

**APPENDIX E-1  
BIOLOGICAL RESOURCES TECHNICAL REPORT**

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# Administrative Draft Biological Resources Technical Report

Daggett Solar Power Facility

*San Bernardino County, California*

June 25, 2018

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## Acronyms and Abbreviations

|           |   |
|-----------|---|
| amsl      | above mean sea level                          |
| Applicant | Daggett Solar Power 1 LLC                     |
| CDFW      | California Department of Fish and Wildlife    |
| CEQA      | California Environmental Quality Act          |
| CNDBB     | California Natural Diversity Database         |
| CNPS      | California Native Plant Society               |
| CRPR      | California Rare Plant Ranking                 |
| DETO      | desert tortoise ( <i>Gopherus agassizii</i> ) |
| DRECP     | Desert Renewable Energy Conservation Plan     |
| ESA       | Endangered Species Act                        |
| FP        | fully protected                               |
| Project   | Daggett Solar Power Facility                  |
| SSC       | species of special concern                    |
| USACE     | U.S. Army Corps of Engineers                  |
| USFWS     | U.S. Fish and Wildlife Service                |
| USGS      | U.S. Geological Survey                        |
| °         | Degrees                                       |

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# 1 Overview

## 1.1 Introduction

Daggett Solar Power 1 LLC, a subsidiary of NRG Renew, LLC, (Applicant) is proposing to develop the Daggett Solar Power Facility in San Bernardino County, east of Daggett (Figure 1). The proposed project consists of constructing and operating a utility-scale, solar photovoltaic, electricity generation and energy storage facility that would produce up to 650 megawatts of power and include up to 450 megawatts of battery storage capacity on approximately 3,500 acres of land (Figure 2 and Figure 3). The project would utilize existing electrical transmission infrastructure adjacent to the existing Coolwater Generating Station, a recently retired natural gas-fired power plant, to deliver renewable energy to the electric grid.

This technical report integrates information collected from a variety of literature sources and a field survey conducted in August-September 2017 to describe the biological resources within the project vicinity. Information was gathered from publicly available literature, data provided by relevant land management agencies, reviews of aerial photography and United States (U.S.) Geological Survey (USGS) topographic maps, data from the U.S. Fish and Wildlife Service (USFWS) and California Department of Fish and Wildlife (CDFW), and the results of a field survey conducted in August and September 2017.

The purpose of this report is to: (1) assemble a vascular plant and vertebrate animal inventory of the project area and generation tie line (gen-tie) alignment alternatives; and (2) determine whether any special-status species or habitats have the potential to be impacted by development of the proposed project. If suitable habitat for some special-status species is present on site, additional surveys will further characterize the habitat and presence or absence of these species.

A general biological resource field survey was conducted for the proposed project and included:

- General vegetation mapping
- Identification of observed plant and animal species
- Habitat assessment for threatened, endangered, and other special-status plant and animal species
- Assessment for potential federally-regulated waters of the U.S. and state-regulated streambed

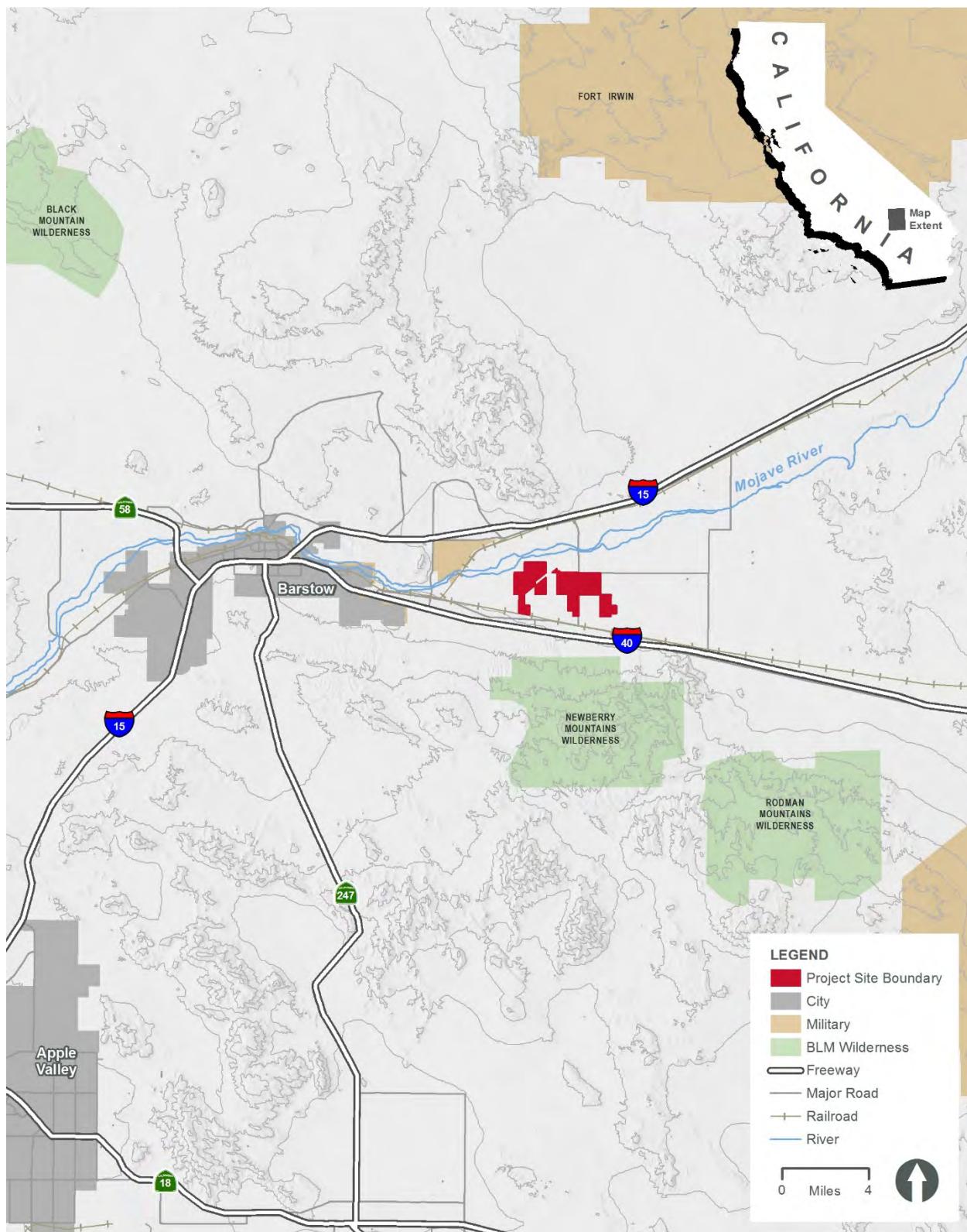
## 1.2 Project Site Description

The project site is flat and is generally bounded by the town of Daggett approximately 0.5 mile to the west; the Mojave River, Yermo, and Interstate 15 to the north; Barstow-Daggett Airport, Route 66, and Interstate 40 to the south; and Newberry Springs and Mojave Valley to the east.

The project site is located east of Barstow and Daggett, south of Interstate 15 and the Mojave River, and north of Interstate 40, and adjacent to Barstow-Daggett Airport. The project area is situated within Township 9 North and within Ranges 1 East and 2 East. The sections are Sections 13, 23, and 24 in Range 1 East; Sections 7, 8, 15-19, 21, and 23 in Range 2 East.

The project site is shown on four USGS 7.5-minute topographic quadrangles in California: Yermo, Minneola, Harvard Hill, and Newberry Springs. The project site is located approximately within the latitudes of  $34.83^{\circ}$  and  $34.90^{\circ}$  and within the longitudes of  $-116.70^{\circ}$  and  $-116.88^{\circ}$  (in decimal degrees). In other words, the project site is located at approximately latitude/longitude  $34^{\circ} 52' 0''$  N/ $116^{\circ} 48' 0''$  W. Figure 1 shows the project location.

Figure 1. Project Location



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Figure 2. Project Site on USGS Quadrangles

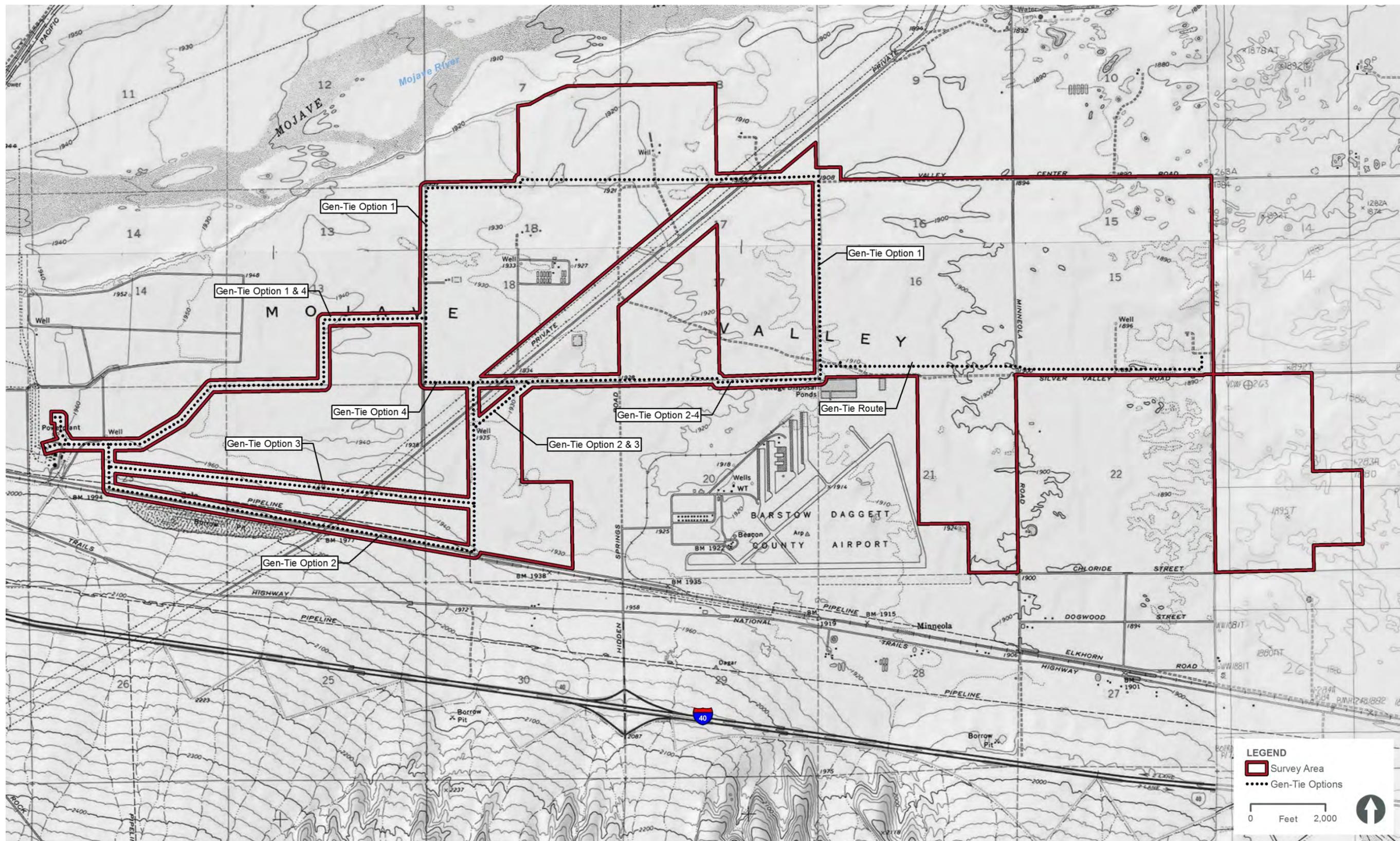
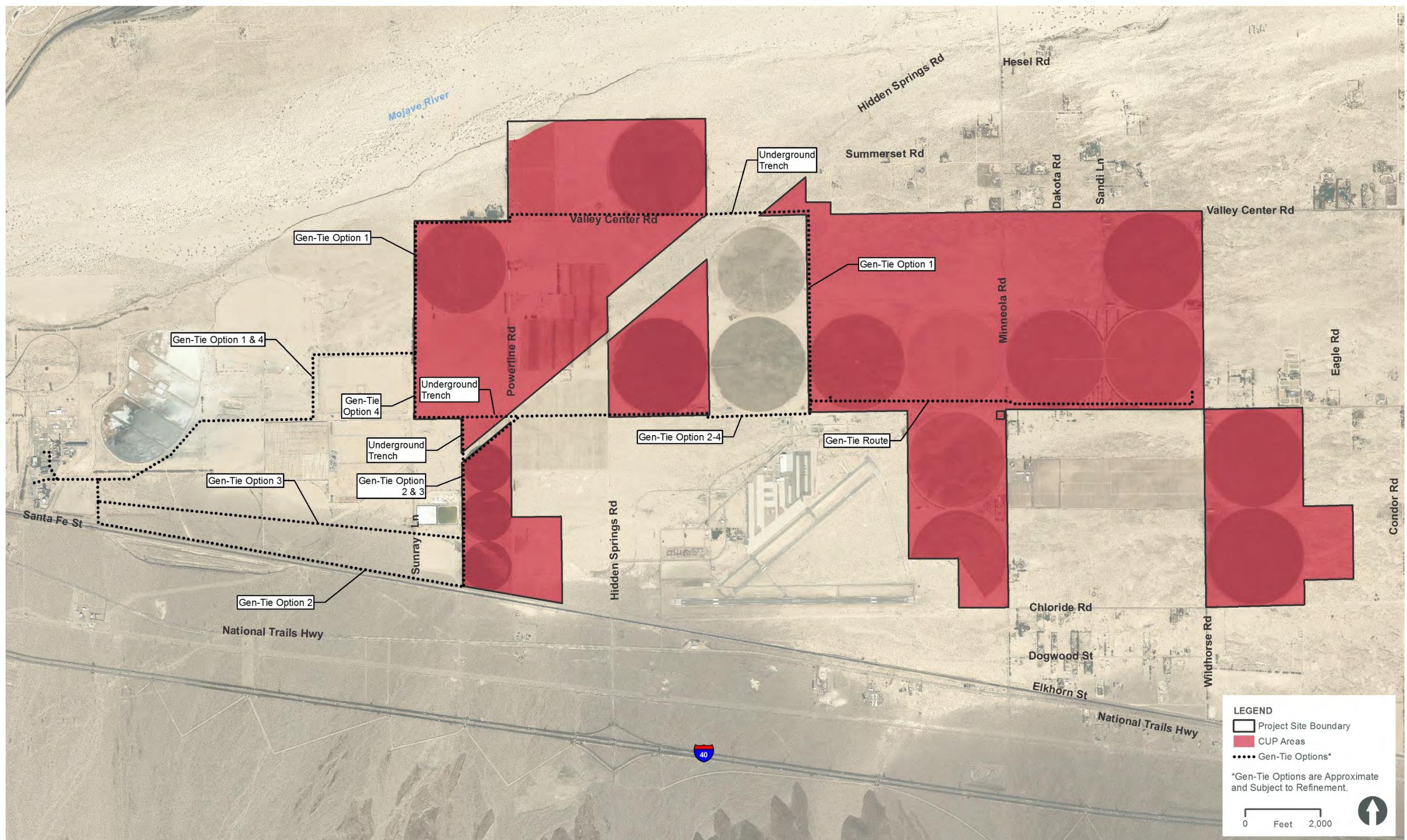


Figure 3. Project Site Aerial Imagery



## 2 Literature Search and Survey Methods

### 2.1 Literature Search

Prior to surveying the project area, a literature search was conducted to identify special-status plant and wildlife species that have the potential to occur in the project area. This background research included a California Natural Diversity Database (CNDDB) RareFind [CDFW 2017b; dated August 1, 2017] search of nine USGS quadrangles surrounding and including the site (Minneola, Nebo, Yermo, Harvard Hill, Newberry Springs, Camp Rock Mine, Ord Mountain, West Ord Mountain, and Daggett), the California Native Plant Society's (CNPS) Online Inventory of Rare and Endangered Vascular Plants (CNPS 2017) nine quadrangle search, USFWS online Information for Planning and Conservation tool, and other pertinent scientific literature (USFWS 2017). The CNDDB, CNPS, and Information for Planning and Conservation tool search results are included as Appendix A.

### 2.2 General Biological Surveys

HDR biologists, Sarah Barrera and McKenna Chamberlain, conducted a general biological resources field survey of the project area on August 22 and 23 and September 12, 2017. The majority of the site was surveyed by vehicle, on foot, or where visible with binoculars. Vegetation communities were mapped by hand onto aerial photographs. The area addressed in this report consists of the proposed footprint for the solar array and related infrastructure as well as the proposed routes for four gen-tie alternatives. A 160-foot buffer is included on either side of each gen-tie route to provide for siting and equipment access.

The project boundaries were changed following completion of field work in August and September. For the most part, the project area was reduced, and the survey covered all areas included within the proposed solar array locations. Portions of the gen-tie alternatives, however, were not surveyed on foot. Vegetation in these areas is based on what was observed during the surveys and extrapolated from aerial photographs; however, it will be verified during focused species surveys.

All observed plant and animal species were noted (Appendix B). Focused species surveys were not conducted. General site photographs are located in Appendix C. Survey conditions were generally normal for the region and are detailed in Table 1.

Vegetation community nomenclature is generally derived from the CDFW (2010) List of Alliances and Vegetation Associations and supplemented with the standard Holland classification (Holland 1986). Botanical species discussed in this report follow both Latin and common names from the Jepson Manual (Hickman 1993) and Jepson Flora Project (Regents 2014). Information on botanical species was also taken from the CNPS online inventory (CNPS 2017), and the Calflora online database (Calflora 2017).

**Table 1. Survey Details**

| Date       | Survey Type   | Surveyor | Start Time | End Time | Temp (°F) (Start/End) | Wind (mph) (Start/End) | Cloud Cover (Start/End) |
|------------|---|----------|------------|----------|-----------------------|------------------------|-------------------------|
| 08/22/2017 | General biology, habitat assessments for desert tortoise, burrowing owl and rare plants | SB/MC    | 0930       | 1600     | 89/104                | 2-5/0-1                | 0%/25%                  |
| 08/23/2017 | General biology, habitat assessments for desert tortoise, burrowing owl and rare plants | SB/MC    | 0800       | 1645     | 85/103                | 2-5/0-1                | 0%/10%                  |
| 09/12/2017 | General biology, habitat assessments for desert tortoise, burrowing owl and rare plants | SB       | 0900       | 1545     | 80/94                 | 0/0-2                  | 0%/40%                  |

SB = Sarah Barrera

MC = McKenna Chamberlain

F = Fahrenheit

mph = miles per hour

### 2.2.1 Special-Status Wildlife Species

Biologists examined the site for evidence of wildlife including scat, tracks, active burrows, pellets, whitewash, etc., during the surveys. Biologists also documented habitat with the potential to provide roosting, foraging, breeding, nesting, watering, or cover functions for wildlife.

## 2.3 Aquatic Resources

Biologists surveyed for areas that would potentially be subject to: (1) U.S. Army Corps of Engineers (USACE) jurisdiction pursuant to Section 404 of the Clean Water Act; and (2) CDFW jurisdiction pursuant to Sections 1600-1616 of the California Fish and Game Code; and (3) Regional Water Quality Control Board jurisdiction pursuant to Section 401 of the Clean Water Act and/or the Porter-Cologne Water Quality Control Act. No aquatic resources exhibiting an ordinary high water mark, bed and bank, or wetland indicators were observed in the project area. Additional field work will be needed to verify that no potentially jurisdictional aquatic resources occur within the added gen-tie line alternatives and to confirm the absence of aquatic resources for concurrence by the agencies.

## 2.4 Regulatory Framework

### 2.4.1 Federal

#### Federal Endangered Species Act

The federal Endangered Species Act (ESA) defines and lists species as endangered or threatened and provides regulatory protection for the listed species. The federal ESA provides a program for conservation and recovery of threatened and endangered species. It also ensures the conservation of designated critical habitat, which the USFWS has determined is required for the survival and recovery of these listed species. Section 9 of the federal ESA prohibits the take of species listed by USFWS as threatened or endangered. Take is defined as: "...to harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, or collect or attempt to engage in such conduct."

In recognition that take cannot always be avoided, Section 10(a) of the federal ESA includes provisions for take that is incidental to, but not the purpose of, otherwise lawful activities. Section 10(a)(1)(B) permits (incidental take permits) may be issued for non-federal activities, if take is incidental and does not jeopardize the survival and recovery of the species.

Section 7(a)(2) of the federal ESA requires that all federal agencies evaluate projects with respect to any species proposed for listing or already listed as endangered or threatened and any proposed or designated critical habitat for the species. Federal agencies must undertake programs for the conservation of endangered and threatened species and are prohibited from authorizing, funding, or carrying out any action that will jeopardize a listed species or destroy or modify its critical habitat. Therefore, if a project requires federal authorization (federal nexus) and the federal agency believes their action has the potential to affect federally-listed species; the federal agency will lead the consultation with USFWS. In the absence of a federal nexus, a private project proponent must consult with USFWS directly to obtain a Section 10(a)(1)(B) incidental take permit, which generally takes much longer.

As defined in the federal ESA, individuals, organizations, states, local governments, and other nonfederal entities are affected by the designation of critical habitat only if their actions occur on federal lands; require a federal permit, license, or other authorization; or involve federal funding.

The proposed project occurs in the U.S. Bureau of Land Management's West Mojave Plan planning area. A Record of Decision was signed in 2006, implementing Alternative B of this plan, which applies only to Bureau of Land Management-administered public lands. The proposed project occurs on private land and, therefore, is not subject to the West Mojave Plan at this time. Since no Habitat Conservation Plan is in place for this project, should any federally-listed species be detected during the associated focused species surveys and avoidance is not feasible, a Section 10(a)(1)(B) incidental take permit may be required if no federal authorization is required from the USACE.

### Migratory Bird Treaty Act

The Migratory Bird Treaty Act makes it unlawful to take, possess, buy, sell, purchase, or barter any migratory bird listed in 50 Code of Federal Regulations Part 10, including feathers, or other parts, nests, eggs, or products, except as allowed by implementing regulations (50 Code of Federal Regulations 21). Sections 3505, 3503.5, and 3800 of the California Fish and Game Code also prohibit the take, possession, or destruction of birds, their nests, or eggs.

### Bald and Golden Eagle Protection Act

The Bald and Golden Eagle Protection Act prohibits anyone without a permit to take bald or golden eagles. Under the Bald and Golden Eagle Protection Act, ‘take’ is defined as “pursue, shoot, shoot at, poison, wound, kill, capture, trap, collect, molest or disturb.” Disturb is defined as “to agitate or bother a bald or golden eagle to a degree that causes, or is likely to cause, based on the best scientific information available: (1) injury to an eagle, (2) a decrease in its productivity, by substantially interfering with normal breeding, feeding, or sheltering behavior, or (3) nest abandonment, by substantially interfering with normal breeding, feeding, or sheltering behavior.”

### Section 404 Permit (Clean Water Act)

The Clean Water Act establishes a program to regulate the discharge of dredge and fill material into waters of the U.S., including wetlands. Activities regulated under this program include fills for development, water resource projects (e.g., dams and levees), infrastructure development (e.g., highways and airports), and conversion of wetlands to uplands for farming and forestry. Either an individual 404 permit or authorization to use an existing USACE nationwide permit must be obtained if any portion of an activity will result in dredge or fill impacts to a river, stream, or stream bed that has been determined to be a jurisdictional. When applying for a permit, a company or organization must show that they would avoid wetlands where practicable, minimize wetland impacts, and provide compensation for any unavoidable destruction of wetlands (CWIS 2007).

### Section 401 Water Quality Certification (Clean Water Act)

The Clean Water Act protects water quality by regulating the dumping or flow of pollutants into streams, lakes, and rivers. A water quality certification, obtainable through the California State Water Resources Control Board and Regional Water Quality Control Board, must be obtained to validate a 404 individual or nationwide permit (U.S. EPA 2012).

## 2.4.2 State

### California Endangered Species Act

The California ESA prohibits the take of listed species, except as otherwise provided in state law. Take is defined for the California ESA as it is in the federal ESA; however, unlike the federal ESA, take prohibitions of the California ESA also apply to species petitioned for listing as state candidates rather than only listed species. California Environmental Quality Act (CEQA) lead agencies are required to consult with CDFW to ensure that any actions undertaken or authorized by the lead agency are not likely to jeopardize the continued existence of any state-listed species or result in destruction or degradation of required habitat. CDFW is authorized to enter into a Memorandum of Understanding with individuals, public agencies, universities, zoological gardens, and scientific or educational institutions to import, export, take, or possess listed species for scientific, educational, or management purposes.

Due to the potential presence of state-listed rare, threatened, endangered, or candidate species in the proposed project area (e.g., desert tortoise, Swainson's hawk), compliance with the California ESA was considered in the evaluation of the proposed project.

### Section 2080 and 2081 of the California Fish and Game Code

Section 2080 of the Code states:

*No person shall import into this state [California], export out of this state, or take, possess, purchase, or sell within this state, any species, or any part or product thereof, that the commission [State Fish and Game Commission] determines to be an endangered species or threatened species, or attempt any of those acts, except as otherwise provided in this chapter [Chapter 1.5, Endangered Species], or the Native Plant Protection Act, or the California Desert Native Plants Act (Justia 2010).*

Pursuant to Section 2081 of the Code, the CDFW may authorize individuals or public agencies to import, export, take, or possess, any state-listed endangered, threatened, or candidate species. These otherwise prohibited acts may be authorized through permits or Memorandums of Understanding: (1) if the take is incidental to an otherwise lawful activity, (2) if impacts of the authorized take are minimized and fully mitigated, (3) if the permit is consistent with any regulations adopted pursuant to any recovery plan for the species, and (4) if the applicant ensures adequate funding to implement the measures required by CDFW. CDFW shall make this determination based on available scientific information and shall include consideration of the ability of the species to survive and reproduce.

Due to the potential presence of state-listed rare, threatened, endangered, or candidate species in the proposed project area, Sections 2080 and 2081 of the Code were considered in the evaluation of the proposed project.

### Sections 3503 and 3503.5 of the California Fish and Game Code

These sections of the Code provide regulatory protection to resident and migratory birds and all birds of prey in the State of California, including the prohibition of the taking of nests and eggs, unless otherwise provided for by the Code. Specifically, these sections of the Code make it unlawful to take, possess, or needlessly destroy the nest or eggs of any bird, except as otherwise provided by this code.

### Sections 1600 to 1603 of the California Fish and Game Code

All diversions, obstructions, or changes to the natural flow or bed, channel, or bank of any river, stream, or lake in California are subject to the regulatory authority of the CDFW pursuant to Sections 1600 through 1603 of the Code and require issuance of a Lake and Streambed Alteration Agreement. Pursuant to the Code, a stream is defined as a body of water that flows at least periodically, or intermittently, through a bed or channel having banks and supporting fish or other aquatic life. Based on this definition, a watercourse with surface or subsurface flows that support or have supported riparian vegetation is a stream and is subject to CDFW jurisdiction. Altered or artificial waterways valuable to fish and wildlife are also subject to CDFW jurisdiction.

### Porter-Cologne Water Quality Control Act

California's Porter-Cologne Act, enacted in 1969, provides the legal basis for water quality regulation within California. Under this Act, the State Water Resources Control Board has the ultimate authority over state water rights and water quality policy. The Act also establishes nine Regional Water Quality Control Boards to oversee water quality on a day-to-day basis at the local/regional level.

### California Environmental Quality Act

CEQA requires state and local agencies to identify impacts to the environment that might be caused by their actions. Projects undertaken by public or private agencies must comply with CEQA if there is any approval given by a state agency. CEQA is a self-regulating statute; however, agencies that do not comply may face litigation from the public. CEQA is a statute that requires state agencies to provide information about environmental impacts of their actions and requires that actions be taken to avoid, minimize, or mitigate those impacts. Project effects to all listed species, as well as candidates and those listed by the CNPS, that meet the definition of rare, endangered species under CEQA (*State CEQA Guidelines, Section 15380*) must be considered. These include those listed as endangered or threatened by CDFW and those on the California Rare Plant Ranking (CRPR) Lists 1A, 1B, and 2.

### Sections 80001 through 80006 of the Food and Agriculture Code: California Desert Native Plants Act

The California Desert Native Plants Act protects California desert native plants from unlawful harvesting on both public and privately owned lands within Imperial, Kern, Los Angeles, Mono, Riverside, San Bernardino, and San Diego Counties. The following native plants, or any part thereof, may not be harvested except under a permit issued by the commissioner or the sheriff of the county in which the native plants are growing: all species of the *Agavaceae* (century plants, nolinas, and yuccas); all species of the family *Cactaceae*; all species of the family *Fouquieriaceae* (ocotillo, candlewood); all species of the genus *Prosopis* (mesquites); all species of the genus *Cercidium* (palo verdes); cat claw acacia; desert holly; smoke tree; and desert ironwood, both dead and alive (Provision 80073). The fee for the permit to remove any of these plants will not be less than 1 dollar per plant, except for Joshua trees, which will not be less than 2 dollars per plant (California Food and Agriculture Code, Division 23).

### California Native Plant Protection Act

The California Native Plant Protection Act was enacted in 1977 to preserve, protect and enhance rare and endangered plants in California. It gave the California Fish and Game Commission the power to designate native plants as endangered or rare and authorized the Commission to require permits for collecting, transporting, or selling such plants. Through these permits, CDFW is empowered to prohibit the unauthorized take of California ESA-listed plants from the wild and allows CDFW to salvage any rare plants that would otherwise be destroyed (California Fish and Game Code section 1900 et seq).

### Desert Renewable Energy Conservation Plan

Executive Order #S-14-08 establishes the requirement to develop a Desert Renewable Energy Conservation Plan (DRECP) for the Mojave and Colorado deserts that would, when complete, provide binding, long-term endangered species permit assurances and facilitate renewable energy project review and approval processes. To oversee the implementation of the DRECP, a Renewable Energy Action Team was formed consisting of the California Natural Resources Agency, California Energy Commission, CDFW, Bureau of Land Management, and the USFWS. Memorandums of Understanding were signed by the participating agencies. Based on public comments received on the draft DRECP, the agencies announced in March 2015 that the plan would move forward using a phased approach starting with the Bureau of Land Management component (Phase I) that designates development focus areas, conservation areas, and recreation areas on public lands. The project area is identified as a development focus area in the DRECP; however, the proposed project occurs on private land and is not subject to the DRECP at this time.

#### 2.4.3 Local

##### County of San Bernardino

County of San Bernardino Development Code Sections 88.01.050, -060, -070, and -080 require a Tree or Plant Removal Permit for removal of any regulated native trees or plants.

# 3 Survey Results

## 3.1 General Site Description

The project area consists of a mix of industrial sites; disturbed land associated with residential and agricultural uses, and lightly disturbed desert scrub areas. Agricultural areas consist of active and fallow agricultural fields and orchards with disturbed saltbush scrub, ornamental tamarisk windrows and ruderal vegetation adjacent to the fields. Portions of the site that are less disturbed consist of saltbush scrub and creosote bush scrub with low shrub variety and sparse understories. The southeastern portion of the project area supports sand dunes with creosote bush scrub vegetation.

### 3.1.1 Soils

Soils within much of the project area have been disturbed as a result of the agricultural, residential, and industrial uses. Soils in the project area were mapped using the Natural Resources Conservation Service Web Soil Survey (USDA 2017). The proposed project encompasses water and the following five different soil series (Figure 4, NRCS Mapped Soils):

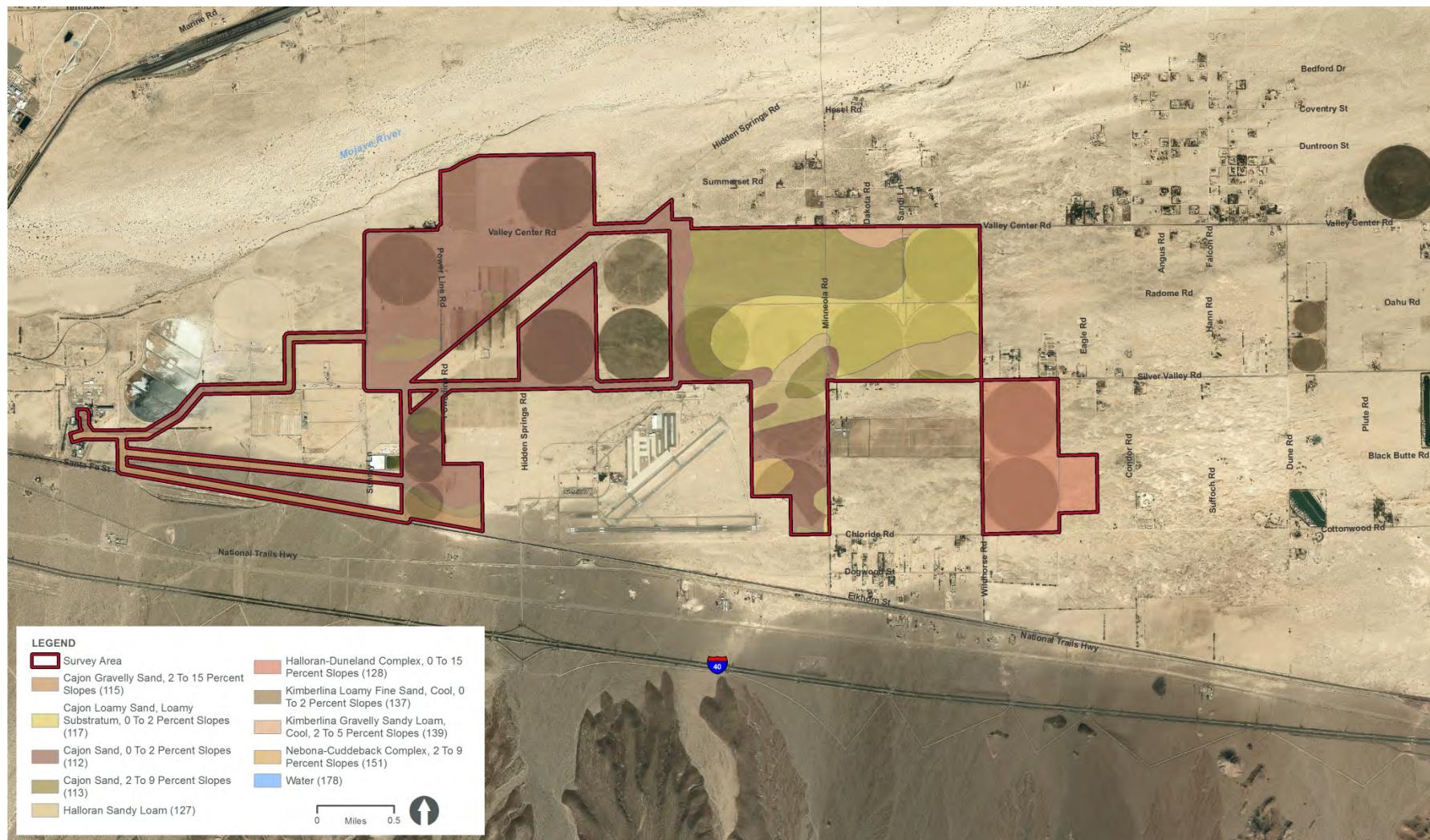
- **Cajon Series** - This series consists of very deep, somewhat excessively drained soils that are formed in sandy alluvium from dominantly granitic rocks. These soils range from strongly alkaline to strongly saline-alkali. Runoff is negligible to low with rapid permeability. Cajon soils are formed on recent fans, fan skirts and aprons and river terraces from 200 to 4,300 feet above mean sea level (amsl) on 0-15 percent slopes.
- **Halloran Series** - This series consists of deep, moderately well drained soils that formed in mixed alluvium. These soils range from mildly to moderately alkaline. Runoff is slow with moderately slow permeability. Halloran soils are formed on old alluvial terraces and depressional areas from 1,800 to 1,850 feet amsl on 0 to 2 percent slopes.
- **Kimberlina Series** - This series consists of very deep well drained soils formed in mixed alluvium from dominantly igneous and/or sedimentary rocks. These soils are moderately alkaline. Runoff is medium with moderately rapid and moderate permeability. Kimberlina soils are formed from recent alluvial fans and flood plains from 1,800 to 4,100 feet amsl in the Mojave Desert and 125 to 2,250 feet amsl in the San Joaquin Valley on 0 to 9 percent slopes.
- **Nebona-cuddeback Series** - The Nebona series consists of shallow well drained soils formed in mixed alluvium. These soils are mildly to moderately alkaline. Runoff is medium to rapid with moderately rapid permeability. Nebona soils are formed from old gravelly desert pavement covered terraces derived from nonmarine mixed alluvium from 2,200 to 3,000 feet amsl on 2 to 9 percent slopes.

The Cuddeback series consists of well drained soils formed in alluvium from mixed sources. These soils are mildly to moderately alkaline. Runoff is medium to rapid with moderately slow permeability. Cuddleback soils are formed from old terraces and alluvial fans from 2,200 to 3,000 feet amsl on 2 to 9 percent slopes.

- **Riverwash Series** - This series consists of generally rapid runoff that typically consists of sandy, gravelly, cobble and boulder deposits. Soils of this series occurring on the alluvial fans are considered hydric.

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Figure 4. NRCS Mapped Soils



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## 3.2 Topography

The project area is located adjacent to the Mojave River at elevations between approximately 1,870 feet amsl on the southeastern edge of the project area to 1,970 feet amsl on the western edge (Figure 2). The project area exhibits a gentle slope from south to north, toward the Mojave River, north of the project area.

## 3.3 Climate

Climate data available for the Daggett Airport (Barstow Daggett AP, California 042257) indicate that the area receives an average of 3.83 inches of rainfall per year (12/01/1943 through 06/09/2016). Current rainfall data for Daggett Airport was not available; however, during the 2016-2017 rainfall year (07/01/2016 through 06/30/2017), nearby Barstow received 5.46 inches of rain, compared to an average annual rainfall of 5.27 inches (U.S. Climate Data 2017).

## 3.4 Hydrology

The project area is located within the Lower Mojave Hydrologic Sub-Area (628.50) of the Mojave Watershed (18090208). The sub-area is approximately 317.5 square miles and drains to the Mojave River. The site is located within the Mojave River Groundwater Basin, an approximately 1,400 square mile area that extends from the San Bernardino and the San Gabriel Mountains in the south, Harper and Coyote Lakes in the north, the Antelope Valley on the west and Daggett on the east. The primary source of groundwater recharge in the Mojave River groundwater basin is intermittent streamflow in the Mojave River, which usually occurs January through March, and from sporadic releases of imported water from the California State Water Project (USGS 2017).

### Local Drainage

The only obvious, large surface drainage feature in or adjacent to the project area is the Mojave River. To the south of that drainage, where project facilities would be located, there are no obvious or defined drainage features and the area only has very localized surface runoff. It appears that rainfall in that area quickly percolates into the soil.

### *Flooding*

The project area is not located within the Federal Emergency Management Agency 100- or 500-year flood zones (FEMA 2016).

## 3.5 Vegetation Communities & Cover Types

The project area supports five vegetation communities/cover types, which are described below and depicted in Figure 5 and Figure 6. Table 2 summarizes the existing vegetation communities and cover types mapped within the project area. No vegetation communities considered high-priority by CDFW are present in the project area.

**Table 2. Vegetation Communities and Cover Types Occurring in the Project Area**

| Plant Community  | Solar Field (acres) | Gentie Alternative 1 (acres) | Gentie Alternative 2 (acres) | Gentie Alternative 3 (acres) | Gentie Alternative 4 (acres) |
|--|---------------------|------------------------------|------------------------------|------------------------------|------------------------------|
| <i>Larrea tridentata</i> (creosote bush scrub) Alliance          | 634.6               | 35.1                         | 62.9                         | 60.5                         | 36.1                         |
| <i>Atriplex polycarpa</i> (allscale scrub) Alliance              | 301.4               | 23.8                         | 7.7                          | 7.7                          | 17.6                         |
| Disturbed saltbush scrub   | 136.2               | 28.5                         | 0.1                          | 0.1                          | 28.4                         |
| Agriculture  | 1,725.8             | 1.9                          | 17.9                         | 17.8                         | 16.2                         |
| Windrows or Tamarix spp. (Tamarisk Thickets) Semi-natural stands | 20.1                | 6.6                          | <0.1                         | <0.1                         | 2.1                          |
| Developed/Disturbed/Ruderal Habitat                              | 368.6               | 46.6                         | 87.0                         | 79.8                         | 64.4                         |
| <b>Total</b>   | <b>3,186.7</b>      | <b>142.4</b>                 | <b>175.7</b>                 | <b>166.5</b>                 | <b>164.8</b>                 |

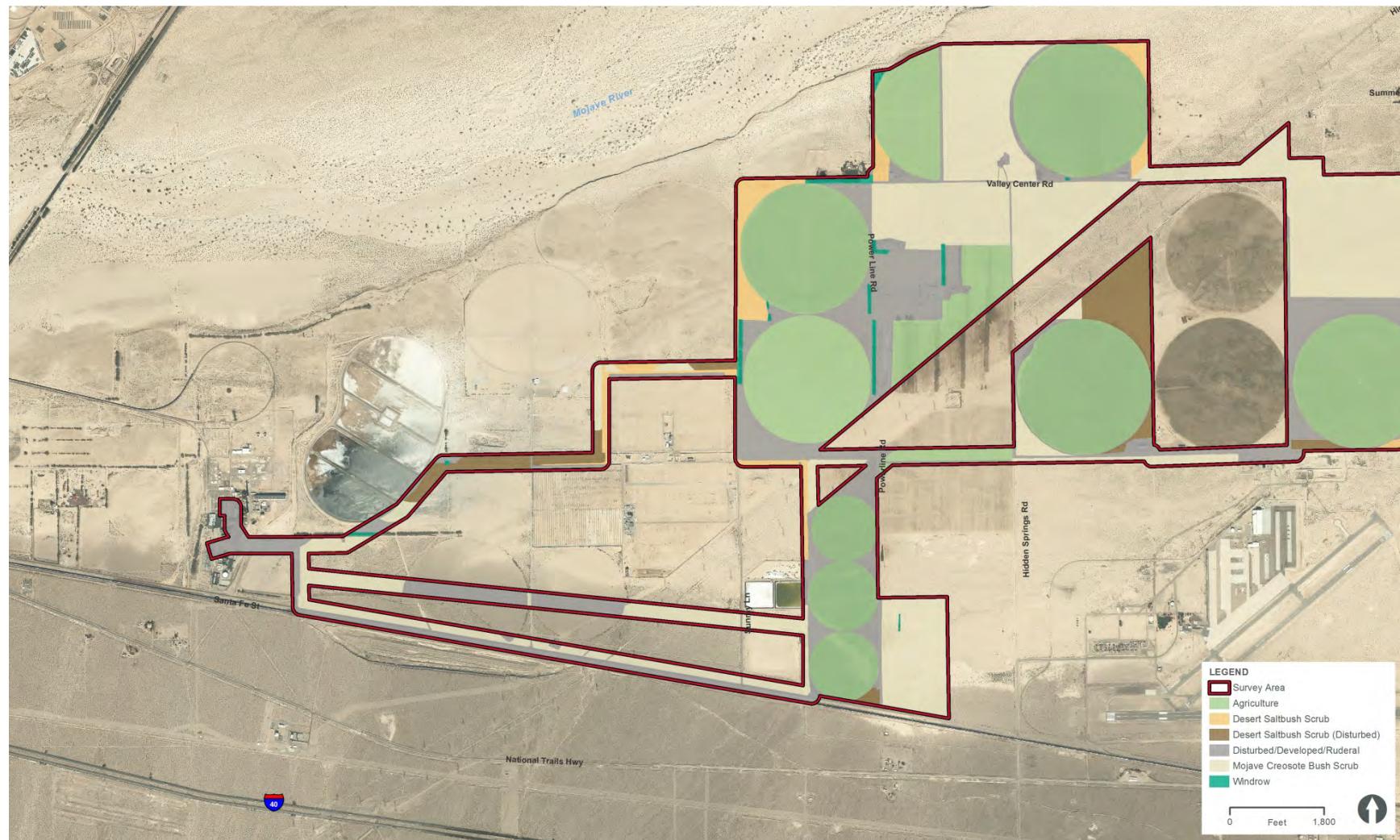
#### Creosote Bush Scrub (*Larrea tridentata* Alliance)

Within the Creosote Bush Scrub community (*Larrea tridentata* Alliance), creosote bush is dominant or co-dominant in the shrub canopy with several sub-dominant desert shrub species such as white bursage (*Ambrosia dumosa*), burrobrush (*Ambrosia salsola*), various *Atriplex* species, brittlebush (*Encelia farinosa*), and various *Ephedra* species. In the project area, this community is found primarily on undeveloped lands in the western and northern portions of the project area (Figure 5. and Figure 6.), and creosote bush is largely dominant. Some small areas of this community consist of an equal mix of creosote bush and allscale (*Atriplex polycarpa*). Other plants observed in this community include brittlebush, buckhorn cholla (*Cylindropuntia acanthocarpa*), branched pencil cholla (*Cylindropuntia ramosissima*), common Mediterranean grass (*Schismus barbatus*), bristly fiddleneck (*Amsinckia tessellata*), white bursage, burrobrush and California ephedra (*Ephedra californica*).

#### Desert Saltbush Scrub (*Atriplex polycarpa* Shrubland Alliance)

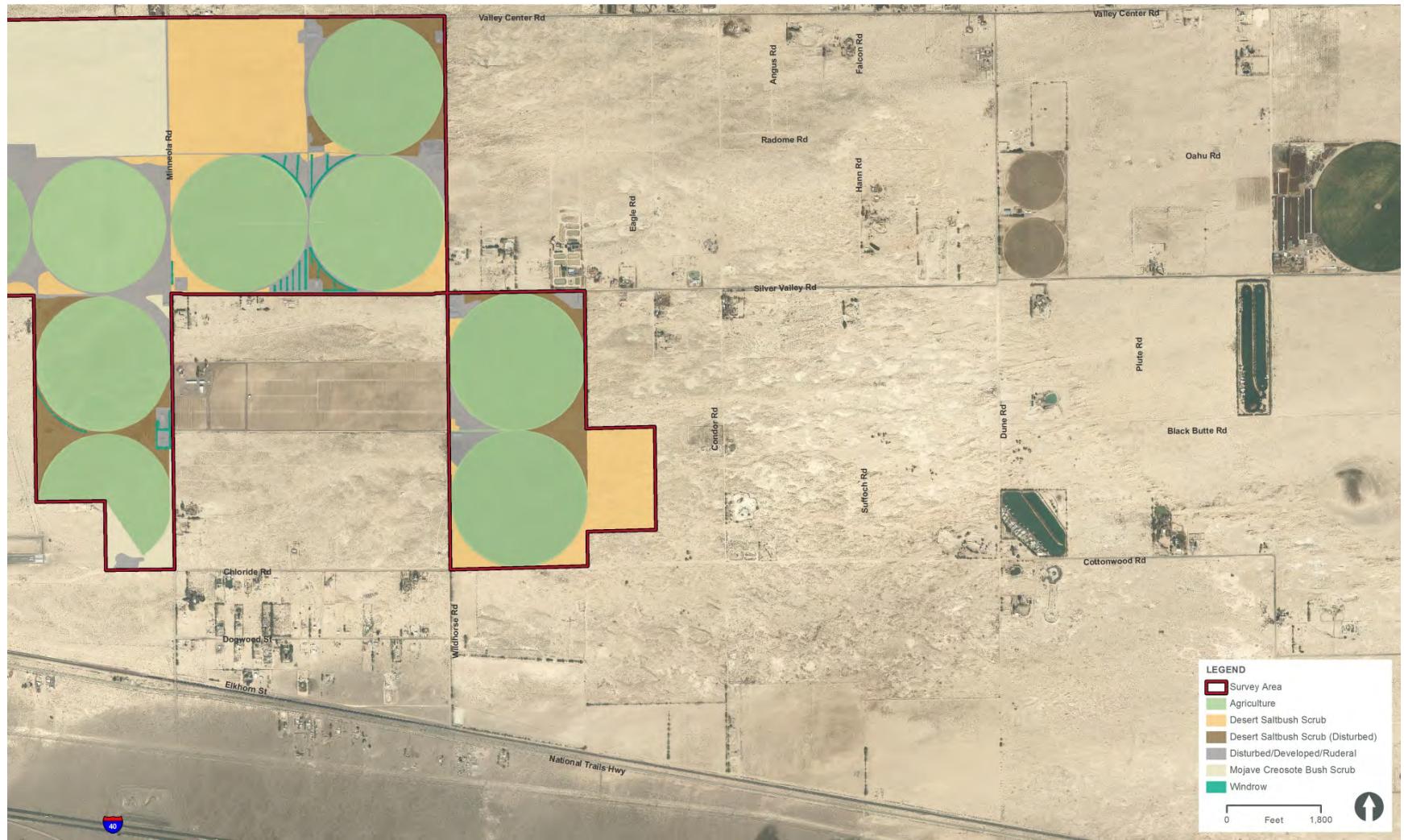
Within the Desert Saltbush Scrub community (*Atriplex polycarpa* Shrubland Alliance), allscale is dominant in the shrub canopy with sub-dominant species such as creosote bush, burrobrush, four-wing saltbush (*Atriplex canescens*), red brome (*Bromus rubens*), smallseed sandmat (*Chamaesyce polycarpa*), bladderpod (*Peritoma arborea*). In the project area, this community occurs primarily on sandy soils in the eastern portion of the project area (Figure 5. and Figure 6.), and the dominant shrub is allscale with creosote bush and white bursage as sub-dominants. Other plants observed in this community include common Mediterranean grass, four-wing saltbush, buckhorn cholla, and bristly fiddleneck. Annuals were, for the most part, not identifiable due to the timing of surveys.

Figure 5. Vegetation Communities within Western Half of Project Area



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**Figure 6. Vegetation Communities within Eastern Half of Project Area**



### Disturbed Saltbush Scrub

The Holland classification system does not provide habitat descriptions for disturbed communities. In the project area, this community occurs at the edges of agricultural areas and adjacent to desert saltbush scrub, where there is evidence of prior grading or other intense impacts that resulted in the loss of most native vegetation. As a result, these areas have recolonized with a mix of native and non-native shrub species, most commonly dominated by allscale and Russian thistle (*Salsola tragus*). Along with allscale and Russian thistle, Sahara mustard (*Brassica tournefortii*) and London rocket (*Sisymbrium irio*) were also common in this community.

### Agriculture

The Holland classification system does not provide a habitat description for agricultural areas. In the project area, agricultural areas consist of active and abandoned alfalfa (*Medicago sativa*) and Bermuda grass (*Cynodon dactylon*) fields, as well as an active pistachio (*Pistacia chinense*) orchard. Alfalfa and Bermuda grass fields are irrigated using center-pivot irrigation, resulting in circular fields easily identifiable on aerial photographs. Sites immediately adjacent to most fields are disturbed and consist of disturbed saltbush scrub or developed/disturbed/ruderal vegetation. The approximately 220-acre pistachio orchard consists of rows of young pistachio trees with no understory, aside from some weeds growing near irrigation drips.

### Tamarisk Windrows

The Holland classification system does not provide a habitat description for planted windrows, although it does include *Tamarix* spp. (tamarisk thickets) Semi-Natural Stands. The Holland description for tamarisk thickets does not accurately describe windrows in the project area, as these windrows are completely ornamental and do not occur in riparian areas. Tamarisk windrows occur throughout the project area, planted in linear rows in association with agricultural lands or residential areas. In the project area, ornamental tamarisk windrows consist of athel tamarisk (*Tamarix aphylla*) and Mediterranean tamarisk (*Tamarix ramosissima*). Mediterranean tamarisk is considered a highly invasive species by the California Invasive Plant Council; however, it grows best in wet areas and is not likely to thrive in the project area without artificial watering.

### Disturbed/Developed/Ruderal

The Holland classification system does not provide a classification for disturbed or developed habitats. In the project area, locations where vegetation has been disturbed as a result of modern land uses, including edges of agriculture, residential, and roadways, have been included in this classification. Ruderal plants are those that are first to colonize disturbed lands, and areas where land was recently cleared, but has been left undisturbed long enough for ruderal species to grow have been included in this classification. Disturbed/Developed/Ruderal areas provide little habitat value for most native species but can still provide space for wildlife movement since there is very little vehicle or other human traffic within these areas and few barriers to movement. Plant species identified within this cover type include Russian thistle, common Mediterranean grass, Sahara mustard,

London rocket, and less commonly *Hordeum* sp. and *Avena* sp. Many of these areas are mostly devoid of vegetation including roadways and residential areas.

## 3.6 Special-Status Species

All special-status species evaluated for the potential to occur in the project area are listed in Table 3. CNDB occurrences in the vicinity of the project area are shown on Figure 7. The project area does not contain any areas designated as federal or state critical habitat. The nearest designated critical habitat is for desert tortoise, north of I-15 and south of I-40, approximately 1.25 miles north and south of the project area. Species for which a "not expected" to occur determination was made in Table 3, generally are not discussed further in this document.

**Table 3. Special-Status Species in Vicinity of the Project Area**

| Species   | Status                   | General Habitat Requirements   | Potential for Occurrence   |
|---|--------------------------|--|--|
| <b>Plants</b>   |                          |  |  |
| <i>Castela emoryi</i><br>Emory's<br>crucifixion-thorn                   | Federal: -<br>CNPS: 2B.2 | Non-saline dry lakes and less frequently along washes (especially among basalt flows) or similar non-saline seasonally wet sites where water accumulates, at 280 to 2,530 feet elevation in desert scrub. Occurs rarely if at all on upper alluvial slopes or rocky slopes. In California, known only from Imperial, Riverside, and San Bernardino counties. Also occurs in Arizona and Mexico (Sonora). | Not Expected. No dry lakes, washes, or other seasonally wet sites in project area.   |
| <i>Cymopterus multinervatus</i><br>Purple-nerve<br>cymopterus           | Federal: -<br>CNPS: 2B.2 | Sandy or gravelly areas in Mojavean desert scrub or pinyon and juniper woodlands at 2,600 to 5,900 feet in elevation. Known in the Inyo and San Bernardino counties.   | Not Expected. Site is outside of species' known elevation range.   |
| <i>Diplacus mohavensis</i><br>Mojave monkeyflower                       | Federal: -<br>CNPS: 1B.2 | Dry sandy or gravelly washes in Mojave desert scrub or Joshua tree woodland at 2,000 to 4,000 feet elevation. Known only from around Barstow in the Mojave Desert of San Bernardino County.  | Not Expected. No washes in project area.   |
| <i>Eriophyllum Mohavense</i><br>Barstow woolly<br>sunflower             | Federal: -<br>CNPS: 1B.2 | Silty or sandy areas in chenopod scrub, creosote bush scrub, and playas at 1,600 to 3,200 feet elevation. Historically occurred within 30 miles of the City of Barstow on the Mojave Desert. Known only from Kern, Los Angeles, and San Bernardino counties.   | Low. Suitable habitat, but site is located approximately 2 miles east of known, documented occurrences. Not enough data is available on this species to rule it out from the site. |
| <i>Menodora spinescens</i><br>var. <i>mohavensis</i><br>Mojave menodora | Federal: -<br>CNPS: 1B.2 | Rocky desert hillsides, canyons, andesite gravel at 2,200 to 7,500 feet elevation. Known only from Inyo and San Bernardino counties, California.   | Not Expected. No suitable habitat in project area to support this species. Site is outside of species' elevation range.  |

**Table 3. Special-Status Species in Vicinity of the Project Area**

| Species  | Status                   | General Habitat Requirements  | Potential for Occurrence  |
|--|--------------------------|---|---|
| <i>Mentzelia puberula</i><br>Darlington's blazing star               | Federal: -<br>CNPS: 2B.2 | Sandy or rocky areas in Mojavean desert scrub or Sonoran desert scrub at (300 to 4,200 feet in elevation. Known in the Imperial, Riverside and San Bernardino counties.   | Moderate. Suitable habitat occurs in native vegetation communities within project area.   |
| <i>Mentzelia tridentata</i><br>Creamy blazing star                   | Federal: -<br>CNPS: 1B.3 | Mojavean desert scrub at 2,300 to 3,800 feet elevation in Imperial, Inyo, Kern, Riverside, San Bernardino, and San Diego counties.  | Not Expected. Site is outside of species' elevation range.  |
| <i>Mondardella boydii</i><br>Boyd's monardella                       | Federal: -<br>CNPS: 1B.2 | Usually in alluvial soils and cracks of bedrock in washes on canyon bottoms and rocky slopes. Mojavean desert scrub, pinyon and juniper woodland, and riparian scrubs (desert) areas at 4,600 to 5,400 feet in elevation. | Not Expected. Site is outside of species' elevation range.  |
| <i>Muhlenbergia appressa</i><br>Appressed muhly                      | Federal: -<br>CNPS: 2B.2 | Open canyon bottoms and rocky slopes at 65 to 5,300 feet elevation. Known in California from Los Angeles (islands), San Bernardino, and San Diego counties. Also occurs in Arizona and Mexico.                            | Not Expected. No suitable habitat in project area to support this species.  |
| <i>Pediomelum castoreum</i><br>Beaver Dam breadroot                  | Federal: -<br>CNPS: 1B.2 | Sandy soils, washes, and roadcuts in Joshua tree woodland and Mojave Desert scrub at 2,000 to 5,000 feet elevation. In California, known only from San Bernardino County. Also occurs in Arizona and Nevada.              | Moderate. Site supports suitable habitat in desert saltbush scrub and creosote bush scrub habitats.   |
| <i>Phacelia parishii</i><br>Parish's phacelia                        | Federal: -<br>CNPS: 1B.1 | Clay or alkaline soils in Mojave Desert scrub and playas at 1,770 to 3,940 feet. In California, known only from San Bernardino County. Also occurs in Nevada and Arizona.   | Moderate. Site supports suitable soils in <i>Atriplex</i> -dominated habitats within project area.  |
| <i>Wislizenia refracta</i> ssp.<br><i>refracta</i><br>Jackass-clover | Federal: -<br>CNPS: 2B.2 | Desert dunes, Mojavean desert scrub, Sonoran desert scrub, and playas at 2,000 to 2,600 feet. Known in the Riverside and San Bernardino counties.   | Not Expected. Site is outside of species' elevation range.  |
| <b>Wildlife</b>  |                          |   |   |
| <b>Fish</b>  |                          |   |   |
| <i>Siphateles bicolor</i><br><i>mohavensis</i><br>Mohave tui chub    | Federal: FE<br>State: FP | Endemic to the Mojave River basin, adapted to alkaline, mineralized waters. Needs deep pools, ponds, or slough-like areas. Needs vegetation for spawning. Known from San Bernardino County.                               | Not Expected. Site does not support suitable habitat for this species. Portions of the Mojave River, north of the project area, lack perennial water, which is a required habitat component for this species. |

**Table 3. Special-Status Species in Vicinity of the Project Area**

| Species  | Status                        | General Habitat Requirements   | Potential for Occurrence   |
|--|-------------------------------|--|--|
| <b>Reptiles</b>  |                               |  |  |
| <i>Emys marmorata</i><br>Western pond turtle                                 | Federal: -<br>State: SSC      | Inhabits permanent or nearly permanent water. Absent from desert regions, except in the Mojave Desert along the Mojave River and its tributaries. Requires basking sites, such as partially submerged logs, rocks, or open mud banks.  | Not Expected. Site does not support suitable habitat for this species. The Mojave River lacks perennial water in the vicinity of the project area.   |
| <i>Gopherus agassizii</i><br>Desert tortoise                                 | Federal: FT<br>State: ST      | Historically found throughout most of the Mojave and Sonoran Deserts into Arizona, Nevada, and Utah. Believed to have been extirpated from the western and southern portions of the Antelope Valley. Found in creosote bush scrub, saltbush scrub, thornscrub (in Mexico), and Joshua tree woodland. Found in the open desert, as well as in oases, riverbanks, washes, dunes, and occasionally rocky slopes.                    | Low: Suitable habitat occurs in saltbush scrub, disturbed saltbush scrub, and creosote scrub habitat throughout the project area. Some potential historic burrows observed in southeast portion of project area. Site is isolated from larger habitat areas by I-15 to north, I-40 to south. |
| <i>Phrynosoma blainvillii</i><br>( <i>coronatum</i> )<br>Coast horned lizard | Federal: -<br>State: SSC      | Primarily in sandy soil in open areas, especially washes and floodplains, in many plant communities. Requires open areas for sunning, bushes for cover, patches of loose soil for burial, and an abundant supply of ants or other insects. Occurs west of the deserts from northern Baja California north to Shasta County below 8,000 feet elevation.   | Moderate: Suitable habitat with sandy soils occurs throughout creosote bush scrub and saltbush scrub vegetation communities within project area.   |
| <i>Uma scoparia</i><br>Mojave fringe-toed lizard                             | Federal: -<br>State: SSC      | Occurs in fine, loose, wind-blown sand in sand dunes, dry lakebeds, riverbanks, desert washes, sparse alkali scrub and desert scrub. Shrubs or annual plants may be necessary for arthropods found in the diet.  | Low. A small amount of suitable habitat with fine sandy soils occurs in the southeastern portion of the project area.  |
| <b>Birds</b>   |                               |  |  |
| <i>Agelaius tricolor</i><br>Tricolored blackbird                             | Federal: -<br>State: SSC; SCE | Open country in western Oregon, California, and northwestern Baja California. Forages in grassland and cropland habitats. Nests in large groups near fresh water, preferably in emergent wetland with tall, dense cattails or tules, but also in thickets of willow, blackberry, wild rose, or tall herbs. Seeks cover for roosting in emergent wetland vegetation, especially cattails and tules, and also in trees and shrubs. | Not Expected. Species may forage in area due to nearby ponds that support nesting habitat. No nesting habitat in project area.   |

**Table 3. Special-Status Species in Vicinity of the Project Area**

| Species  | Status                   | General Habitat Requirements   | Potential for Occurrence   |
|--|--------------------------|--|--|
| <i>Aquila chrysaetos</i><br>Golden Eagle               | Federal: -<br>State: FP  | Generally open country of the Temperate Zone worldwide. Nesting primarily in rugged mountainous country. Uncommon resident in Southern California.   | Moderate. Species may forage over project area, but site does not support suitable nesting habitat.  |
| <i>Athene cunicularia</i><br>Burrowing owl             | Federal: -<br>State: SSC | Open country in much of North and South America. Usually occupies ground squirrel burrows in open, dry grasslands, agricultural and range lands, railroad rights-of-way, and margins of highways, golf courses, and airports. Often utilizes man-made structures, such as earthen berms, cement culverts, cement, asphalt, rock, or wood debris piles. They avoid thick, tall vegetation, brush, and trees, but may occur in areas where brush or tree cover is less than 30 percent.  | High. Site supports suitable burrowing and foraging habitat with existing agriculture providing water to support large populations of insect prey. |
| <i>Buteo swainsoni</i><br>(nesting)<br>Swainson's hawk | Federal: -<br>State: ST  | Open desert, grassland, or cropland containing scattered, large trees or small groves. Breeds in stands with few trees in juniper-sage flats, riparian areas, and in oak savannah in the Central Valley. Forages in adjacent grasslands or suitable grain or alfalfa fields, or livestock pastures. Breeds and nests in western North America; winters in South America. Uncommon breeding resident and migrant in the Central Valley, Klamath Basin, Northeastern Plateau, Lassen County, and Mojave Desert. Very limited breeding reported from Lanfair Valley, Owens Valley, Fish Lake Valley, and Antelope Valley. In Southern California, now mostly limited to spring and fall transient. Formerly abundant in California with wider breeding range. | Not Expected. Project area is outside species range (CDFW 2017a).  |
| <i>Gymnogyps californianus</i><br>California condor    | Federal: FE<br>State: SE | Typically nest in cavities in steep rock formations or burned out hollows of old-growth conifers and giant sequoias ( <i>Sequoiadendron giganteum</i> ); less often on cliff ledges, broken tops of old-growth conifers, or nests of other species. Forage in open terrain of foothill grassland and oak savanna habitats, and at coastal sites in central California.   | Not Expected. Site does not provide any suitable nesting or foraging habitat, and the project area is outside the species range.                   |
| <i>Icteria virens</i><br>Yellow-breasted chat          | Federal: -<br>State: SSC | Riparian thickets of willow, brushy tangles near watercourses. Nests in riparian woodland throughout much of western North America. Winters in Central America.  | Not Expected. No suitable nesting habitat in or adjacent to project area.  |

**Table 3. Special-Status Species in Vicinity of the Project Area**

| Species  | Status                   | General Habitat Requirements  | Potential for Occurrence   |
|--|--------------------------|---|--|
| <i>Lanius ludovicianus</i><br>(nesting)<br>Loggerhead shrike | Federal: -<br>State: SSC | Open habitats with scattered small trees and with fences, utility lines, or other perches. Inhabits open country with short vegetation, pastures, old orchards, cemeteries, golf courses, riparian areas, and open woodlands. Occurs only rarely in heavily urbanized areas, but often found in open cropland. Breed mainly in shrublands or open woodlands.  | Moderate/High. Suitable habitat occurs throughout project area with nesting limited to less-disturbed areas of the project area. |
| <i>Pyrocephalus rubinus</i><br>Vermilion flycatcher          | Federal: -<br>State: SSC | A rare, local, year-long resident along the Colorado River, especially in vicinity of Blythe, Riverside County. Sporadic breeder in desert oases west and north to Morongo Valley and the Mojave Narrows, San Bernardino County. Formerly bred in coastal San Diego County. Nesters inhabit cottonwood, willow, mesquite, and other vegetation in desert riparian habitat adjacent to irrigated fields, irrigation ditches, pastures, and other open, mesic areas. Rare fall and winter visitor throughout the lowlands of Southern California from Santa Barbara and Inyo counties south. Formerly much more common and widespread, but has disappeared entirely from Imperial and Coachella Valleys.  | Not Expected. No suitable nesting habitat in or adjacent to project area.  |
| <i>Toxostoma lecontei</i><br>Le Conte's thrasher             | Federal: -<br>State: SSC | Inhabits sparsely vegetated desert flats, dunes, alluvial fans, or gently rolling hills having a high proportion of saltbush ( <i>Atriplex</i> spp.) or cholla ( <i>Cylindropuntia</i> spp.), often occurring along small washes or sand dunes. Prefers dense thorny shrubs (most often saltbush or cholla) for nesting. Uncommon and local resident in low desert scrub throughout most of the Mojave Desert, extending up into the southwestern corner of the San Joaquin Valley. Breeding range in California extends from these areas into eastern Mojave, north into the Owens Valley and south into the lower Colorado Desert and eastern Mojave. Only the San Joaquin Valley population of this species is considered a Bureau of Land Management Sensitive species or California SSC. | Moderate/High. Site supports suitable foraging and nesting habitat, especially in native vegetation communities.                 |

**Table 3. Special-Status Species in Vicinity of the Project Area**

| Species  | Status                   | General Habitat Requirements   | Potential for Occurrence   |
|--|--------------------------|--|--|
| <b>Mammals</b>   |                          |  |  |
| <i>Corynorhinus townsendii</i><br>Townsend's big-eared bat   | Federal: -<br>State: SSC | Requires caves, mines, tunnels, bridges, buildings, or other similar structures for roosting. It has also been documented using rock crevices and hollow trees for roosting. Often uses separate sites for night, day, hibernation, or maternity roosts. Ranges from southwestern Canada through the western U.S. to southern Mexico.  | Low/Moderate. Abandoned houses and buildings in the project area and vicinity could support roosts for this species. CNDDB occurrence within 6 miles means this species could forage over area even if not roosting in the project area. |
| <i>Ovis canadensis nelsoni</i><br>Desert bighorn sheep       | Federal: -<br>State: FP  | Occurs in open, rocky, steep areas with available water and herbaceous forage; widely distributed from the White Mountains in Mono County to the Chocolate Mountains in Imperial County.   | Not Expected. No suitable habitat in project area to support this species.   |
| <i>Xerospermophilus mohavensis</i><br>Mohave ground squirrel | Federal: -<br>State: ST  | Found in all desert scrub habitats in the Mojave Desert. The Mojave River roughly marks the southeastern extent of its range, although the species historically occupied an area east of the Mojave River as far as Lucerne Valley. Requires shrubs with reliable food during drought years and is generally found in areas with spiny hopsage ( <i>Grayia spinosa</i> ), winter fat ( <i>Krascheninnikovia lanata</i> ), and saltbush ( <i>Atriplex</i> ssp.) | Not Expected. The eastern edge of both the current and historic ranges for the Mohave ground squirrel range is located west of the I-15/I-40 interchange; therefore, the project area is outside the species known range.                |
| <i>Taxidea taxus</i><br>American badger                      | Federal –<br>State: SSC  | Primary habitat requirements seem to be sufficient food and friable soils in relatively open uncultivated ground in grasslands, woodlands, and desert. Widely distributed in North America.  | Moderate/High. Site contains suitable habitat.   |

FE = Federally endangered; FT = Federally threatened

SE = State endangered; ST = State threatened; SCE = State candidate endangered;

SSC = Species of special concern; FP = fully protected

#### CNPS Rare Plant Ranking

List 1B= Plants rare, threatened or endangered in California and elsewhere.

List 2B = Plants rare, threatened or endangered in California but more common elsewhere.

#### CNPS Threat Ranks

0.1 Seriously endangered in California

0.2 Fairly endangered in California

0.3 Not very endangered in California

### 3.6.1 Special-Status Plant Species

No federal or state threatened or endangered plant species were identified in the literature search in the project vicinity, and none are expected to occur in the project area. Additionally, no special-status plant species were observed in the project area during the general biological resources surveys. The project area has the potential to support the following five special-status plants:

- Barstow woolly sunflower (*Eriophyllum mohavense*) – CNPS 1B.2
- Darlington's blazing star (*Mentzelia puberula*) – CNPS 2B.2
- Creamy blazing star (*Mentzelia tridentata*) – CNPS 1B.3
- Beaver Dam breadroot (*Pediomelum castoreum*) – CNPS 1B.2
- Parish's phacelia (*Phacelia parishii*) – CNPS 1B.1

Details regarding these species habitat requirements and their potential to occur within the project area follow below. Information regarding including habitat requirements for special-status plant species was acquired from CNPS (CNPS 2017) and Calflora (Calflora 2017)

#### Barstow Woolly Sunflower

Barstow woolly sunflower is designated as a CNPS List 1B.2 species. It occurs in silty or sandy areas in chenopod scrub, creosote bush scrub, and playas at 1,600 to 3,200 feet. There are several documented occurrences of this species in the Barstow area on CNDDB, with the closest approximately 2 miles west of the project area. It blooms from April through May. This species has the potential to occur within the desert saltbush scrub, disturbed saltbush scrub, and creosote bush scrub habitats mapped in the project area.

#### Darlington's Blazing Star

Darlington's blazing star is a perennial herb designated as a CNPS List 2B.2 species. It occurs in sandy or rocky areas within desert scrub habitats. It is found at elevations from 270 to 4,000 feet. It blooms from March through May. This species has the potential to occur within the desert saltbush scrub, disturbed saltbush scrub, and creosote bush scrub habitats mapped in the project area.

#### Creamy Blazing Star

Creamy blazing star is an annual herb designated as a CNPS List 1B.3 species. It occurs in rocky, gravelly, or sandy areas in desert scrub habitats within the Mojave Desert. It is found at elevations from 1,790 to 3,600 feet. It blooms from March through May. There are several documented occurrences of this species in proximity to the project area (Figure 7). This species has the potential to occur within the desert saltbush scrub, disturbed saltbush scrub, and creosote bush scrub habitats mapped in the project area.

### Beaver Dam Breadroot

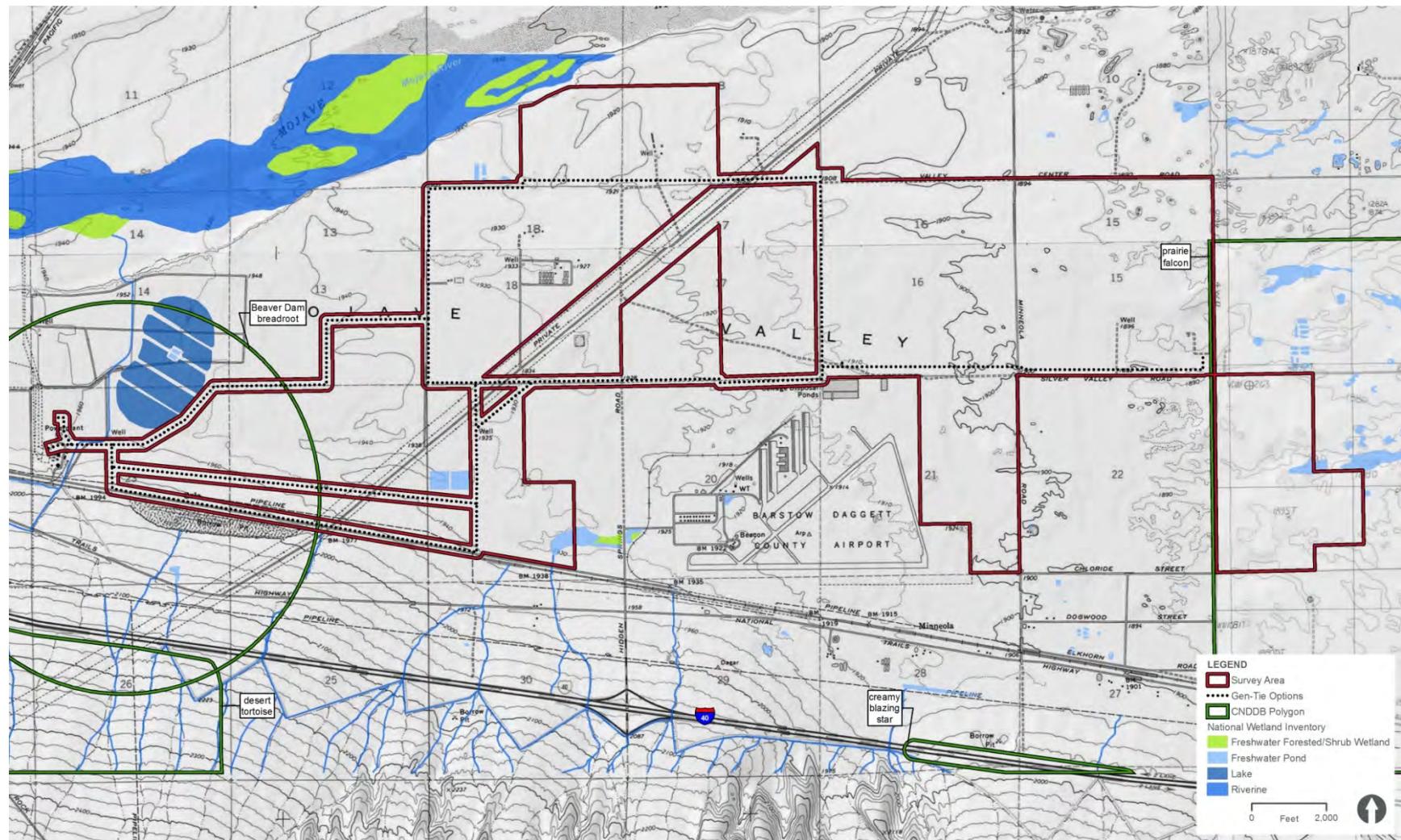
Beaver dam breadroot is a perennial herb designated as a CNPS List 1B.2 species. It occurs in sandy washes or roadcuts in Mojavean Desert Scrub habitats from 2,000 to 5,000 feet elevation. It blooms from April through May. There are three nearby occurrences recorded in the CNDB (Figure 7); CNDB Occurrence Numbers 2, 5, and 6). The most recent of these three was documented in 1943, and the locations of all three of these occurrences are “best guesses” based on location descriptions by the collectors. This species has the potential to occur within the desert saltbush scrub, disturbed saltbush scrub, and creosote bush scrub habitats mapped in the project area.

### Parish's Phacelia

Parish's phacelia is an annual herb designated as a CRPR List 1B.1 species. It occurs in clay or alkaline soils in desert scrub habitat and playas. It is found at elevations from 1,600 to 3,600 feet and blooms from April through May, as well as occasionally in June and July. This species has the potential to occur within the desert saltbush scrub, disturbed saltbush scrub, and creosote bush scrub habitats mapped in the project area.

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## Figure 7. CNDDB Records for Special-Status Species



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### 3.6.2 Special-Status Wildlife Species

Based on the results of the field surveys and literature review, the following special-status species have the potential to occur in the project area.

- Mohave tui chub (*Siphateles bicolor mohavensis*) – federal endangered, state fully protected (FP)
- Desert tortoise (*Gopherus agassizii*) – federal and state threatened
- Swainson's hawk [*(Buteo swainsoni)* nesting] – state threatened
- Coast horned lizard (*Phrynosoma coronatum blainvillii*) – species of special concern (SSC)
- Mojave fringe-toed lizard (*Uma scoparia*) - SSC
- Golden eagle (*Aquila chrysaetos*) – FP
- Burrowing owl (*Athene cunicularia*) – SSC
- Loggerhead shrike (*Lanius ludovicianus*) – SSC
- LeConte's thrasher (*Toxostoma lecontei*) – SSC
- Townsend's big-eared bat (*Corynorhinus townsendii*) – SSC
- American badger (*Taxidea taxus*) – SSC
- California condor (*Gymnogyps californianus*) – federal and state endangered
- Mohave ground squirrel (*Xerospermophilus mohavensis*) – state threatened

The project area does not have any suitable water sources to support Mohave tui chub or California condor. The Mojave River is directly adjacent to the northern edge of the project area; however, the Mojave River does not have perennially flowing or standing water, as required for Mohave tui chub, at this location. The site is located outside of the range of California condor and does not contain any suitable nesting or adjacent foraging habitat.

The project area supports desert scrub habitat that would be suitable for Mohave ground squirrel; however, the project area is located outside of the range for Mohave ground squirrel. The eastern edge of both the current and historic ranges for the Mohave ground squirrel range is located west of the I-15/I-40 interchange. Since the site is outside of the known Mohave ground squirrel range, there is no potential for this species to occur in the project area.

Details regarding these species habitat requirements and their potential to occur within the project area follow below.

## Desert Tortoise

The Mojave population of the desert tortoise (DETO) is a federally and state threatened species. This species occurs in the Mojave and Sonoran deserts in southwestern Utah, southern Nevada, southeastern California, and western Arizona in the U.S. DETO occupy a variety of desert habitats, from flats and slopes dominated by creosote bush scrub at lower elevations to rocky slopes in blackbrush and juniper woodland ecotones at higher elevations (USFWS 2011). Typical habitat for DETO in the Mojave Desert has been characterized as creosote bush scrub below 5,500 feet, where precipitation ranges from 2 to 8 inches, the diversity of perennial plants is relatively high, and production of ephemerals is high (NatureServe 2017). DETO occur from below sea level to an elevation 7,300 feet.

DETO are well adapted to living in the highly variable and harsh Mojave Desert environment. They spend much of their lives in burrows, emerging in late winter or early spring and remaining active through fall (USFWS 2011). Because of the time spent in burrows, DETO can be difficult to detect where present.

Potentially suitable habitat for DETO occurs in the less-disturbed native habitats in the project area, with the highest potential for this species near the eastern and southern portions (Figure 8 and Figure 9.). A small complex of half-moon shaped burrows was observed in saltbush scrub habitat with fine, sandy soils at the southeastern edge of the project area (Figure 9. and Appendix C). While these burrows show the characteristic half-moon shape of DETO burrows, they could have been created by other wildlife species and exhibit the shape due to erosion. No DETO sign (scat, tracks, scutes) was found near these burrows, nor in the rest of the project area, during the general biological resources assessment; however, protocol level surveys are scheduled for 2018. Agricultural conversion of lands present hazards to desert tortoise including increased vehicular traffic, soil manipulation, harvesting and predator attraction to agricultural water and food sources that reduces the quality of habitat in the project area for this species (Boarman 2002). Additionally, potential desert tortoise movement to the site is restricted by surrounding roads, I-15 to the north and railroad tracks to the south.

The solar array portion of the project area contains approximately 1,072 acres and the gen-tie line supports up to an additional 87.3 acres of potentially suitable habitat for DETO. Areas of suitable DETO habitat are shown on Figure 8 and Figure 9. Focused surveys will be needed in suitable habitat areas to determine presence/absence of DETO in the project area

### Swainson's Hawk (nesting)

*Federal:* None

*State:* Threatened

Swainson's Hawks occur in a variety of habitats, including open desert, sparse shrubland, grassland or cropland containing scattered, large trees or small groves. It generally roosts in large trees, but will roost on the ground if trees are not available. It nests in scattered trees within these grassland, shrubland, or agricultural landscapes, especially along stream courses or in open woodlands (Bechard *et al.* 2010). Breeding Swainson's Hawks have three general habitat requirements: (1) suitable foraging habitat with adequate prey, (2) nest sites, and (3) and isolation from disturbances that may disrupt breeding activities. No quantitative information has been published on the habitat requirements of Swainson's Hawks in the Mojave Desert. In the West Mojave, nesting opportunities are found in Joshua tree woodland, riparian woodland, and ornamental plantings. The primary nest trees are Joshua trees and Fremont cottonwoods, but other large trees could also be used, especially where planted in narrow bands, such as agricultural windbreaks (e.g., cottonwoods) (England *et al.* 1997).

Within California, Swainson's hawk is an uncommon breeding resident and migrant in the Central Valley, Klamath Basin, Northeastern Plateau, Lassen County, and Mojave Desert. Very limited breeding is reported from Lanfair Valley, Owens Valley, Fish Lake Valley, Antelope Valley, and in eastern San Luis Obispo County (Zeiner *et al.* 1988). Within the Mojave Desert, Swainson's Hawk historically nested in Joshua tree woodlands and foraged in nearby desert scrub. Currently, they nest in Joshua tree woodlands, as well as agricultural windrows and ornamental roadside trees and forage in agricultural lands and desert scrub (CDFW 2010). Most recent Swainson's hawk occurrences in the Mojave Desert are concentrated in the Antelope Valley (CDFW 2010).

The project area supports potential foraging habitat throughout and has several large trees in windrows that could be used for nesting Swainson's hawk. However, the project area is outside of the documented nesting range for this species. Based on CNDDDB records and the literature search, Swainson's hawk has not been recorded nesting in the vicinity of the project area with the nearest recorded occurrence in Apple Valley, approximately 25 miles south of the project area. This occurrence was last observed in 1932. The nearest recent breeding area to the project site is the Antelope Valley (approximately 60 miles west) (CDFW 2017a). Swainson's hawks have been observed overwintering and migrating through the area and may use the site for foraging during these times.

### Coast Horned Lizard

Coast horned lizard is designated as a state SSC. This animal occurs in a variety of habitats, including shrublands, grasslands, chaparral, and requires loose, fine soils with open areas for basking and shrubs for refugia (Jennings and Hayes 1994). It feeds on harvester ants and colonies tend to congregate near their colonies (NatureServe 2017). This species is found from northern California to the tip of Baja California, Mexico.

The project area supports harvester ants and has fine sandy soils and shrubs. Coast horned lizard has the potential to occur in creosote bush scrub, desert saltbush scrub, and

disturbed saltbush scrub habitats in the project area. The project area contains about 1,911 acres of potentially suitable habitat for this species.

### Mojave Fringe-toed Lizard

Mojave fringe-toed lizard is designated as a state SSC. Mojave fringe-toed lizards are restricted to areas with fine, aeolian sand including both large and small dunes, margins of dry lakebeds and washes, and isolated pockets against hillsides (Zeiner, et al. 1988). Mojave fringe-toed lizards require access to shaded sand to allow for predator evasion and thermoregulatory burrowing. They are typically active from March to September.

The southeastern portion of the project area supports fine, sandy soils that could provide habitat for Mojave fringe-toed lizards (Figure 9). There are a total of about 37.5 acres of potentially suitable habitat for Mojave fringe-toed lizards in the project area. The project would not affect any suitable Mojave fringe-toed lizard habitat downwind (towards the northwest) as this area has already been disturbed by agricultural and residential land uses.

### Golden Eagle

The golden eagle is a state FP species. Within California, the golden eagle is described as an uncommon resident throughout the state. During the winter they move into agricultural land, grasslands, desert edges, and valleys. Golden eagles utilize steep cliffs or large trees in rugged open woodland bordering on more open country for breeding. Scrub habitats and agriculture in the project area have the potential to support golden eagle foraging; however, the project area does not support nesting habitat for the species.

### Burrowing Owl

Burrowing owls are a state SSC. Burrowing owl is known to breed in southern, central, and eastern California, and has been recorded wintering in California during the Christmas Bird Count. This species is a grassland specialist that is primarily found in open areas with short vegetation and bare ground in deserts, grasslands, and shrub-steppe environments. Breeding commonly occurs in native prairies, pastures, hayland, fallow fields, road and railway right-of-ways, and urban habitats. Burrowing owls are dependent on the presence of pre-existing mammal burrows that are used for nesting and roosting (Shuford and Gardali 2008).

Western burrowing owl has the potential to occur in all habitats in the project area with the exception of active agriculture and active residential areas. This species was not observed during general field surveys, but is common in agricultural areas in the Mojave Desert and could nest and forage in the project area. The solar array portion of the project area contains about 1,461 acres and the gen-tie line contains up to an additional 166.2 acres of potentially suitable burrowing owl habitat (Figure 8 and Figure 9). Focused burrowing owl surveys will be conducted in suitable habitat areas during the appropriate survey season in order to determine the presence/absence of this species in the project area.

### Loggerhead Shrike

Loggerhead shrike is designated as a state SSC. The loggerhead shrike is a permanent resident in California and breeds from as early as January or February to July (Shuford and Gardali 2008). The loggerhead shrike is known to forage over open ground within areas of short vegetation, pastures with fence rows, old orchards, mowed roadsides, cemeteries, golf courses, riparian areas, open woodland, agricultural fields, desert washes, desert scrub, grassland, broken chaparral and beach with scattered shrubs. Individuals like to perch on posts and utility lines and often use the edges of denser habitats (Zeiner, et al. 1988). While this generally conspicuous species was not observed during field surveys, loggerhead shrike has the potential to occur in all habitats in the project area with the exception of active agriculture and active residential areas.

### LeConte's Thrasher

The LeConte's thrasher is a state SSC. It occurs in southeastern California, southern Nevada, southwestern Utah, southwestern Arizona, northeastern Baja California, and northwestern Sonora (AOU 2005 and 2009). It is a permanent resident breeding from early February to late June. LeConte's thrasher distribution is largely determined by the presence and structure of saltbush (*Atriplex sp.*) and the proximity to other areas of saltbush (Shuford and Gardali 2008). They are found in well-drained slopes or alluvial fans sparsely vegetated by saltbush and low-growing grasses. This species was not detected within the project area during the general biological survey. The project area supports suitable habitat for LeConte's thrasher in the creosote bush scrub and saltbush scrub communities.

### Townsend's Big-eared Bat

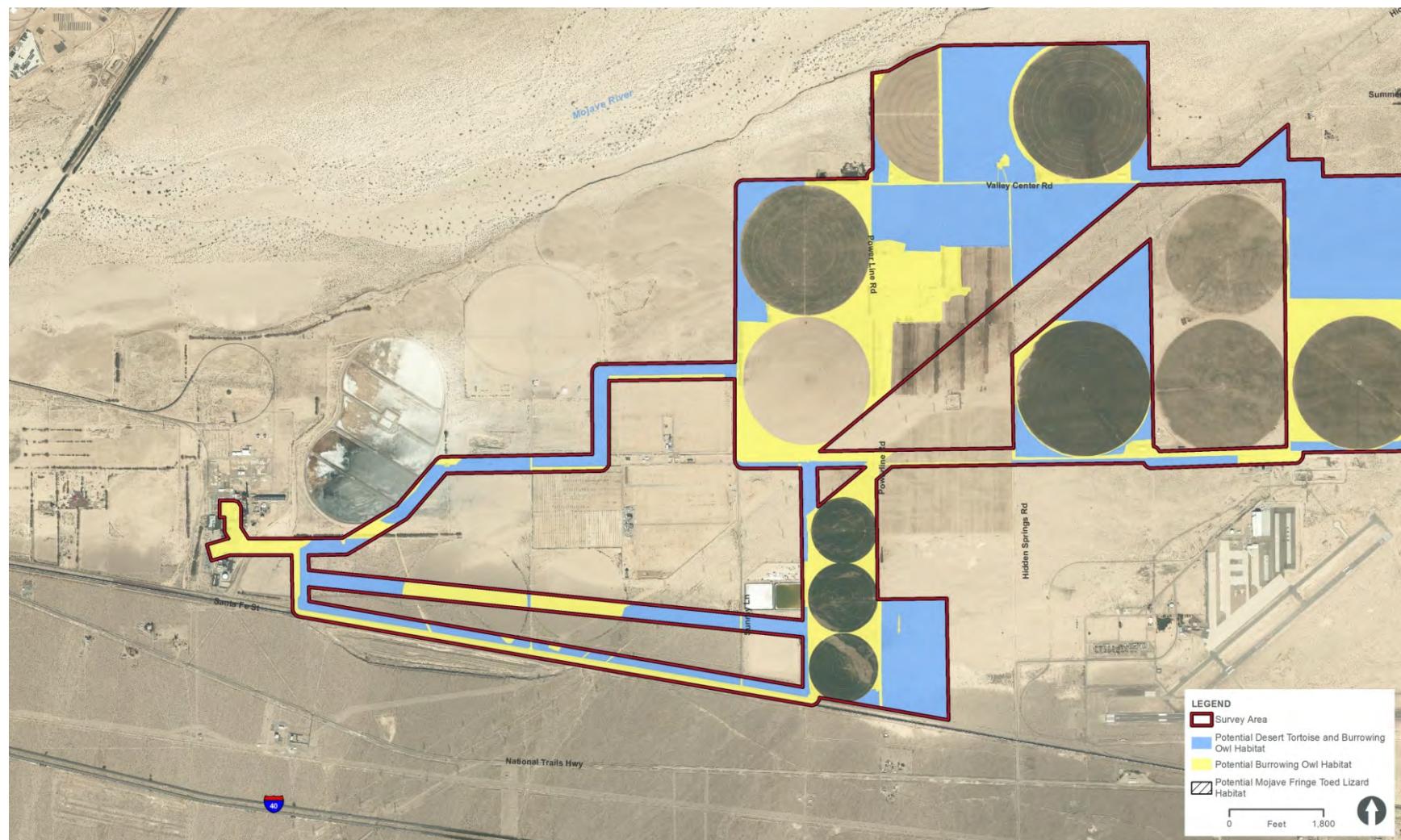
Townsend's big-eared bat is a California SSC that roosts most commonly in caves or mines, but is also known to roost in abandoned buildings (Zeiner et al. 1988). This species ranges throughout the western U.S. and is known from the Calico Mountains approximately 6 miles northeast of the project area (CNDDB Occurrence 163) and the Providence Mountains, approximately 35 miles east of the project area (CNDDB Occurrence 318). Townsend's big-eared bats forage for insects in a variety of habitats, primarily between the canopy and mid-canopy of forests, woodlands, and riparian zones, but also in sagebrush shrubsteppe (Fellers and Pierson 2002). Fellers and Pierson (2002) noted that Townsend's big-eared bats avoided foraging in grasslands and most foraging occurs in relatively close proximity to the day roost.

The project area provides marginal roosting habitat in abandoned houses and buildings that are scattered throughout the project area. Additionally, similar structures adjacent to the project area could be used for roosting by these bats and there is potential for this species to forage over the project area, especially in irrigated cropland.

## American Badger

The American badger is a state SSC. It is a wide-ranging species that occurs throughout most of the western U.S., except for humid coastal plains. It is most abundant in drier open stages of most shrub, forest and herbaceous habitats with friable soils from 1,500 to 10,800 feet (Zeiner et al. 1998). It lives in burrows in friable soils (CDFW 2007). American badger was not detected during the general biological survey. The project area supports potential suitable habitat for American Badger in the creosote bush scrub and desert saltbush scrub communities.

Figure 8. Special-Status Species Habitat within Project Area (Sheet 1)



**Figure 9. Special-Status Species Habitat within Project Area (Sheet 2)**



## 3.7 Migratory Birds

All vegetated areas within the project area, particularly those with shrubs and mature trees provide suitable habitat for birds protected under the Migratory Bird Treaty Act. Some species of birds may also nest in the eaves of houses, inside hay barns and abandoned buildings within the project area.

## 3.8 Jurisdictional Waters

The project area (including offsite distribution line) does not appear to contain any features that would qualify as USACE jurisdictional waters and/or CDFW jurisdictional streambeds as defined by Section 404 of the federal Clean Water Act, or Section 1600 of the Fish and Game Code<sup>1</sup>. A review of National Wetland Inventory data for the project vicinity indicate ephemeral drainages to the south of the project area; however, these features generally end at the railway south of the project. While there are several culverts built under the railroad tracks within the project vicinity, there are only two that align with the project area. One of these conveys flows from the south under the railroad tracks and into the vicinity of the project area. Indicators associated with an ordinary high water mark or streambed were not observed to extend within the project area during the general biological resources survey. Additionally, there is no identifiable connectivity of this feature to any downstream features. The second of these conveys flows from the south under the railroad tracks and into the vicinity of one of the gen-tie alternatives. This culvert was not looked at during the field surveys, and it is not possible to determine based on aerial photographs whether this area is subject to regulatory agency jurisdiction or not.

One additional culvert was observed within the project area (Appendix C, Photograph 8); however, this culvert appears to convey drainage from evaporation ponds associated with the decommissioned gas power plant under a dirt road into a constructed, isolated basin.

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<sup>1</sup> Only the regulatory agencies can make a final determination of the regulatory status of an aquatic feature. Should the project proponent wish to request concurrence from the agencies, a CDFW Streambed Alteration Notification and application fee (\$561) would be required and a request for an approved jurisdictional determination would be required for USACE.

## 4 Conclusion and Recommendations

Based on the literature search and field survey results, the project area could include habitat with the potential to support the following special-status species:

- Federally- and state-listed as threatened desert tortoise (*Gopherus agassizii*)
- State-listed as threatened Swainson's hawk (*Buteo swainsoni*)
- The following California SSC:
  - Burrowing owl (*Athene cunicularia*)
  - Coast horned lizard (*Phrynosoma blainvillii (coronatum)*)
  - Loggerhead shrike (*Lanius ludovicianus*)
  - LeConte's thrasher (*Toxostoma lecontei*)
  - Mojave fringe-toed lizard (*Uma scoparia*)
  - Townsend's big-eared bat (*Corynorhinus townsendii*)
  - American badger (*Taxidea taxus*)
- California FP golden eagle (*Aquila chrysaetos*)
- Nesting migratory birds
- Plants:
  - Barstow woolly sunflower (*Eriophyllum mohavensis*, CRPR 1B.2)
  - Darlington's blazing star (*Mentzelia puberula*, CRPR 2B.2)
  - Beaver Dam breadroot (*Pediomelum castoreum*, CRPR 1B.2)
  - Parish's phacelia (*Phacelia parishii*, CRPR 1B.1)

To further characterize the biological resources on the project site, a general biological resources survey was performed. The survey data was used to assess biological resources and to map the vegetation communities on the site. Field data was used to identify whether special-status biological resources, including those listed above, have the potential to occur on the site. No special-status biological resources were observed during the site visits conducted for this survey.

However, the surveys were not conducted to a level sufficient to declare that some of these species are absent from the project site. Based on the vegetation communities and site conditions observed, the following additional surveys are recommended in order to determine the presence/absence of special-status species with suitable habitat on the project site:

- Desert Tortoise Presence/Absence Surveys
  - Consists of single site pass at 10 meter (30 foot) intervals.
  - May require multiple days (2 to 3) for each pass due to size of project area.

- Best to conduct during most active desert tortoise seasons (April-May or September-October, but can be completed any time of year due to low potential for this species to occur in project area.
- Burrowing Owl Presence/Absence Surveys
  - Consist of four site passes conducted between February 15 and July 15 (CDFW 2012).
  - May require multiple days (2 to 3) for each pass due to size of project area.
- Focused Rare Plant and Desert Native Plant Surveys
  - Consists of up to two survey events conducted during the spring blooming season.
- Focused Jurisdictional Delineation
  - Additional site visit needed to verify that no potential jurisdictional resources occur within gen-tie alternatives.

The project site area surveyed for this report contains the largest anticipated footprint for the solar fields as well as four gen-tie alternatives with a 160-foot buffer either side of each gen-tie line. This expanded area has been included to allow for project design changes and finalization of staging and equipment access areas that may extend beyond the actual permanent alignment. It is anticipated that the final project footprint, especially in regards to gen-tie lines, will be reduced in acreage compared to that discussed in this report. Final impacts to vegetation communities and special-status species habitat, if present, will be calculated and analyzed after focused surveys have been completed and project design is finalized.

The project site does not appear to support federally-regulated waters of the U.S. or state-regulated streambed. However, two gen-tie alternatives were added after field surveys were conducted and will require an additional survey for potentially jurisdictional areas. Preparation of a jurisdictional delineation letter report is recommended following the necessary supplemental field assessment.

The results of these surveys should be documented in separate reports and submitted to the appropriate agencies upon completion. In addition, a detailed letter report documenting the methodology and findings of the jurisdictional delineation should be prepared. Project impacts to biological resources should be quantified and assessed following conclusion of these focused surveys and more detailed project design

## 5 References

- [AOU] American Ornithologist's Union. 2005. Forty-sixth Supplement to the American Ornithologist's Union Check-List of North American Birds. *The Auk* 122(3):1026-1031.
- [AOU] 2009. Fiftieth supplement to the American Ornithologists' Union *Check-list of North American Birds*. Auk 126:705–714.
- Bechard, Marc. J., C. Stuart Houston, Jose H. Saransola, and A. Sidney England. 2010. Swainson's Hawk (*Buteo swainsoni*). The Birds of North America (P.G. Rodewald, Ed.). Ithaca.: Cornell Lab of Ornithology; Retrieved from the Birds of North America: <https://birdsna.org/Species-Account/bna/species/swahaw>
- Boarman, W.I. 2002. Desert Tortoise (*Gopherus agassizii*). In: Boarman, W.I. and K. Beaman, editors. The sensitive plant and animal species of the Western Mojave Desert. U. S. Geological Survey, Western Ecological Research Center, Sacramento, CA.
- Calflora. 2017. Information on California plants for education, research and conservation, based on data contributed by the Consortium of Calif. Herbaria and dozens of other public and private institutions and individuals. 2017. Berkeley, California: The Calflora Database [a non-profit organization]. Available: <http://www.calflora.org/> (Accessed August/September 2017).
- [CDFW] California Department of Fish and Wildlife. 2017a. California Wildlife Habitat Relationships System Life History Accounts and Range Maps (online edition). CDFW Biogeographic Data Branch; Sacramento, CA. <https://www.wildlife.ca.gov/Data/CWHR/Life-History-and-Range>
- \_\_\_\_\_. 2017b. RareFind 5 – California Natural Diversity Database Online Search. <http://www.dfg.ca.gov/biogeodata/cnddb/mapsanddata.asp>. Data accessed on August 1, 2017.
- \_\_\_\_\_. 2012. "Staff Report on Burrowing Owl Mitigation." *State of California Natural Resource Agency*. Department of Fish and Game, 7 Mar. 2012.
- \_\_\_\_\_. 2010. Swainson's hawk survey protocols, impact avoidance, and minimization measures for renewable energy projects in the Antelope Valley of Los Angeles and Kern Counties, California. CDFW. June 2, 2010.
- \_\_\_\_\_. 2010. List of Vegetation Alliances and Associations. Vegetation Classification and Mapping Program, California Department of Fish and Game. Sacramento, CA. September 2010.
- \_\_\_\_\_. 2007. California Wildlife Habitat Relationship System California Department of Fish and Game California Interagency Wildlife Task Group. American Badger (AB). October 2007.
- [CNPS] California Native Plant Society, Rare Plant Program. 2017. Inventory of Rare and Endangered Plants of California (online edition, v8-03 0.39). Website <http://www.rareplants.cnps.org> [accessed 1 August 2017].
- [CWIS] California Wetland Information System. 2007. "Summary of Clean Water Act, Section 404." Available online <[http://resources.ca.gov/wetlands/permitting/sec404\\_descrip.html](http://resources.ca.gov/wetlands/permitting/sec404_descrip.html)>
- England, A.S., M.J. Bechard, and C.S. Houston. 1997. Swainson's Hawk (*Buteo swainsoni*). In: A. Poole and F. Gill (eds.), *The Birds of North America*, No. 265.

- The Academy of Natural Sci., Philadelphia, PA, and The American Ornithologists' Union, Washington, D.C.
- Fellers, G. M., and E. D. Pierson. 2002. Habitat use and foraging behavior of Townsend's big-eared bat (*Corynorhinus townsendii*) in coastal California. *Journal of Mammalogy* 83:167-177.
- [FEMA] Federal Emergency Management Agency. 2017. National Flood Hazard Layer GIS Dataset. Available online at: <https://fema.maps.arcgis.com/home/item.html?id=cbe088e7c8704464aa0fc34eb99e7f30>
- Hickman, J. C., ed. 1993. The Jepson Manual, Higher Plants of California. University of California Press, Berkeley. 1400 pp.
- Holland, R. 1986. A Description of the Terrestrial Natural Communities of California. California Department of Fish and Game, October.
- Jennings, M. R., and M. P. Hayes. 1994. Amphibian and reptile Species of Special Concern in California. Final report submitted to California Department of Fish and Game, Inland Fisheries Division, Rancho Cordova, California, under Contract 8023.
- NatureServe. 2017. NatureServe Explorer: An online encyclopedia of life [web application]. Version 7.1. NatureServe, Arlington, Virginia. Available <http://explorer.natureserve.org>. (Accessed: September 8, 2017 ).
- [Regents] Regents of the University of California. 2017. The Jepson Online Interchange California Floristics. <http://ucjeps.berkeley.edu/interchange/>. (Accessed September 8, 2017).
- Sawyer, Keeler-Wolf and Evans. 2009. A Manual of California Vegetation Second Edition. California Native Plant Society Press, Sacramento, CA. 1300p.
- Shuford, W., and T. Gardali, ed. 2008. California Bird Species of Special Concern: A Ranked Assessment of Species, Subspecies, and Distinct Populations of Birds of Immediate Conservation Concern in California. Studies of Western Birds 1. Western Field Ornithologists, Camarillo, California, and California Department of Fish and Game, Sacramento.
- U.S. Climate Data. 2017. Climate – Barstow, California. Climate data for barstow fire station, Longitude: -117.022, Latitude: 34.8927 Average weather Barstow, CA - 92311 - 1981-2010 normals. Accessed online at: <https://www.usclimatedata.com/climate/barstow/california/united-states/usca0069/2017/6>
- [USDA] United States Department of Agriculture. 2017. Soil Survey Staff, Natural Resources Conservation Service. Web Soil Survey. Available online at <https://websoilsurvey.sc.egov.usda.gov/>. Accessed August 21, 2017.
- \_\_\_\_\_. 2003. Natural Resources Conservation Service. 2003. Field Indicators of Hydric Soils in the United States, A Guide for Identifying and Delineating Hydric Soils. Version 5.01.
- [U.S. EPA] United States Environmental Protection Agency. 2012. Clean Water Act, Section 401 Certification and Wetlands. Available online <http://water.epa.gov/lawsregs/guidance/wetlands/sec401.cfm>  
Webpage last updated March 2012.
- [USFWS] U.S. Fish and Wildlife Service. 1994. U.S. Fish and Wildlife Service. Endangered and threatened wildlife and plants; determination of critical habitat for the Mojave population of the desert tortoise. *Federal Register* 59:5820-5866.

- [USFWS] 2010. Preparing for any Action that May Occur within the Range of the Mojave Desert Tortoise (*Gopherus agassizii*). 2010 Field Season.
- [USFWS] 2011. Revised recovery plan for the Mojave population of the desert tortoise (*Gopherus agassizii*). U.S. Fish and Wildlife Service, Pacific Southwest Region, Sacramento, California. 222 pp.
- [USFWS] 2017. National Wetlands Inventory. Accessed August and September 2017, at <https://www.fws.gov/wetlands/data/mapper.html>
- [USFWS] U.S. Fish and Wildlife Service. 2017. Information for Planning and Conservation (IPaC). Website: <https://ecos.fws.gov/ipac/>. Accessed August 1, 2017.
- [USGS] U.S. Geological Survey. 2017. Mojave Groundwater Resources. Website. <https://ca.water.usgs.gov/mojave/>
- U.S. Supreme Court. 2001. Solid Waste Agency of Northern Cook County v. United States Army Corps of Engineers (referred to as SWANCC).
- Zeiner, D.C., W.F.Laudenslayer, Jr., K.E. Mayer, and M. White, eds. 1988-1990. California's Wildlife. Vol. I-III. California Depart. of Fish and Game, Sacramento, California. Updates are noted in accounts that have been added or edited since original publication.

## Appendix A. Literature Search Results

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## Selected Elements by Scientific Name

California Department of Fish and Wildlife

California Natural Diversity Database



**Query Criteria:** Quad</span> IS </span>(Minneola (3411677)<span style='color:Red'></span> OR </span>Yermo (3411687)<span style='color:Red'></span> OR </span>Nebo (3411688)<span style='color:Red'></span> OR </span>Harvard Hill (3411689)<span style='color:Red'></span> OR </span>Daggett (3411678)<span style='color:Red'></span> OR </span>Newberry Springs (3411676)<span style='color:Red'></span> OR </span>Ord Mountain (3411667)<span style='color:Red'></span> OR </span>West Ord Mountain (3411668)<span style='color:Red'></span> OR </span>Camp Rock Mine (3411666))

| Species  | Element Code | Federal Status | State Status         | Global Rank | State Rank | Rare Plant Rank/CDFW SSC or FP |
|--|--------------|----------------|----------------------|-------------|------------|--------------------------------|
| <i>Agelaius tricolor</i><br>tricolored blackbird                     | ABPBXB0020   | None           | Candidate Endangered | G2G3        | S1S2       | SSC                            |
| <i>Aquila chrysaetos</i><br>golden eagle                             | ABNKC22010   | None           | None                 | G5          | S3         | FP                             |
| <i>Athene cunicularia</i><br>burrowing owl                           | ABNSB10010   | None           | None                 | G4          | S3         | SSC                            |
| <i>Castela emoryi</i><br>Emory's crucifixion-thorn                   | PDSIM03030   | None           | None                 | G3G4        | S2S3       | 2B.2                           |
| <i>Corynorhinus townsendii</i><br>Townsend's big-eared bat           | AMACC08010   | None           | None                 | G3G4        | S2         | SSC                            |
| <i>Cymopterus multinervatus</i><br>purple-nerve cymopterus           | PDAPI0U0Q0   | None           | None                 | G4G5        | S2         | 2B.2                           |
| <i>Diplacus mohavensis</i><br>Mojave monkeyflower                    | PDSCR1B1V0   | None           | None                 | G2          | S2         | 1B.2                           |
| <i>Emys marmorata</i><br>western pond turtle                         | ARAAD02030   | None           | None                 | G3G4        | S3         | SSC                            |
| <i>Eriophyllum mohavense</i><br>Barstow woolly sunflower             | PDAST3N070   | None           | None                 | G2          | S2         | 1B.2                           |
| <i>Falco mexicanus</i><br>prairie falcon                             | ABNKD06090   | None           | None                 | G5          | S4         | WL                             |
| <i>Gopherus agassizii</i><br>desert tortoise                         | ARAAF01012   | Threatened     | Threatened           | G3          | S2S3       |                                |
| <i>Icteria virens</i><br>yellow-breasted chat                        | ABPBX24010   | None           | None                 | G5          | S3         | SSC                            |
| <i>Menodora spinescens</i> var. <i>mohavensis</i><br>Mojave menodora | PDOLE09061   | None           | None                 | G4T2        | S2         | 1B.2                           |
| <i>Mentzelia puberula</i><br>Darlington's blazing star               | PDLOA031F0   | None           | None                 | G5          | S2         | 2B.2                           |
| <i>Mentzelia tridentata</i><br>creamy blazing star                   | PDLOA031U0   | None           | None                 | G3          | S3         | 1B.3                           |
| <i>Monardella boydii</i><br>Boyd's monardella                        | PDLAM18120   | None           | None                 | G1?Q        | S1?        | 1B.2                           |
| <i>Muhlenbergia appressa</i><br>appressed muhly                      | PMPOA48020   | None           | None                 | G4          | S3         | 2B.2                           |
| <i>Ovis canadensis nelsoni</i><br>desert bighorn sheep               | AMALE04013   | None           | None                 | G4T4        | S3         | FP                             |



## Selected Elements by Scientific Name

California Department of Fish and Wildlife

California Natural Diversity Database



| Species   | Element Code | Federal Status | State Status | Global Rank | State Rank | Rare Plant Rank/CDFW SSC or FP |
|---|--------------|----------------|--------------|-------------|------------|--------------------------------|
| <i>Pediomelum castoreum</i><br>Beaver Dam breadroot               | PDFAB5L050   | None           | None         | G3          | S2         | 1B.2                           |
| <i>Phacelia parishii</i><br>Parish's phacelia                     | PDHYD0C3G0   | None           | None         | G2G3        | S1         | 1B.1                           |
| <i>Pyrocephalus rubinus</i><br>vermillion flycatcher              | ABPAE36010   | None           | None         | G5          | S2S3       | SSC                            |
| <i>Siphateles bicolor mohavensis</i><br>Mohave tui chub           | AFCJB1303H   | Endangered     | Endangered   | G4T1        | S1         | FP                             |
| <i>Toxostoma lecontei</i><br>Le Conte's thrasher                  | ABPBK06100   | None           | None         | G4          | S3         | SSC                            |
| <i>Wislizenia refracta</i> ssp. <i>refracta</i><br>jackass-clover | PDCPP09013   | None           | None         | G5T5?       | S1         | 2B.2                           |
| <i>Xerospermophilus mohavensis</i><br>Mohave ground squirrel      | AMAFB05150   | None           | Threatened   | G2G3        | S2S3       |                                |

Record Count: 25



## Plant List

### Inventory of Rare and Endangered Plants

13 matches found. Click on scientific name for details

#### Search Criteria

Found in Quads 3411688, 3411687, 3411686, 3411678, 3411677, 3411676, 3411668, 3411667 and 3411666;  
Elevation is above 1500 or below 2500 feet

[Modify Search Criteria](#) [Export to Excel](#) [Modify Columns](#) [Modify Sort](#) [Display Photos](#)

| Scientific Name  | Common Name               | Family          | Lifeform                  | Blooming Period           | CA Rare Plant Rank | State Rank | Global Rank |
|--|---------------------------|-----------------|---------------------------|---------------------------|--------------------|------------|-------------|
| <a href="#"><u>Castela emoryi</u></a>                      | Emory's crucifixion-thorn | Simaroubaceae   | perennial deciduous shrub | (Apr)Jun-Jul(Sep-Oct)     | 2B.2               | S2S3       | G3G4        |
| <a href="#"><u>Chorizanthe spinosa</u></a>                 | Mojave spineflower        | Polygonaceae    | annual herb               | Mar-Jul                   | 4.2                | S4         | G4          |
| <a href="#"><u>Diplacus mohavensis</u></a>                 | Mojave monkeyflower       | Phrymaceae      | annual herb               | Apr-Jun                   | 1B.2               | S2         | G2          |
| <a href="#"><u>Eriophyllum mohavense</u></a>               | Barstow woolly sunflower  | Asteraceae      | annual herb               | Mar-May                   | 1B.2               | S2         | G2          |
| <a href="#"><u>Lycium torreyi</u></a>                      | Torrey's box-thorn        | Solanaceae      | perennial shrub           | (Jan-Feb)Mar-Jun(Sep-Nov) | 4.2                | S3         | G4G5        |
| <a href="#"><u>Menodora spinescens var. mohavensis</u></a> | Mojave menodora           | Oleaceae        | perennial deciduous shrub | Apr-May                   | 1B.2               | S2         | G4T2        |
| <a href="#"><u>Mentzelia puberula</u></a>                  | Darlington's blazing star | Loasaceae       | perennial herb            | Mar-May                   | 2B.2               | S2         | G5          |
| <a href="#"><u>Mentzelia tridentata</u></a>                | creamy blazing star       | Loasaceae       | annual herb               | Mar-May                   | 1B.3               | S3         | G3          |
| <a href="#"><u>Muhlenbergia appressa</u></a>               | appressed muhly           | Poaceae         | annual herb               | Apr-May                   | 2B.2               | S3         | G4          |
| <a href="#"><u>Nemacladus gracilis</u></a>                 | slender nemacladus        | Campanulaceae   | annual herb               | Mar-May                   | 4.3                | S4         | G4          |
| <a href="#"><u>Pediomelum castoreum</u></a>                | Beaver Dam breadroot      | Fabaceae        | perennial herb            | Apr-May                   | 1B.2               | S2         | G3          |
| <a href="#"><u>Phacelia parishii</u></a>                   | Parish's phacelia         | Hydrophyllaceae | annual herb               | Apr-May(Jun-Jul)          | 1B.1               | S1         | G2G3        |
| <a href="#"><u>Wislizenia refracta ssp. refracta</u></a>   | jackass-clover            | Cleomaceae      | annual herb               | Apr-Nov                   | 2B.2               | S1         | G5T5?       |

#### Suggested Citation

California Native Plant Society, Rare Plant Program. 2017. Inventory of Rare and Endangered Plants of California (online edition, v8-03 0.39). Website <http://www.rareplants.cnps.org> [accessed 20 September 2017].

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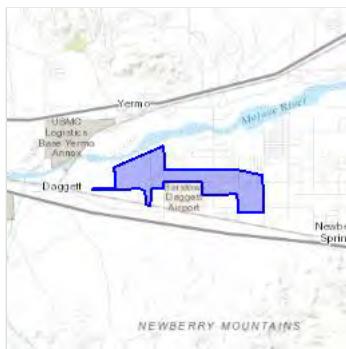
# IPaC resource list

This report is an automatically generated list of species and other resources such as critical habitat (collectively referred to as *trust resources*) under the U.S. Fish and Wildlife Service's (USFWS) jurisdiction that are known or expected to be on or near the project area referenced below. The list may also include trust resources that occur outside of the project area, but that could potentially be directly or indirectly affected by activities in the project area. However, determining the likelihood and extent of effects a project may have on trust resources typically requires gathering additional site-specific (e.g., vegetation/species surveys) and project-specific (e.g., magnitude and timing of proposed activities) information.

Below is a summary of the project information you provided and contact information for the USFWS office(s) with jurisdiction in the defined project area. Please read the introduction to each section that follows (Endangered Species, Migratory Birds, USFWS Facilities, and NWI Wetlands) for additional information applicable to the trust resources addressed in that section.

## Location

San Bernardino County, California



## Local office

Carlsbad Fish And Wildlife Office

📞 (760) 431-9440  
📠 (760) 431-5901

2177 Salk Avenue - Suite 250  
Carlsbad, CA 92008-7385

<http://www.fws.gov/carlsbad/>

# Endangered species

This resource list is for informational purposes only and does not constitute an analysis of project level impacts.

The primary information used to generate this list is the known or expected range of each species. Additional areas of influence (AOI) for species are also considered. An AOI includes areas outside of the species range if the species could be indirectly affected by activities in that area (e.g., placing a dam upstream of a fish population, even if that fish does not occur at the dam site, may indirectly impact the species by reducing or eliminating water flow downstream). Because species can move, and site conditions can change, the species on this list are not guaranteed to be found on or near the project area. To fully determine any potential effects to species, additional site-specific and project-specific information is often required.

Section 7 of the Endangered Species Act requires Federal agencies to "request of the Secretary information whether any species which is listed or proposed to be listed may be present in the area of such proposed action" for any project that is conducted, permitted, funded, or licensed by any Federal agency. A letter from the local office and a species list which fulfills this requirement can only be obtained by requesting an official species list from either the Regulatory Review section in IPaC (see directions below) or from the local field office directly.

For project evaluations that require USFWS concurrence/review, please return to the IPaC website and request an official species list by doing the following:

1. Draw the project location and click CONTINUE.
2. Click DEFINE PROJECT.
3. Log in (if directed to do so).
4. Provide a name and description for your project.
5. Click REQUEST SPECIES LIST.

Listed species<sup>1</sup> are managed by the [Ecological Services Program](#) of the U.S. Fish and Wildlife Service.

1. Species listed under the [Endangered Species Act](#) are threatened or endangered; IPaC also shows species that are candidates, or proposed, for listing. See the [listing status page](#) for more information.

The following species are potentially affected by activities in this location:

## Birds

| NAME  | STATUS     |
|---|------------|
| California Condor Gymnogyps californianus<br>There is final designated critical habitat for this species. Your location is outside the critical habitat.<br><a href="https://ecos.fws.gov/ecp/species/8193">https://ecos.fws.gov/ecp/species/8193</a> | Endangered |

## Reptiles

| NAME   | STATUS     |
|--|------------|
| Desert Tortoise Gopherus agassizii<br>There is final designated critical habitat for this species. Your location is outside the critical habitat.<br><a href="https://ecos.fws.gov/ecp/species/4481">https://ecos.fws.gov/ecp/species/4481</a> | Threatened |

## Critical habitats

Potential effects to critical habitat(s) in this location must be analyzed along with the endangered species themselves.

THERE ARE NO CRITICAL HABITATS AT THIS LOCATION.

## Migratory birds

Certain birds are protected under the Migratory Bird Treaty Act<sup>1</sup> and the Bald and Golden Eagle Protection Act<sup>2</sup>.

Any activity that results in the take (to harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, or collect, or to attempt to engage in any such conduct) of migratory birds or eagles is prohibited unless authorized by the U.S. Fish and Wildlife Service<sup>3</sup>. There are no provisions for allowing the take of migratory birds that are unintentionally killed or injured. Any person or organization who plans or conducts activities that may result in the take of migratory birds is responsible for complying with the appropriate regulations and implementing appropriate conservation measures, as described [below](#).

1. The [Migratory Birds Treaty Act](#) of 1918.
2. The [Bald and Golden Eagle Protection Act](#) of 1940.
3. 50 C.F.R. Sec. 10.12 and 16 U.S.C. Sec. 668(a)

Additional information can be found using the following links:

- Birds of Conservation Concern <http://www.fws.gov/birds/management/managed-species/birds-of-conservation-concern.php>
- Measures for avoiding and minimizing impacts to birds <http://www.fws.gov/birds/management/project-assessment-tools-and-guidance/conservation-measures.php>
- Nationwide conservation measures for birds  
<http://www.fws.gov/migratorybirds/pdf/management/nationwidestandardconservationmeasures.pdf>

The birds listed below are [USFWS Birds of Conservation Concern](#) that might be affected by activities in this location. The list does not contain every bird you may find in this location, nor is it guaranteed that all of the birds on the list will be found on or near this location. To get a better idea of the specific locations where certain species have been reported and their level of occurrence, please refer to resources such as the [E-bird data mapping tool](#) (year-round bird sightings by birders and the general public) and [Breeding Bird Survey](#) (relative abundance maps for breeding birds). Although it is important to try to avoid and minimize impacts to all birds, special attention should be given to the birds on the list below. To get a list of all birds potentially present in your project area, visit the [E-bird Explore Data Tool](#).

| NAME   | BREEDING SEASON         |
|--|-------------------------|
| Allen's Hummingbird <i>Selasphorus sasin</i><br><a href="https://ecos.fws.gov/ecp/species/9637">https://ecos.fws.gov/ecp/species/9637</a>      | Breeds elsewhere        |
| Bald Eagle <i>Haliaeetus leucocephalus</i>   | Breeds Mar 20 to Sep 15 |
| Bendire's Thrasher <i>Toxostoma bendirei</i><br><a href="https://ecos.fws.gov/ecp/species/9435">https://ecos.fws.gov/ecp/species/9435</a>      | Breeds Mar 15 to Jul 31 |
| Black Skimmer <i>Rynchops niger</i><br><a href="https://ecos.fws.gov/ecp/species/5234">https://ecos.fws.gov/ecp/species/5234</a>               | Breeds May 20 to Sep 15 |
| Black-chinned Sparrow <i>Spizella atrogularis</i><br><a href="https://ecos.fws.gov/ecp/species/9447">https://ecos.fws.gov/ecp/species/9447</a> | Breeds Apr 15 to Jul 31 |
| Burrowing Owl <i>Athene cunicularia</i><br><a href="https://ecos.fws.gov/ecp/species/9737">https://ecos.fws.gov/ecp/species/9737</a>           | Breeds Mar 15 to Aug 31 |
| Costa's Hummingbird <i>Calypte costae</i><br><a href="https://ecos.fws.gov/ecp/species/9470">https://ecos.fws.gov/ecp/species/9470</a>         | Breeds Jan 15 to Jun 10 |
| Gila Woodpecker <i>Melanerpes uropygialis</i><br><a href="https://ecos.fws.gov/ecp/species/5960">https://ecos.fws.gov/ecp/species/5960</a>     | Breeds Apr 1 to Aug 31  |
| Gilded Flicker <i>Colaptes chrysoides</i><br><a href="https://ecos.fws.gov/ecp/species/2960">https://ecos.fws.gov/ecp/species/2960</a>         | Breeds May 1 to Aug 10  |
| Gray Vireo <i>Vireo vicinior</i><br><a href="https://ecos.fws.gov/ecp/species/8680">https://ecos.fws.gov/ecp/species/8680</a>                  | Breeds May 10 to Aug 20 |
| Lawrence's Goldfinch <i>Carduelis lawrencei</i><br><a href="https://ecos.fws.gov/ecp/species/9464">https://ecos.fws.gov/ecp/species/9464</a>   | Breeds Mar 20 to Sep 20 |
| Le Conte's Thrasher <i>toxostoma lecontei</i><br><a href="https://ecos.fws.gov/ecp/species/8969">https://ecos.fws.gov/ecp/species/8969</a>     | Breeds Feb 15 to Jun 20 |
| Long-billed Curlew <i>Numenius americanus</i><br><a href="https://ecos.fws.gov/ecp/species/5511">https://ecos.fws.gov/ecp/species/5511</a>     | Breeds elsewhere        |
| Marbled Godwit <i>Limosa fedoa</i><br><a href="https://ecos.fws.gov/ecp/species/9481">https://ecos.fws.gov/ecp/species/9481</a>                | Breeds elsewhere        |
| Mountain Plover <i>Charadrius montanus</i><br><a href="https://ecos.fws.gov/ecp/species/3638">https://ecos.fws.gov/ecp/species/3638</a>        | Breeds elsewhere        |

Rufous Hummingbird *selasphorus rufus*  
<https://ecos.fws.gov/ecp/species/8002>

Breeds elsewhere

Snowy Plover *Charadrius alexandrinus*  
  
 Whimbrel *Numenius phaeopus*  
<https://ecos.fws.gov/ecp/species/9483>

Breeds Mar 5 to Sep 15

Breeds elsewhere

## Probability of Presence Summary

The graphs below provide our best understanding of when birds of concern are most likely to be present in your project area. This information can be used to tailor and schedule your project activities to avoid or minimize impacts to birds.

### Probability of Presence (■)

Each green bar represents the bird's relative probability of presence in your project's counties during a particular week of the year. (A year is represented as 12 4-week months.) A taller bar indicates a higher probability of species presence. The survey effort (see below) can be used to establish a level of confidence in the presence score. One can have higher confidence in the presence score if the corresponding survey effort is also high.

How is the probability of presence score calculated? The calculation is done in three steps:

1. The probability of presence for each week is calculated as the number of survey events in the week where the species was detected divided by the total number of survey events for that week. For example, if in week 12 there were 20 survey events and the Spotted Towhee was found in 5 of them, the probability of presence of the Spotted Towhee in week 12 is 0.25.
2. To properly present the pattern of presence across the year, the relative probability of presence is calculated. This is the probability of presence divided by the maximum probability of presence across all weeks. For example, imagine the probability of presence in week 20 for the Spotted Towhee is 0.05, and that the probability of presence at week 12 (0.25) is the maximum of any week of the year. The relative probability of presence on week 12 is  $0.25/0.25 = 1$ ; at week 20 it is  $0.05/0.25 = 0.2$ .
3. The relative probability of presence calculated in the previous step undergoes a statistical conversion so that all possible values fall between 0 and 10, inclusive. This is the probability of presence score.

To see a bar's probability of presence score, simply hover your mouse cursor over the bar.

### Breeding Season (■)

Yellow bars denote when the bird breeds in the Bird Conservation Region(s) in which your project lies. If there are no yellow bars shown for a bird, it does not breed in your project area.

### Survey Effort (|)

Vertical black lines superimposed on probability of presence bars indicate the number of surveys performed for that species in the counties of your project area. The number of surveys is expressed as a range, for example, 33 to 64 surveys.

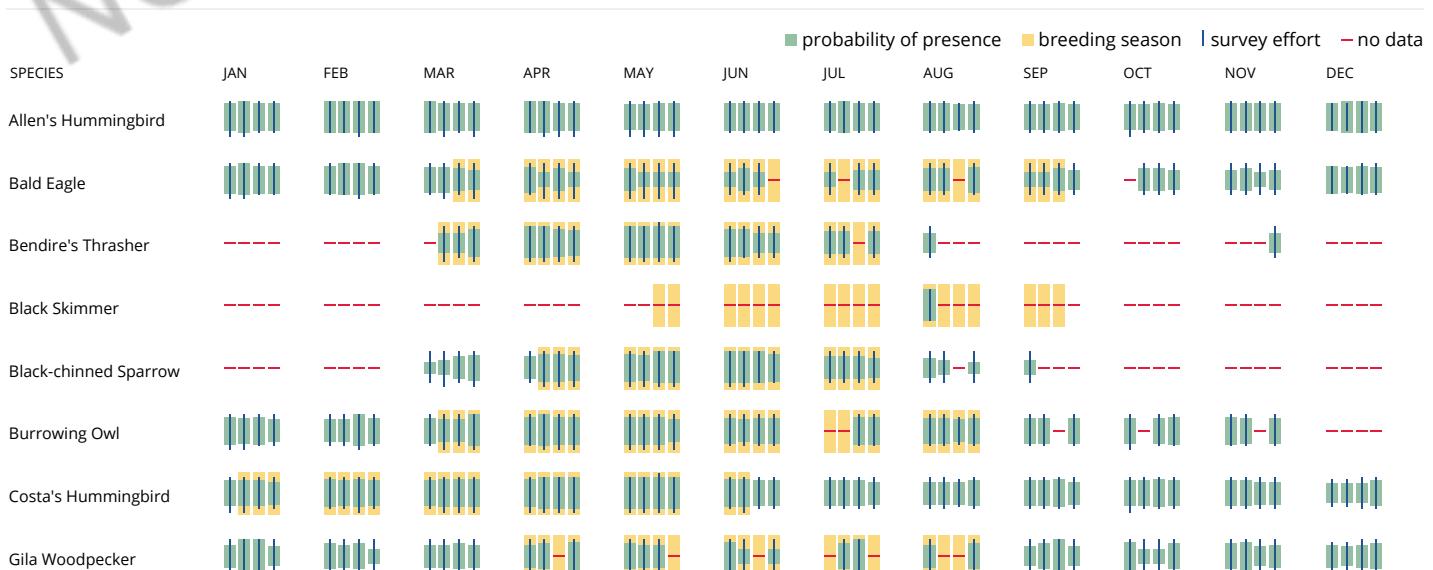
To see a bar's survey effort range, simply hover your mouse cursor over the bar.

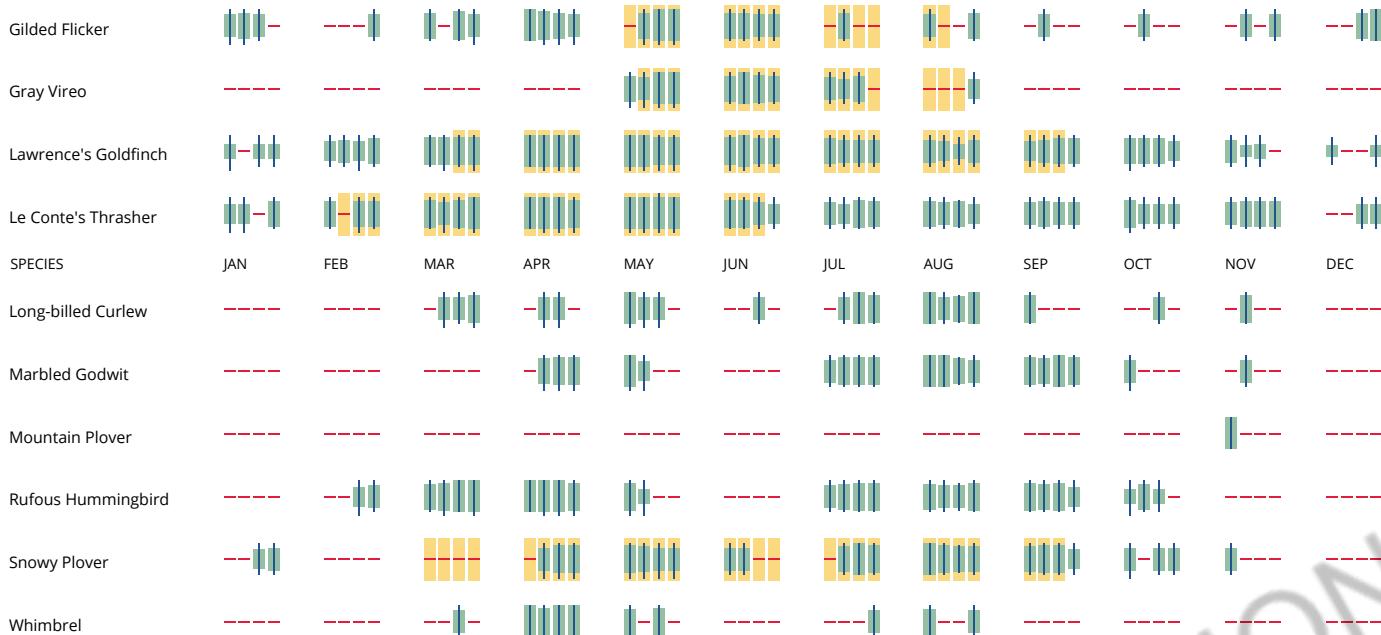
### No Data (-)

A week is marked as having no data if there were no survey events for that week.

### Survey Timeframe

Surveys from only the last 10 years are used in order to ensure delivery of currently relevant information.





Tell me more about conservation measures I can implement to avoid or minimize impacts to migratory birds.

[Nationwide Conservation Measures](#) describes measures that can help avoid and minimize impacts to all birds at any location year round. Such measures are particularly important when birds are most likely to occur in the project area. To see when birds are most likely to occur in your project area, view the Probability of Presence Summary. Special attention should be made to look for nests and avoid nest destruction during the breeding season. The best information about when birds are breeding can be found in [Birds of North America \(BNA\) Online](#) under the "Breeding Phenology" section of each species profile. Note that accessing this information may require a [subscription](#). [Additional measures](#) and/or [permits](#) may be advisable depending on the type of activity you are conducting and the type of infrastructure or bird species present on your project site.

#### What does IPaC use to generate the migratory birds potentially occurring in my specified location?

The Migratory Bird Resource List is comprised of USFWS [Birds of Conservation Concern \(BCC\)](#) that might be affected by activities in your project location. These birds are of priority concern because it has been determined that without additional conservation actions, they are likely to become candidates for listing under the [Endangered Species Act \(ESA\)](#).

The migratory bird list generated for your project is derived from data provided by the [Avian Knowledge Network \(AKN\)](#). The AKN data is based on a growing collection of [survey, banding, and citizen science datasets](#). The AKN list represents all birds reported to be occurring at some level throughout the year in the counties in which your project lies. That list is then narrowed to only the Birds of Conservation Concern for your project area.

Again, the Migratory Bird Resource list only includes species of particular priority concern, and is not representative of all birds that may occur in your project area. Although it is important to try to avoid and minimize impacts to all birds, special attention should be made to avoid and minimize impacts to birds of priority concern. To get a list of all birds potentially present in your project area, please visit the [E-bird Explore Data Tool](#).

#### What does IPaC use to generate the probability of presence graphs for the migratory birds potentially occurring in my specified location?

The probability of presence graphs associated with your migratory bird list are based on data provided by the [Avian Knowledge Network \(AKN\)](#). This data is derived from a growing collection of [survey, banding, and citizen science datasets](#).

Probability of presence data is continuously being updated as new and better information becomes available.

#### How do I know if a bird is breeding, wintering, migrating or present year-round in my project area?

To see what part of a particular bird's range your project area falls within (i.e. breeding, wintering, migrating or year-round), you may refer to the following resources: The [The Cornell Lab of Ornithology All About Birds Bird Guide](#), or (if you are unsuccessful in locating the bird of interest there), the [Cornell Lab of Ornithology Neotropical Birds guide](#). If a bird entry on your migratory bird species list indicates a breeding season, it is probable the bird breeds in your project's counties at some point within the time-frame specified. If "Breeds elsewhere" is indicated, then the bird likely does not breed in your project area.

## Facilities

## Wildlife refuges

Any activity proposed on [National Wildlife Refuge](#) lands must undergo a 'Compatibility Determination' conducted by the Refuge. Please contact the individual Refuges to discuss any questions or concerns.

THERE ARE NO REFUGES AT THIS LOCATION.

## Fish hatcheries

THERE ARE NO FISH HATCHERIES AT THIS LOCATION.

## Wetlands in the National Wetlands Inventory

Impacts to [NWI wetlands](#) and other aquatic habitats may be subject to regulation under Section 404 of the Clean Water Act, or other State/Federal statutes.

For more information please contact the Regulatory Program of the local [U.S. Army Corps of Engineers District](#).

This location overlaps the following wetlands:

FRESHWATER POND

[PUSI](#)  
[PUBK](#)  
[PUSIx](#)

RIVERINE

[R4SBlx](#)

A full description for each wetland code can be found at the National Wetlands Inventory website: <https://ecos.fws.gov/ipac/wetlands/decoder>

### Data limitations

The Service's objective of mapping wetlands and deepwater habitats is to produce reconnaissance level information on the location, type and size of these resources. The maps are prepared from the analysis of high altitude imagery. Wetlands are identified based on vegetation, visible hydrology and geography. A margin of error is inherent in the use of imagery; thus, detailed on-the-ground inspection of any particular site may result in revision of the wetland boundaries or classification established through image analysis.

The accuracy of image interpretation depends on the quality of the imagery, the experience of the image analysts, the amount and quality of the collateral data and the amount of ground truth verification work conducted. Metadata should be consulted to determine the date of the source imagery used and any mapping problems.

Wetlands or other mapped features may have changed since the date of the imagery or field work. There may be occasional differences in polygon boundaries or classifications between the information depicted on the map and the actual conditions on site.

### Data exclusions

Certain wetland habitats are excluded from the National mapping program because of the limitations of aerial imagery as the primary data source used to detect wetlands. These habitats include seagrasses or submerged aquatic vegetation that are found in the intertidal and subtidal zones of estuaries and nearshore coastal waters. Some deepwater reef communities (coral or tubercid worm reefs) have also been excluded from the inventory. These habitats, because of their depth, go undetected by aerial imagery.

### Data precautions

Federal, state, and local regulatory agencies with jurisdiction over wetlands may define and describe wetlands in a different manner than that used in this inventory. There is no attempt, in either the design or products of this inventory, to define the limits of proprietary jurisdiction of any Federal, state, or local government or to establish the geographical scope of the regulatory programs of government agencies. Persons intending to engage in activities involving modifications within or adjacent to wetland areas should seek the advice of appropriate federal, state, or local agencies concerning specified agency regulatory programs and proprietary jurisdictions that may affect such activities.

## Appendix B. Observed Floral and Faunal Species

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## Observed Botanical Species

| Scientific Name                                | Common Name                     |
|--|---------------------------------|
| <b>PINOPHYTA</b>                               |                                 |
| <b>GYMNOSPERMS</b>                             |                                 |
| <b>Ephedraceae</b>                             | <b>Ephedra family</b>           |
| <i>Ephedra californica</i>                     | California jointfir             |
| <b>MAGNOLIOPHYTA: MAGNOLIOPSIDA</b>            | <b>DICOT FLOWERING PLANTS</b>   |
| <b>Amaranthaceae</b>                           | <b>Amaranth family</b>          |
| <i>Amaranthus albus</i> *                      | Prostrate pigweed               |
| <b>Asteraceae</b>                              | <b>Sunflower family</b>         |
| <i>Ambrosia acanthicarpa</i>                   | Annual bur-sage                 |
| <i>Ambrosia dumosa</i>                         | White bur-sage                  |
| <i>Encelia farinosa</i>                        | Brittlebush                     |
| <b>Boraginaceae</b>                            | <b>Borage family</b>            |
| <i>Amsinckia menziesii</i>                     | Menzies' fiddleneck             |
| <i>Cryptantha</i> sp.                          | Cryptantha                      |
| <i>Heliotropium curassavicum</i>               | Salt heliotrope                 |
| <i>Plagiobothrys</i> sp.                       | Popcornflower                   |
| <b>Brassicaceae</b>                            | <b>Mustard family</b>           |
| <i>Brassica tournefortii</i> *                 | Sahara mustard                  |
| <i>Sisymbrium irio</i> *                       | London rocket                   |
| <b>Cactaceae</b>                               | <b>Cactus family</b>            |
| <i>Cylindropuntia echinocarpa</i>              | Silver cholla                   |
| <i>Cylindropuntia ramosissima</i>              | Diamond cholla                  |
| <b>Chenopodiaceae</b>                          | <b>Saltbush family</b>          |
| <i>Atriplex canescens</i>                      | Fourwing saltbush               |
| <i>Atriplex polycarpa</i>                      | Cattle saltbush                 |
| <i>Salsola tragus</i> *                        | Russian thistle                 |
| <i>Medicago sativa</i> *                       | Alfalfa                         |
| <i>Prosopis</i> sp.                            | Mesquite                        |
| <b>Loasaceae</b>                               | <b>Loasa family</b>             |
| <i>Petalonyx</i> sp.                           | Sandpaper plant                 |
| <b>Myrtaceae</b>                               | <b>Myrtle family</b>            |
| <i>Eucalyptus</i> sp.*                         | Eucalyptus                      |
| <b>Polygonaceae</b>                            | <b>Buckwheat family</b>         |
| <i>Eriogonum fasciculatum</i>                  | California buckwheat            |
| <b>Tamaricaceae</b>                            | <b>Tamarisk family</b>          |
| <i>Tamarix aphylla</i> *                       | Athel                           |
| <i>Tamarix</i> sp.*                            | Tamarisk                        |
| <b>MAGNOLIOPHYTA: LILIOPSIDA</b>               | <b>MONOCOT FLOWERING PLANTS</b> |
| <b>Poaceae</b>                                 | <b>Grass family</b>             |
| <i>Avena</i> sp.*                              | Oat                             |
| <i>Bromus madritensis</i> ssp. <i>rubens</i> * | Red brome                       |

*Bromus tectorum*\*

*Hordeum* sp.

*Schismus* sp.\*

Cheatgrass

Wild barley

Mediterranean grass

## Observed Zoological Species

### INSECTA (HEXAPODA)

Apidae

Subfamily Apinae

Tribe Apini

*Apis mellifera*

### Superfamily Vespoidea

Mutillidae

*Dasymutilla sackeni*

Pompilidae

*Pepsis chrysothermis*

Formicidae

*Messor* sp.

*Pogonomyrmex* sp.

### LEPIDOPTERA

Pieridae

Subfamily Coliadinae

*Colias* sp.

Lycaenidae

Riodinidae

*Apodemia mormo deserti*

Bombyliidae

unidentified spp.

### INSECTS

Carpenter, Cuckoo, Digger, Bumble, and Honey Bees

Digger, bumble, and honey bees

Honey bees

Honey bee

Velvet Ants

White velvet ant

Spider Wasps

Tarantula hawk

Ants

Black harvester ant

Red harvester ant

### BUTTERFLIES AND MOTHS

Sulphurs and Whites

Sulphurs

Sulphur

Gossamer-Wing Butterflies

Metalmarks

Desert metalmark

Bee Flies

Bee fly

### REPTILIA

Iguanidae

*Dipsosaurus dorsalis*

Crotaphytidae

*Callisaurus draconoides*

*Sceloporus occidentalis*

*Uta stansburiana*

Teiidae

*Aspidoscelis tigris tigris*

### REPTILES

Iguanid Lizards

Desert Iguana

Collared and Leopard Lizards

Zebra-tailed lizard

Western fence lizard

Common side-blotched lizard

Whiptails

Great Basin whiptail

### AVES

Accipitridae

*Buteo jamaicensis*

Falconidae

*Falco sparverius*

Columbidae

*Zenaidura macroura*

Cuculidae

### BIRDS

Kites, Hawks, and Eagles

Red-tailed hawk

Falcons

American kestrel

Pigeons and Doves

Mourning dove

Cuckoos and Roadrunners

|                                       |                                       |
|---------------------------------------|---------------------------------------|
| <i>Geococcyx californianus</i>        | Greater roadrunner                    |
| <b>Corvidae</b>                       | <b>Crows and Ravens</b>               |
| <i>Corvus corax</i>                   | Common raven                          |
| <b>Alaudidae</b>                      | <b>Larks</b>                          |
| <i>Eremophila alpestris ammophila</i> | Mojave horned lark                    |
| <b>Hirundinidae</b>                   | <b>Swallows</b>                       |
| <i>Stelgidopteryx serripennis</i>     | Northern rough-winged swallow         |
| <b>Mimidae</b>                        | <b>Mockingbirds and Thrashers</b>     |
| <i>Mimus polyglottos</i>              | Northern mockingbird                  |
| <b>Sturnidae</b>                      | <b>Starlings</b>                      |
| <i>Sturnus vulgaris*</i>              | European starling                     |
| <b>Icteridae</b>                      | <b>Blackbirds, Orioles and Allies</b> |
| <i>Agelaius phoeniceus</i>            | Red-winged blackbird                  |
| <i>Molothrus ater</i>                 | Brown-headed cowbird                  |
| <b>Fringillidae</b>                   | <b>Finches</b>                        |
| <i>Carpodacus mexicanus</i>           | House finch                           |
| <b>Passeridae</b>                     | <b>Old World Sparrows</b>             |
| <i>Passer domesticus*</i>             | House sparrow                         |

|                                  |
|----------------------------------|
| <b>MAMMALIA</b>                  |
| <b>LAGOMORPHA</b>                |
| <b>Leporidae</b>                 |
| <i>Sylvilagus audubonii</i>      |
| <b>RODENTIA</b>                  |
| <b>Sciuridae</b>                 |
| <i>Ammospermophilus leucurus</i> |
| <i>Spermophilus beecheyi</i>     |
| <i>Spermophilus tereticaudus</i> |

|                                |
|--------------------------------|
| <b>MAMMALS</b>                 |
| <b>RABBITS, HARES AND PIKA</b> |
| <b>Rabbits and Hares</b>       |
| Desert cottontail              |
| <b>RODENTS</b>                 |
| <b>Squirrels</b>               |
| White-tailed antelope squirrel |
| California ground squirrel     |
| Round-tailed ground squirrel   |

## Appendix C. Site Photographs

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**Photograph 1.** Desert Saltbush Scrub in the eastern portion of the project area. View looking north.



**Photograph 2.** Desert Saltbush Scrub with fine, sandy soils/sand dunes in southeastern portion of project area. View looking southwest.



**Photograph 3.** Creosote Bush Scrub habitat in the eastern portion of the project area. View looking west.



**Photograph 4.** Potential historic desert tortoise burrow located in southeastern portion of the project area.



**Photograph 5.** Agriculture (Pistachio Orchard) community shown on right side of photograph. View looking south.



**Photograph 6.** Disturbed Saltbush Scrub community adjacent to Agriculture near central, northern portion of site. View looking west.



**Photograph 7.** Agriculture near northern central portion of the project area showing inactive agricultural field.



**Photograph 8.** Culvert intended to convey runoff from ponds associated with the decommissioned energy plant under a dirt access road and into an isolated basin. View looking southwest.

