Biological Resources Assessment

Rainbow Municipal Water District
Fallbrook, San Diego County, California

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ACRONYMS

Cal-IPC	California Invasive Plant Council
CCH	Consortium of California Herbarium
CDFW	California Department of Fish and Wildlife
CESA	California Endangered Species Act
CEQA	California Environmental Quality Act
CFR	Code of Federal Regulations
CNPS	California Native Plant Society
Corps	United States Army Corps of Engineers
CSRL	California Soil Resources Laboratory
CWA	Clean Water Act
EPA	United States Environmental Protection Agency
ESH	Environmentally Sensitive Habitat
FESA	Federal Endangered Species Act
GPS	Global Positioning System
HCP	Habitat Conservation Plan
HMP	Habitat Management Plan
MSCP	San Diego County Multiple Species Conservation Plan
OHWM	Ordinary High Water Mark
RMP	Resource Management Plan
RMWD	Rainbow Municipal Water District
RPO	Resource Protection Ordinance
RWQCB	Regional Water Quality Control Board
USDA	United States Department of Agriculture
USFWS	United States Fish and Wildlife Service
USGS	United States Geologic Survey
WBWG	Western Bat Working Group
WRA	WRA, Inc.

EXECUTIVE SUMMARY

WRA, Inc. biologists performed an assessment of biological resources at the Rainbow Municipal Water District property. The objectives of this assessment were to (1) identify and map vegetation communities within the property and (2) assess the property for areas with the potential to support special status plant and animal species and presence of other sensitive biological resources on the property. Based on these findings, recommendation of the properties' potential development and mitigation areas were identified.

The Rainbow Municipal Water District property is an approximately 68-acre property southwest of the intersection of California Highway 76 and Old Highway 395 in Fallbrook, San Diego County, California. WRA, Inc. biologists identified nine vegetation communities present on the property, five of which are considered sensitive by the proposed North San Diego County Multiple Species Conservation Plan. Two special status species were identified during the site visit: San Diego black-tailed jackrabbit (*Lepus californicus bennettii*) and orange-throated whiptail lizard (*Aspidoscelis hyperythra*), CDFW Species of Special Concern and CDFW Watch List species, respectively. In addition to the species present, two special status plant species and seven special status animal species have a high potential to occur within the property. The property falls within the Critical Habitat of four federal listed species: arroyo toad (*Anaxyrus californicus*), least Bell's vireo (*Vireo bellii pusillus*), southwestern willow flycatcher (*Empidonax traillii eximius*), and coastal California gnatcatcher (*Polioptila californica californica*). The undeveloped portions of the property are largely within a County of San Diego Pre-Approves Mitigation Area (PAMA). A significant portion of the property may be jurisdictional under Federal, State, and local water ordinances (Clean Water Act, Streambed Alteration Agreements, and Resource Protection Ordinances). A delineation is recommended for these constraints.

Review of the property location, vegetation communities, and potential species present suggest that much of the property is suitable mitigation area but have several constraints (sensitive species habitat, jurisdictional wetlands areas, listed species Critical Habitat) that may hinder potential development. Areas within the property that have already been disturbed or were identified as having little habitat value for sensitive species would have the highest potential for development while avoiding the constraints present within the property.

1.0 INTRODUCTION

On November 14, WRA, Inc. performed an assessment of biological resources at the Rainbow Municipal Water District (RMWD) property (Survey Area) located at the intersection of California Highway 76 and Old Highway 395 in Fallbrook, San Diego County, California. The Survey Area is located west of Old Highway 395, south of California Highway 76 (Pala Road), and north of Rancho Monserate Country Club. The Survey Area is approximately 68-acres and includes a section of the San Luis Rey River, associated floodplain and riparian area, upland scrub habitat, non-native grassland, disturbed lots, and RMWD administration buildings. The Survey Area included RMWD property: APN: 125-090-3400, 125-090-3500, 125-090-2600, and 760-188-1200, and adjacent parcels APN: 125-090-3700 and 125-090-2300 owned by North American Resort Properties, Inc. This report describes the results of the site visit, which assessed the Survey Area for (1) the potential to support special-status plant and wildlife species and (2) presence of other sensitive biological resources protected by local, state, or federal laws and regulations.

A biological resources assessment provides general information on the potential for sensitive species and habitats to occur on-site. The assessment is not an official protocol-level survey for listed species; however if listed species were observed during the assessment, their presence was recorded.

On December 7, 2017, the Lilac Fire broke out near Old Highway 395 and Dulin Road near the southeast section of the Survey Area. According to incident maps provided by calfire.gov, there is potential that the southwestern section of the Survey Area sustained some damage from the fire.

Path: L:\Acad 2000 Files\27000\27114\GIS\ArcMap\Location.mxd

Sources: National Geographic, WRA | Prepared By: smortensen, 1/3/2018

Figure 1. Study Area Location

Rainbow Mitigation Areas
San Diego County, California

0 1 2 Miles

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2.0 REGULATORY BACKGROUND

The following sections explain the regulatory context of the biological inventory, including applicable laws and regulations that were applied to the field investigations and analysis of potential Project impacts.

2.1 Sensitive Biological Communities

Sensitive biological communities include habitats that fulfill special functions or have special values, such as wetlands, streams, or riparian habitat. These habitats are protected under federal regulations such as the Clean Water Act; state regulations such as the Porter-Cologne Act, the CDFW Streambed Alteration Program, and CEQA; or local ordinances or policies such as city or county tree ordinances, Special Habitat Management Areas, and General Plan Elements.

Clean Water Act

The United States Army Corps of Engineers (Corps) regulates "Waters of the United States" under Section 404 of the Clean Water Act (CWA). Waters of the United States are defined in the Code of Federal Regulations (CFR) as waters susceptible to use in commerce, including interstate waters and wetlands, all other waters (intrastate waterbodies, including wetlands), and their tributaries (33 CFR 328.3). Potential wetland areas, according to the three criteria used to delineate wetlands as defined in the *Corps of Engineers Wetlands Delineation Manual* (Environmental Laboratory 1987), are identified by the presence of (1) hydrophytic vegetation, (2) hydric soils, and (3) wetland hydrology. Areas that are inundated at a sufficient depth and for a sufficient duration to exclude growth of hydrophytic vegetation are subject to Section 404 jurisdiction as "other waters" and are often characterized by an ordinary high water mark (OHWM). Other waters, for example, generally include lakes, rivers, and streams. The placement of fill material into Waters of the U.S generally requires an individual or nationwide permit from the Corps under Section 404 of the Clean Water Act.

Porter-Cologne Act

The term "Waters of the State" is defined by the Porter-Cologne Act as "any surface water or groundwater, including saline waters, within the boundaries of the state." The Regional Water Quality Control Board (RWQCB) protects all waters in its regulatory scope and has special responsibility for wetlands, riparian areas, and headwaters. These waterbodies have high resource value, are vulnerable to filling, and are not systematically protected by other programs. RWQCB jurisdiction includes "isolated" wetlands and waters that may not be regulated by the Corps under Section 404. Waters of the State are regulated by the RWQCB under the State Water Quality Certification Program, which regulates discharges of fill and dredged material under Section 401 of the CWA and the Porter-Cologne Water Quality Control Act. Projects that require a Corps permit, or fall under other federal jurisdiction, and have the potential to impact Waters of the State, are required to comply with the terms of the Water Quality Certification determination. If a proposed Project does not require a federal permit, but does involve dredge or fill activities that may result in a discharge to Waters of the State, the RWQCB has the option to regulate the dredge and fill activities under its state authority in the form of Waste Discharge Requirements.

California Fish and Game Code

Streams and lakes, as habitat for fish and wildlife species, are subject to jurisdiction by CDFW under Sections 1600-1616 of California Fish and Game Code (CFGC). Alterations to or work within or adjacent to streambeds or lakes generally require a 1602 Lake and Streambed Alteration

Agreement. The term "stream", which includes dry creeks drainages, and rivers, is defined in the California Code of Regulations (CCR) as "a body of water that flows at least periodically or intermittently through a bed or channel having banks and supports fish or other aquatic life [including] watercourses having a surface or subsurface flow that supports or has supported riparian vegetation" (14 CCR 1.72). In addition, the term "stream" can include ephemeral streams, dry washes, watercourses with subsurface flows, canals, aqueducts, irrigation ditches, and other means of water conveyance if they support aquatic life, riparian vegetation, or stream-dependent terrestrial wildlife (CDFG 1994). "Riparian" is defined as "on, or pertaining to, the banks of a stream." Riparian vegetation is defined as "vegetation which occurs in and/or adjacent to a stream and is dependent on, and occurs because of, the stream itself" (CDFG 1994). Removal of riparian vegetation also requires a Section 1602 Lake and Streambed Alteration Agreement from CDFW.

Oak Woodlands Conservation Act

Under the Oak Woodlands Conservation Act (2004), impacts to oak woodlands receive consideration under CEQA regardless of whether the woodland is composed of oak (*Quercus* spp.) vegetation types considered sensitive by the CDFW. California Public Resources Code (PRC) 21083.4 requires each county in California to implement an oak woodland protection policy to mitigate for the loss of oak woodlands resultant from approved Projects within their jurisdiction. In this policy, oak trees are defined as all native species of oaks larger than five inches DBH (diameter at breast height, or 4.5 feet above grade). At least one of four mitigation alternatives for significant conversions of oak woodlands is required by this regulation: 1) conserve oak woodlands through the use of a conservation easement, 2) plant an appropriate number of trees, including maintaining plantings and replacing dead or diseased trees, 3) contribute funds to the Oak Woodlands Conservation Fund, as established under Section 1363 (a) of the Fish and Game Code, and 4) other mitigation measures developed by the County. No oak woodlands were mapped within the Survey Area; therefore, this regulation is not applicable.

San Diego County Resource Protection Ordinance

The County's Resource Protection Ordinance (RPO) restricts to varying degrees impacts to various natural resources including wetlands, wetland buffers, floodplains, steep slopes, sensitive habitat lands, and historical sites. This ordinance protects sensitive lands and prevents their degradation and loss by requiring the Resource Protection Study for certain discretionary Projects; grading plans are not subject to the RPO. The ordinance also preserves the ability of affected property owners to make reasonable use of their land subject to the conditions established by the ordinance.

RPO provides the County definition of wetlands, which are defined as having one or more of the following attributes:

- At least periodically, the land supports a predominance of hydrophytes (plants whose habitat is water or very wet places);
- The substratum is predominantly undrained hydric soil; or
- An ephemeral or perennial stream is present, whose substratum is predominately non-soil, and such lands contribute substantially to the biological functions of wetlands in the drainage system.

Aquaculture, scientific research, wetland restoration Projects, limited removal of diseased or invasive plant species, and limited road-, driveway- or trail-crossings may be allowed when specific findings are made for these uses.

San Diego County Mitigation Ordinance

The San Diego County Biological Mitigation Ordinance sets forth the criteria for avoiding impacts to Biological Resource Core Areas and to plant and animal populations within those areas, and the mitigation requirements for all Projects requiring a discretionary permit. The policy promotes the preservation of biological resources by directing preservation toward land, which can be combined into contiguous areas of habitat or linkages. The Biological Mitigation Ordinance regulates the County's MSCP Subarea Plan.

Other Sensitive Biological Communities

Other sensitive biological communities not discussed above include habitats that fulfill special functions or have special values. Natural communities considered sensitive are those identified in local or regional plans, policies, regulations, or by the CDFW. CDFW ranks sensitive communities as "threatened" or "very threatened" and keeps records of their occurrences in its California Natural Diversity Database (CNDDB; CDFW 2015). Sensitive plant communities are also identified by CDFW (CNPS 2015a). CNDDB vegetation alliances are ranked 1 through 5 based on NatureServe's (2010) methodology, with those alliances ranked globally (G) or statewide (S) as 1 through 3 considered sensitive. Impacts to sensitive natural communities identified in local or regional plans, policies, or regulations or those identified by the CDFW or USFWS must be considered and evaluated under CEQA (CCR Title 14, Div. 6, Chap. 3, Appendix G). Specific habitats may also be identified as sensitive in city or county general plans or ordinances.

2.2 Special-Status Species

Special-status species include those plants and wildlife species that have been formally listed, are proposed as endangered or threatened, or are candidates for such listing under the Federal Endangered Species Act (ESA) or California Endangered Species Act (CESA). These acts afford protection to both listed species and those that are formal candidates for listing. In addition, California Department of Fish and Wildlife (CDFW) Species of Special Concern, which are species that may face extirpation in California if current population and habitat trends continue, United States Fish and Wildlife Service (USFWS) Birds of Conservation Concern, and CDFW Fully Protected species, are all considered special-status species. Although CDFW Species of Special Concern generally have no special legal status, they are given special consideration under the California Environmental Quality Act (CEQA). Bat species are also evaluated for conservation status by the Western Bat Working Group (WBWG), a non-governmental entity; bats named as a "High Priority" species for conservation by the WBWG are typically considered special-status. In addition to regulations for special-status species, most birds in the United States, including non-special-status native species, are protected by the Migratory Bird Treaty Act of 1918 (MBTA) and the California Fish and Game Code (CFGC), i.e., sections 3503, 3503.5 and 3513. Under these laws, destroying active bird nests, eggs, and/or young is illegal.

Plant species on the California Native Plant Society (CNPS) Rare and Endangered Plant Inventory (Inventory) with California Rare Plant Ranks (Rank) of 1 and 2 are also considered special-status plant species and must be considered under CEQA. Rank 3 and Rank 4 species are afforded little or no protection under CEQA, but are included in this analysis for completeness. A description of the CNPS Ranks is provided below in Table 5.

Table 1. Description of CNPS Ranks and Threat Codes

California Rare Plant Ranks (formerly known as CNPS Lists)	
Rank 1A	Presumed extirpated in California and either rare or extinct elsewhere
Rank 1B	Rare, threatened, or endangered in California and elsewhere
Rank 2A	Presumed extirpated in California, but more common elsewhere
Rank 2B	Rare, threatened, or endangered in California, but more common elsewhere
Rank 3	Plants about which more information is needed – A review list
Rank 4	Plants of limited distribution – A watch list
Threat Ranks	
0.1	Seriously threatened in California
0.2	Moderately threatened in California
0.3	Not very threatened in California

2.3 Critical Habitat

Critical habitat is a term defined in the ESA as a specific geographic area that contains features essential for the conservation of a threatened or endangered species and that may require special management and protection. The ESA requires federal agencies to consult with the USFWS to conserve listed species on their lands and to ensure that any activities or Projects they fund, authorize, or carry out will not jeopardize the survival of a threatened or endangered species. In consultation for those species with critical habitat, federal agencies must also ensure that their activities or Projects do not adversely modify critical habitat to the point that it will no longer aid in the species' recovery. In many cases, this level of protection is similar to that already provided to species by the ESA jeopardy standard. However, areas that are currently unoccupied by the species, but which are needed for the species' recovery, are protected by the prohibition against adverse modification of critical habitat. Critical habitat within and adjacent to the Study Area is supplied in Figure 2.

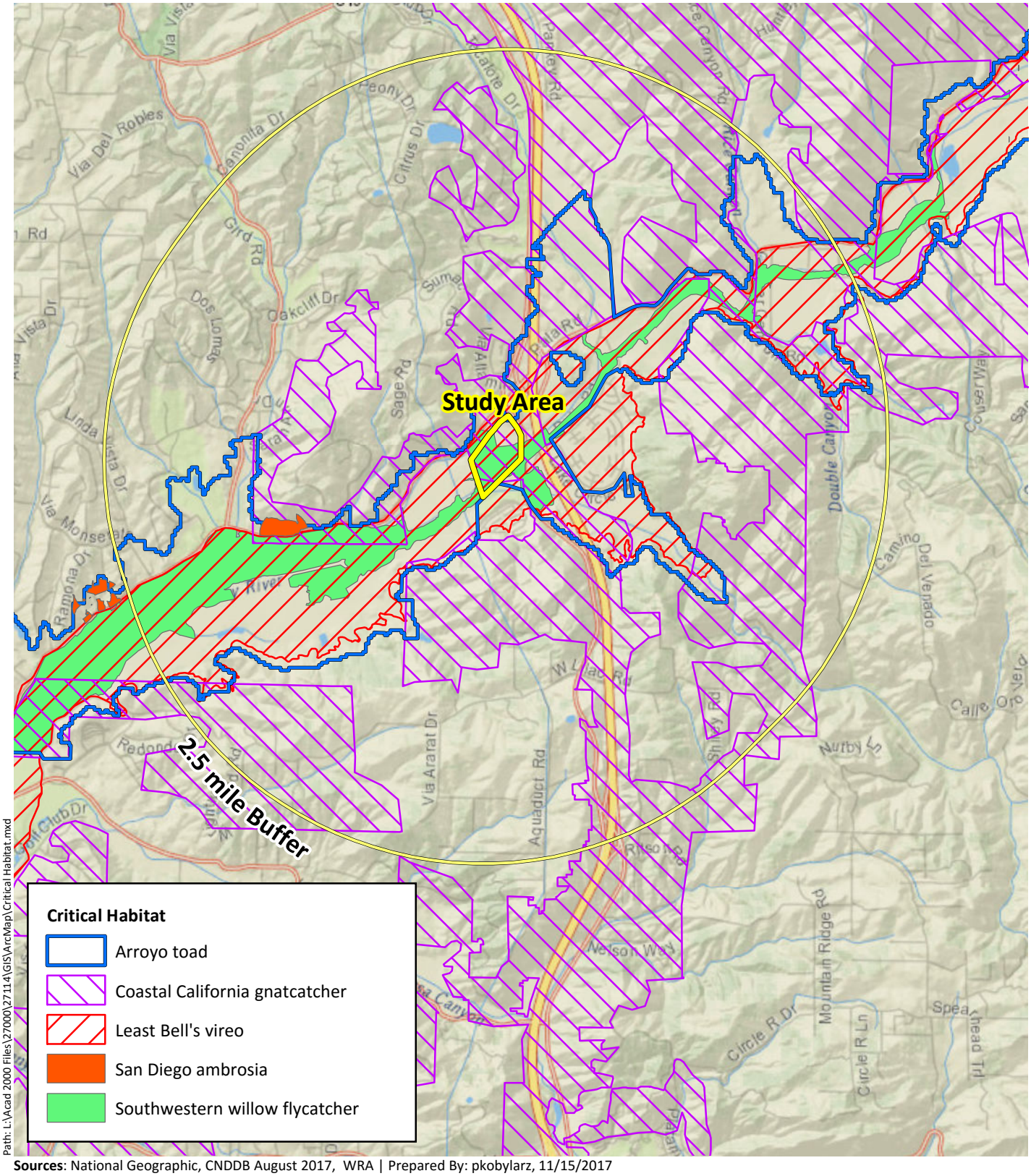
2.4 San Diego County Multiple Species Conservation Program

The North County MSCP (County of San Diego 2009) is a proposed extension of the County MSCP (County of San Diego 1997, 1998) and continues with the overall goal of maintaining and enhancing biological diversity in the region and conserving viable populations of endangered, threatened, and key sensitive species and their habitats, thereby preventing the likelihood of local extirpation and possible extinction.

Mitigation Projects through development and local, state, and federal funding under the MSCP protect land that has been set aside for preservation. This preservation may take the form of a conservation easement that dedicates the land for open space in perpetuity, or actual purchase of fee title by a public agency or environmental land trust. County programs are in place to manage, maintain, and monitor plant and animal life on the lands once they are in the preserve to ensure the conservation of their unique resources. The overall effect of the MSCP is that it provides for large, connected preserve areas that address a number of species at the habitat level rather than species-by-species, and area-by-area. The proposed preserve system for North County San Diego will integrate existing preserves and so called "soft-line conservation areas" referred to as the Pre-Approved Mitigation Area (PAMA) in order to create a more efficient and

effective preserve system as well as better protection for the rare, threatened, and endangered species in the region. It is expected that approximately 25% of natural upland habitat within the PAMA will be used for development; however, development of these areas must conform to specialized criteria in order to meet the goals of the North County preserve system. Sections of the Survey Area are within the PAMA of the North County MSCP and therefore may be subject to these criteria if they are proposed to be developed.

Within the North County MSCP planning area, 63 rare species are specifically proposed for coverage. Twenty-eight of those species are covered by the MSCP's narrow endemics policy. Narrow endemic species require specific mitigation and avoidance measures due to species rarity, specific habitat requirements, or limited distributions. This policy is applied variably depending upon the above factors. Very rare species with limited distributions would likely have the narrow endemics policy applied to all areas within the North County MSCP, while species that are more widespread would have the policy applied only within the PAMA. MSCP and narrow endemic coverage is noted in species discussions in Appendix D and Appendix E. The county tends to follow MSCP planning policy, but a final plan has not been approved for this area.



Sources: National Geographic, CNDDB August 2017, WRA | Prepared By: pkobylarz, 11/15/2017

Figure 2. Critical Habitat within 2.5 miles of the Study Area

Rainbow Mitigation Areas
San Diego County, California

0 1 2 Miles

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3.0 METHODS

3.1 Literature Review

Prior to the site visit, database searches for known occurrences of special-status wildlife species focused on the Bonsall and Pala 7.5-minute USGS quadrangles. The following sources were reviewed to determine which special-status plant and wildlife species have been documented to occur near the Survey Area:

- CDFW Natural Diversity Database (CNDDB) records (2017);
- United States Fish and Wildlife Service (USFWS) quadrangle species lists (2017);
- California Native Plant Society (CNPS) Electronic Inventory records (2017);
- Multiple Species Conservation Program – North County Plan (2009);
- CDFW and Western Field Ornithologists publication *California Bird Species of Special Concern: A Ranked Assessment of Species, Subspecies, and Distinct Populations of Birds of Immediate Conservation Concern in California* (Shuford and Gardali 2008);
- CDFW *List of Vegetation Alliances and Associations* (CDFW 2010);
- A Manual of California Vegetation, Second Edition (Sawyer 2009);
- CDFW publication "California's Wildlife, Volumes I-III" (Zeiner et al. 1990); and
- Western Bat Working Group (WBWG) species accounts (2017).

A variety of additional literature containing biological and distributional information for individual special-status wildlife species is cited in subsequent sections.

Habitat conditions observed in the Survey Area were used to evaluate the potential for presence of special-status species based on available forage and shelter, microclimate, vegetative communities, soil affinity, associated species, topographic position, shade tolerance, disturbance tolerance, population distribution, and other factors to determine the potential for these species to occur in the Survey Area (Appendix D and Appendix E). The potential for each special-status species to occur in the Survey Area was then evaluated according to the following criteria:

1) No Potential. Habitat on and adjacent to the Survey Area is clearly unsuitable for the species requirement (foraging, breeding, cover, substrate, elevation, hydrology, plant community, site history, disturbance regime).
2) Low Potential. Few of the habitat components meeting the species requirements are present, and/or the majority of habitat on and adjacent to the Survey Area is unsuitable or of very poor quality. The species is not likely to be found within the Survey Area.
3) Moderate Potential. Some of the habitat components meeting the species requirements are present, and/or only some of the habitat on or adjacent to the Survey Area is unsuitable. The species has a moderate probability of being found within the Survey Area.
4) High Potential. All of the habitat components meeting the species requirements are present and/or most of the habitat on or adjacent to the Survey Area is highly suitable. The species has a high probability of being found within the Survey Area.
5) Present. Species is observed within the Survey Area or has been recorded (i.e., CNDDB, other reports) in the Survey Area recently.

The site assessment was intended to identify the presence or absence of suitable habitat for each special-status species known to occur in the vicinity to determine its potential to occur within the Survey Area. The survey was done outside the ideal survey times for many of the species, so

the presence of habitat, experience of biologists, and the proximity of known occurrences was used to determine the potential for occurrence of the species.

3.2 Field Mapping Methods

Prior to all field studies, WRA generated field maps at a scale sufficient to navigate through the Survey Area and identify and note distinct features (e.g., vegetation changes, individual trees, rock outcrops). Field maps utilized recent aerial photographs, along with topography data for the Survey Area. Field maps were also utilized for hand drawing larger-scale features, such as distinct biological communities or widespread invasive plant species infestations. Data collected in the field was used to produce illustrations of biological resources within the Survey Area. Areas outside of the property boundary were not mapped.

Biological communities were identified in the field and divided into aquatic environments (e.g., disturbed riparian) and terrestrial communities (e.g., California buckwheat scrub, Fremont cottonwood forest). Vegetation communities were classified based on existing descriptions refined to the vegetation alliance or vegetation association levels using *Vegetation Classification Manual for Western San Diego County* (Sproul et al. 2011) and *A Manual of California Vegetation Second Edition* (Sawyer et al. 2009). However, in some cases it was necessary to identify variants of vegetation alliances and un-described associations depending on the dominant species present.

4.0 RESULTS

4.1 Soils

The soil survey of San Diego County (USDA 1973) indicates that the Survey Area contains four soil types within four USDA soil series: Grangeville fine sandy loam (GoA), 0 to 2 percent slopes; riverwash (Rm); Ramona sandy loam (RaC), 5 to 9 percent slopes; Tujunga sand, 0 to 5 percent slopes (TuB). These soil phases are described further, below.

Grangeville fine sandy loam, 0 to 2 percent slopes: This soil series consists of coarse-loamy soils formed in moderately coarse textured alluvium, primarily from granitic rock sources. Grangeville soils can be found on alluvial fans and floodplains with slopes from 0 to 2 percent. This soil series is somewhat poorly drained with negligible to very low runoff and moderately rapid to moderate permeability in saline-sodic phases. Historically, Grangeville soils were occasionally flooded, but stream control measures have altered this hydrologic functionality. These soils are intensively used in the production of alfalfa, grapes, cotton, truck crops, and irrigated pasture. Additionally, urbanization has taken place in some areas. Natural vegetation includes annual grasses and forbs with native (sodic) alkali-tolerant plants and a few scattered oak (*Quercus* spp.) or cottonwood (*Populus* spp.) trees (USDA 1973, CSRL 2013). This soil is considered to be hydric and occurs in alluvial fans (USDA 2012).

Riverwash: This series consists of excessively drained, rapidly permeable sandy, gravelly, or cobbley alluvium derived from mixed sources. Riverwash is considered to be hydric and occurs along riparian corridors. Although this soil series contains many barren areas, sparse patches of shrubs and forbs can also be found growing in this series and scattered sycamores and oaks can be found growing along the banks (USDA 1973, CSRL 2013). Riverwash is considered to be hydric and is found in drainage-ways (USDA 2012).

Tujunga sand, 0 to 5 percent slopes: This soil series consists of very deep soils found on alluvial fans and flood plains with 0 to 9 percent slopes. This soil is formed in alluvium weathered mostly from granitic rocks. Tujunga soils are somewhat excessively drained with negligible or very low runoff and rapid permeability. In some areas, flooding can be frequent. These soils are generally used for grazing with some citrus, grape, and other fruit production. Natural vegetation includes shrubs, annual grasses, and forbs (USDA 1973, CSRL 2013). This soil is considered to be hydric and occurs in drainage-ways (USDA 2012).

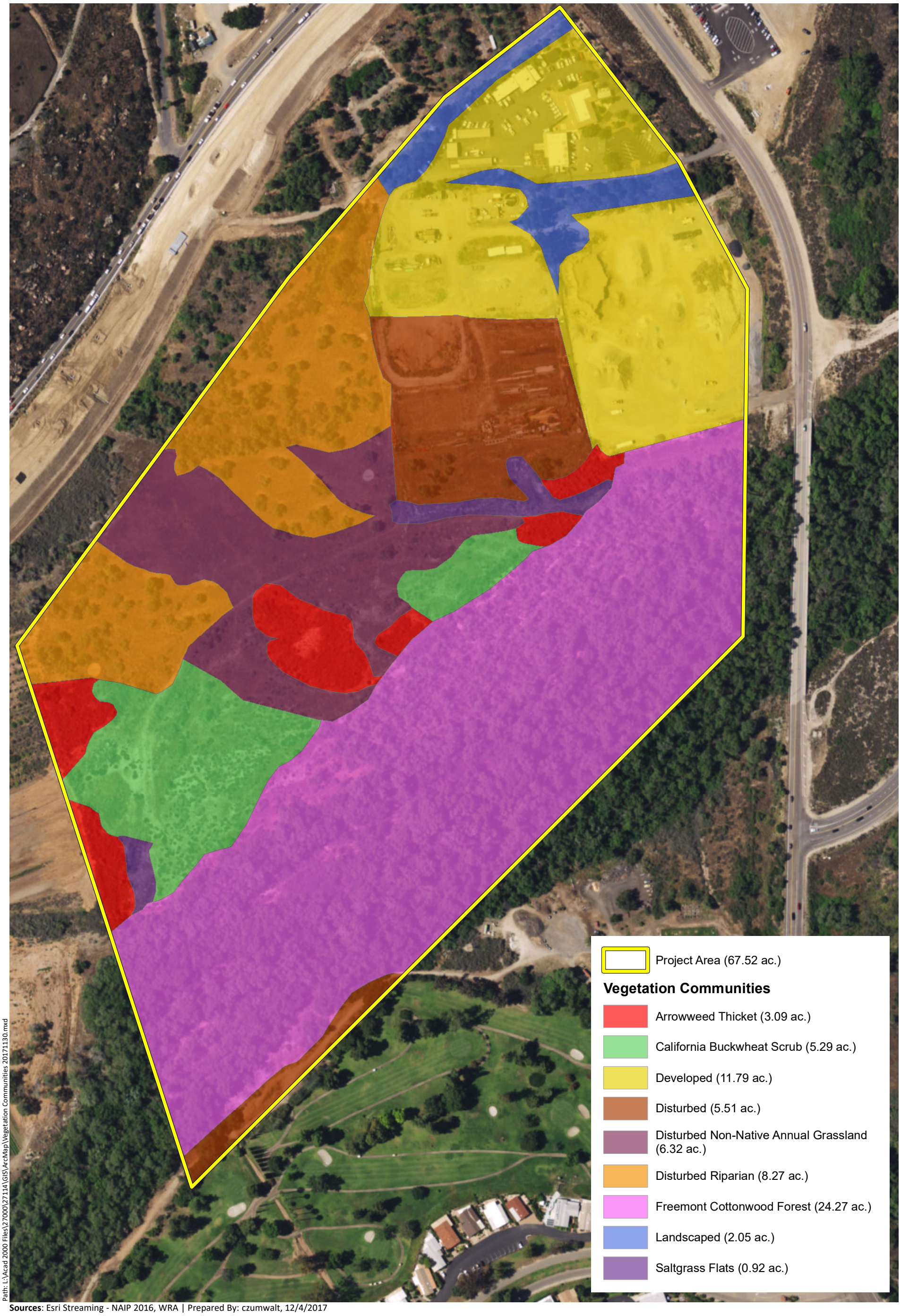
Ramona sandy loam, 5 to 9 percent slopes: This series consists of brown fine loamy soils formed from alluvium derived mostly from granitic and related rock sources. These soils can be found on terraces and fans at elevations of 250 to 3,500 feet. Ramona soils are well drained with slow to rapid runoff and moderately slow permeability. These soils are primarily used for production of grain, grain-hay, pasture, irrigated citrus, olives, truck crops, and deciduous fruits. Natural vegetation includes annual grasses, forbs, chamise, or chaparral (USDA 1973, CSRL 2013). This soil is not considered to be hydric (USDA 2012).

4.2 Habitat Types/Vegetation

There are three general biological communities within the Survey Area: woodlands, scrublands, and grasslands/herbaceous communities. These biological communities are comprised of six vegetation alliances. Of these six alliances, four are considered sensitive, while two alliances are not considered sensitive. The biological communities and vegetation alliances are described below, summarized in Table 1, and illustrated in Appendix A.

Table 2. Biological Communities Present Within the Study Area

Biological Community	Acres
Arrow weed thicket	3.09
Disturbed riparian	8.27
California buckwheat scrub	5.29
Fremont cottonwood forest	24.27
Saltgrass flats	0.92
Disturbed non-native annual grassland	6.32
Landscaped	2.05
Disturbed	5.51
Developed	11.79
TOTAL	67.52



Sources: Esri Streaming - NAIP 2016, WRA | Prepared By: czumwalt, 12/4/2017

Figure 3. Vegetation Communities within Study Area

Rainbow Mitigation Areas
San Diego County, California

0 200 400 Feet

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4.2.1 Woodlands

Fremont cottonwood forest (*Populus fremontii* Forest Alliance)
CDFW Ranking: G4 S3.2
MSCP Ranking: Tier I (sensitive)

Fremont cottonwood forests occur in floodplains, along low-gradient rivers, perennial or seasonally intermittent streams, springs, and in lower canyons in desert mountains, alluvial fans, and valleys with a dependable sub-surface water supply, which may vary considerably during the year (Sawyer et al. 2009). Fremont cottonwood forests occupied 24.27 acres in the Survey Area and contained one vegetation association: Fremont cottonwood – black willow/mulefat Association.

Photograph 1: *Populus fremontii* Forest Alliance.

Fremont Cottonwood – Black Willow/ Mulefat Association contained greater than 30 percent relative cover of Fremont cottonwood and less than 50 percent, but greater than 25 percent, relative cover of black willow, with a mulefat understory. This association was found along the San Luis Rey River floodplain in the southern section of the Survey Area. Associated species included poison oak (*Toxicodendron diversilobum*), arroyo willow (*Salix lasiolepis*), red willow (*Salix laevigata*), tamarisk (*Tamarix* sp.), salt heliotrope (*Heliotropium curassavicum*), and other hydrophytic plants. This vegetation community is a subset of riparian forest habitat, which is a Tier I community per the MSCP and would therefore be considered sensitive.

4.2.2 Scrublands

Arrow weed thickets (*Pluchea sericea* Shrubland Alliance),
CDFW Ranking: G3 S3.3
MSCP Ranking: Tier I (sensitive)

Arrow weed is a facultative wetland plant that readily colonizes open, damp areas with a high water table forming dense, narrow thickets (Sawyer et al. 2009). In the Survey Area, this vegetation alliance occupies approximately 3.09 acres. One association was found within this alliance: Arrow weed thickets.

Photograph 2: *Pluchea sericea* Shrubland Alliance.

Arrow weed thickets were locally dense and scattered over the Survey Area. The scattered thickets were dominated by arrow weed (>75% cover) with one patch near the riparian zone partially grown over with wild grape (*Vitis californica*). The other thickets had no other co-dominant species. This vegetation community is a subset of riparian scrub habitat, which is a Tier I community per the MSCP and would therefore be considered sensitive.

Disturbed riparian (various Shrubland Alliances)
CDFW Ranking: No Rank
MSCP Ranking: Tier I (sensitive)

Photograph 3: Disturbed riparian habitat.

Disturbed riparian habitat is in the northern and western section of the Project Area. This community is dominated by non-native and native successional species. In the Project Area, this alliance occupies approximately 8.27 acres. Blue elderberry is a common dominant shrub within the disturbed riparian area. It is an erect, woody shrub growing to 8m is height. The fruit produced by the plant are an important food source for birds and small mammals when they ripen in the late summer and early fall. Emergent coast live oak (*Quercus agrifolia*) and arroyo willow are present but rare through the alliance and Peruvian pepper tree (*Schinus molle*) are present at low cover in the northernmost section of the alliance. The sub-canopy is inhabited by tamarisk (*Tamarix* sp.), mulefat (*Baccharis salicifolia*), castor bean (*Ricinus communis*), and poison hemlock (*Conium maculatum*) in the far northern portion of the Survey Area with northern and western patches also containing poison oak. Herbaceous cover is dominated by shortpod mustard (*Hirschfeldia incana*) throughout the alliance. This vegetation community is a subset of riparian scrub habitat, which is a Tier I community per the MSCP and would therefore be considered sensitive.

California buckwheat scrub (*Eriogonum fasciculatum* Shrubland Alliance)
CDFW Ranking: G5 S5
MSCP Ranking: Tier II (sensitive)

Photograph 4: *Eriogonum fasciculatum* Shrubland Alliance.

California buckwheat scrub stands grow within chaparral and sage scrub habitat. It is often one of the first coastal scrub alliances to colonize recently disturbed or grazed areas and does well in shallow soil or rocky terrain. In the Survey Area, this vegetation alliance occupies approximately 5.29 acres. One association was found within this alliance: *California buckwheat scrub*.

California buckwheat scrub is located in the southwestern and central portion of the Survey Area, due north of the riparian corridor of the San Luis Rey River. The scrub was dominated by California buckwheat scrub cover (>50% cover) with Menzies' goldenbush (*Isocoma menziesii*) providing some subdominant cover. Herbaceous cover consisted of salt grass (*Distichlis spicata*) and Davidson's buckwheat (*Eriogonum davidsonii*). Bare sandy areas were interspersed with vegetative cover giving the community a patchwork appearance. The central California buckwheat scrub area had coastal prickly pear (*Opuntia littoralis*) at low cover (<5%). In addition, the western portion of the Survey

Area had California croton (*Croton californicus*) as a subdominant shrub cover. This westernmost California buckwheat scrub community was within a sandy depression with debris from previous work in the area dumped near the edges. This area includes tree tobacco (*Nicotiana glauca*) at low cover in the shrub layer and Davidson's buckwheat, salt grass, and non-native grasses in the herbaceous layer. Sandy trails are still apparent through the area from previous disturbance. This community would be considered a subset of coastal sage scrub, which is a Tier II community per the MSCP, and would therefore be considered sensitive.

4.2.3 Grasslands/Herbaceous

Salt grass flats (*Distichlis spicata* Alliance)
CDFW Ranking: G5 S4
MSCP Ranking: Tier I (sensitive)

Salt grass flats are commonly found in alkaline or saline environments from the coast (salt marshes) to inland areas associated with intermittently flooded areas, such as playas and riverine terraces. In the Survey Area, approximately 0.92 acres is covered by this vegetation alliance.

Photograph 5: *Distichlis spicata* Alliance.

Salt grass flats are located in the southwestern portion of the Survey Area, due north of the riparian area between the arrow weed thicket and California buckwheat scrub communities, and in the central-eastern portion of the Survey Area between the disturbed lot and riparian corridor. The southwestern area is dominated by low-lying salt grass patches, interspersed with sandy areas. Scattered telegraphweed (*Heterotheca grandiflora*) is also found in this area at low relative cover (<5%). The central-eastern salt grass flat shows a similar ground cover (salt grass interspersed with sandy areas) while San Diego milk aster (*Stephanomeria diegensis*) provides low, emergent shrub cover. This community would be considered a subset of native grassland, which is a Tier I community per the MSCP, and would therefore be considered sensitive.

Disturbed Non-native Annual Grassland (various Herbaceous Alliances)
CDFW: No Rank
MSCP: Tier III

Annual grasslands are located throughout California, particularly in areas where perennial grasslands historically ranged. This community is dominated by herbaceous species adapted to disturbance (Holland 1986; Sawyer et al. 2009). In the Survey Area, this community occupied approximately 6.32 acres and intergrades with blue elderberry stands. Very little bare ground is present in these disturbed grasslands. Herbaceous cover is dominated by ripgut brome (*Bromus*

Photograph 6: Disturbed non-native annual grassland.

diandrus) and telegraph weed. This community is considered a subset of non-native grassland, which is a Tier III community per the MSCP, and while not sensitive, does require mitigation.

4.2.4 Other

Developed areas
CDFW Ranking: No Rank
MSCP Ranking: Tier IV.

The northern portion of the Survey Area holds the RMWD administration buildings, maintenance areas, and paved parking lots. The buildings and lots have no vegetative cover outside of maintained planter beds and other, small landscaped areas, which were not mapped for this assessment. The eastern portion of the developed area is a sand quarry with heavy ground disturbance. The developed areas cover approximately 11.79 acres. This community is considered disturbed lands by the MSCP, a Tier IV community, and is therefore not regulated.

Photograph 7: Disturbed dirt lot area.

Disturbed areas. Disturbed dirt lot areas that are used to store fill and/or equipment are south of the main developed areas that house the RMWD administration buildings. The disturbed dirt lot areas had a variety of non-native vegetative cover including short podded mustard, tree tobacco, white horehound (*Marrubium vulgare*), castor bean (*Ricinus communis*), flax-leaved horseweed (*Erigeron bonariensis*), and foxtail brome (*Bromus madritensis*). The disturbed areas covered approximately 5.51 acres. This community is considered disturbed lands by the MSCP, a Tier IV community, and is therefore not regulated.

Landscaped areas. The northern border of the Survey Area and the hillside between the paved parking lot and disturbed dirt lot area contain landscaped vegetation. This area occupies approximately 2.05 acres. Dominant tree cover is provided by gum trees (*Eucalyptus* sp.) and Peruvian pepper trees. Other, unidentified ornamental trees also occur in these landscaped areas. This community would be considered a subset of Eucalyptus woodland, which is a Tier IV community per the MSCP, and is therefore not regulated.

Photograph 8: Landscaped areas between developed areas to the left and right.

4.3 Flora

A total of 57 plant species were observed during the survey by WRA biologists. Of the 56 species, 30 species are herbs (vines, ferns, forbs, and graminoids), 16 species are shrubs, and 11 species are trees. Thirty-three of these species are native. Of the remaining 24 species, 20 species are identified as non-native. Of the 20 non-native species 14 species are considered invasive, including three classified as "high," seven classified as "moderate," three classified as "limited," and one classified as "watch" in terms of their ecological impact by the California Invasive Plant Council (Cal-IPC 2006). The remaining six non-native species are not assessed. The nativity of four species cannot be determined, due to phenology at the time of the site visits. Non-native vegetation is more abundant in the northern portion of the Survey Area, near the disturbance and development. Non-native grasslands dominate the western portion of the Survey Area and native vegetation cover increases towards the riparian areas near the San Luis Rey River in the south. A complete species list can be seen in Appendix F.

4.4 Fauna

The Survey Area has the potential to support a wide variety of wildlife species relative to its surroundings. Perennial or near-perennial streams, riparian habitats, and other aquatic habitats, such as those within the Survey Area, are uncommon in arid landscapes and can be used by many different species of wildlife. Riparian and aquatic habitats may support a number of uncommon species specially adapted to such habitats, and all types of terrestrial wildlife may utilize these areas at different times to gain access to drinking water, forage, breed, seek cover, or migrate. The riparian habitat may be used as a movement corridor by numerous species. These movement corridors may cause species to move through the Survey Area, which would otherwise be unlikely to occur there.

A total of 23 wildlife species or their sign were observed within the Survey Area, including 19 avian, one reptilian, and four mammalian species (mammal presence was determined through observations of tracks, scat, and other indications, although exact species could not be confirmed in every case). All were relatively widespread species found in southern California. These included common songbirds such as house finch, house sparrow, black phoebe and California towhee; scrubland birds such as California scrub jay, California quail, and California thrasher; and common raptors such as red-tailed hawk. While a modest number of species were observed in the Survey Area during the site visits, it is likely that more species utilize the site at different times, particularly in riparian habitats. Only a small number of mammalian species are typically observed during brief daytime surveys, but a diversity of nocturnal, fossorial, and other species may also be present. For example, rodent-sized mammal burrows were observed in several parts of the Survey Area; however, there were few or no signs of recent use and no unique features suitable to attribute the burrows to a particular species.

4.5 Sensitive Plant Species

A background information search was conducted to identify potential special-status plant species that may occur in the Study Area. Sources for this search included USFWS Species Lists (2017), CNDDB (CDFW 2017) records, and the CNPS Electronic Inventory of Rare and Endangered Vascular Plants of California (2017) for searches of the Bonsall and Pala USGS 7.5-minute quadrangles. Of the fourteen special-status plant species that have been recorded within the greater vicinity of the Study Area, one was determined to have a high potential to occur. Figure 4 illustrates the locations of special-status plant species near the Study Area as documented in the CNDDB (CDFW 2017), and Appendix D summarizes the potential for each of these species to occur. Those species with an ESA or CESA listing or determined to have moderate to high potential to occur within the Study Area are discussed in detail in Appendix B.

Rare plant surveys were not conducted, as it is not the blooming period for these species (May through August). Special-status plant species that are Federal- or State-listed or have a moderate to high potential to occur in the Study Area, based on the background search listed above, are discussed below. No special-status plant species have been documented in the Study Area (CNDDB, 2017).

Path: L:\Acad 2000 Files\27000\27114\GIS\ArcMap\CNDDB Plants.mxd

Sources: National Geographic, CNDDB August 2017, WRA | Prepared By: pkobylarz, 11/15/2017

Figure 4. Special-Status Plant Species Within 2.5 miles of the Study Area

Rainbow Mitigation Areas
San Diego County, California

0 1 2 Miles

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4.6 Sensitive Wildlife Species

A total of 30 special-status wildlife species were assessed for their potential to occur within the Survey Area, based on occurrence records, range maps, habitat requirements and on-site observations. Appendix E summarizes the potential for each of these species to occur within the Survey Area. One of these species was determined to be present within the Survey Area, which is a CDFW Species of Special Concern and MSCP Species. Twenty special-status species were determined to have a moderate or high potential for occurrence, including four ESA- or CESA-listed species. Special-status species occurrence data as reported in the CNDDB (CDFW 2017) are depicted in Figure 5. Those species with an ESA or CESA listing or determined to have moderate to high potential to occur within the Study Area are discussed in detail in Appendix C.

The southern portion of the Survey Area is a relatively undeveloped Freemont cottonwood forest and is used by both native and migratory birds. Appendix E provides a table of all special-status wildlife species documented within the two USGS 7.5 minute quadrangles, with habitat preferences and brief analysis of likelihood of occurrence within the Survey Area. Appendix F lists the wildlife observed during field surveys.

Birds

Six-hundred and eleven species of bird have been documented in San Diego County (SDNHM 2014). While these migratory birds may not nest in the area, they still rely on stop over locations to feed and rest during their migration. A full treatment of all special-status bird species that have been documented within the two USGS 7.5 minute quadrangles is provided in Appendix E. These include the Bell's sage sparrow (*Artemisiospiza belli belli*), coastal cactus wren (*Campylorhynchus brunneicapillus couesi*), coastal California gnatcatcher (*Polioptila californica californica*), Cooper's hawk (*Accipiter cooperii*), Golden eagle (*Aquila chrysaetos*), Least Bell's vireo (*Vireo bellii pusillus*), least bittern (*Ixobrychus exilis*), southern California rufous-crowned sparrow (*Aimophila ruficeps canescens*), southwestern willow flycatcher (*Empidonax traillii extimus*), Swainson's hawk (*Buteo swainsoni*), Tricolored blackbird (*Agelaius tricolor*), western yellow-billed cuckoo (*Coccyzus americanus occidentalis*), white-faced ibis (*Plegadis chihi*), yellow warbler (*Setophaga petechia*), and yellow-breasted chat (*Icteria virens*).

Mammals

Seventy-five species of mammals have been documented in San Diego County (SDNHM 2014), three of which are listed as Threatened or Endangered under the Federal Endangered Species Act. However, only one Federal-listed mammal has been documented within the same USGS 7.5 minute quadrangles as the Survey Area, the Stephens' kangaroo rat (*Dipodomys stephensi*). This species has a low potential to occur within the Survey Area; a full treatment of this species is provided below. A full treatment of all special-status mammal species that have been documented within the two USGS 7.5 minute quadrangles is provided in Appendix E. These include Dulzura pocket mouse (*Chaetodipus californicus femoralis*), hoary bat (*Lasiurus cinereus*), northwestern San Diego pocket mouse (*Chaetodipus fallax fallax*), pallid bat (*Antrozous pallidus*), San Diego desert woodrat (*Neotoma lepida intermedia*), and western mastiff bat (*Eumops perotis californicus*).

Reptiles and Amphibians

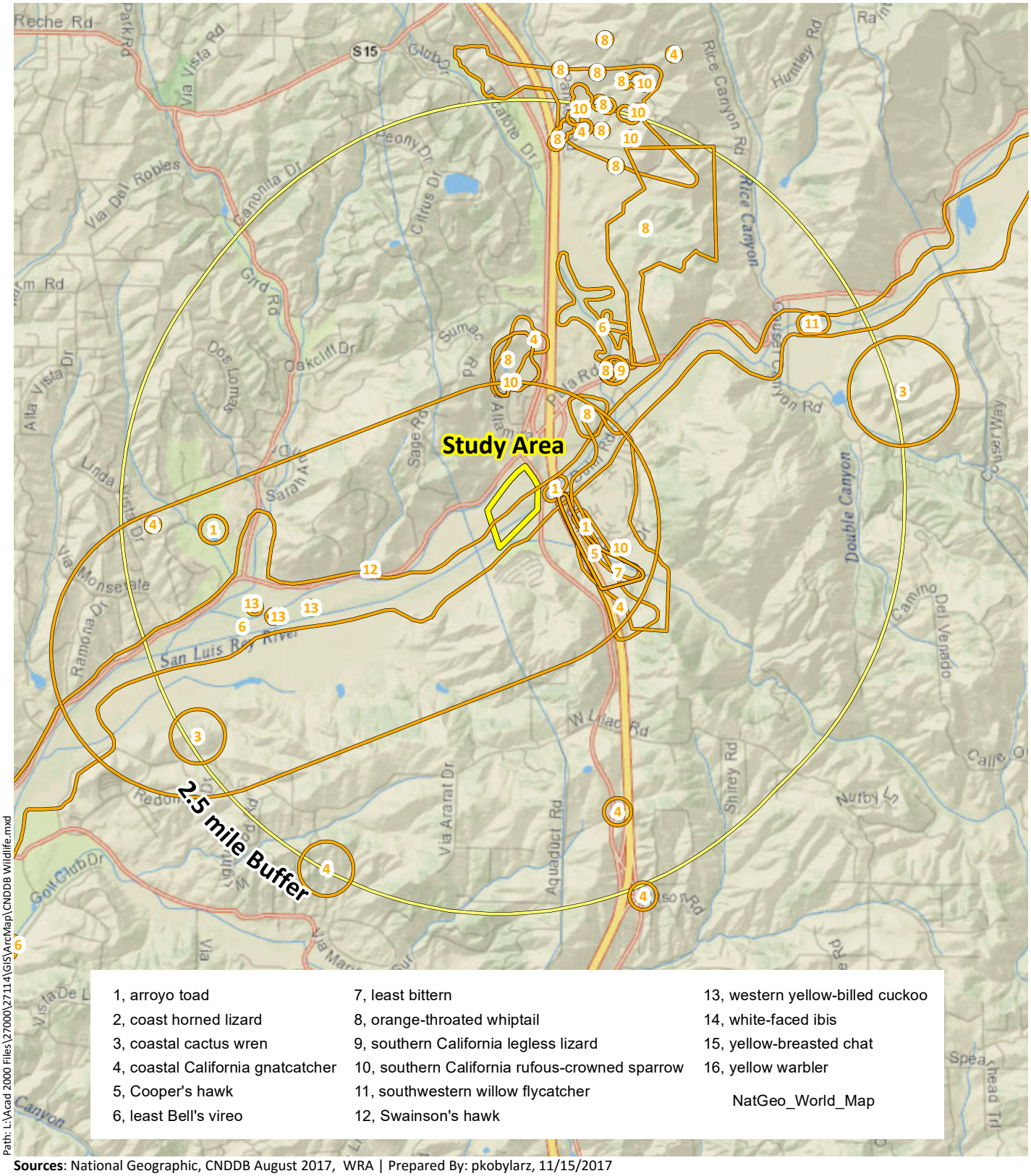
Eighty species of reptiles and amphibians have been documented in San Diego County (SDNHM 2014). However, only one Federal-listed species has been documented within the same USGS 7.5 minute quadrangles as the Survey Area, the arroyo toad (*Anaxyrus (=Bufo) californicus*).

Arroyo toads have a high potential to occur in the San Luis Rey River and associated floodplain, which is discussed in detail in Appendix C.

A full treatment of all special-status reptile and amphibian species that have been documented within the two USGS 7.5 minute quadrangles is provided in Appendix E. These include California glossy snake (*Arizona elegans occidentalis*), coast horned lizard (*Phrynosoma blainvillii*), coastal whiptail (*Aspidoscelis tigris stejnegeri*), Coronado skink (*Plestiodon (=Eumeces) skiltonianus interparietalis*), orange-throated whiptail (*Aspidoscelis hyperythra*), Red-diamond rattlesnake (*Crotalus ruber*), and Southern California legless lizard (*Anniella stebbinsi*).

Invertebrates

One-hundred and forty-nine species of butterfly have been recorded in San Diego County (SDNHM 2014), along with a large diversity of other invertebrate species. No Federal-listed invertebrates have been documented previously in the two 7.5 minute USGS quadrangles of the Survey Area. In addition, no special-status invertebrates are found within the two 7.5 minute USGS quadrangles of the Survey Area.



Sources: National Geographic, CNDDB August 2017, WRA | Prepared By: pkobylarz, 11/15/2017

Figure 5. Special-Status Wildlife Species Within 2.5 miles of the Study Area

Rainbow Mitigation Areas
San Diego County, California

0 1 2 Miles

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5.0 DISCUSSION

Potential Wetlands

The Survey Area includes both the San Luis Rey River and its associated floodplain. The San Luis Rey River has a total drainage of 560 square miles and is a perennial riverine wetland (USFWS-NWI 2017). The riparian corridor bordering the river is between approximately 175 and 200m in width through the Survey Area. Several river terraces were observed during the site visit within the riparian corridor. Some vegetative communities outside of the riparian corridor had species that are associated with wetland habitat including arrow weed, mulefat, and arroyo willow. In total, there is a high potential to have jurisdictional wetlands under Section 401 and 404 of the Clean Water Act and Section 1600 of the California Fish and Game Code within the Survey Area. It is recommended that a wetland delineation be conducted in order to map the extent of possible jurisdictional wetlands within the Survey Area.

Mitigation Potential

Areas with mitigation potential include the Fremont cottonwood forest (24.27 acres), disturbed riparian (8.27 acres), disturbed non-native annual grassland (6.32 acres), and the California buckwheat scrub within the sandy depression in the southwest portion of the Survey Area (approximately 2 acres). These areas would need invasive species removal, revegetation, or a combination of the two activities in order to maximize their mitigation potential. Additionally all areas mapped as disturbed have mitigation potential.

The Fremont cottonwood forest has abundant native vegetation present but could use habitat enhancement. The Fremont cottonwood forest has a dominant cottonwood and willow canopy with scattered invasives in the sub-canopy and herbaceous layer. Tamarisk and giant reed are present in this habitat and would be two species to prioritize for removal within this area in order to maximize the habitat value of the riparian woodland.

The California buckwheat scrub within the sandy depression is a good area for habitat enhancement. The area could be enhanced by removal of the trash and debris from the area and removal of non-native grasses and shrubs, namely tree tobacco, non-native mustards, and non-native grasses. Potential revegetation of the area would be composed of upland species such as those found in coastal sage scrub habitat such as coastal sagebrush, goldenbush, and buckwheat.

The disturbed riparian areas have high potential as mitigation areas as at least two deep-rooted native species was already observed in the area (arroyo willow and coast live oak). Removal of extensive non-native vegetation will be necessary, especially castor bean and poison hemlock that are prevalent in the area. Potential planting in the area could include Fremont cottonwood, western sycamore, native willows, and mulefat to provide a more open cover riparian habitat in comparison to the riparian corridor to the south.

The disturbed areas and non-native annual grassland also provides potential for revegetation. Non-native grass and herb removal will be necessary. Revegetation of the area could include a combination of upland and transitional riparian habitat to maintain habitat connectivity with both proposed revegetated areas and current vegetated areas.

Development Potential

Areas with development potential include the mapped developed and disturbed areas directly south of the main RMWD office location. The bulk of these lands fall outside the PAMA and within areas designated as “developed” by the North County MSCP. The northern half of APN 1250903500 falls within both developed and Natural Upland Habitat within PAMA, however the land falling within the PAMA was mapped as developed during the site visit due to its observed status as a dirt lot. Potential development of these areas would minimize or avoid potential impacts to land designated within the PAMA and additionally follow the Project Design Criteria set forth in Section 7.2 of the North County MSCP by developing in previously disturbed habitat. PAMAs are typically limited to 25 percent of the area for development. Given the high potential for jurisdictional water, the presence of critical habitat and the potential for listed species development of the site while not impossible will be a permitting challenge and require extensive studies, mitigation, and agency permitting/planning to develop areas outside of the existing disturbed and developed areas.

The North County MSCP designates the majority of land in the approximately 67.5 acre Survey Area as “Riparian/Wetland Habitat within PAMA” or Riparian/Wetland Transition Zone within PAMA. These areas would be subject to a 3:1 mitigation ratio as set forth by the San Diego County Resource Protection Ordinance (RPO). The remaining lands within the Survey Area are designated as “Natural Upland Habitats within PAMA” per the MSCP and were not mapped as disturbed during vegetation community mapping. These areas have potential for development but require mitigation for unavoidable impacts to the natural habitat and are subject to specific criteria in order to meet the goals of the North County MSCP preserve system. There is potential for a small development to self-mitigate within the property area, but the permitting challenges will be significant. Given the location and the number of resources potentially within the southern and western portions of the properties, any potential development should be within the previously disturbed areas to the north and east.

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APPENDIX A

DESCRIPTION OF FEDERAL- AND STATE-LISTED AND OTHER SPECIAL-STATUS PLANT SPECIES

FEDERAL-LISTED SPECIES

San Diego ambrosia (*Ambrosia pumila*)
Federal Endangered Species
MSCP Species – Narrow Endemic
CNPS Rank 1B.1

San Diego ambrosia is a perennial rhizomatous herb in the sunflower family (Asteraceae), native to California and Baja California, where it is found predominantly along upper terraces of rivers and drainages within chaparral, coastal scrub, valley and foothill grassland habitats, and also in vernal pools (CNPS 2017, USFWS 2010a). It is threatened by development, vehicles, road maintenance activities, and foot traffic. Non-native plants are also a primary conservation threat, as many of them outcompete the San Diego ambrosia (USFWS 2010a). The Survey Area does contain potential habitat, as the Survey Area contains disturbed, loamy soils near the saltgrass flats and riparian corridors. Therefore, this species has a moderate potential to occur in the Survey Area.

Thread-leaved brodiaea (*Brodiaea filifolia*)
Federal Threatened Species
State Endangered Species
MSCP Species – Narrow Endemic
CNPS Rank 1B.1

Thread-leaved Brodiaea is a perennial bulbiferous herb in the Brodiaea family (Themidaceae). This species is usually found in gabbro chaparral at an elevation of 82 feet to 3,674 feet. This species can also occur in cismontane woodland, coastal scrub, playas, valley and foothill grassland, vernal pools, and openings in chaparral. Thread-leaved Brodiaea blooms from March to June and grows in clay soils. The Survey Area does not contain the clay soils necessary for thread-leaved Brodiaea to grow on-site. Therefore, there is a no potential for the species to occur in the Survey Area.

HIGH POTENTIAL

Smooth tarplant (*Centromadia pungens* ssp. *laevis*)
CNPS Rank 1B.1

Smooth tarplant is an annual herb in the sunflower family (Asteraceae). The species occurs in valley and foothill grassland, chenopod scrub, meadows and seeps, playas, riparian woodland, alkali meadow, and alkali scrub. The species is also observed growing in disturbed areas at an elevation of 16 feet to 3839 feet, and blooms from April to September. As the underlying soils within the Survey Area are alkaline to strongly alkaline, the soils within the Survey Area could support the species. In addition, there is suitable disturbed and riparian habitat within the Survey Area. Therefore, there is a high potential for the species to occur in the Survey Area.

Robinson's pepper-grass (*Lepidium virginicum* var. *robinsonii*)
CNPS Rank 4.3

Robinson's pepper-grass is an annual herb in the mustard family (Brassicaceae). The species occurs in chaparral and coastal scrub habitat, often in disturbed areas such as riverbanks and meadows. The species occurs from 0-2900 feet and blooms from January to July. Suitable

habitat is present within the Survey Area to support the species and unidentified *Lepidium* were present within the Survey Area. Therefore, there is a high potential for the species to occur in the Survey Area.

MODERATE POTENTIAL

Payson's jewelflower (*Caulanthus simulans*)
CNPS Rank 4.2

Payson's jewelflower is an annual herb in the mustard family (Brassicaceae) and occurs in chaparral and coastal scrub. Frequently, this species is observed in burned areas, or in disturbed sites, such as streambeds. Payson's jewelflower also occurs on rocky, steep slopes and grows in sandy, granitic soils, blooming from February to June. Although the associated communities are not present in the Survey Area, this species is often found in disturbed areas, including streambeds, which occur within the Survey Area. Additionally, the Survey Area is underlain by sandy, granitic soils. Therefore, there is a moderate potential for the species to occur in the Survey Area.

APPENDIX B

DESCRIPTION OF FEDERAL- AND STATE-LISTED AND OTHER SPECIAL-STATUS WILDLIFE SPECIES

FEDERAL-LISTED SPECIES

Arroyo toad (*Anaxyrus californicus*)
Federal Endangered Species
CDFW Species of Special Concern
MSCP Species

Arroyo toads are found in washes, streams, arroyos, rivers with shallow gravelly pools, and their adjacent uplands. Adjacent upland habitats consist of sandy banks or terraces in riparian woodlands, where adults burrow into the soil for shelter. Eggs are laid in shallow, quiet streams or ponds with little to no emergent vegetation. The species breeds from March to early June, with metamorphosis occurring in June or July. Newly metamorphosed young remain near pools for several weeks, usually until the pools dry. Adults may migrate locally but are most often found within approximately 0.3 miles of the streams they breed in, though individuals have been observed as far as approximately 1.2 miles away. Adults aestivate seasonally and are nocturnal, except for during the breeding season. Immature arroyo toads are presumed to eat algae, organic debris, and plant tissue, while adults are insectivores, consuming primarily snails, beetles, and ants.

The arroyo toad historically ranged from San Luis Obispo County, California, to northwestern Baja California, Mexico. Today, it is believed to be extirpated from San Luis Obispo County, but to persist in northwestern Baja California and in Santa Barbara, Ventura, Los Angeles, and San Diego Counties. Within San Diego County, the arroyo toad occurs along the Santa Margarita, Guejito, Sweetwater, Vallecito, San Luis Rey, Santa Ysabel, Witch, Cottonwood, Temescal, Agua Caliente, Santa Maria, Lusardi, Pine Valley, Noble, Kitchen, Long Potrero, Upper San Diego, San Vicente, and Morena drainages; populations in the Temescal, Agua Caliente, Pine Valley, and Cottonwood drainages may be considered viable (USFWS 1994).

Development and alteration of streamside flats may have been the primary cause of the decline of the arroyo toad population. Additional human disturbances include excessive human camping, manipulation of hydrologic regime, urban development, placer mining, off-road vehicle use, introduction of exotic predators, and cattle grazing. Natural disturbances, such as fires and droughts, pose a threat, as well (Jennings and Hayes 1994).

The San Luis Rey River and associated floodplain contain almost all habitat requirements for the species, which is within the Survey Area. Therefore, this species has a high potential to occur in the Survey Area.

Coastal California gnatcatcher (*Polioptila californica californica*)
Federal Threatened Species
CDFW Species of Special Concern
MSCP Species

The coastal California gnatcatcher has a limited range within the United States. This subspecies is restricted to coastal southern California and northwestern Baja California, Mexico, from Ventura and San Bernardino Counties, California, south to approximately El Rosario, Mexico (American Ornithologists' Union 1957, Atwood 1991, Banks and Gardner 1992, Garrett and Dunn 1981). The subspecies exists predominantly in southern California's coastal sage scrub habitat, with a strong preference towards areas dominated by California sagebrush (Artemisia californica), chaparral broom (Baccharis sarothroides), and flat-top buckwheat (Eriogonum fasciculatum). The majority of plant species found in coastal sage scrub habitat are low-growing, drought-deciduous shrubs and sub-shrubs (USFWS 1997)

Densities are highest along sage scrub-grassland borders or in relatively open sage scrub habitat. Nesting occurs in a variety of host shrub species, with a high depredation rate, which results in frequent replacement clutches throughout the breeding season. The coastal California gnatcatcher is non-migratory (Unitt 2004) and generally avoids crossing even small areas of unsuitable habitat (Atwood 1992). Generally, the species is observed on dry coastal slopes, washes, and mesas, in areas with low plant growth of approximately 1 meter in height (NatureServe 2017g). There is limited sage scrub habitat present within the Survey Area. The species could be present in the vicinity, as there is suitable habitat within a few miles of the Survey Area. Therefore, the coastal California gnatcatcher has a moderate potential to occur within the Survey Area.

Least Bell's vireo (*Vireo bellii pusillus*)
Federal Endangered Species
State Endangered Species
MSCP Species

This subspecies of Bell's vireo is a neotropical migrant and summer resident in California and northern Baja California, wintering in southern Baja California (Brown 1993). This vireo was once common in lowland riparian habitats throughout California, but declined precipitously during the twentieth century (USFWS 1998). By the time of federal listing in 1986, an estimated 300 pairs were restricted to southern California, primarily San Diego County (USFWS 1998). The population has increased since, with the number of nesting territories in California in 2006 estimated to be approximately ten times greater than in 1986 (USFWS 2006). However, the distribution of the vireo at that time remained almost entirely within southern California (USFWS 2006).

Least Bell's vireo breeding habitat consists of riparian vegetation, usually in an early successional state between five and 10 years old (USFWS 1998). Such habitat is preferred by least Bell's vireo, because it provides dense cover in the lower shrub layer for nest concealment, as well as a stratified canopy structure favorable to insect abundance, and thus vireo foraging (USFWS 1998). Riparian habitat types used for breeding include those dominated by willows (*Salix sp.*), Fremont's cottonwood (*Populus fremontii*), and/or oaks (*Quercus sp.*), with a dense understory of species, such as willows, mulefat (*Baccharis salicifolia*), California wild rose (*Rosa californica*), poison oak (*Toxicodendron diversilobum*), and mugwort (*Artemisia douglasiana*) (USFWS 1998). Nests are typically placed within three feet of the ground. Least Bell's vireo may attempt multiple broods during the breeding season from mid-March to late September, although one brood is typical (Brown 1993). Habitats such as chaparral and coastal sage scrub adjacent to riparian areas are used for foraging and even nesting, and thus provide another potentially important habitat component (Kus and Miner 1989). Along with habitat destruction, brood parasitism by the brown-headed cowbird (*Molothrus ater*) is widely considered a major contributor to the decline of least Bell's vireo, and a continuing challenge to its recovery.

The San Luis Rey River goes through the Survey Area and provides suitable willow and mulefat thickets for the species. In addition, the least Bell's vireo has been observed in the vicinity of the Survey Area. Therefore, the least Bell's vireo has a high potential to occur within the Survey Area.

Southwestern willow flycatcher (*Empidonax traillii extimus*)
Federal Endangered
State Endangered
MSCP Species

The southwestern willow flycatcher breeds in the southwestern United States and winters in Central America. On its breeding and wintering grounds, it almost invariably associates with dense, riparian environments, characterized by multi-tiered canopies, lush green foliage, dense understories, surface water, and/or saturated soils, open areas for foraging on a variety of insects, and a mosaic habitat pattern. In migration, the species can occur in a variety of habitats, but tends to prefer wooded and/or shrubby riparian habitats, where food sources are more abundant (Finch and others, 2000). Successful migration requires high energy intake while foraging in unfamiliar areas, all while exposed to an array of predators and other threats. Therefore, migration is the period of highest mortality within the annual cycle of the flycatcher (Paxton and others, 2007). In 2007, the Southwestern willow flycatcher population was estimated at approximately 1,300 territories distributed among approximately 280 breeding sites (Durst and others, 2008a).

Southwestern willow flycatcher are safely separated from other WIFL subspecies only by their breeding territory locations, diagnostic “fitz-bew” calls, and timings of detection. They are part of the Empidonax complex of flycatchers, notoriously difficult to separate from one another during typical field observations. Southwestern willow flycatcher are typically 5.75 inches long with a wingspan of 8-9 inches, weighing about 0.5 ounce. The general appearance of Southwestern willow flycatcher includes a dark olive/brownish-back with two faint whitish wing bars, pale olive/yellowish underside, slightly crested head, whitish throat, yellow lower mandible, faint to absent eye rings, brown eyes and black legs. Songs and calls consist primarily of “fitz-bew”,”britt” and “whit” variations.

Most breeding locations are of monogamous pairs, however, polygyny is also not uncommon. Males typically arrive at breeding locations in mid-May, a week or two ahead of the females to begin defending their preferred breeding territory from other Southwestern willow flycatcher males. The nest is built almost exclusively by the female, usually within a week or two of pair formation. Nest locations are usually in dense areas of vegetation, supported by several smaller twigs in conjunction with larger stems. Nest substrates may include a number of native and non-native shrub, forb, vine, and tree species, provided that the selected site has adequate cover and twig structure. Two to four buffy eggs, lightly marked with brown toward the blunt end, are laid in a cup nest made of plant down and fibers. Once a full clutch is laid, the female incubates the eggs for 12-13 days. Egg-laying occurs primarily from late May through early July, followed by nestling presence until early August. Nestlings remain in the nest for 12-15 days before fledging and then stay with the parents for approximately two weeks post-fledging while being fed by both adults. Most breeding territories will attempt one brood per season, however, double brooding does occur on occasion if sufficient time remains in the breeding season. Adults and juveniles remain in and/or near their nesting territories until they begin their southward migration in late summer/early fall back to Central America.

The San Luis Rey River provides suitable habitat within the Survey Area, as dense willow and mulefat thickets are present. In addition, the species has been observed in the vicinity along the San Luis Rey River. Therefore, the southwestern willow flycatcher has a high potential to occur within the Survey Area.

Stephen's kangaroo rat (*Dipodomys stephensi*)
Federal Endangered Species
State Threatened Species
MSCP Species – Narrow Endemic

Stephen's kangaroo rat occurs in annual grassland and coastal sage scrub habitat, with sparse shrub cover. The species is commonly associated with California buckwheat, chamise, brome grass, and filaree. Typical habitat for the species includes flat or gently rolling terrain, with sparsely vegetated areas and a perennial cover of less than 30 percent. In addition, the species prefers loose, friable, well-drained soil that is generally at least 0.5 meters deep. Stephen's kangaroo rat may recolonize abandoned agricultural land. The species is most abundant where stands of native vegetation remain, but the population size decreases as bunchgrass density increases. Periods of inactivity are spent in underground burrows. Individuals may construct their own burrows, nest in old burrows of the California ground squirrel or in abandoned burrows of pocket gophers. The species is more likely to forage in open, lit spaces.

There is limited suitable habitat containing a few patches of California buckwheat within the Survey Area for Stephen's kangaroo rat. Grassland habitat within the Survey Area contains predominantly non-native grasses, which are unsuitable for the species. Therefore, Stephen's kangaroo rat has a low potential to occur within the Survey Area.

Swainson's hawk (*Buteo swainsoni*)
State Threatened Species
USFWS Bird of Conservation Concern

The Swainson's hawk occurs in savanna, open pine-oak woodland, and cultivated lands with scattered trees. The species tolerates extensive cultivation within the nesting area, though vineyards, orchards, rice, corn, and cotton are not suitable foraging habitat. During migration and winter, the species can be observed in grasslands and other open country, roosting on open ground in very large fields. The species migrates from March to early May in California, with a peak in the first half of April, as well as from September to October. This species migrates in large, often immense, flocks. Swainson's hawks typically nest in a solitary tree, bush, or small grove. Occasionally, the species will choose a rock ledge to nest, but the species readily nests in trees in shelterbelts and similar situations created by humans (NatureServe 2017).

The species could be present in the vicinity, as there are open pastures and fields nearby the Survey Area, which would provide foraging opportunities for the species during migration. Therefore, the Swainson's hawk has a low potential to occur within the Survey Area.

Western yellow-billed cuckoo (*Coccyzus americanus occidentalis*)
Federal Threatened Species
State Endangered Species
USFWS Bird of Conservation Concern

The western yellow-billed cuckoo is a subspecies of a behaviorally unique, primarily insectivorous bird. It is known for its shy, retiring behavior, as well as its unusually rapid breeding cycle that sometimes relies on host species to raise their young or on cooperative breeding with three or four adults tending a single nest. Western yellow-billed cuckoos require large, contiguous patches of multilayered riparian habitat for breeding. A canopy of trees including cottonwood, willow, alder (Alnus sp.), and other riparian woodland species, combined with a dense, woody understory, provides shade and traps moisture to provide cooler and more humid conditions for breeding. In California, this species is most likely to be found in patches of willow-cottonwood riparian forest

greater than 200 acres in size (Halterman et al. 2015). The Western yellow-billed cuckoo nests almost exclusively near water and may be restricted to moist river bottoms because of humidity requirements for breeding (Johnson et al. 2008).

The western population especially has suffered significant range reductions in the twentieth century, primarily due to loss of habitat. Western yellow-billed cuckoos breed in open woodlands and low, but dense, scrubby vegetation, often associated with waterways. Desert riparian woodlands with willows, Fremont cottonwoods, and dense mesquite are the preferred habitat of this species within California. During spring and fall, migration habitats vary and include coastal scrub, second growth, forest edge, and humid lowland forest. The western yellow-billed cuckoo is a summer visitor, occurring in California from about mid-May until early September. Winter ranges tend to occur in woody vegetation bordering fresh water, dense scrub, deciduous broadleaf forest, gallery forest, and secondary forest (Hughes 1999).

The Project Area contains suitable riparian habitat for nesting and foraging by the western yellow-billed cuckoo, as the southern portion of the Survey Area is dominated by Freemont cottonwood forest. Therefore, the western yellow-billed cuckoo has a moderate potential to occur within the Survey Area.

PRESENT

Orange-throated whiptail (*Aspidoscelis hyperythra*)
CDFW Watch List
MSCP Species

The orange-throated whiptail occurs in highly fragmented habitats ranging from southern California to the southern tip of Baja California. The species inhabits washes, streams, terraces, and other sandy areas associated with rocks and patches of brush. Appropriate habitat is often found in coastal chaparral, thornscrub, and streamside growth. Insects and spiders make up the majority of their diet, but they have been known to eat small mammals and other lizards. These are active, diurnal, and alert lizards (Stebbins 2003).

The orange-throated whiptail's habitat occurs throughout the Survey Area and the species was observed by WRA biologists during field surveys. Therefore, the species is present within the Survey Area.

San Diego black-tailed jackrabbit (*Lepus californicus bennettii*)
CDFW Species of Special Concern
MSCP Species

The San Diego black-tailed jackrabbit occurs in portions of Los Angeles, Riverside, and San Diego Counties, as well as portions of Baja California. The species is widespread, but not common. It can occupy a variety of habitats, including open grasslands, sparse vegetation, and agricultural areas. The San Diego black-tailed jackrabbit prefers arid regions and short-grass areas. Individuals occupy overlapping home ranges of 14 to 18 hectares each. Adult survival is very low. The population at any time is composed primarily of juveniles. Natural fluctuations in population size occur in response to reproduction and densities of food sources. The species is a generalist herbivore, with seasonal patterns in food preference and availability. Grasses comprise the majority of the diet, with forbs and shrubs increasingly consumed in the fall and winter. Major threats to the species include loss and fragmentation of habitat and the resulting isolation of populations. Habitat is primarily lost to agriculture and urbanization.

The San Diego black-tailed jackrabbit habitat occurs within the Survey Area and the species was observed by WRA biologists during the field survey. Therefore, the species is present within the Survey Area.

HIGH POTENTIAL

Coastal whiptail (*Aspidoscelis tigris stejnegeri*)
CDFW Species of Special Concern

This subspecies of whiptail is found in Baja California, coastal Southern California, mostly west of the Peninsular Ranges, south of the Transverse Ranges, and north into Ventura County (California Herps 2017b). The coastal whiptail is found in a variety of habitats, primarily in hot and dry open areas, with sparse foliage in chaparral, woodlands, grassland, and riparian areas. This subspecies of the western whiptail is found in coastal southern California, west of the Peninsular Ranges and south of the Transverse Ranges, from Ventura County south into Baja California. Much of the species habitat has been altered and fragmented by development. These are active, diurnal, and alert lizards, whose primary prey are small invertebrates and small lizards (Stebbins and McGinnis 2012).

There is suitable habitat for the coastal whiptail within the Survey Area, as there are open, sparsely vegetated areas present within the Survey Area. Therefore, the coastal whiptail has a high potential to occur within the Survey Area.

Cooper's hawk (*Accipiter cooperii*)
CDFW Watchlist

Cooper's hawks are well distributed and occur in varied habitats, including deciduous, mixed, and evergreen forests, as well as riparian woodlands. This species is tolerant of human disturbance and habitat fragmentation, and has been found to increasingly breed in suburban and urban areas (Curtis et al. 2006). This species nests in extensive forests, woodlots of 4 to 8 hectare, and occasionally in isolated trees in more open areas. Nests are typically in more mature trees, which have relatively more canopy cover than what is locally available (Curtis et al. 2006).

The species inhabits deep woods, utilizing thick cover both for hunting and nesting. Openings, such as hedgerows or windbreaks, offer shelter for prey species and may be used when foraging. Cooper's hawk nest in both pine and hardwood groves, as well as riparian cottonwoods and sycamores in the West. The species usually builds a new nest on a horizontal limb near the trunk or in the crotch of the tree, 6 to 18 meters above the ground. The species may also modify old nests or utilize squirrel or crow nests (NatureServe 2017h).

There is suitable habitat for Cooper's hawk within and around the Survey Area. Cottonwoods are present within the Survey Area, which would provide suitable nesting habitat. Therefore, the Cooper's hawk has a high potential to occur within the Survey Area.

Yellow-breasted chat (*Icteria virens*)
CDFW Species of Special Concern
MSCP Species

The yellow-breasted chat occurs in riparian areas with an open canopy and a very dense understory, and utilizes trees for song perches. The species also occurs in shrubby old pastures, thickets, bushy areas, scrub, and fence rows. The species nests in bushes, brier tangles, vines, and low trees, including thickets of willows, blackberry, and wild grape. The nest is generally in

dense vegetation less than 6 feet above the ground. The species arrives to breed in late May to early June and departs predominantly in June to August. Yellow-breasted chat have been observed lingering in their breeding range in California into late fall or early winter, prior to migrating south (NatureServe 2017).

The Project Area contains suitable riparian habitat for nesting and foraging by the yellow-breasted chat. In addition, this species has been recorded downstream of the San Luis Rey River. Therefore, the yellow-breasted chat has a high potential to occur within the Survey Area.

Yellow warbler (*Setophaga petechia*)
CDFW Species of Special Concern
USFWS Bird of Conservation Concern

The yellow warbler occurs in riparian plant associations in close proximity to water. This species also nests in montane shrubbery, in open conifer forests in the Cascades and Sierra Nevada. Frequently, the yellow warbler is found nesting and foraging in willow shrubs and thickets, as well as other riparian vegetation, including cottonwoods, sycamores, ash, and alders. Migrants arrive in breeding areas in the United States predominantly from April to May. The species nests in upright forks or crotches of bushes, such as willows, saplings, or large trees. The nests are generally placed from less than a meter above ground to high up in tall trees (NatureServe 2017).

The Project Area contains suitable riparian habitat for nesting and foraging by the yellow warbler. In addition, this species has been recorded downstream of the San Luis Rey River. Therefore, the yellow warbler has a high potential to occur within the Survey Area.

MODERATE POTENTIAL

Coast horned lizard (*Phrynosoma blainvillii*)
CDFW Species of Special Concern
MSCP Species

The coast horned lizard is widespread in much of California, west of the Sierra Nevada and Cascade ranges, the southern deserts, as well as northwestern Baja California (Leache et al. 2009). Habitat is variable and in southern California includes chaparral, coastal sage scrub, oak and riparian woodland, and grassland (NatureServe 2017f). Important microhabitat components are loose, sandy soil; open, sunny areas with dense, low shrubbery; and abundant ants and other insects for forage (Jennings and Hayes 1994).

There is suitable habitat for the coast horned lizard within the Survey Area, as there is non-native grassland present, as well as open areas of sandy soil, with scattered bushes. Harvester ant hills also occur within these areas as a food source for the species. Therefore, the coast horned lizard has a moderate potential to occur within the Survey Area.

Coronado skink (*Plestiodon [=Eumeces] skiltonianus interparietalis*)
CDFW Watch List

The Coronado skink occurs in grassland, chaparral, pinyon-juniper and juniper sage woodland, pine-oak and pine forests in the coast ranges of southern California. The species prefers early successional stages or open areas. Coronado skink can be found in rocky areas close to streams and on dry hillsides.

The outer riparian area within the Survey Area would provide suitable habitat for Coronado skink and the species has been recorded in the vicinity of the Survey Area. Therefore, the Coronado skink has a moderate potential to occur within the Survey Area.

Hoary bat (*Lasiurus cinereus*)
Western Bat Working Group Medium Priority

The hoary bat prefers open forested habitats or habitat mosaics, with access to trees for cover and open areas or habitat edges for feeding. The species roosts in dense foliage of medium to large trees and feeds primarily on moths.

Suitable habitat for this species may be present within the southern portion of the Survey Area. However, the habitat is not pristine, due to development and human modifications within the Survey Area and in surrounding areas. Therefore, there is a moderate potential for the hoary bat to occur within the Survey Area.

San Diego desert woodrat (*Neotoma lepida intermedia*)
CDFW: Species of Special Concern

The San Diego desert woodrat occurs in sagebrush scrub and chaparral in Coastal southern California, from San Diego County to San Luis Obispo County. The species prefers moderate to dense canopies for cover and is particularly abundant in rock outcrops, as well as rocky cliffs and slopes.

The Survey Area is within the range of this species. Open, arid land and hillsides surrounding the Survey Area may support this species. However, the Survey Area itself generally lacks rocky areas, contains moist soil, and contains mostly non-xeric vegetation, and therefore does not appear to represent typical habitat for this species. However, the potential for this species to utilize the site cannot be ruled out. Woodrat middens, or stick houses, were observed by WRA Biologists within blue elderberry stands on the western edge of the Survey Area, and are believed to have been constructed by a different, non-sensitive species of woodrat, such as big-eared woodrat (*Neotoma macrotis*).

As the Survey Area is within the range of the species, woodrat middens were observed during the survey, and the Survey Area is surrounded by suitable habitat, there is a moderate potential for the San Diego desert woodrat to occur within the Survey Area.

Southern California legless lizard (*Anniella stebbinsi*)
CDFW: Species of Special Concern

The southern California legless lizard ranges from south of the Transverse Ranges into northern Baja California. The species occurs in warm, moist, loose soil in lightly vegetated areas of beach dunes, sandy washes, alluvial fans, desert scrublands, and chaparral. The species is often found beneath logs, rocks, and leaf litter under low lying bushes and shrubs (Pappenfuss and Parham 2013). The southern California legless lizard is most active during the morning and evening in leaf litter and loose sandy soil where it forages for invertebrates. It has a tolerance for low temperatures and is rarely found in direct sunlight. The species breeds between early spring to July with live births occurring from September to November (California Herps 2017c).

The terraces of the San Luis Rey River may be suitable habitat for the species, as there is extensive leaf litter and loose soil present. Therefore, the southern California legless lizard has a moderate potential to occur within the Survey Area.

APPENDIX C

TABLE OF POTENTIAL SPECIAL-STATUS PLANT SPECIES

NAME	STATUS	HABITAT	POTENTIAL TO OCCUR
San Diego ambrosia *Ambrosia pumila*	Federal: Endangered 1B.1 MSCP Species – Narrow Endemic	Chaparral, coastal scrub, valley and foothill grassland. Upper terraces of rivers and drainages, vernal pools/sandy loam or clay, often in disturbed areas, sometimes alkaline. Elevation ranges from 70 to 1360 feet (20 to 415 meters). Blooms Apr-Oct.	**Moderate Potential.** Disturbed, loamy soils are present within the Survey Area and the species is reported to occur along riparian corridors.
Rainbow manzanita *Arctostaphylos rainbowensis*	1B.1 MSCP Species	Usually found in gabbro chaparral. 100-870 m.	**No potential.** The species does not tolerate soil disturbance and chaparral communities are not present in the Survey Area.
Thread-leaved Brodiaea *Brodiaea filifolia*	Federal: Threatened State: Endangered 1B.1 MSCP Species – Narrow Endemic	Chaparral (openings), cismontane woodland, coastal scrub, playas, valley and foothill grassland, vernal pools. Usually associated with annual grassland and vernal pools; often surrounded by shrubland habitats. Occurs in openings on clay soils. 15-1020 m.	**No potential.** Vernal pool habitat and clay soils are not present in the Survey Area, nor are many of the associated communities for the species.
Orcutt's brodiaea *Brodiaea orcuttii*	1B.1 MSCP Species	Closed-cone coniferous forest, chaparral, cismontane woodland, meadows and seeps, valley and foothill grassland, vernal pools/mesic, clay, sometimes serpentine. Elevation ranges from 100 to 5550 feet (30 to 1692 meters). Blooms May-Jul.	**No potential.** Mesic clay and serpentine soils do not exist in the Survey Area. Grassland habitats are unlikely to support this species due to the level of disturbance.
Payson's jewelflower *Caulanthus simulans*	4.2	Chaparral, coastal scrub. Frequently in burned areas, or in disturbed sites such as streambeds; also on rocky, steep slopes. Sandy, granitic soils. 90-2200 m.	**Moderate potential.** Although the associated communities are not present in the Survey Area, this species is often found in disturbed areas, including streambeds. Additionally, the Survey Area is underlain by sandy, granitic soils.
Smooth tarplant *Centromadia pungens* ssp. *laevis*	1B.1	Valley and foothill grassland, chenopod scrub, meadows and seeps, playas, riparian woodland. Alkali meadow, alkali scrub; also in disturbed places. 5-1170 m.	**High potential.** Underlying soils are alkaline to strongly alkaline and could support the species. There is also suitable disturbed and riparian habitat within the Survey Area.
Orcutt's pincushion *Chaenactis glabriuscula* var. *orcuttiana*	1B.1	Coastal bluff scrub (sandy), coastal dunes. Elevation ranges from 0 to 330 feet (0 to 100 meters). Blooms Jan-Aug.	**No potential.** This species occurs in coastal bluff communities and at lower elevations than the Survey Area.

NAME	STATUS	HABITAT	POTENTIAL TO OCCUR
Delicate clarkia *Clarkia delicata*	1B.2	Chaparral, cismontane woodland/often gabbroic. Elevation ranges from 770 to 3280 feet (235 to 1000 meters). Blooms Apr-Jun.	**No potential.** Associated communities for this species are not present and the species is found at higher elevations than the Survey Area.
Mesa horkelia *Horkelia cuneata* var. *puberula*	1B.1	Chaparral, cismontane woodland, coastal scrub. Sandy or gravelly sites. 15-1645 m.	**No potential.** The habitat and associated communities are not present in the Survey Area.
Heart-leaved pitcher sage *Lepechinia cardiophylla*	1B.2	Closed-cone coniferous forest, chaparral, cismontane woodland. 520-1370 m.	**No potential.** The habitat and associated communities are not present in the Survey Area.
Robinson's pepper-grass *Lepidium virginicum* var. *robinsonii*	4.3	Chaparral, coastal scrub. Elevation ranges from 0 to 2900 feet (1 to 885 meters). Blooms Jan-Jul.	**High potential.** Unidentified pepper grass was observed within the Survey Area
Intermediate Monardella *Monardella hypoleuca* ssp. *intermedia*	1B.3	Chaparral, cismontane woodland, lower montane coniferous forest (sometimes). Often in steep, brushy areas. 195-16750 m.	**No potential.** The habitat and associated communities are not present in the Survey Area.
Chaparral beargrass *Nolina cismontana*	1B.2 MSCP Species	Chaparral, coastal scrub. Primarily on sandstone and shale substrates; also known from gabbro. 140-1275 m.	**No potential.** The habitat and associated communities are not present in the Survey Area.
Parry's tetracoccus *Tetracoccus dioicus*	1B.2 MSCP Species	Chaparral, coastal scrub. Elevation ranges from 540 to 3280 feet (165 to 1000 meters). Blooms Apr-May.	**No potential.** Associated communities for this species are not present and the species is found at higher elevations than the Survey Area.

APPENDIX D

TABLE OF POTENTIAL SPECIAL-STATUS WILDLIFE SPECIES

NAME	STATUS	HABITAT	POTENTIAL TO OCCUR
Arroyo toad *Anaxyrus (=Bufo) californicus*	Federal Endangered CDFW: Species of Special Concern MSCP Species	Semi-arid regions near washes or intermittent streams, including valley-foothill and desert riparian, desert wash, etc. Rivers with sandy banks, willows, cottonwoods, and sycamores; loose, gravelly areas of streams in drier parts of range.	**High potential**. The San Luis Rey River and associated floodplain contain almost all habitat requirements for the species.
Bell's sage sparrow *Artemisiospiza belli belli*	CDFW: Watch List MSCP Species	Nests in chaparral dominated by fairly dense stands of chamise. Found in coastal sage scrub in south of range.	**Low potential.** No chaparral and limited sage scrub habitat is within the Survey Area. Chamise is not present.
California glossy snake *Arizona elegans occidentalis*	CDFW: Species of Special Concern	Arid scrub, rocky washes, grasslands, and chaparral. Occurs from the eastern part of the San Francisco Bay Area south to northwestern Baja California. Absent along the central coast.	**Low potential.** Typical habitat is not present within the Survey Area.
Coast horned lizard *Phrynosoma blainvillii*	CDFW: Species of Special Concern MSCP Species	Open areas of sandy soil and low vegetation in valleys, foothills, and semiarid mountains. Found in grasslands, coniferous forests, woodlands, and chaparral, with open areas and patches of loose soil. Often found along sandy washes with scattered shrubs, along dirt roads, and frequently near ant hills.	**Moderate potential.** Mostly open areas of sandy soil with scattered bushes are present within the Survey Area. Harvester ant hills also occur within these areas as a food source for the species.
Coastal cactus wren *Campylorhynchus brunneicapillus couesi*	CDFW: Species of Special Concern USFWS: Bird of Conservation Concern MSCP Species – Narrow Endemic	Southern California coastal sage scrub. Wrens require tall *Opuntia* cactus for nesting and roosting	**Low potential.** *Opuntia* are present but stands of the cactus are small in size and height.
Coastal California gnatcatcher *Polioptila californica californica*	Federal Threatened CDFW: Species of Special Concern MSCP Species	Obligate, permanent resident of coastal sage scrub below 25 feet in southern California. Low, coastal sage scrub in arid washes, on mesas and slopes. Not all areas classified as coastal sage scrub are occupied.	**Moderate potential.** Limited sage scrub communities are present within the Survey Area. The species could be present in the vicinity as there is suitable habitat within a few miles of the Survey Area.
Coastal whiptail *Aspidoscelis tigris stejnegeri*	CDFW: Species of Special Concern	Semiarid habitats with open, sparsely vegetated areas, scrub, chaparral, grassland, and woodlands.	**High potential.** Open, sparsely vegetated areas are present in the Survey Area. Would use same habitat as the orange-throated whiptail, which is present in the Survey Area.
Cooper's hawk *Accipiter cooperii*	CDFW: Watch List	Inhabits deep woods, utilizing thick cover both for hunting and nesting. Openings, such as hedgerows or	**High Potential.** This widespread species is likely to occur both in and around the Survey Area.

NAME	STATUS	HABITAT	POTENTIAL TO OCCUR
		windbreaks, offer shelter for prey species and may be used when foraging. Occurs year-round throughout much of California. Favors a variety of forest and woodland habitats, including in towns and urban areas with suitable tree cover. Nests in pine, hardwood groves, cottonwoods, and sycamores.	Cottonwoods are on site and would provide suitable nesting habitat for the species.
Coronado skink *Plestiodon (=Eumeces) skiltonianus interparietalis*	CDFW: Watch List	Grassland, chaparral, pinyon-juniper and juniper sage woodland, pine-oak and pine forests in coast ranges of southern California. Prefers early successional stages or open areas. Found in rocky areas close to streams and on dry hillsides.	**Moderate potential.** The outer riparian area would provide suitable habitat for the species. The species has been recorded in the vicinity.
Dulzura pocket mouse *Chaetodipus californicus femoralis*	CDFW: Species of Special Concern	Variety of habitats including coastal scrub, chaparral & grassland in San Diego County. Attracted to grass-chaparral edges.	**Low potential.** Typically found in more arid habitat than is found in the Survey Area. Limited coastal scrub habitat is present and other typical habitat types are not found within the Survey Area.
Golden eagle *Aquila chrysaetos*	CDFW: Fully Protected CDFW: Watch List USFWS: Bird of Conservation Concern MSCP Species	Occurs year-round in rolling foothills, mountain areas, sage-juniper flats, and deserts. Cliff-walled canyons provide nesting habitat in most parts of range; also nests in large trees, usually within otherwise open areas.	**Low potential.** This species is likely to be present in the vicinity of the Survey Area. The species may forage in the area, however, limited foraging opportunities are available within the Survey Area due to human activity. Suitable nesting habitat was not observed.
Hoary bat *Lasiurus cinereus*	Western Bat Working Group: Medium Priority	Prefers open forested habitats or habitat mosaics, with access to trees for cover and open areas or habitat edges for feeding. Roosts in dense foliage of medium to large trees. Feeds primarily on moths.	**Moderate potential.** Suitable habitat for this species may be present within the Survey Area. However, the habitat is not pristine, due to development and human modifications within the Survey Area and in surrounding areas.
Least Bell's vireo *Vireo bellii pusillus* (Nesting)	Federal Endangered State Endangered MSCP Species	Dense brush, mesquite, willow-cottonwood forest, streamside thickets, and scrub oak, in arid regions, but often near water. Moist woodland, bottomlands, woodland edge, scattered cover, and	**High potential.** The San Luis Rey River provides suitable willow and mulefat thicket habitat for the species. The species has been observed in the vicinity.

NAME	STATUS	HABITAT	POTENTIAL TO OCCUR
		hedgerows in cultivated areas. Summer resident of southern California in low riparian in vicinity of water or in dry river bottoms; below 2 feet. Nests placed along margins of bushes or on twigs projecting into pathways, usually willow, Baccharis, mesquite.	
Least bittern *Ixobrychus exilis*	CDFW: Species of Special Concern USFWS: Bird of Conservation Concern	Colonial nester in marshlands and borders of ponds and reservoirs which provide ample cover. Nests usually placed low in tules, over water.	**Low Potential.** This species may utilize aquatic habitat within the riparian areas. However, because these areas do not represent typical marsh habitat, breeding is less likely to occur within the Survey Area.
Northwestern San Diego pocket mouse *Chaetodipus fallax fallax*	CDFW: Species of Special Concern	Western San Diego County in a variety of habitats, including coastal scrub, chaparral, grasslands, and sagebrush. Prefers sandy, herbaceous areas, usually in association with rocks or coarse gravel.	**Low Potential.** Typically found in more arid habitat than is found in the Survey Area. Limited coastal scrub habitat is present and other typical habitat types are not found within the Survey Area.
Orange-throated whiptail *Aspidoscelis hyperythra*	CDFW: Watch List MSCP Species	Low-elevation coastal scrub, chaparral, and valley-foothill hardwood habitats. Prefers washes and other sandy areas with patches of brush and rocks. Perennial plants necessary for its major food source of termites.	**Present**.
Pallid bat *Antrozous pallidus*	CDFW: Species of Special Concern Western Bat Working Group: High Priority MSCP Species	Found in deserts, grasslands, shrublands, woodlands, and forests. Most common in open forages along river channels. Roost sites include crevices in rocky outcrops and cliffs, caves, mines, trees and various human structures, such as bridges, barns, and buildings (including occupied buildings). Very sensitive to disturbance of roosting sites.	**Low potential.** Suitable roosting habitat is not within the Survey Area. The species could be present in the vicinity and use the Survey Area for foraging.
Red-diamond rattlesnake *Crotalus ruber*	CDFW: Species of Special Concern MSCP Species	Chaparral, woodland, grassland, and desert areas from coastal San Diego County to the eastern slopes of the mountains. Occurs in rocky areas and dense vegetation. Needs rodent	**Low potential.** Typical chaparral habitat is not present within the Survey Area.

NAME	STATUS	HABITAT	POTENTIAL TO OCCUR
		burrows, cracks in rocks or surface cover objects.	
San Diego black-tailed jackrabbit *Lepus californicus bennettii*	CDFW: Species of Special Concern	Intermediate canopy stages of shrub habitats and open shrub, herbaceous and tree, or herbaceous edges. Coastal sage scrub habitats in southern California.	**Present**.
San Diego desert woodrat *Neotoma lepida intermedia*	CDFW: Species of Special Concern	Sagebrush scrub and chaparral in Coastal southern California from San Diego County to San Luis Obispo County. Moderate to dense canopies preferred. Particularly abundant in rock outcrops and rocky cliffs and slopes.	**Moderate Potential.** The Survey Area is within the range of this species and open, arid land and hillsides surrounding the Survey Area may support this species. However, the Survey Area itself generally lacks rocky areas, contains moist soil, and contains mostly non-xeric vegetation, and thus does not appear to represent potential habitat for this species; however, the potential for this species to utilize the site cannot be ruled out. Woodrat middens were observed on the western edge of the Survey Area, which are believed to have been constructed by a different, non-sensitive species of woodrat such as big-eared woodrat (*Neotoma macrotis*).
Southern California legless lizard *Anniella stebbinsi*	CDFW: Species of Special Concern	Occurs in moist, warm loose soil with plant cover, in sparsely vegetated areas of beach dunes, chaparral, pine-oak woodlands, desert scrub, sandy washes, alluvial fans, and stream terraces with sycamores, cottonwoods, or oaks. Leaf litter under trees and bushes in sunny areas and dunes stabilized with bush lupine and mock heather often indicate suitable habitat. Often can be found under surface objects such as rocks, boards, driftwood, and logs. Can also be found by gently raking leaf litter under bushes and trees. Sometimes found in suburban gardens in Southern California.	**Moderate potential.** The terraces of the San Luis Rey River could be suitable habitat for the species with extensive leaf litter and loose soil present.

NAME	STATUS	HABITAT	POTENTIAL TO OCCUR
Southern California rufous-crowned sparrow *Aimophila ruficeps canescens*	CDFW: Watch List MSCP Species	Moderate to steep, dry, rocky, south-, west, or east-facing slopes vegetated with low scattered scrub cover, interspersed with patches of grasses and forbs or rock outcrops. Often occurs in coastal sage scrub dominated by California sagebrush (*Artemisia californica*), but also occurs in coastal bluff scrub, low chaparral on serpentine outcrops, sparse chaparral recovering from a burn, and edges of tall chaparral. Nests on the ground at the base of rocks, grass tufts, or saplings, or 0.3-1 meters above the ground in the branches of shrubs or trees.	**Low potential.** Typical steep slope and chaparral habitat is not present in the Survey Area.
Southwestern willow flycatcher *Empidonax traillii extimus*	Federal Endangered State Endangered MSCP Species	Summer resident. Typically breeds in dense riparian vegetation associated with standing water. Vegetative microhabitats used for nesting variable; willows, mulefat, blackberry and cottonwood are commonly used. Nests typically within ten feet of the ground.	**High potential.** The San Luis Rey River provides suitable habitat within the Survey Area. Dense willow and mulefat thickets are present. The species has been observed in the vicinity along the San Luis Rey River.
Stephens' kangaroo rat *Dipodomys stephensi*	Federal Endangered State Threatened MSCP Species – Narrow Endemic	Primarily annual & perennial grasslands, but also occurs in coastal scrub & sagebrush with sparse canopy cover. Prefers buckwheat, chamise, brome grass and filaree. Will burrow into firm soil.	**Low potential.** Suitable habitat is limited in the Survey Area to a few patches of California buckwheat. Grasslands on site have primarily non-native grasses, which are unsuitable for the species.
Swainson's hawk *Buteo swainsoni*	State Threatened USFWS: Bird of Conservation Concern	Breeds in grasslands with scattered trees, juniper-sage flats, riparian areas, savannahs, & agricultural or ranch lands with groves or lines of trees. Requires adjacent suitable foraging areas such as grasslands, or alfalfa or grain fields supporting rodent populations.	**Low potential.** Study Area is outside typical nesting range. Open pastures and fields are in the vicinity and would provide foraging opportunities for the species during migration.
Tricolored blackbird *Agelaius tricolor*	State Candidate Endangered CDFW: Species of Special Concern USFWS: Bird of Conservation Concern MSCP Species	Nearly endemic to California, where it is most numerous in the Central Valley and vicinity. Highly colonial, nesting in dense aggregations over or near freshwater in emergent growth	**Low potential.** The riparian area would be potential habitat for foraging but no emergent vegetation (*Scirpus* sp., *Typha* sp., etc.) were detected in the Survey Area.

NAME	STATUS	HABITAT	POTENTIAL TO OCCUR
		or riparian thickets. Also uses flooded agricultural fields. Abundant insect prey near breeding areas essential.	
Western mastiff bat *Eumops perotis californicus*	CDFW: Species of Special Concern Western Bat Working Group: High Priority MSCP Species	Found in a wide variety of open, arid and semi-arid habitats. Distribution appears to be tied to large rock structures, which provide suitable roosting sites, including cliff crevices and cracks in boulders.	**Low potential.** Suitable roosting habitat is not present within the Survey Area. However, this species could be present in the vicinity and could forage over the Survey Area.
Western yellow-billed cuckoo *Coccyzus americanus occidentalis*	Federal Threatened State Endangered USFWS: Bird of Conservation Concern	Riparian forest nester, along the broad, lower flood-bottoms of larger river systems. Nests in riparian willow woodlands, often mixed with cottonwoods, with lower story of blackberry, nettles, or wild grape. In California, breeding distribution is now thought to be restricted to isolated sites in the Sacramento, Amargosa, Kern, Santa Ana, and Colorado River valleys.	**Moderate potential**. Suitable habitat for this rare species may be present within the Survey Area, particularly along the San Luis Rey River. The species has been recently recorded in the San Luis Rey River by an amateur birdwatcher (eBird 2013) within two miles of the Survey Area.
White-faced ibis *Plegadis chihi*	CDFW: Watch List MSCP Species	(Rookery) shallow fresh-water marsh. Dense tule thickets for nesting interspersed with areas of shallow water for foraging.	**Low potential.** This species was observed 5 miles downstream in the San Luis Rey River watershed so the species use of the Survey Area cannot be ruled out. The Survey Area does not provide suitable nesting habitat but foraging in the area is possible.
Yellow warbler *Setophaga petechia*	CDFW: Species of Special Concern USFWS: Bird of Conservation Concern	Riparian plant associations in close proximity to water. Also nests in montane shrubbery in open conifer forests in Cascades and Sierra Nevada. Frequently found nesting and foraging in willow shrubs and thickets, and in other riparian plants including cottonwoods, sycamores, ash, and alders.	**High potential.** This species had been recorded downstream of the Survey Area along the San Luis Rey River and suitable habitat is present for the species.
Yellow-breasted chat *Icteria virens*	CDFW: Species of Special Concern MSCP Species	Summer resident, occurring in riparian areas with an open canopy, very dense understory, and trees for song perches. Nests in thickets of willow, blackberry, and wild grape.	**High potential.** This species had been recorded downstream of the Survey Area along the San Luis Rey River and suitable habitat is present for the species.

APPENDIX E

LIST OF OBSERVED PLANT AND WILDLIFE SPECIES

Scientific Name	Common Name
Plants	
Acmispon glaber	deerweed
Ambrosia psilostachya	western ragweed
Archontophoenix sp.	king palm
Artemisia californica	coastal sage brush
Arundo donax	giant reed
Baccharis pilularis	coyote brush
Baccharis salicifolia	mule fat
Baccharis sergiloides	desert baccharis
Bromus diandrus	ripgut brome
Bromus madritensis	foxtail brome
Carduus pycnocephalus	Italian thistle
Cirsium vulgare	bull thistle
Conium maculatum	poison hemlock
Croton californicus	California croton
Datura wrightii	jimsonweed
Distichlis spicata	salt grass
Erigeron bonariensis	flax-leaved horseweed
Eriogonum davidsonii	Davidson's buckwheat
Eriogonum fasciculatum var. *fasciculatum*	California buckwheat
Eucalyptus sp.	gum tree
Heliotropium curassavicum	salt heliotrope
Heterotheca grandiflora	telegraphweed
Hirschfeldia incana	short podded mustard
Iris sp.	iris
Isocoma menziesii	Menzies' goldenbush
Lactuca sp.	wild lettuce
Lepidium sp.	pepper grass
Marah macrocarpa	chilicothe
Marrubium vulgare	white horehound
Melilotus sp.	sweetclover
Nerium oleander	oleander
Nicotiana glauca	tree tobacco
Opuntia ficus-indica	mission cactus
Opuntia littoralis	coast prickly pear
Phacelia cicutaria	caterpillar phacelia
Platanus racemosa	western sycamore
Pluchea sericea	arrow weed
Populus fremontii	Fremont cottonwood
Pseudognaphalium biolettii	two-color rabbit-tobacco

Pseudognaphalium californicum	ladies' tobacco
Quercus agrifolia	coast live oak
Rhamnus ilicifolia	hollyleaf redberry
Ricinus communis	castor bean
Rumex sp.	dock
Salix gooddingii	Goodding's black willow
Salix laevigata	red willow
Salix lasiolepis	arroyo willow
Sambucus nigra ssp. *caerulea*	blue elderberry
Schinus molle	Peruvian pepper tree
Schinus terebinthifolius	Brazilian pepper tree
Stephanomeria diegensis	San Diego milk aster
Stephanomeria virgata	rod wirelettuce
Stylocline gnaphaloides	everlasting stylocline
Tamarix ramosissima	tamarisk
Toxicodendron diversilobum	poison oak
Vitis californica	California wild grape
Yucca sp.	yucca
Birds	
Aphelocoma californica	California scrub jay
Buteo jamaicensis	red-tailed hawk
Buteo lineatus	red-shouldered hawk
Callipepla californica	California quail
Calypte anna	Anna's hummingbird
Toxostoma redivivum	California thrasher
Corvus brachyrhynchos	American crow
Eremophila alpestris	horned lark
Haemorhous mexicanus	house finch
Melozone crissalis	California towhee
Passer domesticus	house sparrow
Picoides scalaris	ladder-backed woodpecker
Polioptila caerulea	blue-gray gnatcatcher
Regulus calendula	ruby-crowned kinglet
Sayornis nigricans	black phoebe
Setophaga coronata	yellow-rumped warbler
Spinus psaltria	lesser goldfinch
Tyrannus vociferans	Cassin's kingbird
Zonotrichia leucophrys	white-crowned sparrow
Mammals	
Lepus californicus bennettii	San Diego black-tailed jackrabbit
Neotoma sp.	wood rat

Odocoileus hemionus	mule deer (tracks)
Sylvilagus audubonii	desert cottontail
Reptiles	
Aspidoscelis hyperythra	orange-throated whiptail

All plant species identified using the *Jepson Manual, 2nd Edition* (Baldwin *et al.* 2012) or *The Jepson Flora Project* (eFlora 2017); nomenclature follows *The Jepson Flora Project* (eFlora 2017) unless otherwise noted.