BIOLOGICAL RESOURCES TECHNICAL REPORT

Lancaster Waste to Renewable Hydrogen (WTRH2) Project

Prepared for:



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Executive Summary

This report was prepared under contract to the City of Lancaster (City) to describe biological resources at the Lancaster Waste to Renewable Hydrogen (WTRH2) Project (project). Lancaster Holding Company LLC will design and construct a 100% Renewable Hydrogen (RH_2) production facility in Lancaster, California that will convert the biogenic fraction of pre-landfilled waste to RH_2 for use in transportation and supply of in-state Hydrogen Refueling Stations (HRS), including 90 HRS operated by Shell Hydrogen and Iwatani Corporation of America (Iwatani), over the next decade. Aspen Environmental Group (Aspen) assessed potential occurrence of special-status plants and animals based on habitat, geographic and elevational range, and data from field surveys conducted on April 21 and June 8, 2022.

One candidate species for State listing, Western Joshua tree, is present on the project site. One State listed species, Swainson's hawk, is known to forage throughout the region and has a high potential to be present on the project site. No additional State or federal listed species have a moderate-to-high potential to be present on the project site.

Several additional special-status wildlife species were observed or have at least a moderate potential to be present and include golden eagle, Northern California legless lizard, burrowing owl, loggerhead shrike, Le Conte's thrasher, Townsend's big-eared bat, Cooper's hawk, ferruginous hawk, northern harrier, merlin, Crotch bumble bee, California glossy snake, Bell's sage sparrow, and mountain plover. In addition to special-status wildlife, two special-status plants were determined to have at least a moderate potential to be present and include white pygmy-poppy and crowned muilla.

No sensitive natural communities are present on the project site. The project site is not within any designated wildlife corridors but is expected to provide localized wildlife movement within the region. The project site is likely to be used as a forage or dispersal area for wildlife in the immediate vicinity of the project site.

Several recommendations have been included in this report to avoid or minimize potential impacts to special-status biological resources. These include nesting birds, burrowing owl, Western Joshua tree, and other special-status wildlife species. Implementation of these measures will ensure compliance with applicable laws and regulations.

1.0 Introduction

The State of California has set ambitious targets to accelerate the development of its hydrogen fueling network with a strategic focus on growing the number of in-state hydrogen refueling stations (HRS) and providing affordable fueling for zero-emission vehicles. In particular, public California agencies, including the California Energy Commission (CEC), California Fuel Cell Partnership (CaFCP), and California Air Resources Board (CARB), are supporting the state's goals to achieve 200 HRS by 2025 and 1,000 HRS by 2030, but only 43 HRS are currently located in California. As such, there is an immense demand for new renewable hydrogen (RH_2) production facilities to supply and keep pace with the projected growth of HRS and hydrogen fuel cell vehicles.

In line with California's hydrogen fueling network development and zero-emission goals, SG H2 Lancaster Holding Company LLC (SGH2) will design and construct a 100% RH_2 production facility in Lancaster, California that will convert the biogenic fraction of pre-landfilled waste to RH_2 for use in transportation and supply of in-state HRS, including 90 HRS operated by Shell Hydrogen and Iwatani Corporation of America (Iwatani), over the next decade.

SGH2 was created specifically for the Lancaster Waste to Renewable Hydrogen (WTRH2) Project (project) and is 100% owned by SGH2 Energy Global, a company focused on the gasification of waste into RH_2 and holds the exclusive rights to build, own, and operate its state-of-the-art Solena Plasma Enhanced Gasifier (SPEG) technology to produce RH_2. As compared to the existing methods of producing RH_2 using electrolysis or reforming natural gas, SPEG technology is a transformative solution that requires significantly less water, electricity, and land resources, is more cost-effective, and by being feedstock flexible, has the ability to increase the efficiency of the overall hydrogen production supply chain.

In partnership with the City, SGH2 will install the first SPEG system in California with the capacity to convert 42,000 metric tons per year of unrecyclable mixed waste paper into 4,570 metric tons of RH_2 per year, thereby displacing approximately 70,000 tons of CO_2 annually. As the prime applicant, SGH2 is requesting $3 million from the CEC GFO-20-609 grant fund, which will assist with the costs of SPEG equipment procured for the project.

2.0 Project and Property Description

2.1 Project Description

The proposed project consists of the construction and operation of a gasification facility that would produce hydrogen (H_2) from unrecyclable mixed waste paper feedstock. Feedstock is defined as a raw material to supply or fuel a machine or industrial process. The facility would use 42,000 metric tons per year of unrecyclable mixed waste paper provided by the City. The City has submitted a Letter of Interest to supply the feedstock for the project at a quantity of 120 tons per day for 10 years. A long-term feedstock supply agreement has also been secured with the Allan Company. The feedstock would be gasified using a Plasma Enhanced and Oxygen-fired Gasifier to produce a H_2-rich gas, which would be further enhanced and conditioned to 99.99 percent pure renewable H_2. The H_2 gas would be transported off-site in pressurized containers for use by Shell.

The gasification process would be conducted through the use of Solena Plasma Enhanced Gasification (SEPG) technology, which would allow the complete molecular dissociation of organic hydrocarbon

compounds and conversion into a clean and high energy biosyngas[1] composed primarily of carbon monoxide (CO) and H_2. The gasifier would operate under limited oxygen and atmospheric pressure conditions. Because of these conditions, the process does not result in combustion or burning of the feedstock and does not produce any products of combustion, such as bottom or fly ashes, or carcinogenic semi-volatile organic compounds (SVOCs), such as dioxins, furans, or other SVOCs.

The WTRH2 facility is designed to operate 24 hours a day, 7 days a week for 350 days each year, or 8,400 hours per year. The facility is expected to employ approximately 43 individuals. During business hours, a total of 25 administrative, technical, and support staff would be at the facility. The operations personnel would be organized into four shifts of 6 people with each shift working 12 hours per day (two shifts per day with the other two shifts off.) This does not include other support personnel that are anticipated to be contractually engaged through 3rd parties, such as security personnel.

2.2 Project Location

The City of Lancaster proposes to construct a WTRH2 facility on an approximately 15-acre property located north of Avenue M between 5th and 6th Street East in Lancaster, California. The proposed project site is located on three parcels (Assessor's Parcel Numbers [APNs] 3126-017-028, 3126-017-040, and 3126-017-039). The properties are vacant, undeveloped parcels designated as Heavy Industrial (City of Lancaster, 2009). Adjacent and surrounding areas are also zoned as Heavy Industrial and include vacant land, industrial uses, and three single-family residences. The project site is approximately two miles east of the Antelope Valley Freeway (State Route 14) in the southern portion of the City of Lancaster, just north of the City of Palmdale (see Figure 1 and Figure 2 [Attachment 1]).

2.3 Surrounding Land uses and Setting

The project site is located in an industrial area in the southern portion of the City of Lancaster, directly north of the City of Palmdale. The Union Pacific Railroad/Metrolink Antelope Valley Line and Sierra Highway are approximately 0.5 mile to the west of the project site. The Antelope Valley Freeway (State Route 14) is located approximately two miles west of the project site. Palmdale Regional Airport and United States Air Force Plant 42, a classified aircraft manufacturing plant, are approximately 0.7 mile to the south. Surrounding land uses include the following:

- **North:** A cement mixing plant, charter bus rental company, and automobile towing and recovery facility, which are zoned Heavy Industrial, are located to the north of the project site (City of Lancaster, 2009).
- **East:** Vacant, undeveloped land and a single-family residence, which are zoned Heavy Industrial, are located to the east of the project site. The single-family residence is a legal non-conforming use.
- **South:** Across Avenue M and directly south of the project site are four water storage tanks in the City of Palmdale on a property owned by the Los Angeles County Waterworks District; and vacant, undeveloped land is located to the southeast and southwest in the City of Palmdale, which are zoned Public Facility (City of Palmdale, 1993).

[1] Syngas, or synthesis gas, is a fuel gas mixture consisting primarily of hydrogen and carbon monoxide, and very often carbon dioxide. Biosyngas is renewable syngas made from biomass.

- **West:** Vacant, undeveloped land, two single-family residences, and a transmission and automobile repair center, which are zoned Heavy Industrial, are located to the west of the project site. The single-family residences are legal non-conforming uses.

3.0 Methods

Prior to the site visit, Aspen biologist Theresa Sims reviewed available literature to identify special-status plants, wildlife, and vegetation communities known from the vicinity of the project site. This review included searches of the California Natural Diversity Database (CNDDB; CDFW, 2022) for the following USGS 7.5-minute topographic quadrangles (quads): Lancaster West, Lancaster East, Rosamond, Rosamond Lake, Ritter Ridge, Palmdale, Del Sur, Sleepy Valley, Alpine Butte, and Littlerock (see Attachment 2). Ms. Sims also reviewed the California Native Plant Society (CNPS) *On-line Electronic Inventory* (CNPS, 2022) for the same quads, and the Consortium of California Herbaria data (CCH, 2022) for locations of special-status plants in the vicinity of the site.

Several special-status species identified during the literature review only occur in specialized native habitats that are absent from the project site. These plants and animals are listed in Attachment 3 but are not addressed further in this report.

To verify field conditions, a reconnaissance-level biological survey was conducted on April 21, 2022, by Aspen biologists Justin Wood and Theresa Sims. In addition, a focused biological survey was conducted by Nikolai Starzak on June 8, 2022. The survey focused on assessing the area for the potential to support special-status species and searching for any special-status plants and wildlife. During the survey, the biologist walked 10 meter transects over the project site and access roads, focusing their attention on regions with the highest potential to support special-status species. Special attention was taken to assess potential habitat for desert tortoise, burrowing owl, and Mohave ground squirrel habitat suitability. All species observed during the surveys were noted (see Attachment 4) and a Global Positioning System (GPS) unit was used to record locations of any special-status species detected (photos of the project site are provided in Attachment 5).

The field survey also consisted of a focused botanical survey which was conducted in conformance with California Department of Fish and Wildlife (CDFW) guidelines (CDFW, 2018). The surveys were (a) conducted during flowering seasons for the special status plants known from the area, (b) floristic in nature, (c) consistent with conservation ethics, (d) systematically covered all habitat types on the sites, and (e) well documented by this report and by voucher specimens to be deposited at the California Botanic Garden and other herbaria. Plants of uncertain identity were collected and identified later using keys, descriptions, and illustrations in Baldwin et al. (2012).

General notes were recorded on the vegetation within the project site. Vegetation within the project site is further described below using the names and descriptions in *A Manual of California Vegetation* (Sawyer et al., 2009).

Vegetation mapping was done by drawing tentative boundaries onto high-resolution aerial images during the site visit, then digitizing these boundaries into Geographic Information System (GIS) shapefiles (see Figure 3 [Attachment 1]). Vegetation was mapped digitally using ArcGIS (version 10.7) and one-foot pixel aerial imagery. The smallest mapping unit was approximately 0.05-acre and most mapped vegetation boundaries are accurate to within approximately 5-feet.

Any vegetation map is subject to imprecision for several reasons:

1. Vegetation types tend to intergrade on the landscape so that there are no true boundaries in the vegetation itself. In these cases, a mapped boundary represents best professional judgment.
2. Vegetation types as they are named and described tend to intergrade; that is, a given stand of real-world vegetation may not fit into any named type in the classification scheme used. Thus, a mapped and labeled polygon is given the best name available in the classification, but this name does not imply that the vegetation unambiguously matches its mapped name.
3. Vegetation tends to be patchy. Small patches of one named type are often included within mapped polygons of another type. The size of these patches varies, depending on the minimum mapping units and scale of available aerial imagery.

4.0 General Biological Survey Results

4.1 Vegetation and Cover Types

Vegetation within the project site consists of approximately 68 percent native desert shrubland and approximately 32 percent disturbed or developed areas. These vegetation and cover types are described in detail below and acreages of the vegetation and land cover areas are presented in Table 1 and shown in Figure 3 (Attachment 1).

Table 1. Vegetation and Cover Types on the Project Site

Vegetation or Cover Types	Area in Project Site (acres)
Creosote bush scrub	2.61
Nevada joint fir - Anderson's box thorn - spiny hop sage scrub	5.20
Disturbed/Developed	5.55
Total:	**13.36**

Creosote bush scrub (*Larrea tridentata* Shrubland Alliance). Vegetation within the northeast corner of the project site is dominated by creosote bush (*Larrea tridentata*). Additional species such as burro weed (*Ambrosia dumosa*) are also present. Trash and other debris are present within this community. This community is not recognized by CDFW as a Sensitive Natural Community (CDFW, 2021).

Nevada joint fir - Anderson's boxthorn - spiny hop sage scrub (*Ephedra nevadensis - Lycium andersonii - Grayia spinosa* Shrubland Alliance). Vegetation within the majority of the project site is dominated by species such as Nevada ephedra (*Ephedra nevadensis*), Anderson thornbush (*Lycium andersonii*), and Cooper's box thorn (*Lycium cooperi*). Additional species such as creosote bush, burro weed, burrobrush (*Ambrosia salsola*), rubber rabbitbrush (*Ericameria nauseosa*), and Western Joshua tree (*Yucca brevifolia*), are also present. This community is not recognized by CDFW as a Sensitive Natural Community (CDFW, 2021).

Disturbed/Developed. This cover type was used to map portions of the project site that are developed or disturbed and lack natural vegetation. Within the project site, these areas include paved and unpaved access roads as well as the northwest quarter of the project site that was recently filled with dirt. These areas are largely unvegetated but may have some species present such as brome grasses (*Bromus* spp.) and common Mediterranean grass (*Schismus barbatus*). Trash and other debris are also present within these areas.

4.2 Sensitive Natural Communities

The natural vegetation communities present on the project site are described in Section 4.1, above. None of the vegetation mapped within the project site are recognized as sensitive natural communities. A total of six sensitive natural communities are known from the region and were identified in the literature review: southern coast live oak riparian forest, southern cottonwood willow riparian forest, southern riparian scrub, southern willow scrub, valley needlegrass grassland, and wildflower field (CDFW, 2022). None of these sensitive natural communities are present on the project site.

4.3 Wildlife

Wildlife and wildlife sign observed during the field survey includes species common in these habitats such as California ground squirrel (*Otospermophilus beecheyi*), desert cottontail (*Sylvilagus audubonii*), common raven (*Corvus corax*), European collard dove (*Streptopelia decaocto*), Say's phoebe (*Sayornis saya*), house finch (*Haemorhous mexicanus*), lesser goldfinch (*Spinus psaltria*), side blotched lizard (*Uta stansburiana*), and cabbage white butterfly (*Pieris rapae*). No special-status wildlife species were observed. Other wildlife species common throughout the region are also likely to occur on the project site but were not observed. These may include secretive reptiles, burrowing mammals, and less common wide-ranging species. Attachment 4 lists all species observed or detected on the project site during 2022 surveys.

5.0 Special-Status Species Results

Plants or wildlife may be ranked as special-status species due to declining populations, vulnerability to habitat change, or restricted distributions. Certain species have been listed as threatened or endangered under the Federal Endangered Species Act (FESA) or California Endangered Species Act (CESA). Others have not been listed, but declining populations or habitat availability cause concern for their long-term viability. These species of conservation concern appear on lists compiled by resource agencies or private conservation organizations. In this report, "special-status species" includes all plants and wildlife listed as threatened or endangered or included in these other compilations if they were classified in one or more of the categories listed in Table 2.

Table 2. Definitions of Special-Status Species

Species Designation	Agency	Definition
Federal Endangered	USFWS	A species that is in danger of extinction throughout all or a significant portion of its range.
Federal Threatened	USFWS	A species that is likely to become endangered within the foreseeable future throughout all or a significant portion of its range.
Federal Candidate	USFWS	A species the US Fish and Wildlife Service (USFWS) has designated as a candidate for listing under Section 4 of the Federal Endangered Species Act (FESA), published in its annual candidate review, and defined as a species that has sufficient information on its biological status and threats to propose it as endangered or threatened under the FESA, but for which development of a proposed listing regulation is precluded by other higher priority listing activities.
Federal Proposed	USFWS	A species that the USFWS has proposed for listing under Section 4 of the FESA, by publishing a Proposed Rule in the Federal Register.

Table 2. Definitions of Special-Status Species

Species Designation	Agency	Definition
Protected under the federal Bald and Golden Eagle Protection Act (BGEPA)	USFWS	Bald and golden eagles are protected from take, including harassment, except as permitted by USFWS.
State Endangered	CDFW	A species that is in serious danger of becoming extinct throughout all or a significant portion of its range due to one or more causes, including loss or change in habitat, overexploitation, predation, competition, or disease.
State Threatened	CDFW	A species that, although not presently threatened with extinction, is likely to become an endangered species in the foreseeable future in the absence of special protection and management efforts.
State Candidate	CDFW	A species that has been officially noticed by the California Fish and Game Commission as being under review by the CDFW for addition to the threatened or endangered species lists. CDFW candidate species are given no extra-legal protection under state laws.
Fully Protected	CDFW	Animal species fully protected under the California Fish and Game Code. The CDFW may not issue take authorization except for scientific purposes or as provided under SB 618 (2011).
Species of Special Concern	CDFW	A species, subspecies, or distinct population of an animal native to California that currently satisfies one or more of the following (not necessarily mutually exclusive) criteria: • Is extirpated from the state or, in the case of birds, in its primary seasonal or breeding role. • Is on the federal, but not state list, of threatened or endangered species. • Meets the state definition of threatened or endangered but has not formally been listed. • Is experiencing or formerly experienced serious (noncyclical) population declines or range retractions (not reversed) that, if continued or resumed, could qualify it for state threatened or endangered status; or • Has naturally small populations exhibiting high susceptibility to risk from any factor(s) that if realized, could lead to declines that would qualify it for state threatened or endangered status. This is an administrative designation and carries no formal legal status. This designation is intended to focus attention on animals at conservation risk, to stimulate research on poorly known species, and to achieve conservation and recovery before these species meet the California Endangered Species Act (CESA) criteria for listing. California Species of Special Concern are considered under the California Environmental Quality Act (CEQA) and require a discussion of impacts and appropriate mitigation to reduce impacts.
Watch List	CDFW	Taxa that were previously Species of Special Concern, but no longer merit that status or which do not meet criteria for designation as Species of Special Concern, but for which there is concern and a need for additional information to clarify status.
Special Animal	CDFW	An animal species that is tracked in the CNDDB but has no other status at the state or federal level.
California Rare Plant Rank (CRPR) 1A	CDFW	Plants presumed to be extinct in California.
CRPR 1B	CDFW	Plants rare or endangered in California and elsewhere.
CRPR 2A	CDFW	Plants presumed extinct in California but more common elsewhere.
CRPR 2B	CDFW	Plants rare or endangered in California but more common elsewhere.

Table 2. Definitions of Special-Status Species

Species Designation	Agency	Definition
CRPR 3	CDFW	Plants about which more information is needed – a review list.
CRPR 4	CDFW	Plants of limited distribution – a watch list.

All special-status plants and wildlife occurring in the region in habitats similar to those found on the project site are addressed in Table 3, with brief descriptions of habitat and distribution, conservation status, and probability of occurrence on the site.

Table 3. Special-Status Species Addressed

Species Name	Habitat Requirements	Flowering or Activity Season	Conservation Status	Potential to Occur
PLANTS				
Calochortus striatus Alkali mariposa-lily	Chaparral, chenopod scrub, Mojavean desert scrub, meadows and seeps and wetlands. Alkaline meadows and ephemeral washes. 230-5200 feet elev.	April-June	Fed: None CA: S2S3, 1B.2	**Low**; marginally suitable habitat, known from within 3 miles.
Calystegia peirsonii Peirson's morning-glory	Chaparral, coastal scrub, chenopod scrub, cismontane woodland, lower montane coniferous forest, native grasslands. Often in disturbed areas or along roadsides or in grassy, open areas. 100-5,000 feet elev.	April-June	Fed: None CA: S4,4.2	**Low**; marginally suitable habitat, known from within 6 miles.
Canbya candida White pygmy-poppy	Joshua tree woodland, Mojavean desert scrub, pinyon and juniper woodland. Gravelly, sandy, granitic places. 1900-4800 feet elev.	March-June	Fed: None CA: S3S4, 4.2	**Moderate**; suitable habitat, known from within 3 miles.
Cryptantha clokeyi Clokey's cryptantha	Mojavean desert scrub. Sandy or gravelly soils. 2460-6200 feet elev.	April only	Fed: None CA: S3, 1B.2	**Low**; marginally suitable habitat, known from within 6 miles.
Loeflingia squarrosa var. *artemisiarum* Sagebrush loeflingia	Great Basin scrub, Sonoran Desert scrub, desert dunes. Sandy flats and dunes. Sandy areas around clay slicks w/ *Sarcobatus*, *Atriplex*, *Tetradymia*, etc. 2300-5300 feet elev.	April-May	Fed: None CA: S2, 2B.2	**Low**; marginally suitable habitat, known from within 6 miles.
Muilla coronata Crowned muilla	Chenopod scrub, Joshua tree woodland, Mojavean desert scrub, Pinyon and juniper woodland; Inyo, Kern, Los Angeles, San Bernardino, and Tulare Cos; 2,000-6,500 feet. elev.	March-April	Fed: None CA: S3, 4.2	**High**; suitable habitat, known from within 1 mile.
Opuntia basilaris var. *brachyclada* Short-joint beavertail	Chaparral, Joshua tree woodland, Mojavean desert scrub, pinyon and juniper woodland. Sandy soil or coarse, granitic loam. 1390-6600 feet elev.	April-June	Fed: None CA: S3, 1B.2	**Low**; marginally suitable habitat, known from within 6 miles.
Yucca brevifolia Western Joshua tree	Joshua tree woodland, montane chaparral, pinyon and juniper woodland, Sonoran and Mojavean desert scrub.		Fed: None CA: **CAND**, SNR	**Present;** two trees observed on site and addressed below.
INVERTEBRATES				

Table 3. Special-Status Species Addressed

Species Name	Habitat Requirements	Flowering or Activity Season	Conservation Status	Potential to Occur
Bombus crotchii Crotch bumble bee	Colonial insect; open grassland and scrub; underground colonies, often in old rodent burrows. Many food plants including *Chaenactis, Lupinus, Phacelia, Salvia*, and *Eriogonum*. Much of southern CA.	Spring – Summer	Fed: None CA: S1S2	**Moderate**; suitable habitat and food plants present; known from within about 3 miles.
Helminthoglypta fontiphila Soledad shoulderband	Snail; frequently found in riparian habitat; may be found in rock piles, debris, or under dead yuccas where cover is unavailable.	Year-round	Fed: None CA: S1	**Low**; suitable habitat is minimal; known from within about 5 miles.
REPTILES				
Anniella pluchra Northern California legless lizard	Sandy or loose loamy soils under sparse vegetation. Soil moisture is essential. They prefer soils with a high moisture content.	Year-round	Fed: None CA: CSC, S3	**Moderate**; marginally suitable habitat present; know from within about 2 miles.
Arizona elegans occidentalis California glossy snake	Generalist reported from a range of scrub and grassland habitats, often with loose or sandy soils.	Year-round	Fed: None CA: CSC, S2	**High**; suitable habitat present; known from within about 2 miles.
Gopherus agassizii Desert tortoise	Common in desert scrub, desert wash, and Joshua tree habitats; occurs in almost every desert habitat. Require friable soil for burrow and nest construction.	Year-round	Fed: **THR** CA: **THR**, S2S3	**Low**; suitable habitat present; more than 10 miles from nearest known occurrence.
BIRDS				
Accipiter cooperii Cooper's hawk	Mature forests, open woodlands, wood edges, and riparian habitats. Sea-level-8,200 ft.	Year-round	Fed: None CA: S4, WL	**High** (foraging); suitable habitat present, known within 2 miles. **Minimal** (nesting); suitable nesting habitat is absent.
Aquila chrysaetos Golden eagle	Forages in open grasslands, desert scrub and agricultural fields. Nests on ledges on cliff faces, rock outcrops and occasionally in large trees.	Year-round	Fed: **BGEPA** CA: S3, FP	**Moderate** (foraging); suitable habitat present; known within 3 miles. **Minimal** (nesting); suitable nesting habitat is absent.
Artemisiospiza belli belli Bell's sage sparrow	Coastal sage scrub, chaparral, saltbush scrub, cismontane central and southern Calif. NW Baja Calif.	Year-round	Fed: None CA: S3, WL	**High** (foraging); suitable habitat present, known within 1 mile. **Moderate** (nesting); suitable nesting habitat is present.

Table 3. Special-Status Species Addressed

Species Name	Habitat Requirements	Flowering or Activity Season	Conservation Status	Potential to Occur
Athene cunicularia Burrowing owl	Open, dry annual or perennial grasslands, deserts, and scrublands characterized by low-growing vegetation.	Year-round	Fed: None CA: CSC, S3	**High** (foraging); suitable habitat present, known within 2 miles. **Low** (nesting); limited nesting habitat present.
Buteo regalis Ferruginous hawk	Open grasslands, sagebrush flats, desert scrub, low foothills and fringes of pinyon and juniper habitats. Eats mostly lagomorphs, ground squirrels, and mice.	Winter	Fed: None CA: S3S4, WL	**High** (foraging); suitable habitat present, known within 1 mile. **Minimal** (nesting); does not nest in region.
Buteo swainsoni Swainson's hawk	Breeds in grasslands with scattered trees, juniper-sage flats, riparian areas, savannahs, and agricultural or ranch lands with groves or lines of trees. Requires adjacent suitable foraging areas such as grasslands.	Spring & Fall	Fed: None CA: **THR**, S3	**High** (foraging); suitable habitat present; recorded in 2010 from within 1.7 miles of the project site. **Minimal** (nesting); no suitable nesting habitat.
Charadrius montanus Mountain plover	Short grasslands, freshly plowed fields, newly sprouting grain fields, and sometimes sod farms.	Winter	Fed: None CA: CSC, S2S3	**Moderate** (foraging); marginally suitable habitat present; recorded in 2002 from within 3.3 miles of the project site. **Minimal** (nesting); does not nest in region.
Circus hudsonius Northern harrier	Coastal salt and freshwater marsh. Nest and forage in grasslands, from salt grass in desert sink to mountain cienagas.	Fall-Spring	Fed: None CA: CSC, S3	**High** (foraging); suitable habitat present; recorded in 2018 from within 1.9 miles of the project site. **Minimal** (nesting); does not nest in region.
Falco columbarius Merlin	Open woodlands, savannahs, edges of grasslands and deserts. Clumps of trees are required for roosting in open country.	Year-round	Fed: None CA: S3S4, WL	**High** (foraging); suitable habitat present; recorded in 2011 from within 1.2 miles of the project site. **Minimal** (nesting); does not nest in region.
Lanius ludovicianus Loggerhead shrike	Broken woodlands, savannah, pinyon-juniper, Joshua tree, and riparian woodlands, desert oases, scrub and washes.	Year-round	Fed: None CA: CSC, S4	**High** (foraging and nesting); suitable habitat present; recorded in 2009 from within 0.6 miles of the project site.

Table 3. Special-Status Species Addressed

Species Name	Habitat Requirements	Flowering or Activity Season	Conservation Status	Potential to Occur
Toxostoma lecontei Le Conte's thrasher	Desert resident; primarily of open desert wash, desert scrub, alkali desert scrub, and desert succulent scrub habitats.	Year-round	Fed: None CA: CSC, S3	**High** (foraging and nesting); suitable habitat present; recorded in 2009 from within 0.6 miles of the project site.
MAMMALS				
Corynorhinus townsendii Townsend's big-eared bat	Roosts in the open, hanging from walls and ceilings. Roosting sites limiting. Extremely sensitive to human disturbance. Found in chaparral, upland forests, Chenopod scrub and Great Basin grassland.	Warm season	Fed None CA: CSC, S2	**Low** (foraging); suitable habitat not present, not known within 5 miles. **Minimal** (roosting); no suitable roost habitat.
Xerospermophilus mohavensis Mohave ground squirrel	Open desert scrub, alkali scrub and Joshua tree woodland. Also feeds in annual grasslands. Restricted to Mojave Desert. Prefers sandy to gravelly soils, avoids rocky areas. Uses burrows at base of shrubs for cover. Nests are in burrows	Year-round	Fed: None CA: **THR**, S2S3	**Low**; Suitable habitat present; likely extirpated from Lancaster area; nearest known occurrences more than 8 miles east.

General references (botany): Baldwin et al., 2012; CDFW, 2022, 2021, 2018; CNPS, 2022; and CCH, 2022. General references (wildlife): American Ornithologists Union, 1998 (including supplements through 2013); Barbour and Davis, 1969; Ebird.org, 2022; Feldhamer et al., 2003; Garrett and Dunn, 1981; Hall, 1981; Hatfield et al., 2015; Jennings and Hayes, 1994; Stebbins, 2003; Wilson and Ruff, 1999; and Zeiner et al., 1990.

Conservation Status

***Federal designations* (*Fed*):** (FESA, USFWS).

END: Federally listed, endangered.
THR: Federally listed, threatened.
Candidate: Sufficient data are available to support federal listing, but not yet listed.
Proposed: Formally proposed for the federal status shown.
BGEPA: Bald and Golden Eagle Protection Act

***State designations* (*CA*):** (CESA, CDFW)

END: State listed, endangered.
THR: State listed, threatened.
CAND. Sufficient data are available to support state listing, but not yet listed.
RARE: State listed as rare (applied only to certain plants).
CSC: California Species of Special Concern. Considered vulnerable to extinction due to declining numbers, limited geographic ranges, or ongoing threats.
WL: Species that were either previously listed as SC and have not been state listed under CESA; or were previously state or federally listed and now are on neither list; or are on the list of "Fully Protected" species.
FP: Fully protected. May not be taken or possessed without permit from CDFW.

CDFW Natural Diversity Data Base Designations: Applied to special-status plants and sensitive plant communities; where correct category is uncertain, CDFW uses two categories or question marks.

S1: Fewer than 6 occurrences or fewer than 1000 individuals or less than 2000 acres.
S1.1: Very threatened
S1.2: Threatened
S1.3: No current threats known
S2: 6-20 occurrences or 1,000-3,000 individuals or 2,000-10,000 acres (decimal suffixes same as above).
S3: 21-100 occurrences or 3,000-10,000 individuals or 10,000-50,000 acres (decimal suffixes same as above).
S4: Apparently secure in California; this rank is clearly lower than S3 but factors exist to cause some concern, i.e., there is some threat or somewhat narrow habitat. No threat rank.
S5: Demonstrably secure or ineradicable in California. No threat rank.
SH: All California occurrences historical (i.e., no records in > 20 years).

SX: Presumed extirpated in California.

California Rare Plant Rank designations. Note: According to the California Native Plant Society (http://www.cnps.org/cnps/rareplants/ranking.php), plants ranked as CRPR 1A, 1B, and 2 meet definitions as threatened or endangered and are eligible for state listing. That interpretation of the state Endangered Species Act is not in general use.

1A: Plants presumed extinct in California.
1B: Plants rare and endangered in California and throughout their range.
2A: Plants presumed extinct in California but more common elsewhere in their range.
2B: Plants rare, threatened or endangered in California but more common elsewhere in their range.
3: Plants about which we need more information; a review list.
4: Plants of limited distribution; a watch list.

California Rare Plant Rank Threat designation extensions:

.1 Seriously endangered in California (over 80% of occurrences threatened / high degree and immediacy of threat)
.2 Fairly endangered in California (20-80% occurrences threatened)
.3 Not very endangered in California (<20% of occurrences threatened or no current threats known)

Definitions of occurrence probability: Estimated occurrence probabilities are based on literature sources cited earlier, field surveys, and habitat analyses reported here.

Present: Observed on the site by qualified biologists.
High: Habitat is a type often utilized by the species and the site is within the known range of the species.
Moderate: Site is within the known range of the species and habitat on the site is a type occasionally used.
Low: Site is within the species' known range but habitat is rarely used, or the species was not found during focused surveys covering less than 100% of potential habitat or completed in marginal seasons.
Minimal: No suitable habitat on the site; or well outside the species' known elevational or geographic ranges; or a focused study covering 100% of all suitable habitat, completed during the appropriate season and during a year of appropriate rainfall, did not detect the species.

5.1 Special-Status Plants

5.1.1 Listed Threatened or Endangered Plants

No federally listed threatened or endangered plant species were observed on the project site during the field survey, and none have a potential to be present. Western Joshua tree (*Yucca brevifolia*) is a state candidate for listing and is present on the project site.

Western Joshua tree (*Yucca brevifolia*). Joshua trees are native to the arid southwestern United States, and they are found in the Mojave Desert between 1,300 to 5,900 feet elevation. They are monocotyledonous trees with long (7-15 inch), evergreen leaves. Joshua trees are fast growers for a desert species; new seedlings may grow at an average rate of 3.0 inches per year in their first 10 years, then only about 1.5 inches per year. The trunk consists of thousands of small fibers and lacks annual growth rings, making determining the tree's age difficult. This tree has a top-heavy branch system, but also what has been described as a "deep and extensive" root system, with roots reaching down to 36 feet. If it survives the rigors of the desert, it can live for hundreds of years; some specimens survive a thousand years. New plants can grow from seed, but in some populations, new stems grow from underground rhizomes that spread out around the parent tree. The project site contains 2 live Western Joshua trees which are summarized below and shown in Figure 4 (Attachment 1). Several very old dead Western Joshua trees were also observed and appear to have been dead for more than ten years. Representative photos of the Western Joshua trees are also provided in Attachment 5.

Table 4. Western Joshua Tree Data

Tree ID	Number of Basal Stems	Stem Height (ft.)	Evidence of Reproduction	Above Ground Branching Present
1	2	3, 1	No	No
2	4	4, 2, 1, 1	No	No

5.1.2 Other Special-Status Plants

California Rare Plant Rank (CRPR) 4 Species. Two CRPR 4 species (i.e., a "watch list," not indicating rarity) have at least a moderate potential to be present on the project site and include white pygmy-poppy (*Canbya candida*) and crowned muilla (*Muilla coronata*). These species have no formal protection and require no additional avoidance or mitigation.

5.2 Special-Status Wildlife

5.2.1 Listed Threatened or Endangered Wildlife

This section includes wildlife species listed as threatened or endangered under the FESA or CESA. No listed threatened or endangered wildlife species were observed at the project site, but Swainson's hawk (*Buteo swainsoni*), which is State listed, has a potential to be present.

Swainson's Hawk (*Buteo swainsoni*). Swainson's hawks are listed as threatened under the CESA (CDFW, 2022). In California, they nest in the San Joaquin Valley, western Antelope Valley, and Owens Valley. They migrate to South America every fall and return to California every spring. Swainson's hawks migrate along the Pacific flyway, and several have been observed in the vicinity of the project site during migration. One was reported from the project site in 2011 (ebird.org, 2022). The project site is located near the breeding range for Swainson's hawk in the Western Antelope Valley. No suitable nest sites are present on the project site and much of the surrounding habitat has been developed or disturbed. Swainson's hawks have a high potential to be present on or over the project site during migration but a low potential to forage on the project site during the nesting season.

5.2.2 Species Protected Under the Federal Bald and Golden Eagle Protection Act

The Bald and Golden Eagle Protection Act (16 U.S.C. §§ 668-668d; BGEPA) prohibits take of bald eagles and golden eagles. The BGEPA defines *take* to include "pursuing, shooting, shooting at, poisoning, wounding, killing, capturing, trapping, collecting, molesting, and disturbing." The USFWS (2007) further defines *disturb* 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." Bald eagles are not expected to nest or forage on the project site; however, golden eagle may visit the project site and are discussed below.

Golden eagle (*Aquila chrysaetos*). Golden eagle is a California Fully Protected species and a USFWS Bird of Conservation Concern (CDFW, 2022). Golden eagles are year-around residents throughout most of their range in the western United States. In the Southwest, they are more common during winter months. They breed from late January through August (Pagel et al., 2010). In the San Gabriel Mountains, south of the project site, they nest in steep, rugged, remote terrain. Golden eagles are wide-ranging predators, especially outside of the nesting season, when they have no need to return daily to eggs or young at their nests. Golden eagle has been routinely reported from the region with the nearest observed approximately 3 miles to the north of the project site (ebird.org, 2022). Golden eagles have a moderate potential to forage on the project site. Golden eagle nesting habitat is absent from the project site.

5.2.3 California Wildlife Species of Special Concern

Northern California legless lizard (*Anniella pulchra*). Northern California legless lizard is a CDFW Species of Special Concern, and inhabits loose, sandy soils or leaf litter, typically in sand dunes. These lizards are around 7 inches long from snout to vent and have small, smooth scales typically colored silvery above and yellow below. They require moisture to aid in shedding their skin. Legless lizards were not detected on the project site but are known from within 2 miles (iNaturalist.org, 2022).

Burrowing owl (*Athene cunicularia*). The burrowing owl is a CDFW Species of Special Concern and, as a native bird, is also protected by the federal Migratory Bird Treaty Act (MBTA) and the California Fish and Game Code. It is a small, terrestrial owl of open country. During the breeding season, it ranges throughout most of the western U.S. It occurs year-round in southern California, but may be more numerous during fall and winter, when migratory individuals from farther north join the regional resident population. Burrowing owl favors flat, open annual or perennial grassland or gentle slopes and sparse shrub or tree cover. It uses the burrows of ground squirrels and other rodents for shelter and nesting, and availability of suitable burrows is an important habitat component. Where ground squirrel burrows are not available, the owl may use alternate burrow sites or man-made features such as drainpipes, debris piles, or concrete slabs. Burrowing owl have not been detected on the project site but are known from within about 2 miles (ebird.org, 2022). Suitable foraging habitat is present, and there is a high potential for them to forage on the project site. Several inactive mammal burrows are present on the project site, and there is a low potential for them to nest on the site given the high level of disturbance on and surrounding the project site.

Loggerhead shrike (*Lanius ludovicianus*). The Loggerhead shrike is a CDFW Species of Special Concern and as a native bird, is also protected by the federal MBTA and the California Fish and Game Code. The Loggerhead Shrike is a medium, masked songbird, who prefers open habitats with scattered shrubs throughout much of California. Shrikes hunt from utility poles, fence posts and other conspicuous perches, preying on insects, birds, lizards, and small mammals. Lacking a raptor's talon, Loggerhead shrikes skewer their kills on thorns or barbed wire or wedge them into tight places for easy eating. The project site contains suitable habitat, and although not detected, Loggerhead shrike has been recorded from within 0.6 miles of the project site.

Le Conte's thrasher (*Toxostoma lecontei*). Le Conte's thrasher is a CDFW Species of Special Concern and is a resident bird that inhabits the most arid habitats in North America. Le Conte's thrasher nests in cholla cactus or thorny desert shrub and feed primarily on small vertebrates, insects, and other arthropods, from which they also get most of the water in their diet. Le Conte's thrasher was not observed at the project site; however, the site contains suitable habitat, and the species has been recorded within 0.6 miles of the project site.

Townsend's big-eared bat (*Corynorhinus townsendii*). Townsend's big-eared bat is a CDFW Species of Special Concern and occurs in small to moderately sized aggregations at sites throughout the state, where it may be vulnerable due to loss, modification, and disturbance of roosting and foraging habitat. Actions to reduce human disturbance and destruction of important habitat and roosts are considered the most important conservation measures for Townsend's big-eared bats. This species is a moth specialist and may feed almost exclusively on Lepidoptera. Townsend's big-eared bat are likely to forage on insects over the project site but are not expected to roost there because of a lack of suitable roosting habitat.

5.2.3 Other Special-Status Wildlife Species

Raptors. In addition to the raptors discussed above, several other special-status birds of prey, including Cooper's hawk (*Accipiter cooperii*), ferruginous hawk (*Buteo regalis*), northern harrier (*Circus hudsonius*), and merlin (*Falco columbarius*), are found seasonally in the region, especially during winter and during migration (Table 3). None of these raptors are expected to nest on the project site due to lack of suitable habitat, but all are expected to fly over or occasionally forage on them as suitable winter or migratory season foraging habitat is widely available throughout the region.

Other special-status species: Five additional special-status species are reported from the surrounding area (CDFW, 2022; Table 3): Crotch bumble bee (*Bombus crotchii*), California glossy snake (*Arizona elegans occidentalis*), Bell's sage sparrow (*Artemisiospiza belli belli*), and mountain plover (*Charadrius montanus*). These species are all known from the vicinity of the project site and have at least a moderate potential to be present. These species are all recognized as CDFW Special Animals but have no formal protection.

5.3 Designated Critical Habitat

The project site is not within federally designated critical habitat for any species. There is also no designated critical habitat within five miles of the project site.

5.4 Native Birds: Migratory Bird Treaty Act (MBTA) / California Fish and Game Code

The federal MBTA prohibits take of any migratory bird, including eggs or active nests, except as permitted by regulation (e.g., licensed hunting of waterfowl or upland game species). Under the MBTA, "migratory bird" is broadly defined as "any species or family of birds that live, reproduce or migrate within or across international borders at some point during their annual life cycle" and thus applies to most native bird species. California Fish and Game Code Section 3503 prohibits take, possession, or needless destruction of bird nests or eggs; Section 3503.5 prohibits take or possession of birds of prey or their eggs; and Section 3513 prohibits take or possession of any migratory nongame bird. With the exception of a few non-native birds, such as European starling, the take of any birds or loss of active bird nests or young is regulated by these statutes. Most of these species have no other special conservation status as defined above.

The project site has many shrubs and open areas that may provide nesting habitat. Numerous common species of birds are known to nest in the region and are likely to nest on the project site.

5.5 Wildlife Movement

The ability for wildlife to move freely among populations and habitat areas is important to long-term genetic variation and demography. Fragmentation and isolation of natural habitat may cause loss of native species diversity in fragmented habitats. In the short term, wildlife movement may also be important to individual animals' ability to occupy their home ranges, if their ranges extend across a potential movement barrier. These considerations are especially important for rare, threatened, or endangered species, and wide-ranging species such as large mammals, which exist in low population densities.

The California Essential Habitat Connectivity Project was commissioned by the California Department of Transportation (Caltrans) and CDFW to create a statewide assessment of essential habitat connectivity to be used for conservation and infrastructure planning (Caltrans and CDFW, 2010). One of its goals was to create the Essential Connectivity Map, which depicts large, relatively natural habitat blocks that support native biodiversity (natural landscape blocks) and areas essential for ecological connectivity between

them (essential connectivity areas). This map does not reflect the needs of particular species but is based on overall biological connectivity and ecological integrity. A more detailed analysis is required to assess local and regional needs for connectivity and develop linkage designs based on the requirements of individual species (Caltrans and CDFW, 2010). The project site is located in an area that is not identified in the Essential Connectivity Map.

6.0. Conclusions and Recommendations

One candidate species for State listing, Western Joshua tree, is present on the project site. One State listed species, Swainson's hawk, is known to forage throughout the region and has a high potential to be present on the project site. No additional State or federal listed species have a moderate-to-high potential to be present on the project site.

Several additional special-status wildlife species were observed or have at least a moderate potential to be present and include golden eagle, Northern California legless lizard, burrowing owl, loggerhead shrike, Le Conte's thrasher, Townsend's big-eared bat, Cooper's hawk, ferruginous hawk, northern harrier, merlin, Crotch bumble bee, California glossy snake, Bell's sage sparrow, and mountain plover.

In addition to special-status wildlife, two special-status plants were determined to have at least a moderate potential to be present and include white pygmy-poppy and crowned muilla.

No sensitive natural communities are present on the project site. The project site is not within any designated wildlife corridors but is expected to provide localized wildlife movement within the region. The project site is likely to be used as a forage or dispersal area for wildlife in the immediate vicinity of the project site.

To reduce or avoid potential impacts to special-status biological resources, Aspen recommends the following conservation measures be implemented:

1. **Nesting Birds:** To protect nesting birds that are likely to occur within or adjacent to the project site, project activities should be initiated outside of the nesting season between September 1 and January 31. If project activities must be initiated during the nesting season, a nesting bird survey shall be conducted no more than three (3) days prior to the start of project activities. If nesting birds are encountered, an appropriate buffer will be established around the nest to avoid potential take of the nest. A biological monitor will track the progress of the nest and will remove the buffer once nesting is complete. No work will be permitted within the buffer.

2. **Burrowing Owl:** To protect burrowing owl that have a potential to be present within or adjacent or the project site, a pre-construction burrowing owl survey shall be completed throughout the project site and in all accessible suitable habitat within 500 feet of the project site. If burrowing owl are nesting on the project site during the nesting season, work will be delayed until the nest has successfully fledged. If burrowing owl are present outside of the nesting season, a qualified biologist shall develop and implement a passive relocation plan. This plan shall be developed and implemented according to the 2012 CDFW Staff Report on Burrowing Owl Mitigation.

3. **Special-Status Wildlife Species:** To avoid or minimize impacts to all other special-status wildlife species, a pre-construction biological survey shall be completed no more than seven (7) days prior

to the start of project activities. During the survey a qualified biologist will survey the site for special-status wildlife species. Any special-status wildlife species detected will be relocated off-site or allowed to leave the site on their own.

4. **Western Joshua Tree:** To ensure compliance with the California Endangered Species Act (CESA), an Incidental Take Permit (ITP) shall be obtained from the California Department of Fish and Wildlife for the loss of Western Joshua tree and their habitat within the project site. The ITP shall be obtained prior to any project activities within 186-feet of the Western Joshua trees. If the California Fish and Game Commission decides not to list Western Joshua tree under CESA, this conservation measure will no longer be required.

7.0. Literature Cited

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Attachment 1 – Figures



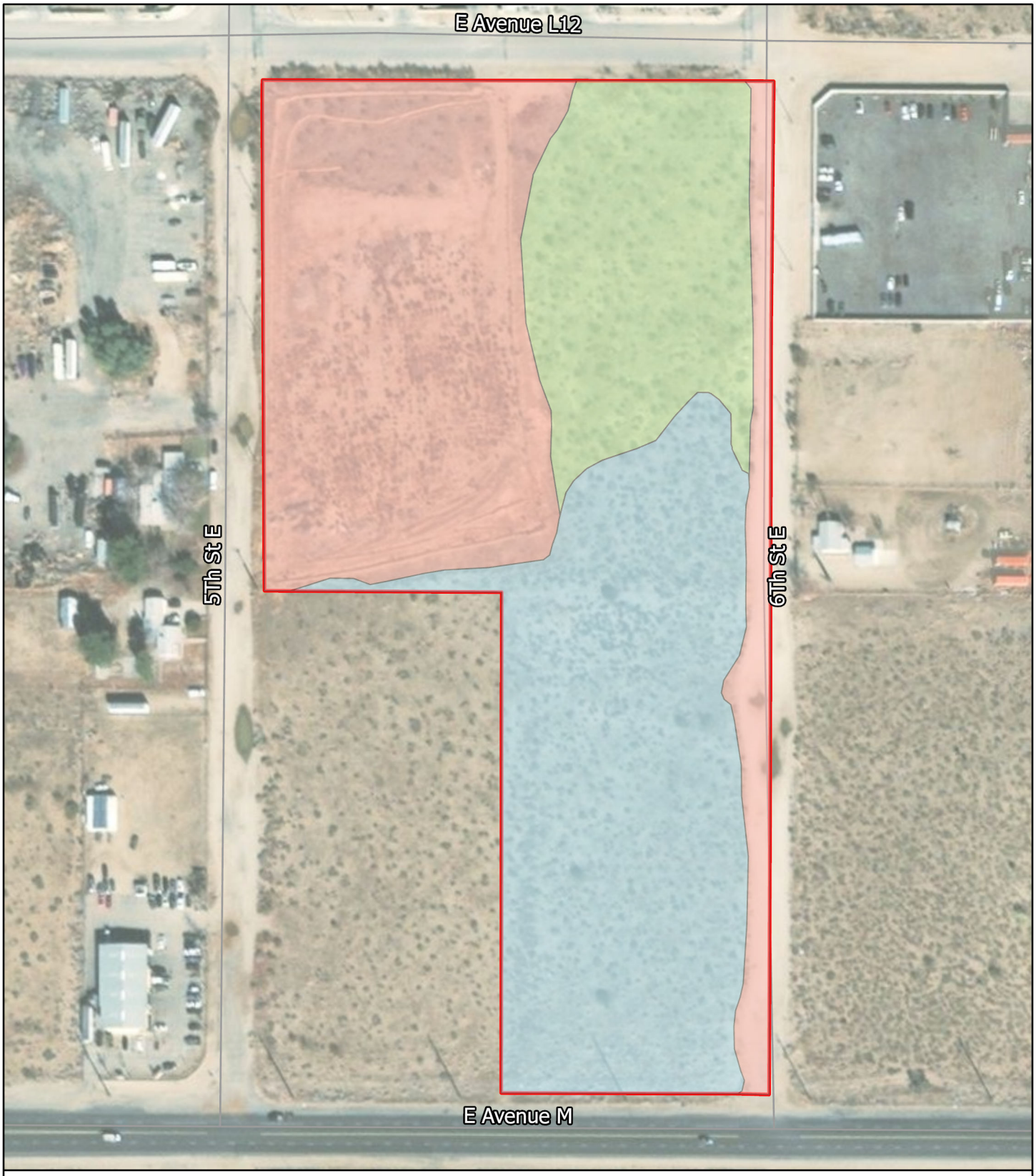
Figure 1

Project Vicinity



Figure 2

Project Site



Vegetation Type

- Project Site
- Creosote bush scrub (2.61ac)
- Disturbed/Developed (5.55ac)
- Nevada joint fir - Anderson's boxthorn - spiny hop sage scrub (5.20ac)

N

0 100 200 Feet

Figure 3

Vegetation

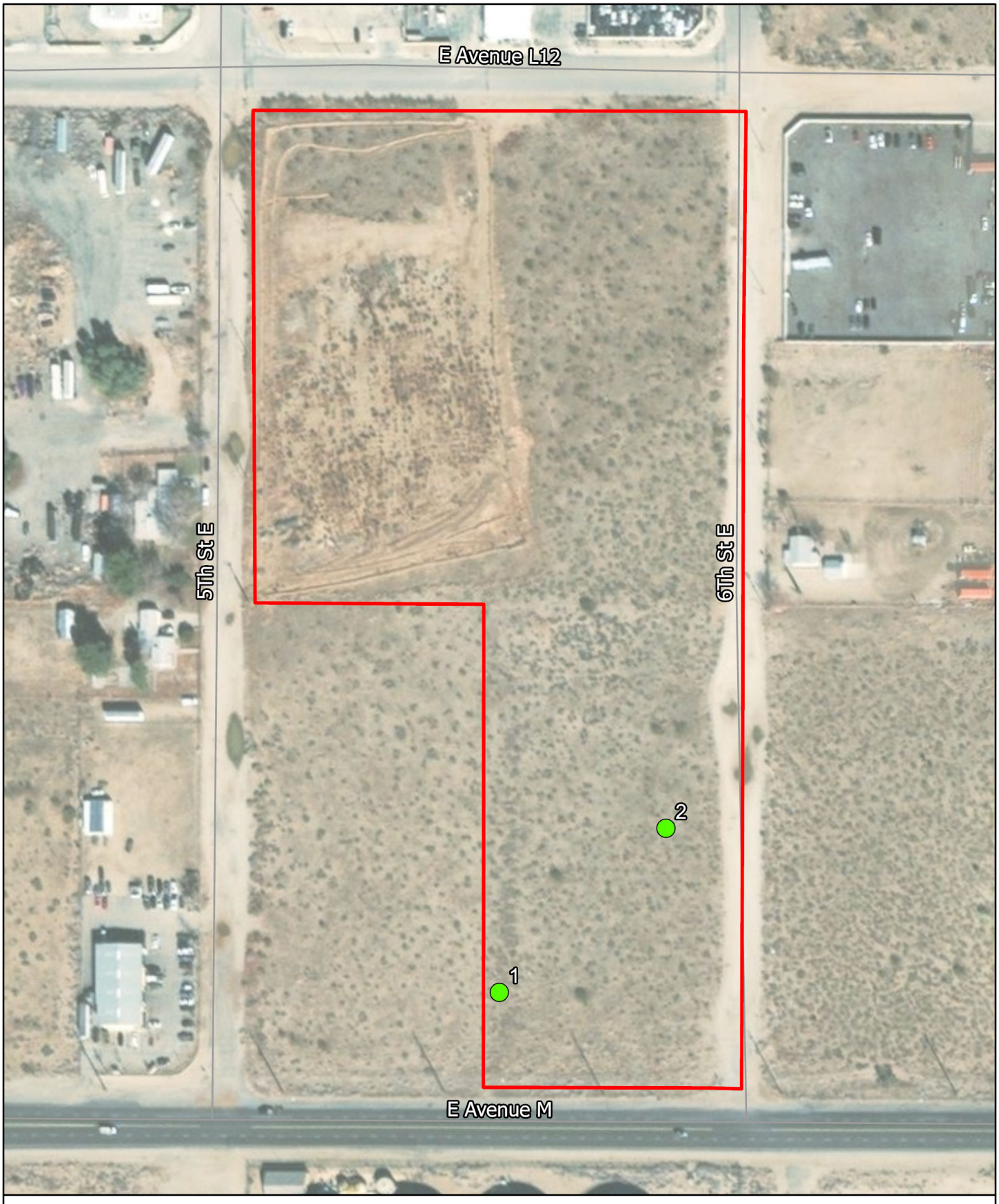


Figure 4

Biological Resources

Attachment 2 – CNDDB Query Results

Selected Elements by Scientific Name

California Department of Fish and Wildlife

California Natural Diversity Database

Query Criteria: Quad IS (Lancaster East (3411861) OR Lancaster West (3411862) OR Rosamond (3411872) OR Rosamond Lake (3411871) OR Ritter Ridge (3411852) OR Palmdale (3411851) OR Del Sur (3411863) OR Alpine Butte (3411768) OR Sleepy Valley (3411853) OR Littlerock (3411758))

Species	Element Code	Federal Status	State Status	Global Rank	State Rank	Rare Plant Rank/CDFW SSC or FP
Accipiter cooperii Cooper's hawk	ABNKC12040	None	None	G5	S4	WL
Agelaius tricolor tricolored blackbird	ABPBXB0020	None	Threatened	G1G2	S1S2	SSC
Aimophila ruficeps canescens southern California rufous-crowned sparrow	ABPBX91091	None	None	G5T3	S3	WL
Anniella pulchra Northern California legless lizard	ARACC01020	None	None	G3	S3	SSC
Anniella spp. California legless lizard	ARACC01070	None	None	G3G4	S3S4	SSC
Arizona elegans occidentalis California glossy snake	ARADB01017	None	None	G5T2	S2	SSC
Artemisiospiza belli belli Bell's sage sparrow	ABPBX97021	None	None	G5T2T3	S3	WL
Asio flammeus short-eared owl	ABNSB13040	None	None	G5	S3	SSC
Astragalus hornii var. hornii Horn's milk-vetch	PDFAB0F421	None	None	GUT1	S1	1B.1
Astragalus preussii var. laxiflorus Lancaster milk-vetch	PDFAB0F721	None	None	G4T2	S1	1B.1
Athene cunicularia burrowing owl	ABNSB10010	None	None	G4	S3	SSC
Bombus crotchii Crotch bumble bee	IIHYM24480	None	None	G2	S1S2	
Branchinecta lynchi vernal pool fairy shrimp	ICBRA03030	Threatened	None	G3	S3	
Buteo regalis ferruginous hawk	ABNKC19120	None	None	G4	S3S4	WL
Buteo swainsoni Swainson's hawk	ABNKC19070	None	Threatened	G5	S3	
Calochortus clavatus var. gracilis slender mariposa-lily	PMLIL0D096	None	None	G4T2T3	S2S3	1B.2
Calochortus palmeri var. palmeri Palmer's mariposa-lily	PMLIL0D122	None	None	G3T2	S2	1B.2
Calochortus striatus alkali mariposa-lily	PMLIL0D190	None	None	G3?	S2S3	1B.2

Species	Element Code	Federal Status	State Status	Global Rank	State Rank	Rare Plant Rank/CDFW SSC or FP
Calystegia peirsonii Peirson's morning-glory	PDCON040A0	None	None	G4	S4	4.2
Canbya candida white pygmy-poppy	PDPAP05020	None	None	G3G4	S3S4	4.2
Charadrius montanus mountain plover	ABNNB03100	None	None	G3	S2S3	SSC
Charadrius nivosus nivosus western snowy plover	ABNNB03031	Threatened	None	G3T3	S2	SSC
Chorizanthe parryi var. parryi Parry's spineflower	PDPGN040J2	None	None	G3T2	S2	1B.1
Circus hudsonius northern harrier	ABNKC11011	None	None	G5	S3	SSC
Corynorhinus townsendii Townsend's big-eared bat	AMACC08010	None	None	G4	S2	SSC
Cryptantha clokeyi Clokey's cryptantha	PDBOR0A3M0	None	None	G3	S3	1B.2
Emys marmorata western pond turtle	ARAAD02030	None	None	G3G4	S3	SSC
Eriastrum rosamondense Rosamond eriastrum	PDPLM030G0	None	None	G1?	S1?	1B.1
Eriophyllum mohavense Barstow woolly sunflower	PDAST3N070	None	None	G2	S2	1B.2
Euphydryas editha quino quino checkerspot butterfly	IILEPK405L	Endangered	None	G5T1T2	S1S2	
Falco columbarius merlin	ABNKD06030	None	None	G5	S3S4	WL
Gopherus agassizii desert tortoise	ARAAF01012	Threatened	Threatened	G3	S2S3	
Helminthoglypta fontiphila Soledad shoulderband	IMGASC2250	None	None	G1	S1	
Lanius ludovicianus loggerhead shrike	ABPBR01030	None	None	G4	S4	SSC
Loeflingia squarrosa var. artemisiarum sagebrush loeflingia	PDCAR0E011	None	None	G5T3	S2	2B.2
Onychomys torridus ramona southern grasshopper mouse	AMAFF06022	None	None	G5T3	S3	SSC
Opuntia basilaris var. brachyclada short-joint beavertail	PDCAC0D053	None	None	G5T3	S3	1B.2
Perognathus inornatus San Joaquin pocket mouse	AMAFD01060	None	None	G2G3	S2S3	
Phrynosoma blainvillii coast horned lizard	ARACF12100	None	None	G3G4	S3S4	SSC

Species	Element Code	Federal Status	State Status	Global Rank	State Rank	Rare Plant Rank/CDFW SSC or FP
Plegadis chihi white-faced ibis	ABNGE02020	None	None	G5	S3S4	WL
Polioptila californica californica coastal California gnatcatcher	ABPBJ08081	Threatened	None	G4G5T3Q	S2	SSC
Puccinellia simplex California alkali grass	PMPOA53110	None	None	G3	S2	1B.2
Rana draytonii California red-legged frog	AAABH01022	Threatened	None	G2G3	S2S3	SSC
Southern Coast Live Oak Riparian Forest Southern Coast Live Oak Riparian Forest	CTT61310CA	None	None	G4	S4	
Southern Cottonwood Willow Riparian Forest Southern Cottonwood Willow Riparian Forest	CTT61330CA	None	None	G3	S3.2	
Southern Riparian Scrub Southern Riparian Scrub	CTT63300CA	None	None	G3	S3.2	
Southern Willow Scrub Southern Willow Scrub	CTT63320CA	None	None	G3	S2.1	
Thamnophis hammondii two-striped gartersnake	ARADB36160	None	None	G4	S3S4	SSC
Toxostoma lecontei Le Conte's thrasher	ABPBK06100	None	None	G4	S3	SSC
Valley Needlegrass Grassland Valley Needlegrass Grassland	CTT42110CA	None	None	G3	S3.1	
Vireo bellii pusillus least Bell's vireo	ABPBW01114	Endangered	Endangered	G5T2	S2	
Wildflower Field Wildflower Field	CTT42300CA	None	None	G2	S2.2	
Xerospermophilus mohavensis Mohave ground squirrel	AMAFB05150	None	Threatened	G2G3	S2S3	

Record Count: 53

Attachment 3 – Special-Status Species Not Addressed

Attachment 3. Special-Status Species Not Addressed[1]

Latin Name	Common Name	Reason for Exclusion
PLANTS		
Astragalus hornii var. *hornii*	Horn's milk-vetch	No suitable alkali or playa habitat.
Astragalus preussii var. *laxiflorus*	Lancaster milk-vetch	No suitable alkali or playa habitat.
Calochortus clavatus var. *gracilis*	Slender mariposa-lily	No suitable chaparral or sage scrub habitat.
Calochortus palmeri var. *palmeri*	Palmer's mariposa-lily	No suitable seep or meadow habitat.
Chorizanthe parryi var. *parryi*	Parry's spineflower	No suitable chaparral or sage scrub habitat.
Eriastrum rosamondense	Rosamond eriastrum	No suitable alkali pool habitat.
Eriophyllum mohavense	Barstow woolly sunflower	Well outside of geographic range.
Puccinellia simplex	California alkali grass	No suitable alkali habitat.
INVERTEBRATES		
Branchinecta lynchi	Vernal pool fairy shrimp	No vernal pool habitat.
Euphydryas editha quino	Quino checkerspot butterfly	Well outside of geographic range.
Palaeoxenus dohrni	Dohrni's elegant eucnemid beetle	No suitable forest or woodland habitat.
AMPHIBIANS		
Rana draytonii	California red-legged frog	No suitable aquatic habitat.
REPTILES		
Anniella spp.	California legless lizard	Well outside of geographic range.
Emys marmorata	Western pond turtle	No suitable aquatic habitat.
Phrynosoma blainvillii	Coast horned lizard	Well north of geographic range.
Thamnophis hammondii	Two-striped gartersnake	No suitable aquatic habitat.
BIRDS		
Agelaius tricolor	Tricolored blackbird	No suitable marsh or agricultural habitat.
Aimophila ruficeps canescens	Southern California rufous-crowned sparrow	No suitable chaparral or sage scrub habitat.
Asio flammeus	Short-eared owl	No suitable marsh or meadow habitat.
Charadrius nivosus nivosus	Western snowy plover	No suitable lakebed or playa habitat.
Plegadis chihi	White-faced ibis	No suitable wetland or playa habitat.
Polioptila californica californica	Coastal California gnatcatcher	No suitable coastal sage scrub habitat.
Vireo bellii pusillus	Least Bell's vireo	No suitable riparian habitat.
Setophaga petechia	Yellow warbler	No suitable riparian habitat.
MAMMALS		
Onychomys torridus ramona	Southern grasshopper mouse	Well north of geographic range.
Perognathus inornatus	San Joaquin pocket mouse	Well outside of geographic range.
Taxidea taxus	American badger	Surrounded by development, not adequately sized to support animals.
Vulpes macrotis	Desert kit fox	Surrounded by development, not adequately sized to support animals.

Note:

[1] Special-status species reported from the region, but not addressed in this report due to habitat or geographic range.

Attachment 4 – Project Species List

Attachment 4. Project Species List

Latin Name	Common Name
VASCULAR PLANTS	
Dicotyledons	
EPHEDRACEAE	EPHEDRA FAMILY
Ephedra californica	Desert tea, California ephedra
Ephedra nevadensis	Nevada ephedra, desert tea
AMARANTHACEAE	AMARANTH FAMILY
* *Amaranthus albus*	Tumbleweed, tumbling pigweed
ASTERACEAE	ASTER FAMILY
Ambrosia dumosa	White bur-sage, burrobush
Ambrosia salsola	Common burrobrush, cheesebush
Ericameria cooperi var. *cooperi*	Cooper's goldenbush
Ericameria nauseosa	Common rabbitbrush
Malacothrix glabrata	Desert dandelion
Stephanomeria pauciflora	Wire-lettuce, desert straw
BORAGINACEAE	BORAGE OR WATERLEAF FAMILY
Amsinckia tessellata	Checker fiddleneck
Cryptantha sp.	Unid. annual cryptantha
Phacelia fremontii	Fremont phacelia
BRASSICACEAE	MUSTARD FAMILY
* *Hirschfeldia incana*	Shortpod mustard
* *Sisymbrium altissimum*	Tumble mustard
* *Sisymbrium irio*	London rocket
CHENOPODIACEAE	GOOSEFOOT FAMILY
Atriplex canescens	Four-wing saltbush
Atriplex confertifolia	Shadscale
Chenopodium sp.	Unid. goosefoot
Krascheninnikovia lanata	Winter fat
* *Salsola tragus*	Russian thistle
GERANIACEAE	GERANIUM FAMILY
* *Erodium cicutarium*	Redstem filaree
MALVACEAE	MALLOW FAMILY
Eremalche exilis	White mallow, trailing mallow
POLEMONIACEAE	PHLOX FAMILY
Eriastrum sapphirinum	Sapphire woollystar

Attachment 4. Project Species List	
Latin Name	**Common Name**
POLYGONACEAE	BUCKWHEAT FAMILY
Eriogonum angulosum	Angle-stem wild buckwheat
Eriogonum mohavense	Western Mojave wild buckwheat
* *Polygonum aviculare* ssp. *depressum*	Common knotweed
SOLANACEAE	NIGHTSHADE FAMILY
Lycium andersonii	Anderson box-thorn
Lycium cooperi	Peach desert thorn
* *Solanum nigrum (?)*	Black nightshade
ZYGOPHYLLACEAE	CALTROP FAMILY
Larrea tridentata	Creosote bush
Monocotyledons	
AGAVACEAE	CENTURY PLANT FAMILY, AGAVE FAMILY
** *Yucca brevifolia*	Western Joshua tree
POACEAE	GRASS FAMILY
* *Bromus rubens*	Red brome
* *Bromus tectorum*	Cheat grass
* *Hordeum murinum* ssp. *glaucum*	Foxtail barley
INVERTEBRATE ANIMALS	
INSECTA	**INSECTS**
LEPIDOPTERA	BUTTERFLIES AND MOTHS
Pieris rapae	Cabbage Butterfly
VERTEBRATE ANIMALS	
REPTILIA	**REPTILES**
IGUANIDAE	IGUANID LIZARDS
Uta stansburiana	Side-blotched lizard
AVES	**BIRDS**
CATHARTIDAE	VULTURES
Cathartes aura	Turkey vulture
ACCIPITRIDAE	HAWKS, EAGLES, HARRIERS
Buteo lineatus	Red-shouldered hawk
COLUMBIDAE	PIGEONS AND DOVES
* *Streptopelia decaocto*	Eurasian collared dove
TYRANNIDAE	TYRANT FLYCATCHERS
Sayornis saya	Say's phoebe

Attachment 4. Project Species List

Latin Name	Common Name
CORVIDAE	CROWS AND JAYS
Corvus corax	Common raven
MIMIDAE	MOCKINGBIRDS AND THRASHERS
Mimus polyglottos	Northern mockingbird
FRINGILLIDAE	FINCHES
Haemorhous mexicanus	House finch
Spinus psaltria	Lesser goldfinch
MAMMALIA	**MAMMALS**
LEPORIDAE	HARES AND RABBITS
Sylvilagus audubonii	Desert cottontail
SCIURIDAE	SQUIRRELS
Otospermophilus beecheyi	Beechey (California) ground squirrel

Note:
This list includes only species observed on the site. Species introduced to California are indicated by an asterisk. Special-status species are indicated by two asterisks. Other species may have been overlooked or unidentifiable due to season (amphibians are active during rains, reptiles during summer, some birds and bats migrate out of the area for summer or winter, some mammals hibernate, many plants are identifiable only in spring). Plants were identified using keys, descriptions, and illustrations in Baldwin et al (2012). Plant taxonomy and nomenclature generally follow Baldwin et al. (2012). Wildlife taxonomy and nomenclature generally follow Stebbins (2003) for amphibians and reptiles, AOU (1998) for birds, and Wilson and Ruff (1999) for mammals.

Attachment 5 – Project Photos



Photo 1: Southeast view of Nevada joint fir - Anderson's box thorn - spiny hop sage scrub in the southeast corner of the Project site.



Photo 2: Northwest view of Nevada joint fir - Anderson's box thorn - spiny hop sage scrub near the middle of the Project site.



Photo 3: View of debris piles and disturbed habitat in the northern portion of the Project site.



Photo 4: Close-up view of an inactive mammal burrow within the Project site.



Photo 5: Western Joshua tree number 1 within the southeast corner of the Project site.



Photo 6: Western Joshua tree number 2 within the southeast corner of the Project site.



Photo 7: Dead Western Joshua tree number within the southern half of the Project site.



Photo 8: Dead Western Joshua tree number within the central portion of the Project site.