
<i>Calochortus plummerae</i>	Plummer's mariposa lily	None	None	1B.2	Chaparral, cismontane woodland, coastal scrub, lower montane coniferous forest, valley and foothill grassland.	From 100 – 1700 m.	<b>Absent</b> ; there is no suitable habitat on the project area.

**Table A-1. Potential for Occurrence of Special-status Species in the Nine-Quad Project Vicinity**

Scientific Name	Common Name	Federal Status	State Status	Other Status*	Habitats	Micro-Habitats	Status of Occurrence in the Project Area
<b>Angiospermae</b>							
<b>Dicotyledons</b>							
<b>Asteraceae</b>							
<b>Sunflower family</b>							
<i>Eriophyllum mohavense</i>	Barstow woolly sunflower	None	None	1B.2	Chenopod scrub, Mojavean desert scrub, playas; from 500 - 960 meters	Silty or sandy soils of playa margins	<b>Not likely to occur;</b> although there is suitable habitat on the project area, there are no records within 5 miles.
<i>Symphotrichum defoliatum</i>	San Bernardino aster	None	None	1B.2	Cismontane woodland, coastal scrub, lower montane coniferous forest, meadows and seeps, marshes and swamps, valley and foothill grassland; from 2 - 2040 meters	Near ditches, streams, springs, vernal mesic soils	<b>Absent;</b> there is no suitable habitat on the project area.
<b>Apiaceae</b>							
<b>Parsley or Carrot family</b>							
<i>Cymopterus deserticola</i>	desert cymopterus	None	None	1B.2	Joshua tree woodland, Mojavean desert scrub, desert scrub communities; from 630 - 1500 meters	Loose, sandy soils of desert washes	<b>Not likely to occur:</b> although there is one record of this species within 5 miles of the project area, the observation is older than 20 years (recorded in 1988), and habitat on the project area is marginal.
<i>Cymopterus multinervatus</i>	purple-nerve cymopterus	None	None	2.2	Mojavean desert scrub, pinyon and juniper woodland; from 790 - 1800 m	Sandy or gravelly soils	<b>Not likely to occur:</b> although there is suitable habitat on the project area, there are no records of this species within 5 miles.

**Table A-1. Potential for Occurrence of Special-status Species in the Nine-Quad Project Vicinity**

Scientific Name	Common Name	Federal Status	State Status	Other Status*	Habitats	Micro-Habitats	Status of Occurrence in the Project Area
<b>Brassicaceae</b>		<b>Mustard family</b>					
<i>Boechnera dispar</i>	pinyon rock cress	None	None	2.3	Joshua tree woodland, Mojavean desert scrub, pinyon and juniper woodland; from 1200 - 2540 meters	Granitic, gravelly soils	<b>Not likely to occur:</b> although there is suitable habitat on the project area, there are no records of this species within 5 miles.
<b>Cactaceae</b>		<b>Cactus family</b>					
<i>Ferocactus cylindraceus</i>	barrel cactus	None	None	Apple Valley Code	Creosote bush scrub and Joshua tree woodland	Below 1500 m.	<b>May Occur;</b> there is suitable habitat on the project area.
<i>Opuntia basilaris</i> var. <i>brachyclada</i>	short-joint beavertail	None	None	1B.2	Chaparral, Joshua tree woodland, Mojavean desert scrub, pinyon and juniper woodland.	From 425 - 1800 meters.	<b>Not likely to occur:</b> although there is suitable habitat on the project area, there are no records of this species within 5 miles.
<i>Sclerocactus polyancistrus</i>	Mojave fish-hook cactus	None	None	4.2	Great Basin scrub, Joshua tree woodland, Mojavean desert scrub; from 640 - 2320 meters	Usually carbonate soils	<b>Not likely to occur:</b> although there is suitable habitat on the project area, there are no records of this species within 5 miles.
<b>Fabaceae</b>		<b>Pea family</b>					
<i>Pediomelum castoreum</i>	Beaver Dam breadroot	None	None	1B.2	Sandy, washes and roadcuts, Joshua tree woodland, Mojavean desert scrub.	From 610 - 1525 m.	<b>Not likely to occur:</b> although there is suitable habitat on the project area, there are no records of this species within 5 miles.

**Table A-1. Potential for Occurrence of Special-status Species in the Nine-Quad Project Vicinity**

Scientific Name	Common Name	Federal Status	State Status	Other Status*	Habitats	Micro-Habitats	Status of Occurrence in the Project Area
<i>Prosopis glandulosa</i>	honey mesquite	None	None	Apple Valley Code	Creosote bush scrub and alkali sink	Below 1700 m.	<b>May occur:</b> there is suitable habitat on the project area.
<i>Prosopis pubescens</i>	screw bean mesquite	None	None	Apple Valley Code	Creosote bush scrub and wetland riparian	From 100 – 1300 m.	<b>May occur:</b> there is suitable habitat on the project area.
<i>Psoralea argemone</i>	smoketree	None	None	Apple Valley Code	Creosote bush scrub	Below 400 m.	<b>Absent:</b> the project area is outside of the elevation range of this species.
<b>Hydrophyllaceae</b>	<b>Mint family</b>						
<i>Phacelia parishii</i>	Parish's phacelia	None	None	1B.1	Mojavean desert scrub and playas; from 540 - 1200 m	Clay or alkaline Soils	<b>Not likely to occur:</b> although there is suitable habitat on the project area, there are no records of this species within 5 miles.
<b>Lamiaceae</b>	<b>Mint family</b>						
<i>Scutellaria bolanderi</i> ssp. <i>austromontana</i>	southern mountains skullcap	None	None	1B.2	Chaparral, cismontane woodland, lower montane coniferous forest; from 425 - 2000 meters	Mesic soils	<b>Absent;</b> there is no suitable habitat on the project area.
<b>Onagraceae</b>	<b>Evening Primrose family</b>						
<i>Camissonia boothii</i> ssp. <i>boothii</i>	Booth's evening-primrose	None	None	2.3	Joshua tree woodland, pinyon and juniper woodland.	From 900 - 2400 meters.	<b>Absent;</b> there is no habitat on the project area,

**Table A-1. Potential for Occurrence of Special-status Species in the Nine-Quad Project Vicinity**

Scientific Name	Common Name	Federal Status	State Status	Other Status*	Habitats	Micro-Habitats	Status of Occurrence in the Project Area
<b>Orobanchaceae</b>		<b>Broomrape family</b>					
<i>Castilleja plagiotoma</i>	Mojave paintbrush	None	None	4.3	Great Basin scrub (alluvial), Joshua tree woodland, lower montane coniferous forest, pinyon and juniper woodland.	From 300 - 2500 meters	<b>Absent</b> ; there is no suitable habitat on the project area.
<b>Papaveraceae</b>		<b>Poppy family</b>					
<i>Canbya candida</i>	white pygmy-poppy	None	None	4.2	Joshua tree woodland, Mojavean desert scrub, and pinyon and juniper woodland communities; from 600 - 1460 meters	Gravelly, sandy, or granitic soils	<b>Not Likely to Occur</b> ; although there is suitable habitat on the project area there are no records of this species within 5 miles,
<b>Phrymaceae</b>		<b>Lopseed family</b>					
<i>Mimulus mohavensis</i>	Mojave monkeyflower	None	None	1B.2	Joshua tree woodland, Mojavean desert scrub, Joshua tree woodland and desert scrub communities; from 600 - 1200 meters	Sandy or gravelly soils, often in washes	<b>May Occur</b> ; there is suitable habitat on the project area, and there is a recent observation within 5 miles.
<b>Polemoniaceae</b>		<b>Phlox family</b>					
<i>Saltugilia latimeri</i>	Latimer's woodland-gillia	None	None	1B.2	Chaparral, Mojavean desert scrub, and pinyon and juniper woodland; from 400 – 1900 m	Rocky or sandy, often granitic soils, sometimes washes	<b>Not Likely to Occur</b> ; although there is suitable habitat on the project area, there are no records of this species within 5 miles.

**Table A-1. Potential for Occurrence of Special-status Species in the Nine-Quad Project Vicinity**

Scientific Name	Common Name	Federal Status	State Status	Other Status*	Habitats	Micro-Habitats	Status of Occurrence in the Project Area
<b>Polygonaceae</b>		<b>Buckwheat family</b>					
<i>Acanthoscyphus parishii</i> var. <i>goodmaniana</i>	Cushenbury oxytheca	Endangered	None	1B.1	Pinyon and juniper woodland (carbonate, talus); from 1219 – 2377 m	Sandy, carbonate soils	<b>Absent;</b> there is no suitable habitat on the project area.
<b>Primulaceae</b>		<b>Primrose family</b>					
<i>Androsace elongata</i> ssp. <i>acuta</i>	California androsace	None	None	4.2	Chaparral, cismontane woodland, coastal scrub, meadows and seeps, pinyon and juniper woodland, valley and foothill grassland.	from 150 – 1200 m	<b>Absent;</b> there is no suitable habitat on the project area.
<b>Zygophyllaceae</b>		<b>Creosote bush family</b>					
<i>Larrea tridentata</i>	Creosote bush (rings over 10 feet in diameter)	None	None	Apple Valley Code	Mojave creosote bush scrub		<b>Absent;</b> No creosote rings were observed on aerial photography of the project area.

**Table A-1. Potential for Occurrence of Special-status Species in the Nine-Quad Project Vicinity**

Scientific Name	Common Name	Federal Status	State Status	Other Status*	Habitats	Micro-Habitats	Status of Occurrence in the Project Area
<b>WILDLIFE</b>							
<b>Invertebrates</b>							
<b>Helminthoglyptidae</b>		<b>Air-breathing Land Snail family</b>					
<i>Helminthoglypta mohaveana</i>	Victorville shoulderband	None	None	None	Known to exist only along the Mojave River in San Bernardino County	Among granite boulders and at the base of rocky cliffs	<b>Absent;</b> there is no suitable habitat on the project area, and the project area is outside of the known range of the species.
<b>Lycaenidae</b>		<b>Gossamer-winged butterfly family</b>					
<i>Plebulina emigdionis</i>	San Emigdio blue butterfly	None	None	None	Desert canyons and riverbeds on the southernmost edge of the San Joaquin Valley	Hostplant: fourwing saltbush ( <i>Atriplex canescens</i> )	<b>Absent;</b> although there are records of this species within 10 miles of the project area, there is no suitable habitat on the project area.

**Table A-1. Potential for Occurrence of Special-status Species in the Nine-Quad Project Vicinity**

Scientific Name	Common Name	Federal Status	State Status	Other Status*	Habitats	Micro-Habitats	Status of Occurrence in the Project Area
<b>Fishes</b>							
<b>Cyprinidae</b>		<b>Carps or True Minnows family</b>					
<i>Siphateles bicolor mohavensis</i>	Mohave tui chub	Endangered	Endangered	None	Permanent freshwater pools; important vegetation includes aquatic ditchgrass ( <i>Ruppia maritima</i> )	Alkaline, mineralized waters within Mojave River basin pools; known to occur at approximately only five locations throughout the Mojave (Spring at the Desert Studies Center; Zzyzx near Baker; Lark Seep at the China Lake Naval Air Weapons Center; Camp Cady; and California Desert Information Center in Barstow).	<b>Absent;</b> there is no suitable habitat on the project area.
<b>Amphibians</b>							
<b>Ranidae</b>		<b>True frogs</b>					
<i>Rana draytonii</i>	California red-legged frog	Threatened	None	SSC	Lowlands and foothills in or near permanent sources of deep freshwater pools, streams, and marshes; below 1500 meters	Dense, shrubby or emergent riparian vegetation closely associated with deep (greater than 2 1/3-foot deep) still or slow moving water with dense stands of overhanging willows and an intermixed fringe of cattails.	<b>Absent;</b> there is no suitable habitat on the project area.

**Table A-1. Potential for Occurrence of Special-status Species in the Nine-Quad Project Vicinity**

Scientific Name	Common Name	Federal Status	State Status	Other Status*	Habitats	Micro-Habitats	Status of Occurrence in the Project Area
<b>Reptiles</b>							
<b>Emydidae</b>		<b>Box and Water or Pond Turtles</b>					
<i>Emys marmorata</i>	western pond turtle	None	None	SSC	Permanent or nearly permanent bodies of water in many habitat types; below 1825 meters	Require basking sites such as partially submerged logs, vegetation mats, or open mud banks.	<b>Absent</b> ; there is no suitable habitat on the project area.
<b>Testudinidae</b>		<b>Tortoises</b>					
<i>Gopherus agassizii</i>	desert tortoise	Threatened	Threatened	None	Most desert habitats, especially desert scrub, desert wash, and Joshua tree habitats; from 300-1525 meters	Friable soil required for burrow and nest construction. Creosote bush habitat with large annual wildflower blooms preferred.	<b>Present</b> ; there is suitable habitat on the project area, four recent records within 5 miles, and this species has been observed on the project area.
<b>Phrynosomatidae</b>		<b>Spiny lizards</b>					
<i>Phrynosoma blainvillii</i>	coast horned lizard	None	None	SSC	Coastal sage scrub and chaparral in arid and semiarid climates; below 2450 meters	Requires large rock outcrops, boulder piles or scattered large rocks. Sandy, well-drained soil required for nesting.	<b>Absent</b> ; there is no suitable habitat on the project area.

**Table A-1. Potential for Occurrence of Special-status Species in the Nine-Quad Project Vicinity**

Scientific Name	Common Name	Federal Status	State Status	Other Status*	Habitats	Micro-Habitats	Status of Occurrence in the Project Area
<b>Birds</b>							
<b>Accipitridae</b>		<b>Hawks, kites, harriers, and eagles</b>					
<i>Accipiter cooperii</i>	Cooper's hawk	None	None	None	Dense stands of live oak, riparian deciduous, or other forest habitats near water sea level to above 2700 meters	Dense stands with moderate crown-depths used for nesting. Often uses patchy woodlands and edges with snags for perching.	<b>Absent</b> ; there are no records for this species within 10 miles of the project area, and the project area supports only marginal nesting habitat (tree stands).
<b>Falconidae</b>		<b>Falcons</b>					
<i>Falco mexicanus</i>	prairie falcon (nesting)	None	None	WL	Arid plains, open terrain; steppes at all elevations, wherever cliffs or bluffs are present for nesting from annual grasslands to alpine meadows, but associated primarily with perennial grasslands, savannahs, rangeland, some agricultural fields, and desert scrub areas.	Usually nests in a scrape on a sheltered ledge of a cliff face overlooking a large, open area. Sometimes nests on old raven or eagle stick nest on cliff, bluff, or rock outcrop.	<b>Absent</b> : although there are recent CNDDDB records for this species observed within 10 miles of the project area, there is no suitable nesting habitat on the project area. This species may occur only as a transient or during foraging bouts.

**Table A-1. Potential for Occurrence of Special-status Species in the Nine-Quad Project Vicinity**

Scientific Name	Common Name	Federal Status	State Status	Other Status*	Habitats	Micro-Habitats	Status of Occurrence in the Project Area
<b>Cuculidae</b>		<b>Cuckoos and relatives</b>					
<i>Coccyzus americanus occidentalis</i>	western yellow-billed cuckoo	Candidate	Endangered	None	Valley foothill and desert riparian habitats; In Sacramento Valley, also utilizes adjacent orchards, especially of walnut. Along Colorado River, may inhabit mesquite thickets where willow is absent. Below 1400 meters	Inhabits extensive deciduous riparian thickets or forests with dense, low-level or understory foliage, and which abut on slow-moving watercourses, backwaters, or seeps; Willow almost always a dominant component of the vegetation.	<b>Absent:</b> there is no suitable habitat on the project area.
<b>Strigidae</b>		<b>Owls</b>					
<i>Asio otus</i>	long-eared owl	None	None	SSC	Riparian bottomlands grown to tall willows & cottonwoods; also, belts of live oak paralleling stream courses. Riparian or other thickets with small, densely canopied trees required for roosting and nesting; below 2745 meters	Frequents dense, riparian and live oak thickets near meadow edges, and nearby woodland and forest habitats. Also found in dense conifer stands at higher elevations. Require adjacent open land productive of mice and the presence of old nests of crows, hawks, or magpies for breeding.	<b>Absent;</b> there are no occurrences of this species within 10 miles of the project area, and only marginal foraging habitat (tree stands) on the project area.
<i>Athene cunicularia hypugaea</i>	burrowing owl	None	None	SSC	Open, dry grassland and desert habitats, and in grass, forb and open shrub stages of pinyon-juniper and ponderosa pine habitats; from 60 meters below sea level at Death Valley up to 3675 meters	Frequents open grasslands and shrublands with perches and burrows.	<b>Present;</b> there are 39 recent occurrences of this species within 10 miles of the project area, and this species was observed during a survey of the project area.

**Table A-1. Potential for Occurrence of Special-status Species in the Nine-Quad Project Vicinity**

Scientific Name	Common Name	Federal Status	State Status	Other Status*	Habitats	Micro-Habitats	Status of Occurrence in the Project Area
<b>Tyrannidae</b>		<b>Tyrant flycatchers</b>					
<i>Empidonax traillii extimus</i>	southwestern willow flycatcher	Endangered	Endangered	None	Wet meadow and montane riparian habitats; from 600-2500 m	Most numerous where extensive thickets of low, dense willows edge on wet meadows, ponds, or backwaters.	<b>Absent:</b> there is no suitable habitat on the project area.
<b>Laniidae</b>		<b>Shrikes</b>					
<i>Lanius ludovicianus</i>	loggerhead shrike (nesting)	None	None	SSC	Open valley foothill hardwood-conifer, valley foothill riparian, pinyon-juniper, juniper, desert riparian, and Joshua tree habitats up to 2300 meters in California	Shrublands or open woodlands with a fair amount of grass cover and areas of bare ground for breeding; tall shrubs or trees in open areas of short vegetation for hunting perches, open areas of short grasses, forbs, or bare ground for hunting; and large shrubs or trees for nest placement	<b>May Occur;</b> there is suitable habitat on the project area and there are four recent occurrences for this species within 10 miles of the project area.
<b>Vireonidae</b>		<b>Vireos</b>					
<i>Vireo bellii pusillus</i>	least Bell's vireo	Endangered	Endangered	None	Willow woodlands and low, dense valley foothill and desert riparian habitat. Summer resident of southern California in low riparian in vicinity of water or in dry river bottoms; below 2500 meters	Low, dense riparian growth along water or along dry parts of intermittent streams dominated by willow, cottonwood, mulefat, wild blackberry, or mesquite. Typically nests on willow, mulefat, and mesquite.	<b>Absent:</b> there is no suitable habitat on the project area.

**Table A-1. Potential for Occurrence of Special-status Species in the Nine-Quad Project Vicinity**

Scientific Name	Common Name	Federal Status	State Status	Other Status*	Habitats	Micro-Habitats	Status of Occurrence in the Project Area
<i>Vireo vicinior</i>	gray vireo	None	None	SSC	Mature, arid chaparral, or open pinyon-juniper woodland mixed with chaparral, desert scrub, or sagebrush; from 200 to 2400 meters	Within the mountains of the Mojave Desert, typical habitat is open pinyon-juniper woodland possibly mixed with sagebrush	<b>Not Likely to Occur;</b> although there is suitable habitat on the project area, there are no recent records for this species within 10 miles of the project area.
<b>Alaudidae</b>		<b>Larks</b>					
<i>Eremophila alpestris actia</i>	California horned lark	None	None	WL	Grasslands and other open habitats with low, sparse vegetation		<b>Present;</b> there is suitable habitat on the project area, and this species was observed during a survey of the project area.
<b>Mimidae</b>		<b>Mockingbirds and thrashers</b>					
<i>Toxostoma bendirei</i>	Bendire's thrasher	None	None	SSC	Closely associated with plants in the genera Yucca and Opuntia, as well as "firmly packed dirt" with less rocks, sand, and desert pavement than other Mojave soil types.	In the Mojave Desert, nearly all Bendire's Thrashers breed in Mojave desert scrub with either Joshua Tree ( <i>Yucca brevifolia</i> ), Spanish Bayonet ( <i>Yucca baccata</i> ), Mohave Yucca ( <i>Yucca schidigera</i> ), cholla cacti ( <i>Opuntia</i> spp.), or other succulents.	<b>Not Likely to Occur;</b> although there is one recent record (2008) for this species within 10 miles of the project area, habitat within the project area is marginal.
<i>Toxostoma lecontei</i>	Le Conte's Thrasher	None	None	SSC	Open desert washes and flats, desert scrub, alkali desert scrub, and desert succulent shrub habitats; also occurs in Joshua tree habitat with scattered shrubs; no known elevation restrictions	Scattered shrubs within large areas of open, sandy, or alkaline terrain in desert habitats. Commonly nests in a dense, spiny shrub or densely branched cactus in desert wash habitat.	<b>May Occur;</b> there is suitable habitat on the project area, and ten records for this species within 10 miles, including two recent records.

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Scientific Name	Common Name	Federal Status	State Status	Other Status*	Habitats	Micro-Habitats	Status of Occurrence in the Project Area
<b>Parulidae</b>		<b>Wood warblers</b>					
<i>Dendroica petechia brewsteri</i>	yellow warbler	None	None	SSC	Usually found in riparian deciduous habitats in summer: Also breeds in montane shrubbery in open conifer forests. In migration, visits woodland, forest, and shrub habitats. Breeds as high as 2600 meters on the eastern Sierra Nevada slopes.	Cottonwoods, willows, alders, and other small trees and shrubs typical of low, open-canopy riparian woodland. Frequents open to medium-density woodlands and forests with a heavy brush understory in breeding season.	<b>Absent;</b> there is no suitable habitat on the project area.
<i>Icteria virens</i>	yellow-breasted chat	None	None	SSC	Valley foothill riparian woodland up to about 1450 meters, and desert riparian habitats east of the Sierra Nevada up to 2050 meters	Summer resident; dense, brushy thickets and tangles near water, and thick understory in riparian woodland. Nests in low, dense riparian, consisting of willow, blackberry, wild grape.	<b>Absent;</b> there is no suitable habitat on the project area.
<b>Thraupidae</b>		<b>Tanagers</b>					
<i>Piranga rubra</i>	summer tanager	None	None	SSC	Summer resident of desert riparian along lower Colorado River, and locally elsewhere in California deserts; no known elevation restrictions	Cottonwood-willow riparian habitat required for nesting and foraging; prefers mature, dense stands along streams.	<b>Absent;</b> there is no suitable habitat on the project area.

**Table A-1. Potential for Occurrence of Special-status Species in the Nine-Quad Project Vicinity**

Scientific Name	Common Name	Federal Status	State Status	Other Status*	Habitats	Micro-Habitats	Status of Occurrence in the Project Area
<b>Mammals</b>							
<b>Vespertilionidae Evening bats</b>							
<i>Corynorhinus townsendii</i>	Townsend's big-eared bat	None	None	SSC	Throughout California in a wide variety of habitats, especially mesic sites; from desert scrub up to coniferous forests; from 170 to 2300 meters; requires open water for drinking	Roosts in the open habitat, often in caves, mines, and abandoned buildings hanging from walls and ceilings. Roosting sites limiting; extremely sensitive to human disturbance.	<b>Not Likely to Occur;</b> although there is suitable roosting habitat on the project area, the only record of this species within 5 miles of the project area is historic (1955).
<i>Lasionycteris noctivagans</i>	silver-haired bat	None	None	None	Broad-leaved riparian and coniferous woodlands, near streams and ponds; from 552 – 3005 meters.	Typically roosts solitarily in bark of an exfoliating tree (such as including Douglas fir, Engelman spruce, blue spruce, white fir, and aspen) higher than 33 feet, but may use woodpiles, open sheds, outbuildings, garages.	<b>Absent;</b> there is no suitable habitat for this species on the project area, and this species is considered a rare visitor in the project vicinity.
<i>Lasiurus cinereus</i>	hoary bat	None	None	SSC	Deciduous and coniferous forests and woodlands, including juniper scrub, riparian forest, and desert habitats near open water; from 148 to 3005 meters	Roosts solitarily among foliage in trees 3-5 meters above the ground in trees such as elm, black cherry, plum, box elder, and osage orange, but may use woodpecker holes, squirrel nests, driftwood, or building walls.	<b>Not likely to occur;</b> there is only marginal habitat for this species on the project area, and there are no recent records of this species within 10 miles of the project area (there is one record from 1984).

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Scientific Name	Common Name	Federal Status	State Status	Other Status*	Habitats	Micro-Habitats	Status of Occurrence in the Project Area
<b>Sciuridae</b>		<b>Squirrels and relatives</b>					
<i>Xerospermophilus mohavensis</i>	Mohave Ground Squirrel	None	Threatened	None	Open desert scrub, alkali scrub, and Joshua tree woodland in the Mojave desert.	Sandy to gravelly soils in open desert scrub and annual grassland communities of the western Mojave Desert; inhabits and breeds in burrows. Burrows in sandy to gravelly soils at the base of shrubs, avoids rocky areas.	<b>Not likely to occur;</b> although there is suitable habitat on the project area, there are no recent records within 5 miles. Additionally, the project area may be outside of the known range of this species.
<b>Heteromyidae</b>		<b>Kangaroo rats, pocket mice, and kangaroo mice</b>					
<i>Chaetodipus fallax pallidus</i>	Pallid San Diego pocket mouse	None	None	SSC	In desert wash, desert scrub, desert succulent scrub, and pinyon-juniper; below 1835 meters	Sandy herbaceous areas, usually in association with rocks or coarse gravel.	<b>Not likely to occur;</b> though there is suitable habitat on the project area, there are no recent records for this species within 5 miles.
<b>Muridae</b>		<b>Mice, rats, and voles</b>					
Mohave river vole	<i>Microtus californicus mohavensis</i>	None	None	SSC	Moist, herbaceous areas along the Mojave River only at Victorville and Oro Grande	Almost exclusively within weedy herbaceous growth in wet areas along the Mojave river, but may be found in some irrigated pastures. Requires soft soil, grasses, sedges and herbs	<b>Absent;</b> there is no suitable habitat on the project area.