L&L ENVIRONMENTAL, INC.
REGULATORY SERVICES
BIOLOGICAL & CULTURAL INVESTIGATIONS & MONITORING

BIOLOGICAL ASSESSMENT, SPECIAL STATUS BOTANICAL SURVEY, AND BREEDING SEASON BURROWING OWL SURVEY FOR THE SLOVER AND CACTUS WAREHOUSE PROJECT, BLOOMINGTON AREA, SAN BERNARDINO COUNTY, CALIFORNIA

±13.34 Acre Property, ±13.34 Acres Surveyed

APNs 0257-071-03, -04, and -39, Bloomington Area, Section 27, Township 1 South, Range 5 West, USGS Fontana 7.5' Topographic Quadrangle Map

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Vegetation onsite is disturbed and developed/ornamental. No native habitat is present. There are no jurisdictional waters or wetlands. No special status plant species were detected. One (1) special status wildlife species, California horned lark, was observed foraging onsite. One (1) other special status wildlife species, loggerhead shrike, has moderate potential for occurrence, but has not been observed. No evidence of current burrowing owl occupation has been found on the project site; however, suitable mammal burrows were observed. No suitable habitat for Delhi sands flower-loving fly is present on the project site and no surveys for this species are recommended. Trees, vegetation, and structures suitable for nesting birds are present within and around the site. Recommended mitigation measures include a pre-construction burrowing owl clearance survey and pre-construction nesting bird survey.

Survey Dates: July 2017, March through July 2018
Report Date: September 2018

Celebrating 20+ Years of Service to Southern CA and the Great Basin, WBE Certified (Caltrans, CPUC, WBENC)
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MANAGEMENT SUMMARY

L&L Environmental, Inc. conducted a biological assessment, special status botanical survey, and breeding season burrowing owl survey on a ±13.34-acre property in the Bloomington, California area at the request of Alere Property Group. This property is the site of a proposed warehouse development project. The purpose of this study was to examine the subject property to determine presence/absence of biological resources on the property and the potential for special status species to occur. L&L evaluated whether vegetation and/or habitat for special status species exists onsite and whether any jurisdictional drainages or wetlands are within project boundaries.

The property is surrounded by paved roads and residential and commercial development, with the exception of a disked vacant lot to the southeast. Four (4) occupied single-family residences with associated disturbance and ornamental landscaping are present onsite. There is extensive development in the surrounding area. No mapped USGS blueline streams or jurisdictional drainages are present onsite.

The site is located in a County of San Bernardino Development Code biotic resource overlay for burrowing owl (*Athene cunicularia*; California Department of Fish and Wildlife [CDFW] Species of Special Concern) indicating a biological survey and report for burrowing owl may be necessary. The site is also within approximately 1.2 miles of occupied Delhi sands flower-loving fly (*Rhaphiomidas terminatus abdominalis*; federal endangered) habitat located east of the site along and south of Slover Avenue.

Vegetation present throughout the site is characterized as disturbed and developed/ornamental. There are no native, riparian, or sensitive vegetation communities present. Much of the site has been disked and vegetation is relatively sparse. Most of the site was an orchard or grove in the 1990s. The orchard area has diminished over time to just a few remaining trees.

No special status plants were detected on the project site during surveys and none have a moderate or high potential to occur.

One (1) special status wildlife species was detected in March 2018 on the project site: California horned lark (*Eremophila alpestris actia*; CDFW Watch List). This species was observed foraging on the project site, but is unlikely to nest there. One (1) other special status wildlife species has moderate potential for occurrence onsite: loggerhead shrike (*Lanius ludovicianus*;

CDFW Species of Special Concern). No other listed or special status wildlife species have a moderate or high potential to occur.

No evidence of burrowing owl use or occupation of the site was observed during surveys. Given the ongoing anthropogenic disturbances onsite and level of development of surrounding areas, the habitat is marginal. However, suitably sized burrows are present onsite. Potentially suitable habitat (although marginal) has been identified onsite and recommended mitigation measures include preconstruction burrowing owl clearance surveys to be conducted within 30 days prior to the initiation of site disturbance/clearing.

No suitable habitat for Delhi sands flower-loving fly (DSF) is present on the project site and no additional focused surveys for this species are recommended.

Trees, vegetation, structures, and open ground suitable for bird nesting are present onsite. Recommended mitigation measures include avoiding construction activities during the nesting season (January 1 through September 15). If the nesting season cannot be avoided, preconstruction nesting bird clearance surveys would be required within three (3) days prior to the initiation of site disturbance/clearing. If nesting birds are present, establishment of an avoidance buffer around active nests would be required until a qualified biologist has determined that the nest has fledged or has otherwise become inactive.

1.0) INTRODUCTION

The following report was prepared by L&L Environmental, Inc. (L&L) for Alere Property Group. It describes the results of a biological assessment, protocol breeding season burrowing owl survey, and botanical survey conducted on the site of a proposed warehouse development in the Bloomington area of San Bernardino County. The project site consists of APNs 0257-071-03, -04, and -39, totaling ±13.34 acres.

The assessment consisted of (1) a records search and literature review to determine species of concern in the project area and proximity to closest documented special status species occurrences, (2) field reconnaissance to identify plants and animals on the property and presence/absence of habitat for special status species, (3) protocol breeding season burrowing owl survey, and (4) botanical survey during early, middle, and late blooming seasons.

1.1) Location

The site is located on the southwest corner of Slover Avenue and Cactus Avenue in the Bloomington area (Figure 1). It is situated within Section 27 of Township 1 South, Range 5 West, within the USGS Fontana 7.5' series quadrangle map (Figure 2).

The property is bounded to the north by Slover Avenue, with a large railroad yard beyond; to the east by Cactus Avenue, with residential and commercial properties beyond; to the south by residential areas; and to the west by residential areas and a commercial nursery. Four (4) occupied single-family residential homes are present onsite (Figure 3).

1.2) Project Description

A Conceptual Site Plan has been prepared for the Project and consists of a single industrial warehouse of 257,855 square feet and associated parking to the north, west, and east (Figure 8). The Conceptual Site Plan indicates that the entire ±13.34-acre site will be impacted.

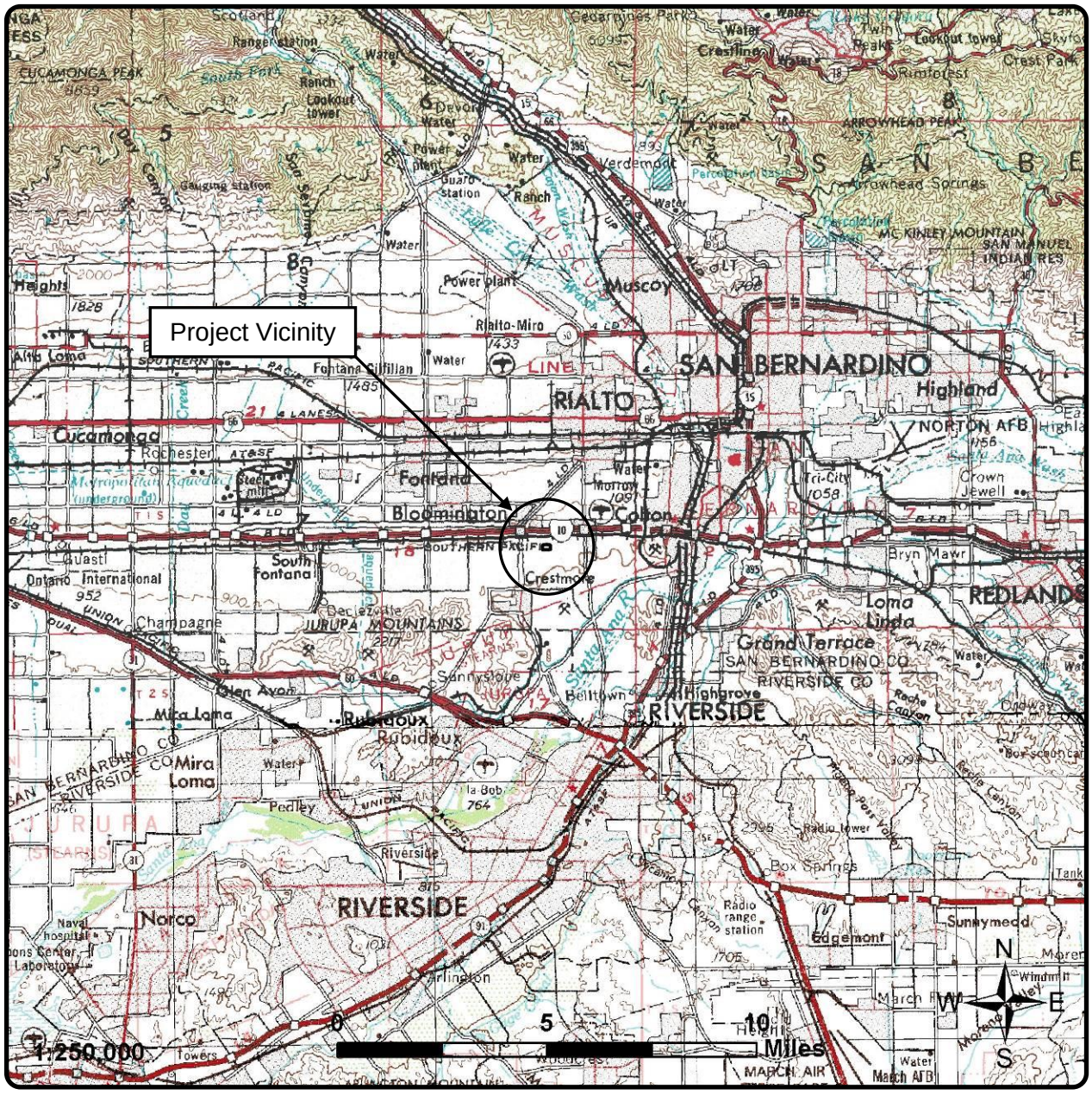

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Figure 1

Project Vicinity Map

Slover Ave. and Cactus Ave., Bloomington
County of San Bernardino, California

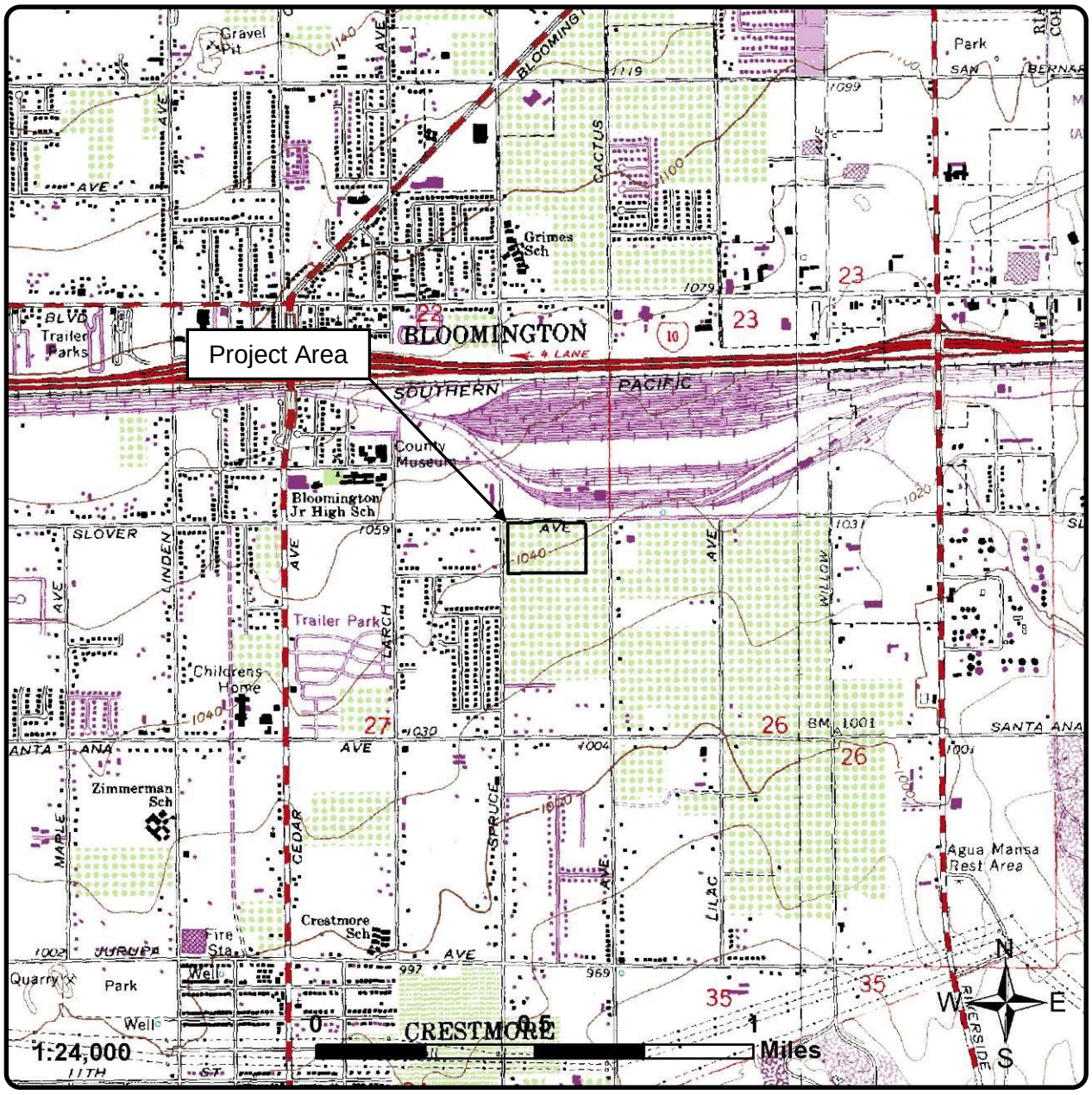

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Figure 2

Project Location Map
(USGS Fontana [1980] quadrangle,
Section 27, Township 1 South, Range 5 West)

Slover Ave. and Cactus Ave., Bloomington
County of San Bernardino, California

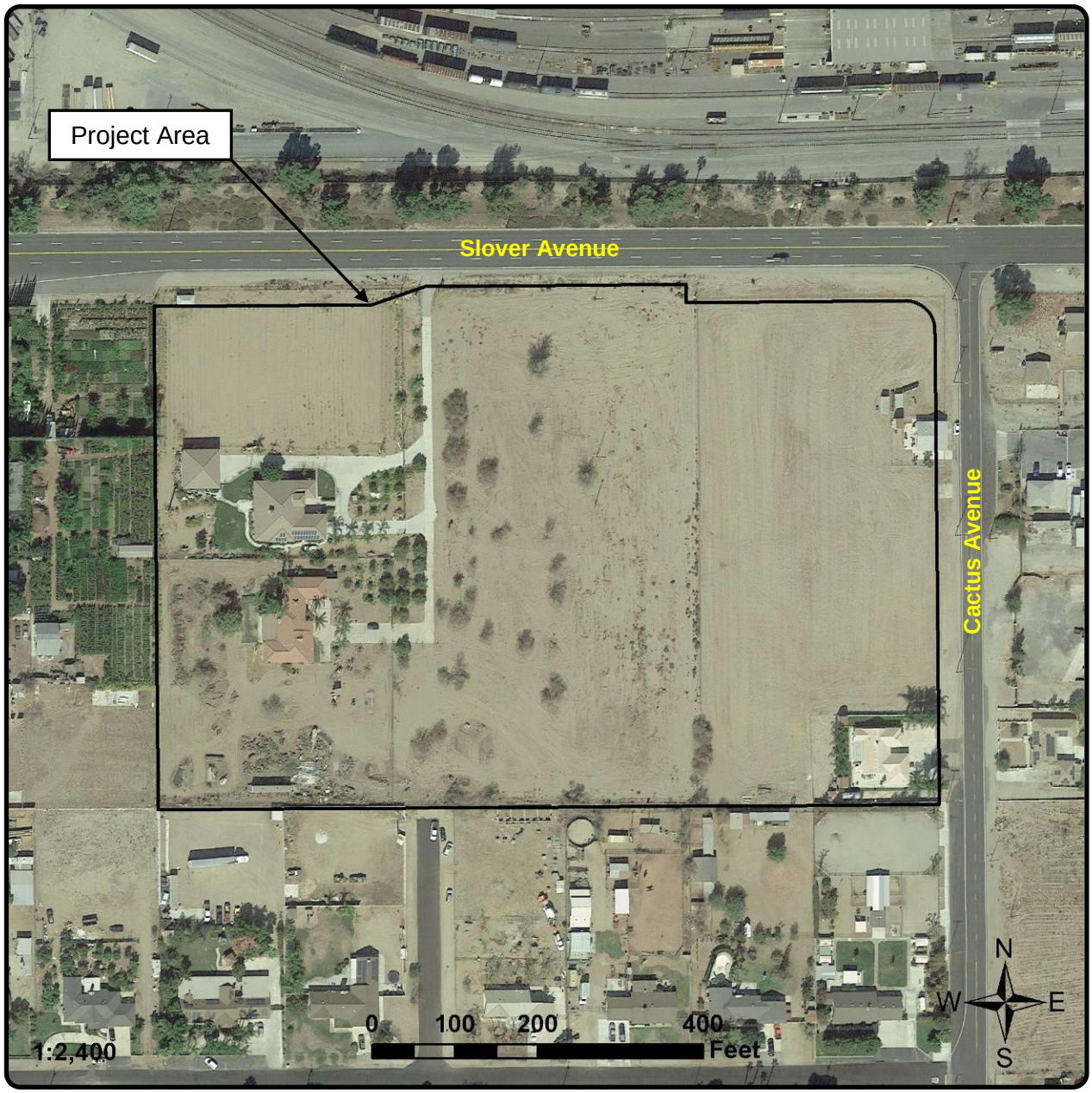

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Figure 3

Aerial Photograph
(Photo obtained from Google Earth, October 2016)

Slover Ave. and Cactus Ave., Bloomington
County of San Bernardino, California

1.3) Vegetation and Setting

The site is surrounded by paved roads and residential and commercial developments. Large portions of the site consist of ornamental landscaping and disturbance associated with the onsite residences and additional ornamental plants that have become established along the western site boundary from an adjacent commercial nursery. Much of the site has been disked and vegetation is relatively sparse. There are several mature trees present in the central portion of the site (Figure 3). Historical aerial photographs show that most of the site was an orchard or grove from at least 1938 into the 1990s (NETRonline 2018, Google Earth 2018). The orchard area has diminished over time to just a few remaining trees.

1.4) Soils and Topography

Soils onsite are mostly Tujunga loamy sand (0 to 5 percent slopes), with a very small amount of Hanford coarse sandy loam (2 to 9 percent slopes) at the southwest corner (Figure 4). Much of the site consists of unconsolidated soils that have been disked. There are no Delhi soils mapped onsite. The nearest Delhi series soils are located approximately 0.28 miles to the southwest and 0.70 miles to the southeast (see Figure 5).

The site is generally flat. Elevation onsite ranges between approximately 1,030 feet above mean sea level (amsl) at the southeast corner and 1,045 feet amsl at the northwest corner (approximately 314 to 319 meters). No mapped USGS blueline streams are present. No drainages are present onsite. The Santa Ana River is approximately two miles to the southeast.

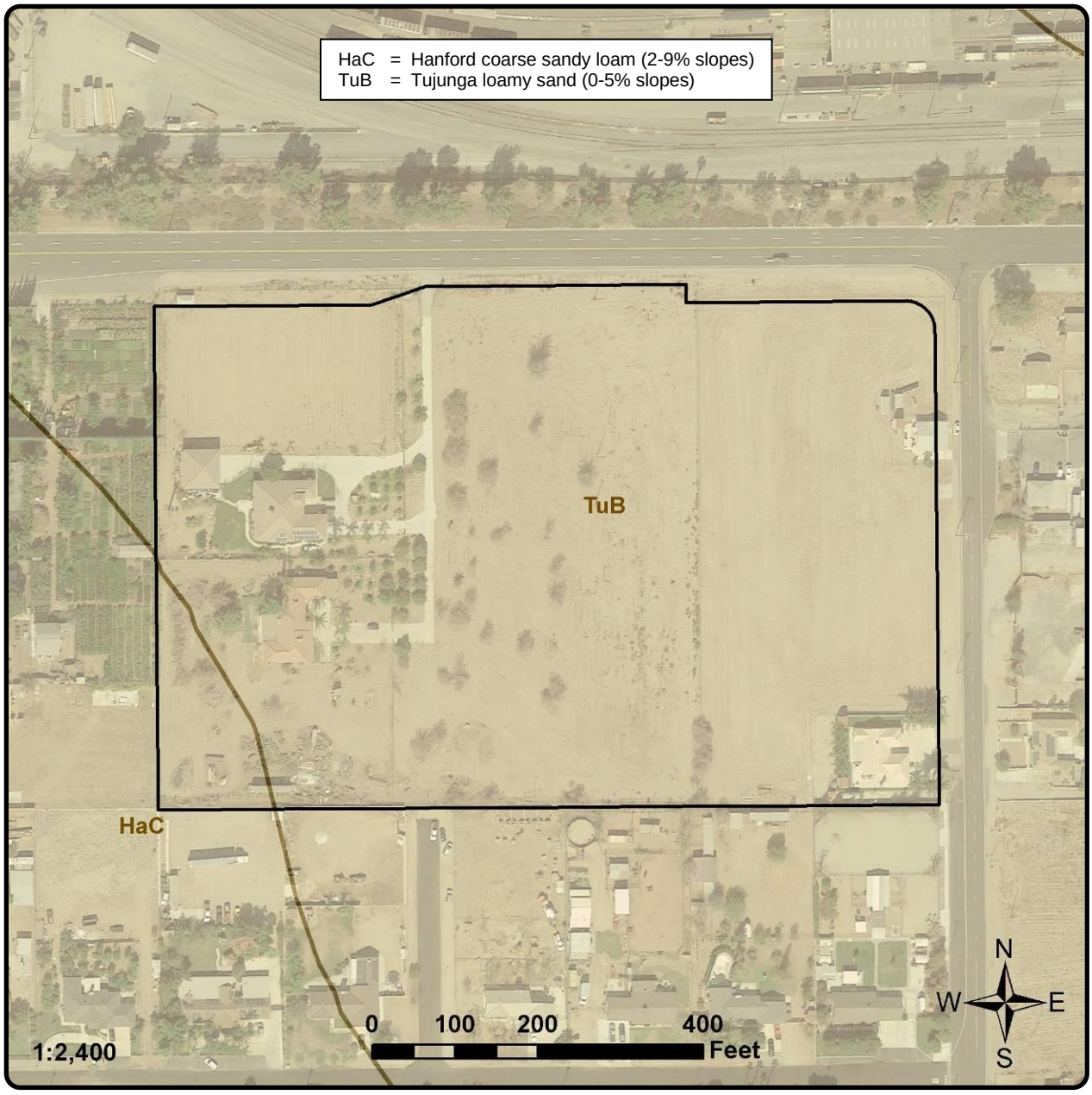

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Figure 4

Soils Map

(Photo obtained from Google Earth, October 2016, USDA Nat. Res. Cons. Serv. SSURGO Data)

Slover Ave. and Cactus Ave., Bloomington
County of San Bernardino, California

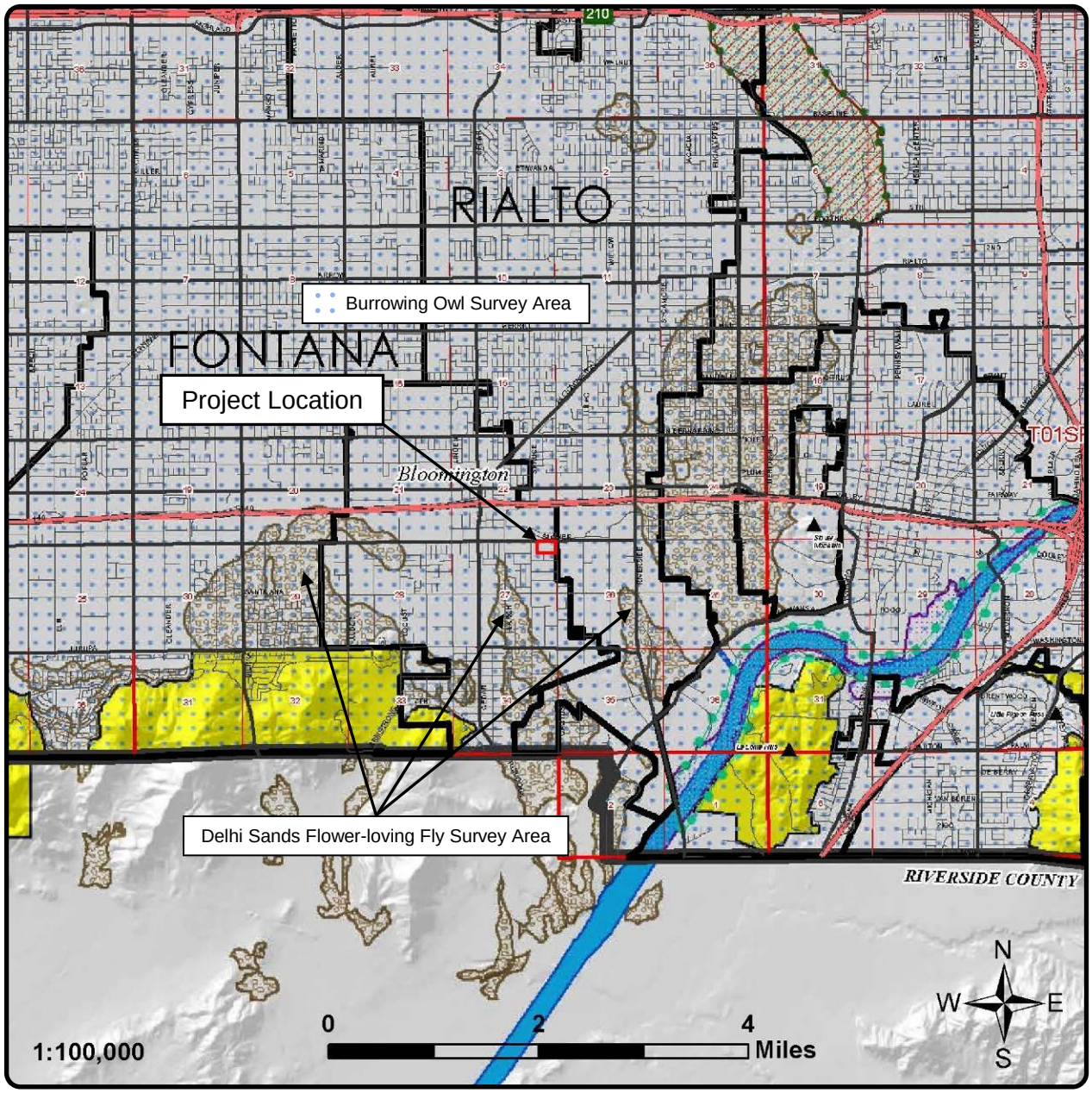

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Figure 5

San Bernardino County Biotic Resources Map

Slover Ave. and Cactus Ave., Bloomington County of San Bernardino, California

2.0) METHODS AND PERSONNEL

2.1) Literature Review

Pertinent literature was reviewed to identify local occurrences and habitat requirements of special status species and sensitive vegetation communities in the region. Literature reviewed included a search of the California Natural Diversity Database (CNDDB) and California Native Plant Society (CNPS) Inventory of Rare and Endangered Plants for the Fontana USGS topographic quadrangle and adjacent quadrangles (Cucamonga Peak, Devore, San Bernardino North, San Bernardino South, Guasti, Corona North, Riverside East, and Riverside West) (CDFW 2018a; CNPS 2018) and a previous habitat assessment by L&L (2017). Aerial images (Google Earth 2017, 2018) of the project site and vicinity were inspected to determine level and type of surrounding development and areas of potential habitat.

The California Natural Diversity Database (CNDDB) includes documented occurrences of special status species that have been reported to the CDFW. It also includes ranks of overall condition of sensitive species and vegetation communities on global (throughout its range) and state (within California) levels. State ranking is numerical, ranging from one to five (S1 to S5), with one indicating very few remaining individuals or little remaining habitat and five indicating a demonstrably secure to ineradicable population condition.

The CNPS Inventory of Rare and Endangered Species includes documented occurrences of special status plant species that are available through the Consortium of California Herbaria and other sources. The CNPS, in coordination with CDFW, has cataloged California's rare and endangered plants into lists according to population distributions and viability. These lists are numbered and indicate the following California Rare Plant Ranks (CRPR): (1A) presumed extinct in California; (1B) rare, threatened, or endangered throughout their range; (2A) presumed extirpated in California, but more common in other states; (2B) threatened or endangered in California, but more common in other states; (3) more information is needed to establish rarity; and (4) plants of limited distribution in California (i.e., naturally rare in the wild), but whose populations do not appear to be susceptible to threat. A CRPR may also have an extension (e.g., 1B.2) that indicates current level of threat: seriously threatened (x.1), moderately threatened (x.2), or not very threatened (x.3).

A list of special status species was compiled from the CNDDB and CNPS searches and each species was evaluated for potential for occurrence on the project site. Special status species include species that are:

- Listed as endangered or threatened, proposed for listing, or candidates for listing under the Federal Endangered Species Act (FESA) or California Endangered Species Act (CESA);
- Included in the current CDFW lists of Special Animals or Special Plants, Bryophytes, and Lichens;
- "Fully protected" by the State of California;
- Included in the California Native Plant Society (CNPS) Inventory of Rare and Endangered Plants; or
- Identified as plants meeting the definition of rare or endangered under CEQA.

Following surveys, the potential for occurrence of special status plant and wildlife species on the project site was evaluated and classified as absent (i.e., not expected), low, moderate, high, or occurs. The potential determined for each species was based on the presence and quality of suitable habitat and the proximity to a documented occurrence. The definition for each classification is:

- Occurs: Species was detected during surveys or previously documented on the Project site or adjacent areas.
- High: Species documented in the vicinity (i.e., within 5 miles) of the Project site and suitable habitat is present, but species not detected during surveys.
- Moderate: Species documented in the vicinity of the Project site or suitable habitat present and site is within geographic and elevational range of the species.
- Low: Species not documented in the vicinity of the Project site or suitable habitat is marginal.
- Absent: Species not documented in the vicinity of the Project site and suitable habitat marginal or absent or site is not within geographic and elevational range of the species

These definitions provide general guidance. Classifications for individual species may be modified based on other factors, such as connectivity and date of most recent documented occurrence (current or historic), and biologists' experience and expert opinion.

Latin names of plants follow *The Jepson Manual* (Hickman 1993) with updates from the online Jepson eFlora. Vegetation community classifications are based primarily on *A Manual of California Vegetation* (Sawyer et al. 2009). Latin names of animals follow *A Field Guide to Western Reptiles and Amphibians* (Stebbins 1985), *California Mammals* (Jameson and Peeters 1988), *Checklist of North American Birds* (American Ornithologists' Union 1983, 1989), *The Sibley Guide to Birds* (Sibley 2000), and *American Insects: A Handbook of the Insects of America North of Mexico* (Arnett 2000), with updates from relevant academic sources as needed.

As used in this document, the "project site" or "site" refers to the entire property proposed to be included in the project; the "survey area" or "study area" includes the project site plus any buffer areas required by specific survey protocols.

Precipitation data was obtained from the California Irrigation Management Information System weather station at the University of California, Riverside (Station 44) (CDWR 2018). This weather station is located approximately 7.25 miles south-southeast of the project site at an elevation of approximately 1,030 feet amsl.

2.2) Species Information

Burrowing Owl

Burrowing owl (BUOW) is a small ground-dwelling owl found in open dry grassland, desert, or shrubland areas and in uncultivated agricultural areas, rangelands, and other open areas with low-growing vegetation. It is a CDFW Species of Special Concern and is protected under the federal Migratory Bird Treaty Act and California Fish and Game Code.

It ranges throughout the western U. S., Canada, and Mexico, but is increasingly uncommon in southern California. It is a small (approximately 9 to 11 inches in height), pale brown owl with white-colored "eyebrows" and throat, yellow eyes, a short stubby tail, and long legs. Males are generally larger and more lightly colored than females. It is the most diurnal of owl species, but is considered mostly crepuscular (active around sunrise and sunset). Arthropods (mainly beetles and grasshoppers) make up a large portion of the diet, especially during the breeding season. BUOW are opportunistic feeders and will readily eat small mammals (primarily mice, gophers, and ground squirrels), lizards, amphibians, and small birds.

Burrows are an essential element of BUOW habitat. Although capable of excavating its own burrows in soft soils, the BUOW typically inhabits abandoned burrows of small mammals, such as ground squirrels, pocket gophers, and badgers. BUOW has also been associated with man-made structures such as cement culverts, debris piles, and other artificial burrows.

As defined by the California Burrowing Owl Consortium (CBOC), a protocol BUOW survey consists of four phases (CBOC 1993). Phase I is a survey to assess the presence of suitable BUOW habitat on the project site, including a 150-meter (500-foot) buffer around the project site. A Phase II burrow survey is required if potential BUOW habitat occurs on the site. If BUOW habitat is not present on the project site and buffer zone, the Phase II burrow survey is not necessary. If suitable habitat and burrows are found to be present during the Phase II

survey, a Phase III survey is required during the breeding season to determine if, when, and how the site is used by burrowing owls. Four (4) site visits are required for the Phase III survey. If no owls are observed using the site during the breeding season, a winter survey is required. Phase IV consists of reporting results of the survey(s) to CDFW and is required even for negative results. If suitable habitat is present, a 30-day preconstruction survey is also required.

BUOW may use a site for breeding, wintering, foraging, and/or migration stopovers. Occupancy of suitable habitat can be verified by an observation of at least one BUOW or its molted feathers, cast pellets, prey remains, eggshell fragments, or excrement (whitewash) at or near a burrow entrance (CBOC 1993). A site is considered occupied if at least one (1) owl has been identified onsite in the past three (3) years, because (if undisturbed) burrowing owls exhibit high site fidelity, reusing burrows year after year.

The nesting season for BUOW is March 1 through August 31. Based on the currently accepted survey protocol, surveys are recommended during the peak breeding season, which is generally considered to be from April 15 to July 15 in southern California.

Protocol guidelines specify that surveys should be conducted during weather that is conducive to observing owls outside their burrows. The following weather conditions should be avoided: wind speeds in excess of 20 mph, heavy rain, or dense fog. Because BUOW is considered mostly crepuscular in its activities by the CBOC and CDFW, these guidelines suggest that surveys be conducted from one hour before sunrise to two hours after (morning) or from two hours before sunset to one hour after (evening). In some cases, cloudy skies and/or mild temperatures can prolong early morning conditions and BUOW can be very active during midday hours. In addition, although activity generally increases early or late in the day, many BUOW have been observed during midday hours (1000 to 1400 hours) in temperatures exceeding 95° F in Norco, Ontario, Rancho Cucamonga, and other areas of cismontane southern California.

Delhi Sands Flower-loving Fly

Delhi sands flower-loving fly (DSF) is federally listed as endangered. This species is narrowly distributed in portions of northwestern Riverside County and southwestern San Bernardino County in areas with fine, sandy soils, often wholly or partly sand dunes stabilized by sparse native vegetation, referred to as Delhi series soils. Delhi series soils are a rare and biologically sensitive environment, inhabited by a number of plant and animal species of conservation concern (USFWS 1997).

DSF is typically found in relatively intact, open, sparse, native habitats with less than 50 percent vegetative cover. Three (3) indicator plant species are typically present in occupied DSF habitat: California buckwheat (*Eriogonum fasciculatum*), telegraph weed (*Heterotheca grandiflora*), and California croton (*Croton californicus*) (USFWS 1997).

If suitable habitat for DSF is present, protocols require a permitted biologist to conduct surveys twice a week during each week from July 1 to September 20 for two consecutive years.

2.3) Survey Methods

Field surveys were conducted by Guy Bruyea. Mr. Bruyea is an experienced field biologist who has conducted numerous surveys for special status plant and wildlife species and their habitat in southern California, including BUOW and DSF. He holds a U.S. Fish and Wildlife Service (USFWS) 10(a)(1)(A) permit for DSF.

Aerial images (Google Earth 2017, 2018) were reviewed to determine potential vegetation communities within the survey area. Vegetation communities were then evaluated, identified, and mapped. Vegetation community classifications follow Sawyer et al. (2009). Field data was transferred into Google Earth and to a GIS system for acreage calculations and mapping.

General reconnaissance and habitat assessment surveys were completed to determine habitat suitability for special status plant and wildlife species potentially occurring in the survey area. Suitable habitat for special status species was determined by the presence of specific habitat elements. CNDDB forms were completed for all special status species observed.

Field survey times and weather conditions are provided in Table 1. A total of approximately 9.5 survey hours were spent onsite. The site was surveyed on foot by conducting a series of transects across the subject property, stopping periodically for observations and notations (Figure 4). Homeowner authorization for access was not granted for the northeastern portion of the site and this area was surveyed with binoculars only. Digital photographs were taken to document the condition of the site.

Table 1. Survey Dates, Times, and Weather Conditions.

Date	Time	Sunrise*	Weather	Wind	Purpose
07.30.2017	0730-0930	0603	Sunny/Clear, 72-79º F	0-1 mph	General, botanical, BUOW, DSF habitat assessment
03.27.2018	0900-1045	0647	Sunny/Clear, 62-73º F	2-6 mph	General, botanical, BUOW
04.16.2018	0915-1045	0620	Partly cloudy, 67-70º F	1-3 mph	General, botanical, BUOW
04.26.2018	0945-1100	0608	Sunny, 70-74º F	2-4 mph	General, botanical
05.21.2018	1115-1245	0547	Cloudy, 64-68º F	3-6 mph	General, botanical, BUOW
07.06.2018	0800-0930	0547	Sunny, 80-89º F	0-3 mph	General, botanical, BUOW

*sunrise times from timeanddate.com

2.3.1) Botanical Survey

A complete floristic study of the survey area was conducted, as required for a CEQA analysis. The plant surveys followed protocols recommended in USFWS (1996), CDFW (CDFG 2009), and CNPS (2001) guidelines for rare plant surveys. All plants encountered were identified to a level necessary to ensure detection of special status species. Plants of uncertain identity were collected and subsequently identified from keys, descriptions, and illustrations in Abrams (1923, 1944, 1951, & 1960), Abrams and Ferris (1960), Hickman (1993), Munz (1974), and Parker (1999).

This methodology is consistent with recommendations by the California Native Plant Society (CNPS 2001), because it provides more than reasonable coverage of all habitat types and is "floristic in nature." A floristic survey requires that every plant observed be identified and recorded and that a sufficient number of visits be spaced throughout the growing season to prepare an accurate inventory of all plants that exist onsite. Systematic field techniques in all habitats of the site (transects) were employed to ensure thorough coverage of potential impact areas sufficient to provide comprehensive reporting.

2.3.2) Burrowing Owl Survey

A habitat assessment and burrow surveys for suitable BUOW habitat and potential burrow sites were conducted on July 30, 2017, March 27, 2018, April 16, 2018, May 21, 2018, and July 6, 2018. The surveys were conducted in accordance with the Burrowing Owl Survey Protocol

developed by CBOC (1993). These surveys were conducted during peak nesting season for the project area.

The site was examined for suitable burrow sites and for signs of occupation by BUOW, including pellets, feathers, whitewash, prey remains, and eggshell fragments, as well as individual BUOW. A search for potentially suitable burrows within dirt, wood, and rock debris piles, artificially created berms, and other locations was conducted during the surveys. The surveys were concentrated in areas typically associated with BUOW habitat, including open areas onsite and areas where California ground squirrel activity (i.e., suitable burrows) was expected. Transects were walked along the perimeter of the subject property where suitable habitat is present, with additional transects through the center portion of these areas. Coupled with the binocular surveys of restricted areas, this allowed for complete visual ground coverage of the survey area. Distance between transects was approximately 15 to 20 meters.

As set forth in the protocol, an additional 150-meter (500-foot) buffer area surrounding the site was visually inspected, where possible, in areas identified as potential BUOW habitat. Most areas surrounding the site are developed and were visually surveyed with binoculars due to trespassing concerns on private property.

2.3.3) DSF Habitat Assessment

The July 30, 2017 survey also included a habitat assessment for DSF. The habitat assessment included evaluation of soils, level of disturbance, and indicator plant species.

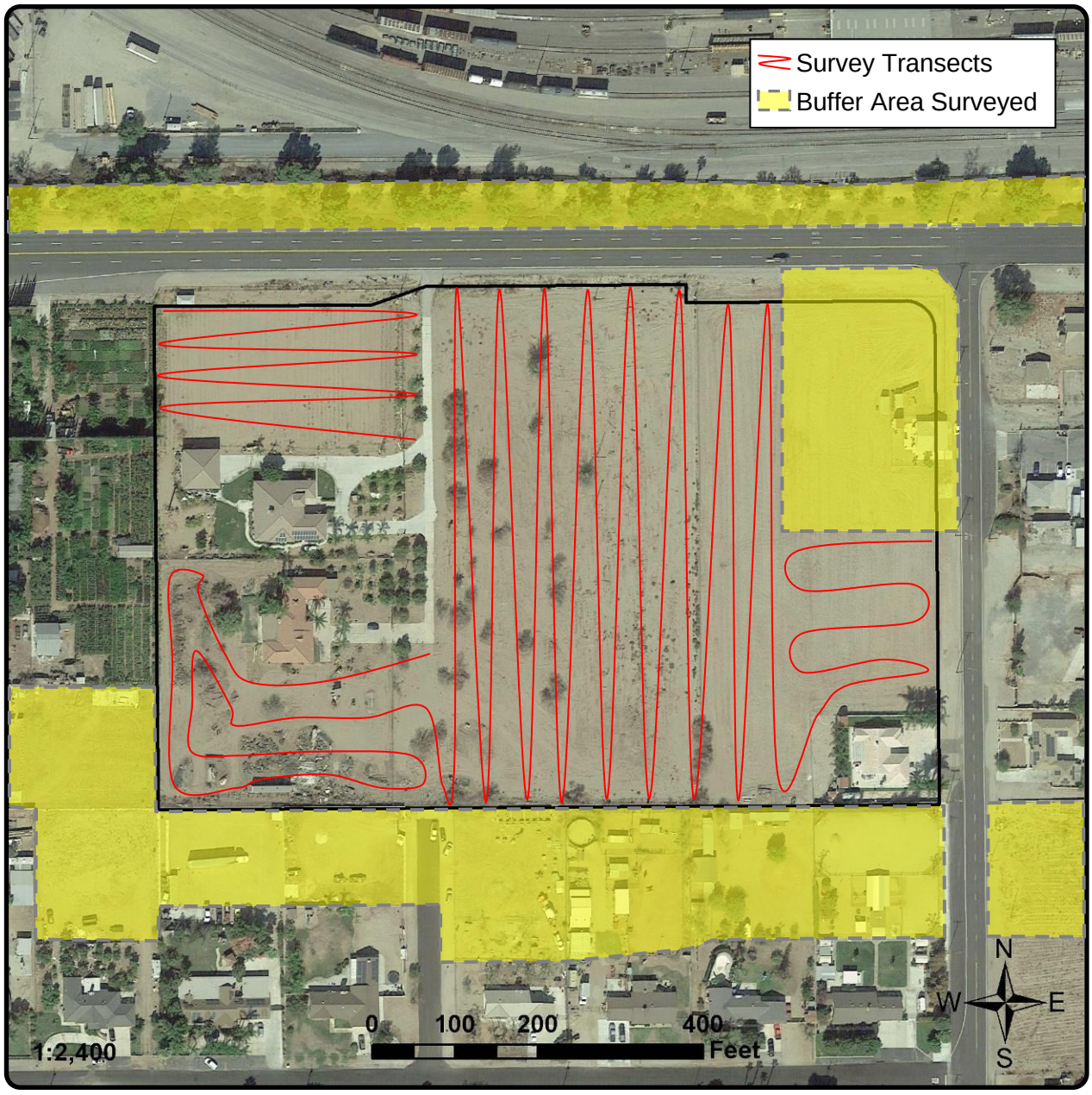

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Figure 6

Burrowing Owl Survey Area
(Photo obtained from Google Earth, October 2016)

Slover Ave. and Cactus Ave., Bloomington
County of San Bernardino, California

3.0) RESULTS

3.1) Literature Review Results

The County of San Bernardino Pre-application Memo for the project indicates that the site is located in a biotic resource overlay and a biological survey and report for burrowing owl may be necessary. The site is also within approximately 1.2 miles of occupied DSF habitat located east of the site along and south of Slover Avenue.

A list of special status species was compiled from the CNDDB and CNPS searches and each species was evaluated for potential for occurrence on the project site. Detailed results are provided in Appendix A.

Average annual rainfall in the region of the project site is 15 inches (WRCC 2016). Precipitation data from the CIMIS weather station (Appendix D) indicates that there was sufficient rainfall in the months preceding the March 2018 survey to support germination and growth of plants. There were small amounts of rainfall after March. Precipitation during the winter preceding the July 2017 survey was sufficient to support the germination and growth of plants, but there was relatively little rainfall in the months just prior to the survey. Annual plants that had germinated would likely have desiccated or senesced and been difficult to observe and identify.

3.2) Vegetation

The entire site has been subject to past development and/or disturbance. Vegetation present throughout the entire site would be characterized as disturbed and developed/ornamental (Table 2 and Figure 7). There are no native, riparian, or sensitive vegetation communities present.

Table 2. Vegetation Communities.

Community or Land Cover Type	Vegetation Classification (Sawyer et al., 2009)	Area (acres)
Disturbed	Semi-natural Herbaceous Stands	10.70
Developed/Ornamental	Not applicable	2.64
TOTAL		**13.34**

3.2.1) Disturbed

Disturbed habitat is present on most of the site, with the exception of the area occupied by the existing residences and associated landscaping (Figure 7). Much of this area appears to be frequently disked and has a sparse cover of non-native annual grasses and forbs and a few

common native species. The northwest corner of the site has a recent history of cultivation for strawberries, although this operation has ceased. Most of the site was an orchard or grove from at least 1938 into the 1990s, but the orchard area has diminished over time to just a few remaining untended trees in the central portion of the site. Native blue elderberry trees (*Sambucus mexicana*) are also present, but the individual trees are surrounded by disturbed areas and are not contiguous enough to form a native vegetation community.

Disturbed habitat onsite does not correspond with any vegetation community type in Sawyer et al. (2009), other than general semi-natural herbaceous stands. This is not considered a sensitive vegetation type.

3.2.2) Developed/Ornamental

Large portions of the site consist of ornamental landscaping and disturbance associated with the four (4) existing onsite residences and additional ornamental plants that have become established along the western site boundary from an adjacent commercial nursery (Figure 7). Developed areas and ornamental vegetation does not correspond with any vegetation community type in Sawyer et al. (2009). This is not considered a sensitive vegetation type.

3.3) Plant Species

A total of 35 plant species were identified onsite during surveys and are listed in Appendix A. Most species present are weedy annuals; 26 of the species are non-native. As noted above, several isolated blue elderberry trees are present in the central portion of the property. Many ornamental landscaping species are present. The most conspicuous are various palms, citrus, and avocado. Large ornamental trees were identified, where possible, and included in the species list in Appendix A. Ornamental shrub species adjacent to the onsite residences are not included in the species list.

Eight (8) plant species federally and/or state listed as threatened or endangered (including species proposed for or candidates for listing) and an additional 66 non-listed special status plant species were evaluated as part of this assessment. They are briefly described and occurrence probability is provided in Appendix A. These species were either documented by the CNDDB within the same USGS topographic quadrangle as the survey area or adjacent quadrangles, addressed in previous reports, or identified by the USFWS, CDFW, or CNPS as potentially occurring in the area.

None of the listed or special status plant species have a moderate or high potential to occur and none were observed during surveys.

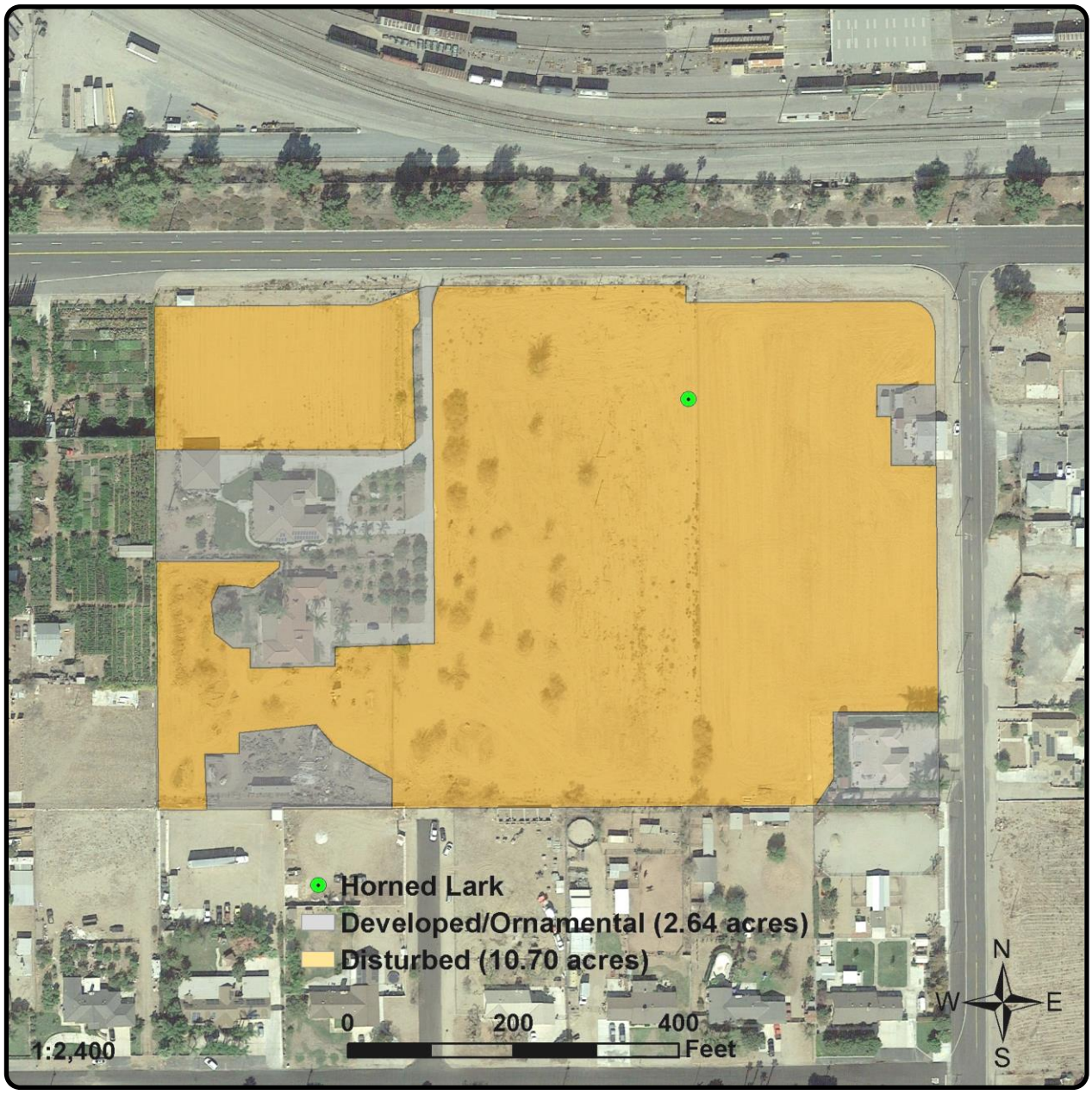
3.4) Wildlife Species

A total of 25 wildlife species have been identified during surveys: 21 birds, three (3) mammals, and one (1) reptile (see Appendix A). All are common species except one. One (1) special status wildlife species was detected during surveys: California horned lark (*Eremophila alpestris actia*; CDFW Watch List). This species was observed foraging in the disturbed habitat on the project site during the March 2018 survey. Due to ongoing anthropogenic disturbances onsite, horned lark is unlikely to nest there. A CNDDB form for this observation is provided in Appendix C.

The survey area is disturbed or developed with ongoing human activities. The site is surrounded by existing developed/disturbed areas and has no connectivity with any natural habitat in the region.

Thirteen (13) wildlife species federally and/or state listed as threatened or endangered (including species proposed for or candidates for listing) and an additional 49 non-listed special status wildlife species were evaluated as part of this assessment. They are briefly described and occurrence probability is provided in Appendix A. These species were either documented by the CNDDB within the same USGS topographic quadrangle as the survey area or adjacent quadrangles, addressed in previous reports, or identified by the USFWS or CDFW as potentially occurring in the area.

None of the listed species has a moderate or high potential to occur and none were observed during surveys. As noted above, one (1) special status wildlife species, California horned lark, was observed onsite. An additional special status species, loggerhead shrike (*Lanius ludovicianus*; CDFW Species of Special Concern), has moderate potential for occurrence, but was not observed.



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BIOLOGICAL AND CULTURAL INVESTIGATIONS AND MONITORING

TB-17-598
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Figure 7

Habitat Map
(Photo obtained from Google Earth, October 2016)

Slover Ave. and Cactus Ave., Bloomington
County of San Bernardino, California

3.4.1) Invertebrates

No special status invertebrate species have moderate or high potential to occur (Appendix A) and none were observed during surveys.

Delhi Sands Flower-loving Fly

Due to the site's proximity to occupied DSF habitat, a preliminary habitat assessment was conducted for this federally endangered species during the survey on July 30, 2017. Unconsolidated soils, which are considered a component of suitable habitat for the species, are present onsite. However, based on SSURGO soil maps, Delhi series soils are not mapped for the subject property or adjacent areas. To date, all DSF observations have been documented in association with Delhi series soils. In addition, the project site is surrounded by existing development on all sides (with the exception of a disked vacant lot to the southeast) and has no connectivity to areas with Delhi series soils. The nearest Delhi series soils are located approximately 0.28 miles to the southwest and 0.70 miles to the southeast, with extensive development between these areas and the project site.

The site is highly disturbed and does not support native habitat. One (1) DSF indicator plant species, telegraph weed (*Heterotheca grandiflora*), is present. The other indicator plant species (California buckwheat [*Eriogonum fasciculatum*] and California croton [*Croton californicus*]) are absent.

Based upon lack of native habitat, Delhi series soils, and DSF indicator plant species, and ongoing disturbance of the project site, the site is not suitable habitat for DSF.

3.4.2) Fish

There are no drainages onsite and no aquatic habitat to support common or special status fish species.

3.4.3) Amphibians and Reptiles

No amphibian species were observed onsite during surveys. Amphibians require wet or generally wet environments, which are not present in most of the survey area. Irrigated landscaped areas may provide moist environments that could potentially support common amphibians, but no special status amphibian species have moderate or high potential to occur (Appendix A).

One (1) common reptile species was observed during surveys: side-blotched lizard (*Uta stansburiana*). No special status reptiles were observed. Reptiles are found in a variety of habitats and the site may support additional common species, but no special status reptile species have moderate or high potential to occur (Appendix A).

3.4.4) Birds

A total of 21 bird species were detected onsite during surveys. One (1), California horned lark, is a special status species on the CDFW Watch List. This species was observed foraging on the project site, but is unlikely to nest there. A CNDDB form for this observation is provided in Appendix C.

An additional bird species, loggerhead shrike, has moderate potential for occurrence onsite, but was not observed. Loggerhead shrike is a CDFW Species of Special Concern.

Trees, ornamental vegetation, and open ground onsite can provide foraging and nesting habitat for songbirds. Given the existing level of disturbance and development, there is low potential for foraging or nesting by raptors. No nesting birds have been observed on the site during surveys to date.

Burrowing Owl

Several California ground squirrels were observed onsite, particularly in the southwestern portion of the property. Two (2) suitably sized ground squirrel burrows were observed in this area along a chain-link fence adjacent to an occupied single-family residence and associated concrete driveway. No evidence (pellets, whitewash, feathers, etc.) of BUOW or BUOW occupied burrows was observed at this location or anywhere onsite during surveys.

As required by the survey protocol, a 150-meter (500-foot) buffer area around the entire site was assessed (where possible) for potential BUOW habitat. Most areas surrounding the site are developed or otherwise disturbed. A small strip of ornamental landscaping associated with the railroad yard is present adjacent to Slover Avenue just north of the site, but no burrows or BUOW sign was observed at this location. No BUOW, BUOW sign, or suitably sized burrows were observed in any areas adjacent to the site.

Potential habitat is marginal due to ongoing anthropogenic disturbances associated with residential use, disking, and development of surrounding lands. There is no evidence of current BUOW occupation of the site.

3.4.5) Mammals

Three (3) common mammal species were detected onsite: Botta's pocket gopher (*Thomomys bottae*), Audubon's cottontail rabbit (*Sylvilagus audubonii*), and California ground squirrel (*Spermophilus beecheyi*).

No special status mammals were observed. The site may support additional common small mammals, but no special status mammal species have moderate or high potential to occur (Appendix A).

Trees can provide roosting habitat for bats. The trees onsite, and the palm trees in particular, were examined for signs of bat roosting and none were observed.

3.5) Jurisdictional Waters and Wetlands

No mapped USGS blueline streams or jurisdictional drainages are present onsite. There is no evidence of any kind of water conveyances, ditches, streams, overland flow, or ponding onsite. No wetlands, hydric soils, riparian habitats, drainages, or recent surface flows were observed onsite during surveys.

3.6) Wildlife Corridors

Wildlife corridors link together areas of suitable wildlife habitat that are otherwise separated by rugged terrain, changes in vegetation, or human disturbance. The fragmentation of open space areas by urbanization creates isolated "islands" of wildlife habitat. Various studies have concluded that in the absence of habitat linkages that allow movement to adjoining open space areas, some wildlife species (especially the larger and more mobile mammals) will not likely persist over time. Such fragmented or isolated habitat areas hinder the transfer of new individuals and genetic information.

Corridors mitigate the effects of this fragmentation by:

- Allowing animals to move between remaining habitats, thereby permitting depleted populations to be replenished and promoting genetic exchange;
- Providing escape routes from fire, predators, and human disturbances, thus reducing the risk that catastrophic events (fire, disease, etc.) will result in population or local species extinction; and
- Serving as travel routes for individual animals as they move in their home ranges in search of food, water, mates, and other necessary resources.

Wildlife movement activities usually fall into one of three movement categories: dispersal (e.g., juvenile animals from natal areas or individuals extending range distributions), seasonal migration, and movements related to home range activities (e.g., foraging for food or water, defending territories, or searching for mates, breeding areas, or cover).

3.6.1) Connectivity

The property is surrounded by developed and disturbed areas. A large railroad yard is located to the north, residential and commercial properties are present to the east, residential areas are also found the south, and residential areas and a commercial nursery are situated to the west. A disturbed, vacant lot is located to the southeast.

The property does not support native habitat and is separated from native habitats by disturbance and development. The site does not have biological connectivity with native habitats and does not provide a wildlife movement corridor.

4.0) ANALYSIS OF POTENTIAL EFFECTS

Direct impacts of the proposed Project are those that result from any vegetation- and ground-disturbing activities (i.e., earthmoving, habitat removal, dust, noise and vibration, etc.) associated with project construction. Since all existing habitat on the site will be removed during construction and there is no native habitat in adjacent areas, no direct operations-related impacts are anticipated.

Indirect impacts are defined by CEQA as those effects caused by the action and occurring later in time or farther removed in distance, but still reasonably foreseeable. Examples of indirect impacts are erosion and runoff, introduction or spread of invasive plants, increased human or pet encroachment, and introduction of predator subsidies (e.g., water, food, or nest/perch sites that unnaturally augment and support predators). Since the project will remove all vegetation on the site and there is no adjacent native habitat, no indirect project impacts are anticipated.

Direct and indirect impacts were evaluated with respect to general biological impacts, state and federally listed species and special status species, sensitive habitats, and jurisdictional waters and wetlands. Impact acreages were calculated based on the conceptual plan provided by HPA Architecture (Figure 8).

4.1) Vegetation

This section includes impacts to vegetation communities present in the Project area. Impacts result mainly from permanent removal of habitat and direct impacts by construction activities.

- Direct Effects

Implementation of the proposed Project would result in the direct permanent loss of all vegetation on the Project site (13.34 acres). The site is composed of 2.64 acres of developed areas/ornamental vegetation and 10.70 acres of disturbed habitat dominated by non-native grasses and forbs with a few common native species (Figure 7). There is no native habitat present and no sensitive vegetation communities. The Project site is surrounded by paved roads and residential and commercial developments and is not contiguous with any areas of native habitat. The disturbed habitat is subject to ongoing disturbances that date back several decades. There are no sensitive vegetation communities or riparian habitat on the site. No direct impacts to sensitive vegetation communities or riparian habitat are anticipated as a result of the proposed Project and no mitigation is proposed.

- Indirect Effects

There are no sensitive vegetation communities or riparian habitat in the immediate Project vicinity that would be subject to indirect Project impacts such as erosion and runoff, invasive species, and human encroachment. There would be no indirect impacts to sensitive vegetation communities or riparian habitat as a result of the proposed project and no mitigation is proposed.

4.2) Plant Species

The site was evaluated for presence or absence of suitable habitat to support listed and special status plant species. No listed or special status plants have been observed on the Project site and none have a moderate or high potential for occurrence. There are no recorded occurrences of listed species nor does any designated or proposed critical habitat occur on the Project site.

- Direct Effects

Direct impacts to special status plants could include habitat loss and damage or destruction of individual plants during construction. Direct impacts would also include damage or destruction of plants or habitat degradation due to construction-related dust, chemical emissions, and human presence.

No listed or special status plants have been detected on the Project site and none are expected to be present. Therefore, direct impacts to individual listed or special status plants are not anticipated. The disturbed habitat, developed areas, and ornamental vegetation on the site do not represent quality habitat for special status plants and loss or degradation of this habitat would not represent a significant impact. All existing habitat will be removed during construction, and no direct operations-related impacts to special status plants are anticipated. No direct impacts to listed or special status plant species are anticipated as a result of the proposed Project and no mitigation is proposed.

- Indirect Effects

The Project site is surrounded by paved roads and residential and commercial developments and is not contiguous with any areas of native habitat. There is no native habitat in the immediate Project vicinity that would be subject to indirect Project impacts. No listed or special status plant species are known or likely to occur within the developed areas adjacent to the

Project site. No indirect impacts to listed or special status plant species are anticipated as a result of the proposed Project and no mitigation is proposed.

4.3) Wildlife Species

No listed wildlife species have a moderate or high potential to occur on the Project site and none were observed during surveys. A preliminary habitat assessment determined that there is no suitable habitat for Delhi Sands flower-loving fly on the site.

One (1) special status wildlife species, California horned lark, was observed foraging in the disturbed habitat on the site. An additional special status species, loggerhead shrike, has moderate potential for occurrence (foraging and nesting), but has not been observed. Burrowing owl protocol surveys found no evidence of current burrowing owl occupation of the site.

- Direct Effects

Direct impacts to special status wildlife could include habitat loss and damage or destruction of nests/dens and injury/mortality of young. Direct impacts would also include injury, disturbance, or habitat degradation due to construction-related noise and vibration, dust, chemical emissions, and human presence. All existing habitat will be removed during construction, and no direct operations-related impacts to special status wildlife are anticipated.

The loss of 13.34 acres of developed/ornamental and disturbed habitat adds to the reduction in availability of nest/den sites and foraging habitats for wildlife species that utilize urban and disturbed habitats. However, there is ample existing residential development in the area that provides trees and other ornamental vegetation, as well as disturbed habitat in vacant lots. Large areas of conserved open space are located in a regional park approximately 2.5 miles southwest of the site (Jurupa Hills Regional Park, 861 acres). The loss of developed/ornamental and disturbed habitat on the Project site would not significantly impact special status wildlife species and no mitigation is proposed. Special status species that utilize the site for foraging are expected to avoid the site during construction and consequently would not be subject to construction-related noise, dust, etc. and no mitigation is proposed. Impacts to burrowing owl and nesting birds are addressed below.

There is no evidence of current burrowing owl occupation of the site, but marginally suitable habitat is present. Burrowing owl will tend to shelter in their burrows, rather than flee from approaching disturbance as most adult birds do. Consequently, in addition to the direct impacts

listed above, burrowing owl may also be impacted by mortality of adults and eggs/chicks/juveniles killed or entombed in burrows during construction.

Habitat on the site is marginal for burrowing owl due to long-term ongoing disturbance and is unoccupied. Loss of about 10.70 acres of unoccupied, marginal habitat would not be a significant impact to burrowing owl. Mitigation Measure BIO-1 would require that a preconstruction survey for burrowing owl be conducted to prevent potential disturbance, injury, and mortality to burrowing owl that may be present on the site. With implementation of Mitigation Measure BIO-1, potential impacts to burrowing owl would be less than significant.

BIO-1 A pre-construction burrowing owl clearance survey shall be conducted no more than 30 days prior to initial vegetation clearing and grading. The clearance survey will be conducted as close to the actual construction initiation date as possible. If burrowing owl is present, the Project biologist will consult with CDFW to develop and implement a mitigation plan.

- Indirect Effects

Indirect impacts to special status wildlife species could include disturbance and habitat degradation due to erosion and runoff, invasive species, predator subsidies, and human encroachment. The Project site is surrounded by paved roads and residential and commercial developments and is not contiguous with any areas of native habitat. There is no native habitat in the immediate Project vicinity that would be subject to indirect Project impacts. No listed or special status wildlife species are known or likely to occur within the developed areas adjacent to the Project site. No indirect impacts to listed or special status wildlife species are anticipated as a result of the proposed Project and no mitigation is proposed.

4.4) Nesting Birds

Nesting birds are protected under the federal Migratory Bird Treaty Act and California Fish and Game Code. Trees, ornamental vegetation, and open ground onsite can provide foraging and nesting habitat for songbirds. Given the existing level of disturbance and development, there is low potential for foraging or nesting by raptors.

- Direct Effects

Direct impacts to nesting birds could include habitat loss and damage or destruction of nests and injury/mortality of eggs, chicks, and dependent juveniles. Direct impacts would also include injury, disturbance, or habitat degradation due to construction-related noise and vibration, dust,

chemical emissions, and human presence. All existing habitat will be removed during construction, and no direct operations-related impacts to nesting birds are anticipated.

The loss of 13.34 acres of developed/ornamental and disturbed habitat adds to the reduction in availability of nest sites for nesting birds that utilize urban and disturbed habitats. However, there is ample existing residential development in the area that provides trees and other ornamental vegetation, as well as disturbed habitat in vacant lots. Large areas of conserved open space are located in a regional park approximately 2.5 miles southwest of the site (Jurupa Hills Regional Park, 861 acres). The loss of developed/ornamental and disturbed habitat on the Project site would not significantly impact nesting birds and no mitigation is proposed.

Adult birds have a low potential of being directly impacted based on their mobility, but if active nests are present within the Project site during construction, eggs and juveniles could be injured or killed, or disturbed by dust, noise and vibration, human encroachment, etc. Mitigation Measure BIO-2 would require that a preconstruction clearance survey for nesting birds be conducted to prevent potential loss of active nests, eggs, chicks, and dependent juveniles. With implementation of Mitigation Measure BIO-2, direct project-related impacts to nesting birds would be less than significant.

BIO-2 To avoid impacts to nesting birds, initial vegetation clearing and grading shall be avoided from January 1 through September 15. If work cannot be avoided during this timeframe, a nesting bird survey shall be conducted by a qualified biologist within three (3) days prior to initial clearing and/or grading. If nesting birds are present, a buffer shall be flagged around the nest (300 feet for songbirds, 500 feet for raptors and special status species, or as determined appropriate by the biologist). Construction shall not be permitted within the buffer area while the nest is active. Once a qualified biologist has determined that the nest has fledged or is otherwise no longer active, the buffer shall be removed and avoidance is no longer required. An active nest is defined as a nest with eggs, chicks, or dependent juveniles, or a nest actively being constructed or utilized for reproduction.

- <u>Indirect Effects</u>

Indirect impacts to nesting birds could include disturbance and habitat degradation due to erosion and runoff, invasive species, predator subsidies, human encroachment, etc. Habitat for nesting birds is present in adjacent developed areas, but with implementation of Mitigation Measure BIO-2, direct construction-related impacts to nesting birds would be less than significant. Implementation of the proposed Project is not anticipated to significantly alter existing conditions with respect to erosion and runoff, invasive species, predator subsidies, human encroachment, and other potential indirect impacts to nesting birds. No indirect impacts

to nesting birds are anticipated as a result of the proposed Project and no additional mitigation is proposed.

4.5) Wildlife Corridors

The property is surrounded by developed and disturbed areas. The site does not have biological connectivity with native habitats and is not part of a wildlife movement corridor. The site is not a wildlife nursery. No direct or indirect impacts to wildlife corridors, migratory movement, or native wildlife nursery sites would occur as a result of the proposed project and no mitigation is proposed.

4.6) Jurisdictional Waters and Wetlands

There are no federal or state jurisdictional waters and wetlands present on or adjacent to the site. No direct or indirect impacts to federal or state jurisdictional waters and wetlands are anticipated as a result of the proposed project and no mitigation is proposed.

4.7) Local Ordinances and Habitat Conservation Plans

The San Bernardino County Development Code implements the goals and policies of the General Plan by regulating land uses within the unincorporated areas of the County. Overlay maps depict areas subject to various county policies. The Biotic Resources Overlay implements General Plan policies regarding the protection and conservation of beneficial rare and endangered plant and animal resources and their habitats. The San Bernardino County Pre-application Memo for the project indicates that the site is located in a Biotic Resources Overlay area for burrowing owl habitat.

For projects within the Biotic Resources Overlay areas, Chapter 82.11 and 82.19 of the Development Code require that for proposed new land uses or increases of existing land use by more than 25 percent of disturbed area, the land use application shall include a biological resources report, along with mitigation measures to reduce or eliminate impacts to the identified resources. The Development Code also states that the County's Conditions of Approval for the project shall incorporate the mitigation measures from the biological report.

This document serves as a biological resources report and includes a mitigation measure for burrowing owl. The project will therefore not conflict with local ordinances protecting biological resources and no additional mitigation is proposed.

The project site is not within the covered area of any Habitat Conservation Plan or Natural Community Conservation Plan. The project will therefore not conflict with any Habitat Conservation Plan or Natural Community Conservation Plan and no mitigation is proposed.

5.0) CUMULATIVE IMPACTS

The proposed Project will contribute to regional cumulative impacts as it pertains to the loss of nesting bird habitat and foraging and nesting habitat for special status species (California horned lark, loggerhead shrike, and burrowing owl).

The defined area for the cumulative impact analysis is the Valley Planning Region of the San Bernardino County General Plan. The Valley Planning Region is an area of about 480 square miles in the southwest corner of the County. It is defined as all the area within the County that is south and west of the U.S. Forest Service boundaries (San Bernardino National Forest). It borders Los Angeles, Riverside, and Orange counties. The Valley Planning Region covers only 2.5 percent of the total County land, but holds approximately 75 percent of the County's population. This region is almost entirely urbanized with few natural open space areas still existing. The predominant vegetation types within the undeveloped areas of the valley are chaparral, coastal sage scrub, deciduous woodlands, grasslands, and wetlands. Vegetation in urbanized areas consists primarily of introduced landscape species.

5.1) Vegetation

On the Project site, there are 2.64 acres of developed/ornamental vegetation and the remaining 10.70 acres is disturbed habitat. The Project site was under cultivation from at least 1938 until the 1990s. The proposed Project will not impact sensitive vegetation communities or riparian habitat and there would be no cumulative impacts to sensitive vegetation communities or riparian habitat in the region.

5.2) Plant Species

No listed or special status plants have been detected on the Project site and none are expected to be present. No impacts to listed or special status plant species are anticipated as a result of the proposed Project and there would be no cumulative impacts to listed or special status plants in the region.

5.3) Wildlife Species

No listed wildlife species have a moderate or high potential to occur on the Project site and none are expected to occur. No impacts to listed wildlife species are anticipated as a result of the proposed Project and there would be no cumulative impacts to listed wildlife in the region.

One (1) special status wildlife species, California horned lark, was observed foraging in the disturbed habitat on the site. An additional special status species, loggerhead shrike, has moderate potential for occurrence (foraging and nesting), but has not been observed. Burrowing owl protocol surveys found no evidence of current burrowing owl occupation of the site, but marginal habitat is present.

The loss of 13.34 acres of developed/ornamental and disturbed habitat adds to the reduction in availability of nest/den sites and foraging habitats for wildlife species that utilize urban and disturbed habitats. However, there is ample existing residential development in the area that provides trees and other ornamental vegetation, as well as disturbed habitat in vacant lots. Large areas of conserved open space are located in a regional park approximately 2.5 miles southwest of the site (Jurupa Hills Regional Park, 861 acres). The loss of developed/ornamental and disturbed habitat on the Project site would not significantly impact special status wildlife species and the loss of a relatively small area of this habitat would not be a cumulatively considerable impact on special status wildlife species in the region.

Habitat on the site is marginal for burrowing owl due to long-term ongoing disturbance and is unoccupied. Loss of about 10.70 acres of unoccupied, marginal habitat would not be a significant impact to burrowing owl and would not represent a cumulatively considerable impact to burrowing owl in the region. Implementation of Mitigation Measure BIO-1 would reduce any potential impacts to burrowing owl on the site to less-than-significant and any potential impacts to burrowing owl in the region would not be cumulatively considerable.

5.4) Nesting Birds

Trees, ornamental vegetation, and open ground onsite can provide foraging and nesting habitat for songbirds. Given the existing level of disturbance and development, there is low potential for foraging or nesting by raptors.

The loss of 13.34 acres of developed/ornamental and disturbed habitat adds to the reduction in availability of nest sites for nesting birds that utilize urban and disturbed habitats. However, there is ample existing residential development in the area that provides trees and other ornamental vegetation, as well as disturbed habitat in vacant lots. Large areas of conserved open space are located in a regional park approximately 2.5 miles southwest of the site (Jurupa Hills Regional Park, 861 acres). The loss of developed/ornamental and disturbed habitat on the Project site would not significantly impact nesting birds and the loss of a relatively small area of this habitat would not be a cumulatively considerable impact on nesting birds in the region.

Implementation of Mitigation Measure BIO-2 would reduce any potential impacts to nesting birds on the site to less-than-significant and any potential impacts to nesting birds in the region would not be cumulatively considerable.

5.5) Wildlife Corridors

The site is not part of a wildlife movement corridor or wildlife nursery. No cumulative impacts to wildlife corridors, migratory movement, or native wildlife nursery sites would occur as a result of the proposed project.

5.6) Jurisdictional Waters and Wetlands

There are no federal or state jurisdictional waters and wetlands present on or adjacent to the site. No cumulative impacts to federal or state jurisdictional waters and wetlands are anticipated as a result of the proposed project.

5.7) Local Ordinances and Habitat Conservation Plans

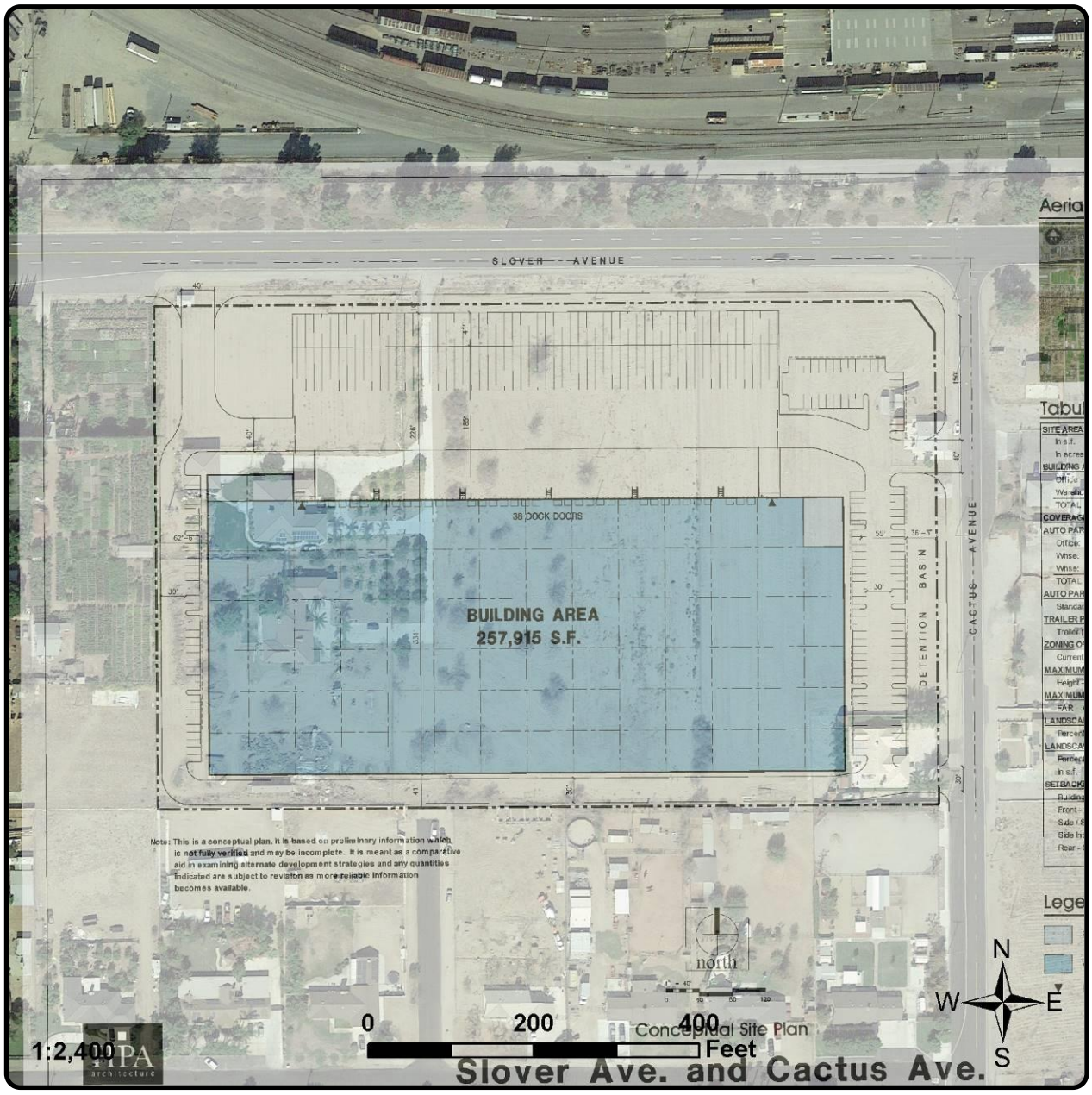
The project will not conflict with local ordinances protecting biological resources and is not within the covered area of any Habitat Conservation Plan or Natural Community Conservation Plan. The project will therefore have no cumulative impacts with regard to local ordinances protecting biological resources and Habitat Conservation Plans or Natural Community Conservation Plans.

6.0) MITIGATION MEASURES

The following Mitigation Measures have been developed for the Project to avoid and minimize potential impacts to natural resources in the survey area.

BIO-1 A pre-construction burrowing owl clearance survey shall be conducted no more than 30 days prior to initial vegetation clearing and grading. The clearance survey will be conducted as close to the actual construction initiation date as possible. If burrowing owl is present, the Project biologist will consult with CDFW to develop and implement a mitigation plan.

BIO-2 To avoid impacts to nesting birds, initial vegetation clearing and grading shall be avoided from January 1 through September 15. If work cannot be avoided during this timeframe, a nesting bird survey shall be conducted by a qualified biologist within three (3) days prior to initial clearing and/or grading. If nesting birds are present, a buffer shall be flagged around the nest (300 feet for songbirds, 500 feet for raptors and special status species, or as determined appropriate by the biologist). Construction shall not be permitted within the buffer area while the nest is active. Once a qualified biologist has determined that the nest has fledged or is otherwise no longer active, the buffer shall be removed and avoidance is no longer required. An active nest is defined as a nest with eggs, chicks, or dependent juveniles, or a nest actively being constructed or utilized for reproduction.



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BIOLOGICAL AND CULTURAL INVESTIGATIONS AND MONITORING

TB-17-598
September 2018

Figure 8

Development Plan

(Photo obtained from Google Earth, October 2016, Plan obtained from HPA Architecture, July 2017)

Slover Ave. and Cactus Ave., Bloomington County of San Bernardino, California

7.0) REGULATORY ENVIRONMENT

7.1) Federal Endangered Species Act

By law, it is a requirement of the federal Endangered Species Act (ESA), 1973 (as amended) in section 7(a)(2) that federal agencies insure that any action authorized, funded, or carried out by a federal agency is not likely to jeopardize the continued existence of any endangered species or threatened species, or result in the destruction or adverse modification of critical habitat. In order to meet compliance with this requirement, the federal agency must conduct a Biological Assessment (BA), in which effects to listed species are analyzed and disclosed in the form of an "effects determination."

Section 7 requires federal agencies to consult with the U. S. Fish and Wildlife Service (USFWS) should it be determined that their actions may affect federally listed threatened or endangered species. Section 9 of FESA prohibits "take" (e.g., harm, harassment, pursuit, injury, kill) of federally listed wildlife. "Harm" is further defined to include habitat modification or degradation where it kills or injures wildlife by impairing essential behavioral patterns such including breeding, feeding, or sheltering. Take incidental to otherwise lawful activities can be authorized under Section 7 of FESA.

Procedures for obtaining a permit for incidental take are identified under Section 7 of FESA for federal properties or where federal actions are involved, and are identified under Section 10 of FESA for non-federal actions. During the Section 7 process, measures to avoid and minimize project effects to listed species and their habitat will be identified and incorporated into a biological opinion (written by the USFWS) that includes an incidental take by the federal agency and applicant.

7.2) California Endangered Species Act

California Endangered Species Act (CESA) definitions of endangered and threatened species parallel those defined in the FESA. The CESA defines an endangered species as ". . . a native species or subspecies of a bird, mammal, fish, amphibian, reptile or plant which is in serious danger of becoming extinct throughout all, or a significant portion, of its range due to one or more causes including loss of habitat, change in habitat, over exploitation, predation, competition or disease." Endangered species are in serious danger of becoming extinct and threatened species are likely to become endangered species in the foreseeable future (according to Sections 2062 and 2067, respectively, of the California Fish and Game Code). Candidate species are those under formal review by the CDFW for listing as endangered or

threatened (Section 2067). Prior to being considered for protected status, the CDFW designates a species as being of special concern. Species of Special Concern are wildlife species for which the CDFW has information indicating population decline. Plant species of concern are designated by California Rare Plant Ranks, described below.

7.3) California Environmental Quality Act

The California Environmental Quality Act (CEQA) and CEQA Guidelines (§ 15000 et. seq.) require identification of environmental effects from discretionary projects. Significant effects are to be mitigated by avoidance, minimization, rectification, or compensation whenever possible.

Effects to all state and federal listed species are considered significant under CEQA. In addition to formally listed species, CEQA considers effects to species that are demonstrably endangered or rare as important or significant. These definitions can include state designated species of special concern, federal candidate and proposed species, CNDDB tracked species, and California Native Plant Society 1B and 2 plants.

Appendix G of the CEQA Guidelines specifically addresses biological resources and encompasses a broad range of resources to be considered.

7.4) Migratory Bird Treaty Act

The Migratory Bird Treaty Act (MBTA) of 1918 (16 USC 703-711) is an international treaty that makes it unlawful to take, possess, buy, sell, purchase, or barter any migratory bird listed in 50 CFR Part 10, including feathers or other parts, nests, eggs, or products, except as allowed by implementing regulations (50 CFR 21). Executive Order 13186 ensures that environmental analyses of federal actions required by the NEPA or other established environmental review processes evaluate the effects of actions on migratory birds, with emphasis on species of concern. Disturbance that causes nest abandonment and/or loss of reproductive effort (e.g., killing or abandonment of eggs or young) or loss of habitat upon which the birds depend could be considered “take” and constitute a violation of the MBTA.

7.5) California Fish and Game Code, Sections 3503 and 3513

California Fish and Game Code Section 3503 prohibits take, possession, or needless destruction of bird nests or eggs except as otherwise provided by the Code; Section 3503.5 prohibits take or possession of birds of prey or their eggs except as otherwise provided by the

Code; and Section 3513 provides for the adoption of the provisions of the federal Migratory Bird Treaty Act, described above.

7.6) San Bernardino County General Plan

The County of San Bernardino General Plan Conservation Element includes relevant goals and policies that address biological resources:

GOAL CO 2. The County will maintain and enhance biological diversity and healthy ecosystems throughout the County.

Policies:

CO 2.3: In addition to conditions of approval that may be required for specific future development proposals, the County shall establish long-term comprehensive plans for the County's role in the protection of native species because preservation and conservation of biological resources are statewide, regional, and local issues that directly affect development rights. The conditions of approval of any land use application approved with the BR (biotic resources) overlay district shall incorporate the mitigation measures identified in the report required by Section 82.13.030 (Application Requirements), to protect and preserve the habitats of the identified plants and/or animals.

CO 2.4: All discretionary approvals requiring mitigation measures for impacts to biological resources will include the condition that the mitigation measures be monitored and modified, if necessary, unless a finding is made that such monitoring is not feasible.

7.6.1) Biotic Resource Overlays

The San Bernardino County Development Code implements the goals and policies of the General Plan by regulating land uses within the unincorporated areas of the County. Overlay maps depict areas subject to various county policies. The Biotic Resources Overlay implements General Plan policies regarding the protection and conservation of beneficial rare and endangered plant and animal resources and their habitats. The San Bernardino County Pre-application Memo for the project indicates that the site is located in a Biotic Resources Overlay area for burrowing owl habitat.

For projects within the Biotic Resources Overlay areas, Chapter 82.11 and 82.19 of the Development Code require that for proposed new land uses or increases of existing land use by

more than 25 percent of disturbed area, the land use application shall include a biological resources report, along with mitigation measures to reduce or eliminate impacts to the identified resources. The Development Code also states that the County's Conditions of Approval for the project shall incorporate the mitigation measures from the biological report.

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APPENDIX A

List of Plant and Wildlife Species

List of plant and wildlife species identified on the Slover Avenue and Cactus Avenue Warehouse site during surveys in July 2017 and March, April, and May 2018. One asterisk (*) indicates a non-native species; two asterisks (**) indicates a special status species. A question mark indicates uncertainty as to identification or status. Ornamental shrubs and forbs within residential yards are not included.

	Scientific Name	**Common Name**
	VASCULAR PLANTS	
	DICOTYLEDONS	
	Eudicots and Magnoliids	
	ADOXACEAE	MUSKROOT FAMILY
	Sambucus nigra ssp. cerulea	
	(S. mexicana)	Mexican elderberry, blue elderberry
	AMARANTHACEAE	AMARANTH FAMILY
	Amaranthus palmeri	Palmer's amaranth, Palmer's pigweed
	ASTERACEAE	ASTER FAMILY
	Ambrosia acanthicarpa	Annual bur-sage, annual sandbur
	Erigeron bonariensis	
*	*(Conyza bonariensis)*	Flax-leaved horseweed
	Erigeron canadensis	Horseweed, mare's tail
	(Conyza canadensis)	
	Helianthus annuus	Western sunflower
	Heterotheca grandiflora	Telegraph weed
*	*Lactuca serriola*	Prickly lettuce
	Verbesina encelioides ssp.	
*	*exauriculata*	Golden crownbeard
	BORAGINACEAE	BORAGE OR WATERLEAF FAMILY
	Amsinckia intermedia	
	(A. menziesii var. intermedia)	Large flower rancher's fiddleneck
	BRASSICACEAE	MUSTARD FAMILY
*	*Hirschfeldia incana*	Shortpod mustard
	(Brassica geniculata)	
*	*Sisymbrium irio*	London rocket
	CHENOPODIACEAE	GOOSEFOOT FAMILY
*	*Salsola tragus*	Russian thistle
	EUPHORBIACEAE	SPURGE FAMILY

Croton setiger (C. setigerus, Eremocarpus setiger, E. setigerus)	Turkey-mullein, doveweed

Scientific Name	**Common Name**
Euphorbia species (Chamaesyce species)	Spurge
GERANIACEAE	GERANIUM FAMILY
* *Erodium cicutarium*	Redstem filaree
LAMIACEAE	MINT FAMILY
* *Marrubium vulgare*	Horehound
MALVACEAE	MALLOW FAMILY
* *Malva parviflora*	Cheeseweed
OLEACEAE	OLIVE FAMILY
* *Olea europaea*	Russian olive
SOLANACEAE	NIGHTSHADE FAMILY
* *Nicotiana glauca*	Tree tobacco
* *Physalis philadelphica*	Tomatillo
*? *Solanum americanum (S. nodiflorum)*	White nightshade
URTICACEAE	NETTLE FAMILY
* *Urtica urens*	Dwarf nettle
VERBENACEAE	VERVAIN FAMILY
* *Lantana species*	Ornamental lantana
ZYGOPHYLLACEAE	CALTROP FAMILY
* *Tribulus terrestris*	Puncture vine
MONOCOTYLEDONS	
ARECACEAE	PALM FAMILY
* *Syagrus romanzoffiana*	Queen palm
* *Washingtonia robusta*	Mexican fan palm, ornamental fan palm
POACEAE	GRASS FAMILY
* *Avena species*	Wild oat
* *Bromus diandrus (B. rigidus)*	Ripgut brome
* *Bromus madritensis ssp. rubens (B. rubens)*	Red brome
* *Chloris truncata*	Black windmill grass
* *Cynodon dactylon*	Bermuda grass
* *Digitaria sanguinalis*	Hairy crabgrass
* *Hordeum species*	Unid. barley
* *Schismus barbatus*	Mediterranean grass

Scientific Name	**Common Name**
VERTEBRATES	
Reptiles	
Iguanidae	Iguanid Lizards
Uta stansburiana	Side-blotched lizard
Birds	
Accipitridae	Hawks, Eagles, and Harriers
Buteo jamaicensis	Red-tailed hawk
Alaudidae	Larks
** *Eremophila alpestris actia*	California horned lark
Apodidae	Swifts
Aeronautes saxatalis	White-throated swift
Columbidae	Pigeons and Doves
* *Columba livia*	Rock dove, common pigeon
Zenaida macroura	Mourning dove
Corvidae	Crows and Jays
Aphelocoma californica	California scrub jay
Corvus brachyrhynchos	American crow
Corvus corax	Common raven
Emberizidae	Emberizine Sparrows
Melospiza melodia	Song sparrow
Pipilo crissalis	California towhee
Zonotrichia leucophrys	White-crowned sparrow
Falconidae	Falcons
Falco sparverius	American kestrel
Fringillidae	Finches
Spinus (Carduelis) psaltria	Lesser goldfinch
Haemorhous (Carpodacus) mexicanus	House finch
Mimidae	Mockingbirds
Mimus polyglottos polyglottos	Northern mockingbird
Parulidae	Wood Warblers
Dendroica coronata	Yellow-rumped warbler
Passeridae	Old World Sparrows
* *Passer domesticus*	House sparrow

Scientific Name	**Common Name**
Sturnidae	Starlings
* *Sturnus vulgaris*	European starling
Trochilidae	Hummingbirds
Calypte anna	Anna's hummingbird
Tyrannidae	Tyrant Flycatchers
Sayornis nigricans	Black phoebe
Sayornis saya	Say's phoebe
Mammals	
Geomyidae	Pocket Gophers
Thomomys bottae	Botta's pocket gopher (sign)
Leporidae	Rabbits
Sylvilagus audubonii	Audubon's cottontail
Sciuridae	Squirrels
Spermophilus beecheyi	California ground squirrel

Potentials for Occurrence

This table includes a list of special status species compiled from the CNDDB and CNPS searches with an evaluation of the potential for occurrence on the project site. See the legend at the bottom of the table for keys to conservation status codes.

Species	Growth Form, Habitat and Distribution	Flowering Season	Conservation Status	Potential for Occurrence
Plants				
Abronia villosa var. aurita Chaparral sand-verbena	Annual herb. Sandy soils in chaparral, coastal scrub, desert dunes at 75-1600m elevation. Socal, Ariz, Baja.	(Jan)Mar-Sep	Fed: None Calif: S2 CRPR: 1B.1	Absent: no suitable habitat, no occurrences within 5 mi.
Acanthoscyphus parishii var. parishii Parish's oxytheca	Annual herb. Sandy or gravelly soils in chaparral and lower montane coniferous forest at 1220-2600m elevation. LA, San Bern, Ventura cos.	Jun-Sep	Fed: None Calif: S3S4 CRPR: 4.2	Absent: no suitable habitat, well below elev. range, no occurrences within 5 mi.
Ambrosia monogyra *Singlewhorl burrobrush*	Perennial shrub. Sandy soils in chaparral and Sonoran desert scrub at 10-500m elevation. SW US and Baja.	Aug - Nov	Fed: None Calif: S2 CRPR: 2B.2	Absent: no suitable habitat, not observed during surveys, no occurrences within 5 mi.
Ambrosia pumila San Diego ambrosia	Perennial rhizomatous herb. Sandy loam or clay soils, often in disturbed areas, sometimes alkaline. Chaparral, coastal scrub, valley and foothill grassland, and vernal pools at 20-415m elevation. Riv, San Diego cos and Baja.	Apr-Oct	Fed: END Calif: S1 CRPR: 1B.1	Low: marginal habitat, not observed during surveys, no occurrences within 5 mi., no occurrences in San Bern Co.
Arctostaphylos glandulosa ssp. gabrielensis San Gabriel manzanita	Perennial evergreen shrub. Rocky soils in chaparral at 595-1500m elevation. LA, San Bern, Sta Barbara cos.	Mar	Fed: None Calif: S3 CRPR: 1B.2	Absent: no suitable habitat, not observed during surveys, no occurrences within 5 mi.
Arenaria paludicola Marsh sandwort	Perennial stoloniferous herb. Sandy soils and openings in freshwater or brackish marshes and swamps at 3-170m elevation. LA, San Bern, Sta Cruz, San Fran, San Luis Obispo cos and Sonora Mex, Wash state.	May-Aug	Fed: END Calif: END, S1 CRPR: 1B.1	Absent: no suitable habitat, above elev. range, the one occurrence within 5 mi. is extirpated.
Asplenium vespertinum Western spleenwort	Perennial rhizomatous herb. Rocky soils in chaparral, cismontane woodland, coastal scrub at 180-1000m elevation. Socal and Baja.	Feb-Jun	Fed: None Calif: S4 CRPR: 4.2	Absent: no suitable habitat, not observed during surveys, no occurrences within 5 mi.
Astragalus hornii var. *hornii* Horn's milk-vetch	Annual herb. Alkaline soils along lake margins, meadows and seeps and playas at 60-850m elevation. San Bern, Inyo, Kern, Tulare(?) cos and Nevada. San Joaquin Valley, South Coast, Western Transverse Ranges, W edge of the Mojave Desert.	May-Oct	Fed: None Calif: S1 CRPR: 1B.1	Absent: no suitable habitat, no occurrences within 5 mi.
Berberis nevinii Nevin's barberry	Perennial evergreen shrub. Sandy or gravelly soils in chaparral, coastal scrub, cismontane woodland, riparian scrub at 70-825m elevation. Scattered localities in LA, San Bern, Riv, & San Diego cos.	Mar-Jun can ID all year	Fed: END Calif: END, S1 CRPR: 1B.1	Absent: marginal habitat, not observed during surveys, no occurrences within 5 mi.

Species	Growth Form, Habitat and Distribution	Flowering Season	Conservation Status	Potential for Occurrence
Brodiaea filifolia Thread-leaved brodiaea	Perennial bulbiferous herb. Often on clay soils in chaparral openings, cismontane woodland, coastal scrub, playas, valley and foothill grassland, and vernal pools at 25-1120m elevation. LA, Orange, Riv, San Bern, and San Diego cos; scattered in S CA foothills & valleys.	Mar-Jun	Fed: THR Calif: END, S2 CRPR: 1B.1	Absent: no suitable habitat, no occurrences within 5 mi.
Calochortus catalinae Catalina mariposa-lily	Perennial bulbiferous herb. Chaparral, cismontane woodland, coastal scrub, valley and foothill grassland at 15-700m elevation. LA, Orange, Sta Barbara, San Bern, San Diego, Ventura cos, some Channel Islands.	(Feb)Mar-Jun	Fed: None Calif: S3S4 CRPR: 4.2	Absent: no suitable habitat, no occurrences within 5 mi.
Calochortus palmeri var. palmeri Palmer's mariposa-lily	Perennial bulbiferous herb. Mesic soils in chaparral, lower montane coniferous forest, meadows and seeps at 710-2390m elevation. Kern, LA, Riv, Sta Barbara, San Bern, San Luis Obispo, Ventura cos.	Apr-Jul	Fed: None Calif: S2 CRPR: 1B.2	Absent: no suitable habitat, well below elev. range, no occurrences within 5 mi.
Calochortus plummerae Plummer's mariposa lily	Perennial bulbiferous herb. Granitic rocky soils in chaparral, cismontane woodland, coastal scrub, lower montane coniferous forest, valley and foothill grassland at 100-1700m elevation. LA, Orange, RIv, San Bern, Ventura cos.	May-Jul	Fed: None Calif: S4 CRPR: 4.2	Absent: no suitable habitat, no occurrences within 5 mi.
Carex comosa Bristly sedge	Perennial rhizomatous herb. Coastal prairie, marshes and swamps (lake margins), valley and foothill grassland at 0-625m elevation.	May-Sep	Fed: None Calif: S2 CRPR: 2B.1	Absent: no suitable habitat.
Castilleja lasiorhyncha San Bernardino Mountain's owl's-clover	Hemiparasitic annual herb. Mesic areas in chaparral, montane meadows, pebble plains, riparian woodland, upper montane coniferous forest at 1300-2390m elevation. Moist edges of springs/seeps on clay soil, wet meadows, openings in coniferous forest. Riv, San Diego, San Bern cos; San Bern Mts, San Jacinto Mts.	May-Aug	Fed: None Calif: S2? CRPR: 1B.2	Absent: no suitable habitat, well below elev. range.
Centromadia pungens ssp. *laevis* Smooth tarplant	Annual herb. Alkaline soils in chenopod scrub, meadows and seeps, playas, riparian woodland, valley and foothill grassland at 0-640m elevation. Also fallow fields, drainage ditches; primarily in SW Riv Co but a few sites in interior valleys of LA, San Bern, San Diego cos.	Apr-Sep	Fed: None Calif: S2 CRPR: 1B.1	Low: potentially suitable habitat, no occurrences within 5 mi., not observed during surveys.
Chloropyron maritimum ssp. *maritimum* Salt marsh bird's-beak	Hemiparasitic annual herb. Coastal salt marsh and swamp and coastal dunes. Limited to the higher zones of the salt marsh habitat. 0-30m elevation. Central and Socal, Baja.	May-Oct(Nov)	Fed: END Calif: END, S1 CRPR: 1B.2	Absent: no suitable habitat, above elev. range.

Species	Growth Form, Habitat and Distribution	Flowering Season	Conservation Status	Potential for Occurrence
Chorizanthe leptotheca Peninsular spineflower	Annual herb. Granitic soils and alluvial fans in chaparral, coastal scrub, lower montane coniferous forest at 300-1900m elevation. Riv, San Bern, San Diego cos, Baja.	May-Aug	Fed: None Calif: S3 CRPR: 4.2	Absent: no suitable habitat.
Chorizanthe parryi var. *parryi* Parry's spineflower	Annual herb. Sandy or rocky soils and openings in chaparral, cismontane woodland, coastal scrub, valley and foothill grassland at 275-1220m elev. LA, Riv, San Bern cos.	Apr-Jun	Fed: None Calif: S2 CRPR: 1B.1	Low: suitable habitat marginal or absent, two occurrences within 5 mi.
Chorizanthe xanti var. *leucotheca* White-bracted spineflower	Annual herb. Sandy or gravelly soil in coastal scrub (alluvial fans), Mojavean desert scrub, pinyon and juniper woodlands at 300-1200m elevation. LA, Riv, San Bern, San Diego cos.	Apr-Jun	Fed: None Calif: S3 CRPR: 1B.2	Absent: no suitable habitat, no occurrences within 5 mi.
Cladium californicum California saw-grass	Perennial rhizomatous herb. Meadows and seeps, marshes, swamps, alkaline or freshwater at 60-1600m elevation. LA, Inyo, Riv, Sta Barbara, San Bern, San Luis Obispo cos, SW US. Known from fewer than 20 locations in CA. Presumed extirpated from LA, San Bern cos.	Jun-Sep	Fed: None Calif: S2 CRPR: 2B.2	Absent: no suitable habitat, presumed extirpated from San Bern Co.
Claytonia lanceolata var. *peirsonii* Peirson's spring beauty	Perennial herb. Scree slopes in subalpine coniferous forest, upper montane coniferous forest at 1510-2745m elevation. San Bern Co, known only from San Gabriel and San Bern Mts.	(Mar)May-Jun	Fed: None Calif: S1 CRPR: 3.1	Absent: no suitable habitat, well below elev. range.
Cuscuta obtusiflora var. *glandulosa* Peruvian dodder	Annual parasitic vine. Freshwater marshes & swamps at 15-280m elevation. Scattered locations in No, Central, and Socal, various US states and Baja. Presumed extirpated from San Bern Co.	Jul-Oct	Fed: None Calif: SH CRPR: 2B.2	Absent: no suitable habitat, presumed extirpated from San Bern Co.
Cylindropuntia californica var. californica Snake cholla	Perennial stem succulent (cactus). Chaparral, coastal scrub at 30-150m elevation. San Diego, Riv cos, Baja.	Apr-May	Fed: None Calif: S1 CRPR: 1B.1	Absent: no suitable habitat, not observed during surveys, no occurrences within 5 mi.
Deinandra (Hemizonia) paniculata Paniculate tarplant	Annual herb. Usually vernally mesic areas, sometimes sandy. Coastal scrub, valley and foothill grassland, vernal pools at 25-940m elevation. Orange, Riv, Sta Barbara, San Bern, San Diego, San Luis Obispo cos, Baja.	(Mar) Apr-Nov	Fed: None Calif: S4 CRPR: 4.2	Low: marginal habitat, no occurrences within 5 mi.
Dodecahema leptoceras Slender-horned spineflower	Annual herb. Open, sandy alluvial benches in valleys & canyons. Chaparral, coastal scrub, alluvial scrub, cismontane woodland at 200-760m elevation. LA, Riv, San Bern cos. San Fernando Valley, Santa Ana River Valley, W Riverside Co.	Apr-Jun	Fed: END Calif: END, S1 CRPR: 1B.1	Absent: no suitable habitat.

Species	Growth Form, Habitat and Distribution	Flowering Season	Conservation Status	Potential for Occurrence
Dudleya multicaulis Many-stemmed dudleya	Perennial herb. Often on clay soils in chaparral, coastal scrub, valley and foothill grassland at 15-790m elevation. LA, Orange, Riv, San Bern, San Diego cos.	Apr-Jul	Fed: None Calif: S2 CRPR: 1B.2	Absent: no suitable habitat, no occurrences within 5 mi.
Eriastrum densifolium ssp. *sanctorum* Santa Ana River woollystar	Perennial herb. Sandy or gravelly soils in chaparral, coastal scrub (alluvial fans and plains) at 91-610m elevation. Orange, Riv, San Bern cos, endemic to Santa Ana River watershed.	Apr-Sep	Fed: END Calif: END, S1 CRPR: 1B.1	Absent: no suitable habitat.
Eriogonum microthecum var. *johnstonii* Johnston's buckwheat	Perennial deciduous shrub. Rocky soils in subalpine coniferous forest, upper montane coniferous forest at 1829-2926m elevation. LA and San Bern cos, Slopes and ridges on granite or limestone, typically among rocks. San Gabriel & San Bern Mts.	Jul-Sep	Fed: None CA: S2 CRPR: 1B.3	Absent: no suitable habitat, well below elev. range, no occurrences within 5 mi.
Eriogonum umbellatum var. *minus* Alpine sulfur-flowered buckwheat	Perennial herb. Gravelly soils in subalpine coniferous forest, upper montane coniferous forest at 1800-3068m elevation. LA, San Bern cos. San Gabriel Mts,	Jun-Sep	Fed: None CA: S4 CRPR: 4.3	Absent: no suitable habitat, well below elev. range, outside of geog. range, no occurrences within 5 mi.
Fimbristylis thermalis Hot springs fimbristylis	Perennial rhizomatous herb. Found in meadows & seeps (alkaline, near hot springs) at 110-1340m elevation. Inyo, Kern, LA, Mono, San Bern cos.	Jul-Sep	Fed: None Calif: S1S2 CRPR: 2B.2	Absent: no suitable habitat, no occurrences within 5 mi.
Frasera neglecta Pine green-gentian	Perennial herb. Lower montane coniferous forest, pinyon and juniper woodland, upper montane coniferous forest at 1400-2500m elevation. Kern, LA, Sta Barbara, San Bern, Ventura cos.	May-Jul	Fed: None Calif: S4 CRPR: 4.3	Absent: no suitable habitat, well below elev. range, no occurrences within 5 mi.
Galium angustifolium ssp. gabrielense San Antonio Canyon bedstraw	Perennial herb. Granitic, sandy, or rocky soils in chaparral, lower montane coniferous forest at 1200-2650m elevation. LA and San Bern cos.	Apr-Aug	Fed: None Calif: S3 CRPR: 4.3	Absent: no suitable habitat, below elev. range, no occurrences within 5 mi.
Galium californicum ssp. *primum* Alvin meadow bedstraw	Perennial herb. Granitic, sandy soil in chaparral, lower montane coniferous forest at 1350-1700m elevation. Riv, San Bern cos. Known from only 4 occurrences.	May-Jul	Fed: None Calif: S2 CRPR: 1B.2	Absent: no suitable habitat, below elev. range, no occurrences within 5 mi.
Galium johnstonii Johnston's bedstraw	Perennial herb. Chaparral, lower montane coniferous forest, pinyon and juniper woodland, riparian woodland at 1220-2300m elevation. LA, Riv, San Bern, San Diego cos.	Jun-Jul	Fed: None Calif: S4 CRPR: 4.3	Absent: no suitable habitat, below elev. range, no occurrences within 5 mi.
Helianthus nuttallii ssp. *parishii* Los Angeles sunflower	Perennial rhizomatous herb. Coastal salt and freshwater marshes and swamps at 10-1525m elevation. LA, Orange, San Bern cos. Last seen in 1937, presumed extinct.	Aug-Oct	Fed: None Calif: SH CRPR: 1A	Absent: no suitable habitat, presumed extinct.

Species	Growth Form, Habitat and Distribution	Flowering Season	Conservation Status	Potential for Occurrence
Heuchera caespitosa Urn-flowered alumroot	Perennial rhizomatous herb. Rocky soils in cismontane woodland, lower montane coniferous forest, montane riparian forest, upper montane coniferous forest at 1155-2650m elevation. Kern, LA, San Bern, Ventura cos.	May-Aug	Fed: None Calif: S3 CRPR: 4.3	Absent: no suitable habitat, below elev. range, no occurrences within 5 mi.
Horkelia cuneata ssp. *puberula* Mesa horkelia	Perennial herb. Sandy or gravelly soils in maritime chaparral, cismontane woodland, coastal scrub at 70-810m elevation. LA, Orange, Riv, Sta Barbara, San Bern, San Diego, San Luis Obispo, Ventura cos.	Feb-Jul(Sep)	Fed: None Calif: S1 CRPR: 1B.1	Absent: no suitable habitat, multiple occurrences within 5 mi. but not observed since 1908.
Imperata brevifolia California satintail	Perennial rhizomatous herb. Mesic areas in chaparral, coastal scrub, Mojavean desert scrub, meadows and seeps (often alkali), riparian scrub at 0-1215m elevation. Scattered location throughout CA, SW US, Baja.	Sep-May	Fed: None Calif: S3 CRPR: 2B.1	Absent: no suitable habitat, no occurrences within 5 mi.
Juglans californica Southern California black walnut	Perennial deciduous tree. Alluvial soils in chaparral, cismontane woodland, coastal scrub, riparian woodland at 50-900m elevation. LA, Orange, Riv, Sta Barbara, San Bern, San Diego, Ventura cos.	Mar-Aug	Fed: None Calif: S3 CRPR: 4.2	Absent: no suitable habitat, not observed during surveys, no occurrences within 5 mi.
Juncus duranii Duran's rush	Perennial rhizomatous herb. Mesic areas in lower montane coniferous forest, meadows and seeps, upper montane coniferous forest at 1769-2804m elevation. LA, Riv, San Bern cos.	Jul-Aug	Fed: None Calif: S3 CRPR: 4.3	Absent: no suitable habitat, well below elev. range, no occurrences within 5 mi.
Lasthenia glabrata spp. coulteri Coulter's goldfields	Annual herb. Coastal salt marshes and swamps, playas, vernal pools at 1-1220m elevation. Scattered locations in CA, Baja.	Feb-Jun	Fed: None Calif: S2 CRPR: 1B.1	Absent: no suitable habitat, no occurrences within 5 mi.
Lepechinia fragrans Fragrant pitcher sage	Perennial shrub. Chaparral at 20-1310m elevation. LA, San Bern, Ventura cos, some Channel Islands.	Mar-Oct	Fed: None Calif: S3 CRPR: 4.2	Absent: no suitable habitat, not observed during surveys, no occurrences within 5 mi.
Lepidium virginicum var. *robinsonii* Robinson's pepper-grass	Annual herb. Chaparral, coastal scrub at 1-885m elevation. LA, Orange, Riv, Sta Barbara, San Bern, San Diego, Ventura cos, Santa Cruz Island.	Jan-Jul	Fed: None Calif: S3 CRPR: 4.3	Absent: no suitable habitat, not observed during surveys, two occurrences within 5 mi.
Lilium humboldtii ssp. ocellatum Ocellated Humboldt lily	Perennial bulbiferous. Openings in chaparral, cismontane woodland, coastal scrub, lower montane coniferous forest, riparian woodland at 30-1800m elevation. LA, Orange, Riv, Sta Barbara, San Bern, San Diego, Ventura cos, some Channel Islands.	Mar-Jul(Aug)	Fed: None Calif: S4? CRPR: 4.2	Absent, no suitable habitat, not observed during surveys, no occurrences within 5 mi.

Species	Growth Form, Habitat and Distribution	Flowering Season	Conservation Status	Potential for Occurrence
Lilium parryi Lemon lily	Perennial bulbiferous herb. Mesic soils in upper and lower montane coniferous forest, riparian forest, meadows and seeps at 1220-2745m elevation. LA, Riv, San Bern, San Diego cos, Arizona, Sonora Mex.	July-Aug	Fed: None Calif: S3 CRPR: 1B.2	Absent: no suitable habitat, well below elev. range, no occurrences within 5 mi.
Linanthus concinnua San Gabriel linanthus	Annual herb. Rocky soils in openings in chaparral, upper and lower montane coniferous forest at 1520-2800m elevation. LA and San Bern cos.	Apr-Jul	Fed: None Calif: S2 CRPR: 1B.2	Absent: no suitable habitat, well below elev. range, no occurrences within 5 mi.
Lycium parishii Parish's desert-thorn	Perennial shrub. Arid slopes & sand flats in coastal scrub and Sonoran desert scrub at 135-1000m elevation. Imperial, Riv, San Bern, San Diego cos, Arizona, Sonora Mex. Presumed extirpated in San Bern Co.	Mar-Apr	Fed: None Calif: S1 CRPR: 2B.3	Absent: no suitable habitat, not observed during surveys, presumed extirpated in San Bern Co.
Malacothamnus parishii Parish's bush-mallow	Perennial deciduous shrub. Chaparral, coastal scrub at 305-455m elevation. San Bern Co. Presumed extirpated.	Jun-Jul	Fed: None Calif: SX CRPR: 1A	Absent: no suitable habitat, not observed during surveys, presumed extirpated.
Monardella australis ssp. *jokerstii* Jokerst's monardella	Perennial rhizomatous herb. Steep scree or talus slopes, alluvial benches in chaparral, lower montane coniferous forest at 1350-1750m elevation. San Bern Co, known only from San Gabriel Mts.	Jul-Sep	Fed: None Calif: S1 CRPR: 1B.1	Absent: no suitable habitat, outside of geog. and elev. range.
Monardella pringlei Pringle's monardella	Annual herb. Sandy soil in coastal scrub at 300-400m elevation. Riv, San Bern cos. Presumed extirpated.	May-Jun	Fed: None Calif: SX CRPR: 1A	Absent: no suitable habitat, presumed extirpated in San Bern Co.
Monardella saxicola Rock monardella	Perennial rhizomatous herb. Rocky soils, usually serpentine, in chaparral, lower montane coniferous forest, closed-cone coniferous forest at 500-1800m elevation. LA, San Bern cos.	Jun-Sep	Fed: None Calif: S3 CRPR: 4.2	Absent, no suitable habitat, below elev. range, no occurrences within 5 mi.
Muhlenbergia californica California muhly	Perennial rhizomatous herb. Mesic areas, seeps, and streambanks in chaparral, coastal scrub, lower montane coniferous forest at 100-2000m elevation. LA, Riv, San Bern cos.	Jun-Sep	Fed: None Calif: S4 CRPR: 4.3	Absent: no suitable habitat, no occurrences within 5 mi.
Myosurus minimus ssp. apus Little mousetail	Annual herb. Valley and foothill grasslands, alkaline vernal pools at 20-640m elevation. Locations in northern, central, and southern CA, Oregon, Baja.	Mar-Jun	Fed: None Calif: S2 CRPR: 3.1	Absent: no suitable habitat, no occurrences within 5 mi.
Nasturtium (Rorippa) gambelii Gambel's water cress	Perennial rhizomatous. Freshwater or brackish marshes and swamps at 5-330m elevation. LA, Orange, Sta Barbara, San Bern, San Diego, San Luis Obispo cos. Presumed extirpated in San Bern Co.	Apr-Oct	Fed: END Calif: THR, S1 CRPR: 1B.1	Absent: no suitable habitat, presumed extirpated in San Bern Co.

Species	Growth Form, Habitat and Distribution	Flowering Season	Conservation Status	Potential for Occurrence
Navarretia prostrata Prostrate vernal pool navarretia	Annual herb. Mesic areas in coastal scrub, valley and foothill grassland (alkaline), meadows and seeps, vernal pools at 3-1210m elevation. Locations in northern, central, and southern CA.	Apr-Jun	Fed: None Calif: S2 CRPR: 1B.1	Absent: no suitable habitat, no occurrences within 5 mi.
Opuntia basilaris var. *brachyclada* Short-joint beavertail	Perennial stem succulent (cactus). Chaparral, Joshua tree woodland, Mojavean desert scrub, pinyon and uniper woodland at 425-1800m elevation. LA, San Bern cos.	Apr-Jun(Aug)	Fed: None Calif: S3 CRPR: 1B.2	Absent: no suitable habitat, below elev. range, not observed during surveys, no occurrences within 5 mi.
Oreonana vestita Woolly mountain parsley	Perennial herb. Gravel or talus soils in lower and upper montane and subalpine coniferous forest at 1615-3500m elevation. Kern, LA, San Bern cos. Endemic to San Bern, San Gabriel, and Scodie Mts.	Mar-Sep	Fed: None Calif: S3 CRPR: 1B.3	Absent: no suitable habitat, outside of geog. and elev. range, no occurrences within 5 mi.
Phacelia mohavensis Mojave phacelia	Annual herb. Sandy or gravelly soil in cismontane woodland, lower montane coniferous forest, meadows and seeps, pinyon and juniper woodland at 1400-2500m elevation. LA, San Bern, Tulare, Ventura cos.	Apr-Aug	Fed: None Calif: S4 CRPR: 4.3	Absent: no suitable habitat, well below elev. range, no occurrences within 5 mi.
Phacelia stellaris Brand's star phacelia	Annual herb. Coastal dunes, coastal scrub at 1-400m. LA, Orange, Riv, San Bern, San Diego cos.	Mar-Jun	Fed: None Calif: S1 CRPR: 1B.1	Absent: no suitable habitat, no occurrences within 5 mi.
Pickeringia montana var. tomentosa Woolly chaparral-pea	Evergreen shrub. Gabbroic, granitic, or clay soils in chaparral at 0-1700m elevation. LA, Riv, Orange, San Bern, San Diego cos.	May-Aug	Fed: None Calif: S3S4 CRPR: 4.3	Absent: no suitable habitat, not observed during surveys, no occurrences within 5 mi.
Pseudognaphalium leucocephalum White rabbit-tobacco	Perennial herb. Sandy or gravelly soils in chaparral, cismontane woodland, coastal scrub, riparian woodland at 0-2100m elevation. LA, Orange, Riv, San Bern, San Diego, Ventura cos, Arizona, New Mexico, Texas, Baja and Sonora Mex.	(Jul)Aug-Nov(Dec)	Fed: None Calif: S2 CRPR: 2B.2	Absent: no suitable habitat, no occurrences within 5 mi.
Ribes divaricatum var. *parishii* Parish's gooseberry	Perennial deciduous shrub. Riparian woodland at 65-300m elevation. LA, San Bern cos. Extirpated in CA.	Feb-Apr	Fed: None Calif: SX CRPR: 1A	Absent: no suitable habitat, extirpated.
Romneya coulteri Coulter's matilija	Perennial rhizomatous herb. Often in burn areas in chaparral, coastal scrub at 20-1200m elevation. LA, Orange, Riv, San Diego cos.	Mar-Jul(Aug)	Fed: None Calif: S4 CRPR: 4.2	Absent: no suitable habitat, conspicuous plant not observed during surveys, no occurrences within 5 mi.
Sagittaria sanfordii Sanford's arrowhead	Emergent perennial rhizomatous herb. Shallow freshwater marshes and swamps at 0-650m elevation. Locations in northern, central, southern CA. Extirpated from Socal.	May-Oct(Nov)	Fed: None Calif: S3 CRPR: 1B.2	Absent: no suitable habitat, extirpated from southern California.
Schoenus nigricans Black bog-rush	Perennial herb. Marshes and swamps, often alkaline, at 150-2000m elevation. San Bern, Inyo cos, Florida, Nevada, Texas, South America.	Aug-Sep	Fed: None Calif: S2 CRPR: 2B.2	Absent: no suitable habitat, no occurrences within 5 mi.

Species	Growth Form, Habitat and Distribution	Flowering Season	Conservation Status	Potential for Occurrence
Senecio aphanactis Chaparral ragwort	Annual herb. Sometimes alkaline soils in chaparral, cismontane woodland, coastal scrub at 15-800m elevation. Locations in northern, central, southern CA.	Jan-Apr(May)	Fed: None Calif: S2 CRPR: 2B.2	Absent: no suitable habitat.
Senecio astephanus San Gabriel ragwort	Perennial herb. Rocky slopes in coastal bluff scrub, chaparral at 400-1500m elevation. Kern, LA, Monterey, Sta Barbara, San Bern, San Diego, San Luis Obispo cos.	May-Jul	Fed: None Calif: S3 CRPR: 4.3	Absent: no suitable habitat, no occurrences within 5 mi.
Sidalcea neomexicana Salt Spring checkerbloom	Perennial herb. Alkaline, mesic soils in chaparral, coastal scrub, lower montane coniferous forest, Mojavean desert scrub, playas at 15-1530m elevation. Kern, LA, Orange, Riv, San Bern, San Diego, Ventura cos, western US, Sonora Mex.	Mar-Jun	Fed: None Calif: S2 CRPR: 2B.2	Absent: no suitable habitat, no occurrences within 5 mi.
Sphenopholis obtusata Prairie wedge grass	Perennial herb. Mesic areas in cismontane woodland, meadows and seeps at 300-2000m elevation. Locations in northern, central, southern California, throughout US, Baja and Sonora Mex.	Apr-Jul	Fed: None Calif: S2 CRPR: 2B.2	Absent: no suitable habitat.
Streptanthus bernardinus Laguna Mountains jewelflower	Perennial herb. Chaparral, lower montane coniferous forest at 670-2500m elevation. Riv, San Bern, San Diego cos.	May-Aug	Fed: None Calif: S3S4 CRPR: 4.3	Absent: no suitable habitat, below elev. range, no occurrences within 5 mi.
Streptanthus campestris Southern jewelflower	Perennial herb. Rocky soils in chaparral, lower montane coniferous forest, pinyon and juniper woodland at 900-2300m elevation. Imperial, Sta Barbara, Ventura, San Bern, Riv, San Diego cos, Baja.	(Apr)May-Jul	Fed: None Calif: S3 CRPR: 1B.3	Absent: no suitable habitat, below elev. range, no occurrences within 5 mi.
Symphyotrichum defoliatum San Bernardino aster	Perennial rhizomatous herb. Near ditches, streams, springs in cismontane woodland, coastal scrub, lower montane coniferous forest, meadows and seeps, marshes and swamps, valley and foothill grasslands (vernally mesic) at 2-2040m elevation.	Jul-Nov	Fed: None Calif: S2 CRPR: 1B.2	Absent: no suitable habitat, no occurrences within 5 mi.
Viola pinetorum ssp. grisea Grey-leaved violet	Perennial herb. Meadows and seeps, subalpine and upper montane coniferous forest at 1500-3400m elevation. Locations in northern, central, and southern CA.	Apr-Jul	Fed: None Calif: S3 CRPR: 1B.2	Absent: no suitable habitat, well below elev. range, no occurrences within 5 mi.

References: CDFW (2018a, 2018b), CNPS (2018).

Species	Habitat and Distribution	Conservation Status	Potential for Occurrence
Invertebrates			
Bombus crotchii Crotch bumble bee	Coastal CA E to Sierra-Cascade crest & S into Mexico. Food plant genera include *Antirrhinum*, *Phacelia*, *Clarkia*, *Dendromecon*, *Eschscholzia*, & *Eriogonum*.	Fed: None Calif: SA, S1S2	Low: Food plants absent from site, occurrences within 5 mi.
Carolella busckana Busck's gallmoth	Beaches, salt marshes, sand dunes, and coastal scrub dunes, presumed extirpated.	Fed: None Calif: SA, SH	Absent: no suitable habitat, presumed extirpated.
Ceratochrysis longimala Desert cuckoo wasp	Chaparral, scrub habitats, juniper. LA, Riv, Ventura cos. Possibly extirpated.	Fed: None Calif: SA, S1	Absent: one occurrence within 5 mi., not observed since 1915.
Cicindela tranquebarica viridissima Greenest tiger beetle	Riparian woodland adjacent to Santa Ana River basin, usually found in open spots between trees.	Fed: None Calif: SA, S1	Absent: no suitable habitat.
Euchloe hyantis andrewsi Andrew's marble butterfly	Rocky canyons, cliffs, moraines, & gravelly flats. Larvae host plants – native mustards, especially *Streptanthus* sp. S Oregon S through CA W of Sierra Nevada crest to N Baja California.	Fed: None Calif: SA, S1	Absent: no suitable habitat, no occurrences within 5 mi.
Rhaphiomidas terminatus abdominalis Delhi sands flower-loving fly	Delhi fine sands, often with unconsolidated dunes present. SW San Bernardino Co. & NW Riverside Co.	Fed: END Calif: SA, S1	Absent: no Delhi soils present on site and no connectivity to areas with Delhi soils, one indicator plant species present (telegraph weed), multiple occurrences within 5mi., site is within 1.2 mi. of occupied habitat.
Streptocephalus woottoni Riverside fairy shrimp	Endemic to Western Riverside, Orange, and San Diego counties in areas of tectonic swales/earth slump basins in grassland and coastal sage scrub. Coastal scrub, valley & foothill grassland, vernal pool, wetland. Inhabit seasonally astatic pools filled by winter/spring rains. Hatch in warm water later in the season.	Fed: END Calif: SA, S1S2	Absent: no vernal pool habitat.
Fish			
Catostomus santaanae Santa Ana sucker	Small to medium permanent streams. LA & San Gabriel drainage, lower Santa Ana River.	Fed: THR Calif: SA, S1	Absent: no aquatic habitat.
Gila orcuttii Arroyo chub	Slow-moving or backwater sections of warm/ cool streams with mud or sand substrates. LA, San Gabriel, San Luis Rey, Santa Ana & Santa Margarita Riv & Malibu & San Juan creeks.	Fed: None Calif: SSC, S2	Absent: no aquatic habitat.
Rhinichthys osculus "subspecies 3" Santa Ana speckled dace	Endemic to Santa Ana & San Gabriel River watersheds, historic in Big Tujunga Cyn. Santa Ana River populations in lower San Bernardino Mtn. foothills & washes.	Fed: None Calif: SSC, S1	Absent: no aquatic habitat.

Species	Habitat and Distribution	Conservation Status	Potential for Occurrence
Amphibians			
Batrachoseps gabrieli San Gabriel slender salamander	Lives & lays eggs in moist places on land. Found under large rocks, logs, & bark. A relict species, found only in a few locations in San Gabriel Mts. & W end of San Bern. Mts. 2800-7800 ft. elev. Inhabits forested talus slopes, & shaded areas near a stream.	Fed: None Calif: SA, S2S3	Absent: no suitable habitat, well below elev. range.
Coleonyx variegatus abbotti San Diego banded gecko	Coastal and cismontane southern California. Found in granite or rocky outcrops in coastal scrub and chaparral.	Fed: None Calif: SA, S1S2	Absent: no suitable habitat.
Ensatina klauberi Large-blotched salamander	Moist deciduous and evergreen forests, oak woodland, chaparral and well shaded canyons. Most common in areas of woody debris on the forest floor. Peninsular ranges of So. Cal. and eastern San Bern. Mtns. Intergrades with *E. e. croceater* in the San Bernardino and San Jacinto Mountains.	Fed: None Calif: WL, S3	Absent: no suitable habitat, no occurrences within 5 mi.
Rana muscosa Southern mountain yellow-legged frog	Always encountered within a few feet of water. Tadpoles may require up to 2 years to complete development.	Fed: END Calif: END, WL, S1	Absent: no aquatic habitat.
Spea hammondii Western spadefoot toad	Cismontane woodland, coastal scrub, valley & foothill grassland, vernal pool. Breeds in quiet streams & vernal pools, burrows beneath sand during dry season. W CA, Central Valley to Baja California. From near sea level up to 4,500 ft elev.	Fed: None Calif: SSC, S3	Absent: no aquatic habitat in vicinity.
Reptiles			
Anniella stebbinsi (Anniella pulchra pulchra) Southern California legless lizard	Various habitats, mainly shrublands, <6500 ft. elev. Coast Ranges from Bay area to N Baja CA, SW Sierra Nevada, parts of the Central Valley, Transverse & Peninsular Ranges.	Fed: None Calif: SSC, S3	Low: suitable habitat marginal or absent, no occurrences within 5 mi.
Arizona elegans occidentalis California glossy snake	Arid scrub, rocky washes, grasslands, chaparral, often with loose or sandy soils. Patchily distributed from the eastern portion of San Francisco Bay, southern San Joaquin Valley, and the Coast, Transverse, and Peninsular Ranges, south to Baja California. Sea level to 7200' elev.	Fed: None Calif: SSC, S2	Low: suitable habitat marginal or absent, multiple occurrences within 5 mi.
Aspidoscelis hyperythra Orange-throated whiptail	Low-elevation coastal scrub, chaparral, valley-foothill hardwood. Sandy areas, patches of rock. S CA, west of desert to tip of Baja CA.	Fed: None Calif: WL, S2S3	Low: suitable habitat marginal, two occurrences within 5 mi.
Aspidoscelis tigris stejnegeri Coastal whiptail	Primarily hot, dry open areas with sparse foliage, chaparral, woodland, riparian; coastal So CA, mostly west of Peninsular Ranges and south of Transverse Ranges, north into Ventura County, below ±7000' elev.	Fed: None Calif: SSC, S3	Low: suitable habitat marginal or absent, occurrence within 5 mi.

Species	Habitat and Distribution	Conservation Status	Potential for Occurrence
Charina umbratica Southern rubber boa	Found in a few locales in San Bernardino & San Jacinto Mtn. ranges. Woodland & coniferous forest. Usually they found within several hundred m of water. 5000-9150 ft. elev.	Fed: None Calif: THR, S2S3	Absent: no suitable habitat, well below elev. range.
Crotalus ruber ruber Red-diamond rattlesnake	Desert scrub, thorn scrub, chaparral below 4,000ft. San Bernardino County S through most of Baja California, Mexico.	Fed: None Calif: SSC, S3	Absent: no suitable habitat, occurrence within 5 mi.
Diadophis punctatus ssp. *modestus* San Bernardino ringneck snake	Open relatively rocky areas within valley-foothill locales, mixed chaparral/annual grasslands. W San Diego & Riv. Cos., SW San Bern., Vent. & LA Cos., NW Baja CA.	Fed: None Calif: SA, S2?	Absent: no suitable habitat, no occurrences within 5 mi.
Emys marmorata Western pond turtle	Perennial ponds, streams, marshes, irrigation ditches. Coastal S & cent. CA, NW Baja CA, below about 4800 ft. elev. (few higher elev. pops.)	Fed: None Calif: SSC, S3	Absent: no aquatic habitat.
Lampropeltis zonata (parvirubra) California mountain kingsnake (San Bernardino pop.)	Forests & chaparral with rock outcrops or talus, often riparian. 1200-8100ft. elev. San Gabriel, San Bernardino, & San Jacinto Mts.	Fed: None Calif: WL, S2?	Absent: no suitable habitat, well below elev. range.
Lichanura orcutti Three-lined boa (includes coastal rosy boa)	Arid, semi-arid, and rocky shrublands, rocky deserts and canyons. Common in riparian areas, but does not require permanent water. Central CA south to Baja and east into AZ.	Fed: None Calif: None USFS: S	Absent: no suitable habitat, no occurrences within 5 mi.
Phrynosoma blainvillii Coast horned lizard	Coastal sage scrub, low elevation chaparral, annual grassland, oak & riparian woodlands, coniferous forest. SW California to NW Baja California, Mexico.	Fed: None Calif: SSC, S3S4	Low: suitable habitat marginal or absent, occurrences within 5 mi.
Salvadora hexalepis virgultea Coast patch-nosed snake	Shrublands, usually with open sand; Santa Barbara county through southwest Calif., to northwest Baja Calif.	Fed: None Calif: SSC, S2S3	Absent: no suitable habitat, no occurrences within 5 mi.
Thamnophis hammondii Two-striped gartersnake	Usually in or near perennial fresh water & adjacent riparian habitat, pools in streams. SW CA & NW Baja California.	Fed: None Calif: SSC, S3S4	Absent: no suitable habitat, no occurrences within 5 mi.
Birds			
Accipiter cooperii Cooper's hawk	Cismontane woodland, riparian forest, riparian woodland, upper montane coniferous forest. Forages in open areas over scrublands; California, Mexico, Central America. Nests in trees, often in dense woods.	Fed: None Calif: WL, S4	Low: marginal habitat for foraging and nesting, no occurrences within 5 mi.
Agelaius tricolor Tricolored blackbird	Breeds colonially in freshwater marshes, nomadic among marshes and fields in winter; almost completely endemic to Calif.	Fed: BCC Calif: CE, SSC, S1S2	Absent: no suitable habitat.
Aimophila ruficeps canescens Southern California rufous-crowned sparrow	Sparse, mixed chaparral, scrub, rocky, brushy slopes. Central California to Baja California.	Fed: None Calif: WL, S3	Absent: no suitable habitat, no occurrences within 5 mi.

Species	Habitat and Distribution	Conservation Status	Potential for Occurrence
Artemisiospiza belli belli Bell's sage sparrow	Sage scrub and chaparral communities. Central Washington southward to Baja California, Mexico.	Fed: BCC Calif: WL, S3	Absent: no suitable habitat, no occurrences within 5 mi.
Athene cunicularia Burrowing owl	Nests in rodent burrows, usually in grasslands. Forages in open habitat; increasingly uncomm. in S CA. Occurs through W US/Mex. Sparse in desert scrub but common around irrigated lands.	Fed: BCC Calif: SSC, S3	Low: marginal suitable habitat, not observed during focused surveys, occurrences within 5 mi.
Baeolophus inornatus Oak titmouse	Open pine or mixed oak-pine forest.	Fed: BCC Calif: SA, S4	Absent: no suitable habitat, no occurrences within 5 mi.
Buteo swainsoni Swainson's hawk	Grassland/agricultural, large trees for nesting, desert scrub with Joshua tree & Fremont cottonwood overstory, near streams & open fields. Breeds overwhelmingly in Great Basin & Central Valley of California.	Fed: BCC Calif: THR, S3	Absent: no suitable habitat, no occurrences within 5 mi.
Coccyzus americanus occidentalis Western yellow-billed cuckoo	Valley foothill and desert riparian. Inhabits extensive deciduous riparian thickets or forests with dense, low-level or understory foliage, and which abut on slow-moving watercourses, backwaters, or seeps. Willow almost always a dominant component of the vegetation. Most of the United States (excluding the NW states) & into Baja California & northern Mexico.	Fed: THR, BCC Calif: END, S1	Absent: no suitable habitat, occurrences within 5 mi. possibly extirpated.
Coturnicops noveboracensis Yellow rail	Summer resident in eastern Sierra Nevada. Freshwater marshlands. Occurs year round in California, very local breeder in NE interior and winter visitor on the coast and Suisun Marsh region, central and southern coastal US, parts of Canada, south central Oregon.	Fed: BCC Calif: SSC, S1S2	Absent: no suitable habitat, outside current geog. range, not reported in area since 1914.
Empidonax traillii extimus Southwestern willow flycatcher	Dense riparian forests, wet mountain meadow systems with standing water for at least part of the breeding season (May to July) & with ample numbers of willow & other associated trees & shrubs. Rare & local is S CA. SW US & N Baja California.	Fed: END Calif: END, S1	Absent: no suitable habitat, no occurrences within 5 mi.
Eremophila alpestris actia California horned lark	Short-grass prairie, "bald" hills, mtn. meadows, open coastal plains, fallow fields, alkali flats. Within coastal Sonoma Co. to San Diego Co., San Joaquin Valley & E to foothills.	Fed: None Calif: WL, S4	Occurs: observed foraging on site, no suitable nesting habitat.
Falco columbarius Merlin	Woodlands, grasslands, agricultural fields, and areas around livestock feed lots. Dense tree stands close to bodies of water are needed for cover. Uses a wide variety of habitats. Winter migratory bird to southern California.	Fed: None Calif: WL, S3S4	Low: suitable habitat marginal or absent, no occurrences within 5 mi.

Species	Habitat and Distribution	Conservation Status	Potential for Occurrence
Icteria virens Yellow-breasted chat	Summer resident, inhabits riparian thickets of willow near watercourses, low dense riparian willow. Migrant and summer resident in CA, northern CA, central coast, eastern Central Valley, coastal southern CA, Colorado River, western US, Canada, Mexico, Central America.	Fed: None Calif: SSC, S3	Absent: no suitable habitat, no occurrences within 5 mi.
Ixobrychus exilis Least bittern	Freshwater and brackish marshes with tall, dense emergent vegetation and clumps of woody plants over deep water. Summer resident in So. CA, widespread in the US, Canada and Mex. Migrates south in winter.	Fed: BCC Calif: SSC, S2	Absent: no suitable habitat, no occurrences within 5 mi.
Lanius ludovicianus Loggerhead shrike	Open areas where small trees, shrubs, and fences can provide suitable perches. Nests in small trees and large shrubs. Throughout much of North America.	Fed: BCC Calif: SSC, S4	Moderate: potentially suitable habitat (foraging/nesting), no occurrences within 5 mi.
Laterallus jamaicensis coturniculus California black rail	Saline, brackish, and freshwater emergent wetlands. San Francisco Bay area, Sacramento-San Joaquin Delta, scattered locations on coastal southern CA, Salton Sea, lower Colorado River, scattered locations in US, Mex, Central America.	Fed: BCC Calif: THR, FP, S1	Absent: no suitable habitat.
Polioptila californica californica Coastal California gnatcatcher	Sage scrub, also chaparral, grasslands, riparian adjacent to or mixed with sage scrub. S Ventura Co. to LA, Orange, Riv., San Bern., San D. Cos into Baja CA, Mexico.	Fed: THR Calif: SSC, S2	Absent: no suitable habitat.
Setophaga petechia Yellow warbler	Riparian, including willow, cottonwood, sycamore, alders, aspen for nesting & foraging, also conifer forest.	Fed: BCC Calif: SSC, S3S4	Absent: no suitable habitat, no occurrences within 5 mi.
Spinus lawrencei Lawrence's goldfinch	Summer breeder, may overwinter. Coastal side of southern and central CA, western edge of southern deserts, east side of Central Valley into northern CA, Colorado River, SW US and northern Mex. Valley foothill hardwood and hardwood-conifer, desert riparian, pinyon juniper, palm oasis, lower montane.	Fed: BCC Calif: SA, S3S4	Low: potential suitable habitat, no occurrences within 5 mi.
Vireo bellii pusillus Least Bell's vireo	Riparian woodlands, bottomlands. N Mex. & Baja CA into S CA & the S mid-western US.	Fed: END Calif: END, S2	Absent: no suitable habitat.
Mammals			
Chaetodipus (Perognathus) fallax fallax Northwestern San Diego pocket mouse	Sandy herbaceous areas, usually in association with rocks or coarse gravel, chaparral, coastal scrub, grasslands. SW CA & NW Baja California (inland to San Bernardino Valley).	Fed: None Calif: SSC, S3S4	Low: suitable habitat marginal or absent, occurrences within 5 mi. Occurrence in project vicinity likely extirpated by development.

Species	Habitat and Distribution	Conservation Status	Potential for Occurrence
Chaetodipus fallax pallidus Pallid San Diego pocket mouse	Sandy, herbaceous areas, usually in association with rocks or coarse gravel, desert wash, desert scrub, pinyon juniper, chaparral. San Diego, Riv, Imperial, LA, San Bern cos.	Fed: None Calif: SSC, S3S4	Absent: no suitable habitat, no occurrences within 5 mi.
Dipodomys merriami parvus San Bernardino kangaroo rat	Alluvial floodplains and adjacent upland habitats within the San Bernardino, Menifee, and San Jacinto valleys, Riversidean alluvial fan sage scrub.	Fed: END Calif: SSC, S1	Absent: no suitable habitat, no connectivity with alluvial habitat.
Dipodomys stephensi Stephens' kangaroo rat	Sparse, gently sloping grassland, sometimes at margins of cultivated or disturbed lands; San Bernardino County, W Riverside Co. and adjacent San Diego Co.	Fed: END Calif: THR, S2	Absent: no suitable habitat, no occurrences within 5 mi.
Eumops perotis californicus Western mastiff bat	Lowlands (with rare exceptions), many open, semi-arid to arid habitats, conifer and deciduous woodlands, coastal scrub, grasslands, chaparral. Central & S CA, S AZ, NM, SW TX. Roosts in deep rock crevices, high buildings, trees, and tunnels; forages over wide area.	Fed: None Calif: SSC, S3S4	Low: foraging habitat marginal or absent, no suitable roosting habitat.
Glaucomys oregonensis (sabrinus)californicus San Bernardino flying squirrel	Mature mixed conifer forest (white fir, Jeffrey pine, & black oak) with large trees & snags, closed canopy, downed woody debris, & riparian areas. 4000-8500 ft. elev. San Bernardino & San Jacinto Mt. Ranges (near extirpated in the San Jacinto Mts.)	Fed: None Calif: SSC, S1S2	Absent: no suitable habitat, outside of geog. and elev. range.
Lasiurus xanthinus Western yellow bat	Valley foothill riparian, desert riparian, desert wash, palm oasis. Roosts in trees, particularly palms. Forages over water and among trees. Desert regions of the SW US. Distributed in S CA, AZ, NM, & TX, into Mexico.	Fed: None Calif: SSC, S3	Low: foraging habitat marginal or absent, marginal roosting habitat.
Lepus californicus bennettii San Diego black-tailed jackrabbit	Chaparral, coastal, or Riversidean sage scrub with adjacent open grassland. Los Angeles Co. S to San Quintin, Baja California, Mexico.	Fed: None Calif: SSC, S3S4	Absent: no suitable habitat
Neotoma lepida intermedia San Diego desert woodrat	Arid shrublands, rocky outcrops, & crevices. Cismontane CA., San Luis Obispo to San Diego Co. & NW Baja California. 0-7000 ft. elev.	Fed: None Calif: SSC, S3S4	Absent: no suitable habitat, no occurrences within 5 mi.
Nyctinomops femorosaccus Pocketed free-tailed bat	Deserts & arid lowlands, pinyon juniper woodlands, desert scrub, riparian scrub, Joshua tree woodland, rocky areas with high cliffs. E Riv. & San Diego Cos., through SW US, Baja California, mainland Mexico. Roost mainly in crevices of high cliffs. Few records in So CA.	Fed: None Calif: SSC, S3	Low: suitable foraging habitat marginal or absent, no suitable roosting habitat, occurrence within 5 mi.
Onychomys torridus ramona Southern grasshopper mouse	Arid cismontane lowlands, chenopod scrub, especially scrub habitats with friable soil, prefers low to moderate shrub cover. LA through San Diego counties and northwest Baja.	Fed: None Calif: SSC, S3	Absent: no suitable habitat, no occurrences within 5 mi.
Ovis canadensis nelsoni Desert bighorn sheep	Desert mountains of SE California, SW US and Mex. Rocky, steep terrain, scrub and grassland.	Fed: None Calif: FP, S3	Absent: no suitable habitat, no connectivity to occupied habitat.

Species	Habitat and Distribution	Conservation Status	Potential for Occurrence
Perognathus longimembris brevinasus Los Angeles pocket mouse	Annual grassland, sage scrub, alluvial sage scrub. S California from Rancho Cucamonga (W boundary), San Gorgonio (E), Aguanga & Oak Grove, San Diego (S).	Fed: None Calif: SSC, S1S2	Low: suitable habitat marginal or absent, occurrences within 5 mi.
Taxidea taxus American badger	Mountains, deserts, interior valleys where burrowing animals are available as prey & soil permits digging. Throughout Central & W North America.	Fed: None Calif: SSC, S3	Absent: no suitable habitat, burrows not observed during surveys, no occurrences within 5 mi.

References: CDFW (2017, 2018a, 2018c); eBird (2018); NatureServe (2018).

Federal designations: (Federal Endangered Species Act, U. S. Fish and Wildlife Service):

END: Federally listed, endangered; an animal or plant in danger of extinction within the foreseeable future throughout all or a significant portion of its range.

THR: Federally listed, threatened; an animal or plant which is likely to become an Endangered species within the foreseeable future throughout all or a significant portion of its range.

Cand Candidate for federal listing as threatened or endangered; species that has been studied by the United States Fish and Wildlife Service, and the Service has concluded that it should be proposed for addition to the Federal Endangered and Threatened species list.

Prop Proposed for federal listing as Endangered or Threatened under Section 4 of the Endangered Species Act.

Delisted: Previously federally listed as endangered or threatened, but is no longer listed (e.g., due to recovery).

None: The species has no federal status.

BGEPA: Federal Bald and Golden Eagle Protection Act; protects bald and golden eagles.

BCC: USFWS Bird of Conservation Concern; migratory and non-migratory bird species (beyond those already designated as Federally threatened or endangered) that represent USFWS highest conservation priorities.

IPaC: Migratory bird species that have no formal conservation status, but were listed on the USFWS Information for Planning and Consultation (IPaC) search results for the Project site as being of priority concern.

State designations: (California Endangered Species Act, California Dept. of Fish and Wildlife)

END: State listed, endangered; a native species or subspecies of a bird, mammal, fish, amphibian, reptile, or plant which is in serious danger of becoming extinct throughout all, or a significant portion, of its range due to one or more causes, including loss of habitat, change in habitat, overexploitation, predation, competition, or disease.

CE: Candidate Endangered; a native species or subspecies of a bird, mammal, fish, amphibian, reptile, or plant that the Fish and Game Commission has formally noticed as being under review by the Department of Fish and Wildlife for addition to the list of endangered species, or a species for which the commission has published a notice of proposed regulation to add the species to the list of endangered species.

CF: Candidate Threatened; a native species or subspecies of a bird, mammal, fish, amphibian, reptile, or plant that the Fish and Game Commission has formally noticed as being under review by the Department of Fish and Wildlife for addition to the list of threatened species, or a species for which the commission has published a notice of proposed regulation to add the species to the list of threatened species.

THR: State listed, threatened; a native species or subspecies of a bird, mammal, fish, amphibian, reptile, or plant that, although not presently threatened with extinction, is likely to become an endangered species in the foreseeable future in the absence of special protection and management efforts.

RARE: State listed as rare: a native plant species, subspecies, or variety when, although not presently threatened with extinction, it is in such small numbers throughout its range that it may become endangered if its present environment worsens (Native Plant Protection Act of 1977).

SSC: CDFW Species of Special Concern; vertebrate species of concern due to declining population levels, limited ranges, and/or continuing threats that have made them vulnerable to extinction.

FP: Fully Protected; California Fish and Game Code states that Fully Protected species "...may not be taken or possessed at any time and no provision of this code or any other law shall be construed to authorize the

issuance of permits or licenses to take any fully protected" species, although take may be authorized for necessary scientific research.

Delisted: Previously state listed as threatened or endangered, but no longer listed (e.g., due to recovery).

WL: CDFW Watch List: Species that were previously designated as "Species of Special Concern" but no longer merit that status, or which do not yet meet SSC criteria, but for which there is concern and a need for additional information to clarify status.

SA: CDFW Special Animal; wildlife of state conservation concern.

None: The species has no state status.

State Rank (S Rank): A reflection of the condition and imperilment of an element (plant, animal, vegetation community) throughout its range within the state. The S ranks are determined through a combination of rarity, threat, and trend factors, weighted more heavily on the rarity factors. Where correct category is uncertain, the S rank includes two categories or a question mark. Older ranks, which need to be updated, may still contain a decimal "threat" rank of .1, .2, or .3, where .1 indicates very threatened status, .2 indicates moderate threat, and .3 indicates few or no current known threats.

S1: Critically imperiled; imperiled in the state because of extreme rarity or some factor(s) making it especially vulnerable to extirpation from the state.

S2: Imperiled; imperiled in the state because of rarity due to very restricted range, very few populations, steep declines, or other factors making it very vulnerable to extirpation from the state or nation.

S3: Vulnerable; vulnerable in the state due to a restricted range, relatively few populations, recent and widespread declines, or other factors making it vulnerable to extirpation. S4: Apparently secure; uncommon but not rare, some cause for long-term concern due to declines or other factors.

S5: Secure; common, widespread, and abundant in the state.

SH: Possibly extirpated; species or community occurred historically in the state, and there is some possibility that it may be rediscovered. The element has not been seen for at least 20 years, but suitable habitat still exists.

SX: Presumed extirpated; species or community is believed to be extirpated from the state.

California Rare Plant Rank (CRPR): The *California Rare Plant Ranks* are a ranking system originally developed by the California Native Plant Society (CNPS) to better define and categorize rarity in California's plants. These ranks were previously known as the CNPS lists but were renamed to the *California Rare Plant Ranks* to better reflect the joint effort among the CNPS, the CNDDB, and a wide range of botanical experts, who work together to assign a rarity ranking.

1A: Plants presumed extinct in California and rare/extinct elsewhere.

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

2A: Plants presumed extirpated in California, but more common elsewhere.

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

3: Plants about which we need more information.

4: Plants of limited distribution.

X.1: Extension to CRPR (e.g., 1B.1); seriously threatened in California.

X.2: Extension to CRPR (e.g., 1B.2); fairly threatened in California.

X.3: Extension to CRPR (e.g., 1B.3); not very threatened in California.

USFS designation:

S: Sensitive; plant and animal species identified by a regional forester that are not listed or proposed for listing under the Federal Endangered Species Act for which population viability is a concern, as evidenced by significant current or predicted downward trends in population numbers or density, or significant current or predicted downward trends in habitat capability that would reduce a species' existing distribution.

Potential for occurrence:

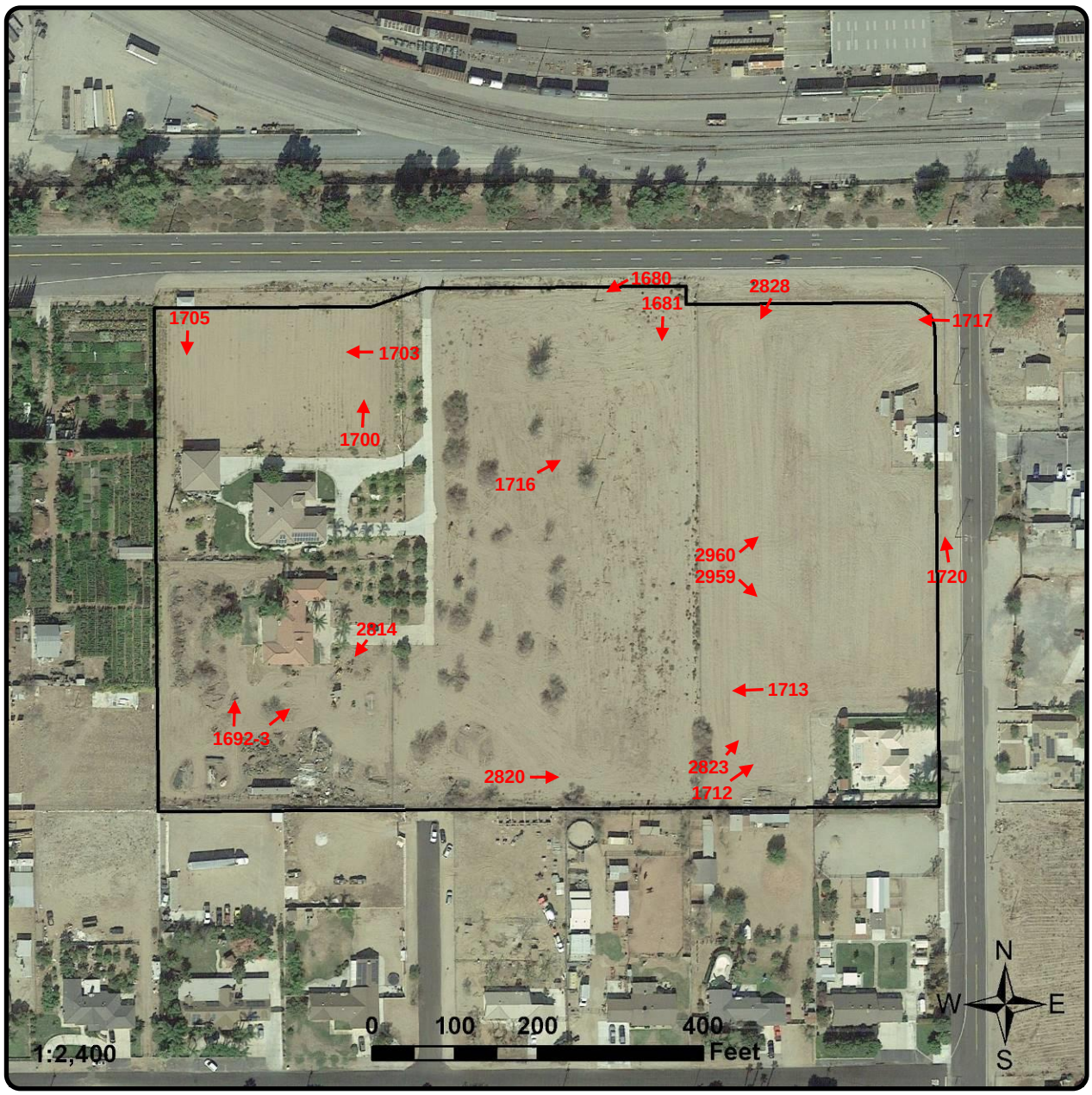
Occurs: Species was detected during surveys or previously documented on the Project site or adjacent areas.

High: Species documented in the vicinity (i.e., within 5 miles) of the Project site and suitable habitat is present, but species not detected during surveys.

Moderate: Species documented in the vicinity of the Project site or suitable habitat present and site is within geographic and elevational range of the species.
Low: Species not documented in the vicinity of the Project site or suitable habitat is marginal.
Absent: Species not documented in the vicinity of the Project site and suitable habitat marginal or absent or site is not within geographic and elevational range of the species

APPENDIX B

Site Photographs



(1680. July 30, 2017.)

(1693. July 30, 2017.)

(1681. July 30, 2017.)

(1700. July 30, 2017.)

(1692. July 30, 2017.)

(1703. July 30, 2017.)

(1705. July 30, 2017.)

(1716. July 30, 2017.)

(1712. July 30, 2017.)

(1717. July 30, 2017.)

(1713. July 30, 2017.)

(1720. July 30, 2017.)

Disturbed area associated with residence (2814, March 27, 2018)

Recently disked area (2820, March 27, 2018)

Growth of vegetation (2823, March 27, 2018)

Recently disked area with little remaining vegetation (2960, April 16, 2018)

Growth of vegetation (2828, March 27, 2018)

Recently disked area with little remaining vegetation (2959, April 16, 2018)

APPENDIX C

CNDDB Forms

Mail to:
California Natural Diversity Database
California Dept. of Fish & Wildlife
1416 9th Street, Suite 1266
Sacramento, CA 95814
Fax: (916) 324-0475 email: CNDDB@wildlife.ca.gov

Date of Field Work (mm/dd/yyyy): 03/07/2018

For Office Use Only
Source Code: _____ Quad Code: _____
Elm Code: _____ Occ No.: _____
EO Index: _____ Map Index: _____

Clear Form

California Native Species Field Survey Form

Print Form

Scientific Name: *Eremophila alpestris actia*

Common Name: California horned lark

Species Found? (●) Yes ( ) No _____ If not found, why?

Total No. Individuals: 5 Subsequent Visit? ( ) Yes ( ) No

Is this an existing NDDB occurrence? _____ Yes, Occ. # ☐ No ☒ Unk.

Collection? If yes: _____ Number _____ Museum / Herbarium

Reporter: Guy Bruyea / L&L Environmental
Address: 700 East Redlands Blvd #U351
Redlands, CA 92373
E-mail Address: cwakeman@llenviroinc.com
Phone: 909.335.9897

Plant Information
Phenology:
_____ % vegetative _____ % flowering _____ % fruiting

Animal Information
5 # adults _____ # juveniles _____ # larvae _____ # egg masses _____ # unknown
☐ wintering ☐ breeding ☐ nesting ☐ rookery ☐ burrow site ☐ lek ☐ other

Location Description (please attach map AND/OR fill out your choice of coordinates, below)
Southwest corner of Slover Avenue and Cactus Avenue in the City of Bloomington

County: San Bernardino Landowner / Mgr: Private
Quad Name: Fontana Elevation: 1040 ft
T___ R___ Sec___, ___¼ of ___¼, Meridian: H ( ) M ( ) S ( ) Source of Coordinates (GPS, topo. map & type): Google Earth
T___ R___ Sec___, ___¼ of ___¼, Meridian: H ( ) M ( ) S ( ) GPS Make & Model: _____
DATUM: NAD27 ( ) NAD83 ( ) WGS84 ( ) Horizontal Accuracy: _____ meters/feet
Coordinate System: UTM Zone 10 ( ) UTM Zone 11 ( ) *OR* Geographic (Latitude & Longitude) (●)
Coordinates: 34.062716 -117.384475

Habitat Description (plants & animals) *plant communities, dominants, associates, substrates/soils, aspects/slope:*
Animal Behavior *(Describe observed behavior, such as territoriality, foraging, singing, calling, copulating, perching, roosting, etc., especially for avifauna):*

Vacant land that is regularly disked within a developed area, vegetation mainly non-native grasses and annual herbs

Small flock of 5 horned larks observed foraging during biological surveys of the site prior to development

Please fill out separate form for other rare taxa seen at this site.

Site Information Overall site/occurrence quality/viability (site + population): ( ) Excellent ( ) Good ( ) Fair (●) Poor
Immediate AND surrounding land use: Residential, commercial, and industrial development
Visible disturbances: Site is frequently disked
Threats: Planned development
Comments:

Determination: *(check one or more, and fill in blanks)*
☐ Keyed (cite reference): _____
☐ Compared with specimen housed at: _____
☐ Compared with photo / drawing in: _____
☐ By another person (name): _____
☒ Other: identified by experienced field biologist

Photographs: *(check one or more)*

	Slide	Print	Digital
Plant / animal	☐	☐	☐
Habitat	☐	☐	☐
Diagnostic feature	☐	☐	☐

May we obtain duplicates at our expense? ( ) yes ( ) no

CDFW/BDB/1747 Rev. 7/15/2015

APPENDIX D

Precipitation Data

Monthly Report

California Irrigation Management Information System (CIMIS)

Rendered in ENGLISH Units.

October 2016 - March 2018

Printed on Thursday, April 12, 2018

U.C. Riverside - Los Angeles Basin - Station 44

Month Year	Total ETo (in)	Total Precip (in)	Avg Sol Rad (Ly/day)	Avg Vap Pres (mBars)	Avg Max Air Temp (°F)	Avg Min Air Temp (°F)	Avg Air Temp (°F)	Avg Max Rel Hum (%)	Avg Min Rel Hum (%)	Avg Rel Hum (%)	Avg Dew Point (°F)	Avg Wind Speed (mph)	Avg Soil Temp (°F)
Oct 2016	3.87 K	0.87 K	329 K	11.2 K	80.7 K	56.6 K	67.7 K	70 L	31 L	51 L	45.9 L	3.5 K	66.4 K
Nov 2016	3.18	1.06	271	7.3	76.2	50.2 K	62.2 K	61	22	40 K	35.1 K	3.7 K	59.7
Dec 2016	1.99	3.65	192	7.8 K	64.2	45.1 K	54.1	73	37	54 K	35.8 K	3.8 K	52.9
Tots/Avgs	9.04	5.6	264	8.8	73.7	50.6	61.3	68	30	48	38.9	3.7	59.7

U.C. Riverside - Los Angeles Basin - Station 44

Month Year	Total ETo (in)	Total Precip (in)	Avg Sol Rad (Ly/day)	Avg Vap Pres (mBars)	Avg Max Air Temp (°F)	Avg Min Air Temp (°F)	Avg Air Temp (°F)	Avg Max Rel Hum (%)	Avg Min Rel Hum (%)	Avg Rel Hum (%)	Avg Dew Point (°F)	Avg Wind Speed (mph)	Avg Soil Temp (°F)
Jan 2017	1.81	4.56	201	8.2 K	61.3	44.3	52.4	77	46	62 K	38.2 K	3.6 K	52.4
Feb 2017	2.08	2.14	254	9.8 K	64.9	47.2	55.3	82	46	65 K	43.3 K	3.3	56.3
Mar 2017	5.01	0.15	436	8.6	76.7 K	50.0 K	62.4 K	69	25	45 K	39.7 K	4.0 K	61.2
Apr 2017	6.13	0.04	535 K	9.6 K	77.8	51.1 K	64.6	75	27	47 K	42.6 K	4.7 K	65.1
May 2017	5.95	0.06	534	12.9	78.5	54.4 L	65.6	86	40	62	50.8	4.6 K	68.6

Monthly Report

Jun 2017	6.98	0.00	613	16.0 K	88.8 K	60.5 K	73.5	88	34	59 K	56.9 K	4.3	74.5
Jul 2017	7.11	0.03	569	18.7 K	93.8 K	65.7 K	78.5	87	33	57 K	61.4 K	4.0 K	78.6 K
Aug 2017	6.40 K	0.39	523	19.8 K	93.0 K	65.7 K	77.5	93	35	61 L	62.1 L	4.0 K	78.1
Sep 2017	4.92 K	0.06	421	16.6 K	87.1 K	62.2 K	73.4 K	86 K	36 K	60 K	57.0 K	4.1 K	74.3 K
Oct 2017	4.54 K	0.00	354	10.8 K	85.8 K	57.8 K	70.6 K	74 K	24 K	47 L	45.1 L	3.9 K	67.4 K
Nov 2017	2.35 K	0.04	235	11.2 K	76.3 K	52.4 K	63.1 K	83	36	58 K	46.4 K	3.1	62.7 K
Dec 2017	3.09	0.00	234	4.9	73.4 K	45.8	58.4 K	51	16	30 K	24.5 K	4.0 K	52.5 K
Tots/Avgs	56.37	7.5	409	12.3	79.8	54.8	66.3	79	33	54	47.3	4.0	66.0

U.C. Riverside - Los Angeles Basin - Station 44

Month Year	Total ETo (in)	Total Precip (in)	Avg Sol Rad (Ly/day)	Avg Vap Pres (mBars)	Avg Max Air Temp (°F)	Avg Min Air Temp (°F)	Avg Air Temp (°F)	Avg Max Rel Hum (%)	Avg Min Rel Hum (%)	Avg Rel Hum (%)	Avg Dew Point (°F)	Avg Wind Speed (mph)	Avg Soil Temp (°F)
Jan 2018	2.41 K	1.65	230	8.8 K	72.6	47.2 K	58.6 K	78	31	52 L	39.1 L	3.2	55.0 K
Feb 2018	3.17	0.30	342	7.0	69.7 K	43.7 K	56.1	76	24	47	34.4	3.7	56.4 K
Mar 2018	3.81	1.64	373	10.4 K	69.2	47.7	57.8	88	39	62 L	42.9 L	3.9 K	60.3 L
Tots/Avgs	9.39	3.6	315	8.7	70.5	46.2	57.5	81	31	54	38.8	3.6	57.2

Flag Legend	
M - All Daily Values Missing	K - One or More Daily Values Flagged
J - One or More Daily Values Missing	L - Missing and Flagged Daily Values

Page 2

California Irrigation Management Information System (CIMIS)

CIMIS Monthly Report

Rendered in ENGLISH Units.
September 2017 - August 2018
Printed on Thursday, September 20, 2018

U.C. Riverside - Los Angeles Basin - Station 44

Month Year	Total ETo (in)	Total Precip (in)	Avg Sol Rad (Ly/day)	Avg Vap Pres (mBars)	Avg Max Air Temp (°F)	Avg Min Air Temp (°F)	Avg Air Temp (°F)	Avg Max Rel Hum (%)	Avg Min Rel Hum (%)	Avg Rel Hum (%)	Avg Dew Point (°F)	Avg Wind Speed (mph)	Avg Soil Temp (°F)
Sep 2017	4.92 K	0.06	421	16.6 K	87.1 K	62.2 K	73.4 K	86 K	36 K	60 K	57.0 K	4.1 K	74.3 K
Oct 2017	4.54 K	0.00	354	10.8 K	85.8 K	57.8 K	70.6 K	74 K	24 K	47 L	45.1 L	3.9 K	67.4 K
Nov 2017	2.35 K	0.04	235	11.2 K	76.3 K	52.4 K	63.1 K	83	36	58 K	46.4 K	3.1	62.7 K
Dec 2017	3.09	0.00	234	4.9	73.4 K	45.8	58.4 K	51	16	30 K	24.5 K	4.0 K	52.5 K
Tots/Avgs	14.90	0.1	311	10.9	80.7	54.6	66.4	74	28	49	43.3	3.8	64.2

U.C. Riverside - Los Angeles Basin - Station 44

Month Year	Total ETo (in)	Total Precip (in)	Avg Sol Rad (Ly/day)	Avg Vap Pres (mBars)	Avg Max Air Temp (°F)	Avg Min Air Temp (°F)	Avg Air Temp (°F)	Avg Max Rel Hum (%)	Avg Min Rel Hum (%)	Avg Rel Hum (%)	Avg Dew Point (°F)	Avg Wind Speed (mph)	Avg Soil Temp (°F)
Jan 2018	2.41 K	1.65	230	8.8 K	72.6	47.2 K	58.6 K	78	31	52 L	39.1 L	3.2	55.0 K
Feb 2018	3.17	0.30	342	7.0	69.7 K	43.7 K	56.1	76	24	47	34.4	3.7	56.4 K
Mar 2018	3.81	1.64	373	10.4 K	69.2	47.7	57.8	88	39	62 L	42.9 L	3.9 K	60.3 L
Apr 2018	5.69 K	0.00 K	509 K	10.4 K	76.9 K	51.6	63.4 K	82 K	32 K	54 K	44.4 K	4.5 K	65.0 K
May 2018	5.57	0.27	553 K	12.7	75.4	54.7	63.7	85	45	64	50.6	4.3 K	68.6
Jun 2018	7.61	0.00	729 K	14.9	86.3	58.9	71.0	85	34	58	55.1	4.4 K	73.9
Jul 2018	8.04 K	0.04 K	651 K	17.7 K	95.8 L	67.7 K	80.8 K	78 K	31 K	50 K	59.8 K	4.1	78.8
Aug 2018	7.35	0.00	601	17.6 K	92.8	66.3	78.2	81	32	54 K	59.8 K	3.9	77.8
Tots/Avgs	43.65	3.9	499	12.4	79.8	54.7	66.2	82	34	55	48.3	4.0	67.0

Flag Legend		
M - All Daily Values Missing	K - One or More Daily Values Flagged	
J - One or More Daily Values Missing	L - Missing and Flagged Daily Values	
Conversion Factors		
W/sq.m = Ly/day/2.065	inches * 25.4 = mm	(F-32) * 5/9 = c
	mBars * 0.1 = kPa	--