EXHIBIT H

Biological Resources Inventory

Proposed Soquel Canyon Mitigation/Conservation Bank
Chino Hills, San Bernardino & Orange Counties, California

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LIST OF ACRONYMS & DEFINITION OF TERMS

CDFG	California Department of Fish and Game
Cal-IPC	California Invasive Plant Council
CNPS	California Native Plant Society
CSRL	California Soil Resources Laboratory
CCH	Consortium of California Herbaria
LVI	Land Veritas, Inc.
NRCS	National Resource Conservation Service
RWQCB	Regional Water Quality Control Board
Corps	United States Army Corps of Engineers
USDA	United States Department of Agriculture
USFWS	United States Fish and Wildlife Service

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1.0 INTRODUCTION

This document details the background, methods, and results of a biological inventory conducted by WRA, Inc. (WRA) at the Soquel Canyon Proposed Mitigation/Conservation Bank (Proposed Bank) in spring and summer 2011. The Proposed Bank is located in the Chino Hills, San Bernardino and Orange counties in southern California (Figure 1). The Proposed Bank is comprised of seven parcels within San Bernardino County and one parcel within Orange County, with the following assessor parcel numbers (APN): 103301103; 103301104; 103302102; 103301102; 103302107; 103313103; 103313104; and 31205102. The property is composed of open space with limited infrastructure and no existing structures, and is zoned agricultural.

2.0 BACKGROUND AND SETTING

2.1 Location

The Proposed Bank is comprised of eight parcels in the center of the Chino Hills in both San Bernardino County and Orange County (Figure 2). It is depicted in the Yorba Linda USGS 7.5-minute quadrangle. The Chino Hills are in the northern portion of the Peninsular Ranges Geomorphic Province and are located between the Los Angeles Basin and the San Bernardino Valley. The Proposed Bank is bounded by a residential neighborhood to the northeast, private ranches to the north and west, the decommissioned Aerojet facility to the east, and Chino Hills State Park to the south. No paved or public roads run through or adjacent to the Proposed Bank; however, one private dirt road, Soquel Canyon Road, runs east – west through the center of the property, an unutilized dirt road runs north south through the property and Chino Hills State Park maintains a fire road / trail, Oak Way Lane, near the southern boundary. Access to the Proposed Bank is by permission only, and through private property to the north, west and east.

2.2 Land Use History

Land use history within the Proposed Bank appears to be primarily grazing. The presence of a mortared brick fire place and stacked rock wall in the eastern portion of the Proposed Bank and Peruvian peppertrees and blue gums planted in a row in the central northern portion of the Proposed Bank suggest homesteads were once present on the site; however, no intact structures are present.

Contemporary infrastructure is minimal with unmaintained barbed wire fences in several locations, and cattle free-range throughout the Proposed Bank and neighboring properties. A northwest-southeast running transmission line and associated access road reside in the southwestern portion of the Proposed Bank.

In recent years, five wildfires have directly affected the Proposed Bank. The Soquel Fire of 1978 burned in the northwestern portion; the Carbon Canyon Fire of 1990 burned in the northern portion; the Yorba Fire of 1990 and Yorba Linda Fire of 2005 burned in the southern portion; and the Freeway Complex Fire of 2008 burned the entire Proposed Bank property.

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Figure 1. Location Map of Proposed Bank

Proposed Soquel Canyon
Mitigation/Conservation Bank
San Bernardino and Orange Counties, CA

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Date: August 2011
Map By: Sundaran Gillespie
Basemap: ESRI World Topo Layer

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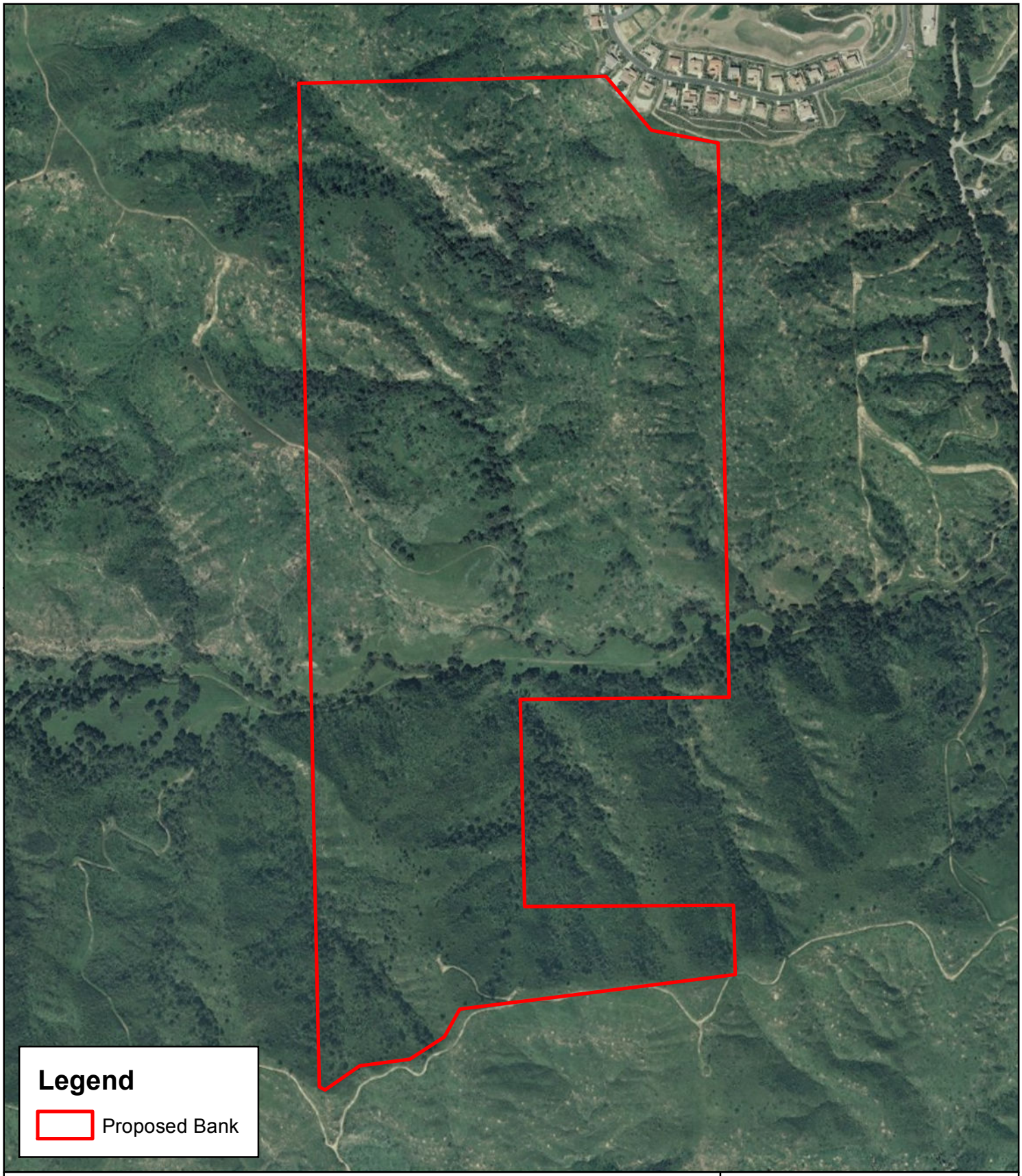

Figure 2. Site Map of Proposed Bank

Proposed Soquel Canyon
Mitigation/Conservation Bank
San Bernardino and Orange Counties, CA

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Date: August 2011
Map By: Sundaran Gillespie
Basemap: ESRI Imagery

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2.3 Climate and Weather

The Proposed Bank is within a strongly seasonal Mediterranean climate, with hot dry summers and cool wet winters. The average daily maximum temperature of San Bernardino, approximately 28 miles east northeast of the Proposed Bank, is 79.8°F, while the average daily minimum temperature is 51.7°F. The warmest months are June through September, with daily maximum temperatures during these months between 89.6°F and 95.7°F. The coolest months are December through February, with daily minimum temperatures between 41.1°F and 43.9 °F. Precipitation falls as rainfall with an annual average of 16.25 inches. Rain bearing weather systems are predominantly from the west with the majority of rain falls between January and March, with a combined average of 10.52 inches (NRCS 2011). Relatively high average temperatures and low precipitation contributes to a xeriscape dominated by drought tolerant, fire-adapted shrubby vegetation.

2.4 Topography, Geology, and Soils

The Chino Hills are northwest running range consisting of Miocene marine sedimentary rocks, and are bounded by the Whittier Fault Zone on the south-southwest. The topography of the Proposed Bank is generally mountainous with narrow to rounded summits and v-shaped canyons and drainages. Elevations range from 900 to 1600 feet. A narrow canyon, the Soquel Canyon Creek basin, runs east-west through the center of the Proposed Bank. Three secondary drainages run north-south into Soquel Canyon Creek in the northern portion of the Bank, and two secondary drainages run south-north into Soquel Canyon Creek in the southern portion. Soquel Canyon Creek is a named dashed blue-line on the Yorba Linda USGS 7.5-minute quadrangle, which contains perennial flows, while all other drainages in the Proposed Bank are either intermittent or ephemeral (Section 3.3.1; WRA 2011).

The Soil Surveys of San Bernardino County (USDA 1980) and Orange County (USDA 1978) indicate that the proposed bank has six native soil map units containing six soil series. These map units include Fontana clay loam, 30 to 50 percent slopes, Fontana clay loam, 15 to 30 percent slopes, Gaviota-rock outcrop complex, San Emigdio fine sandy loam, 2 to 9 percent slopes, Cieneba sandy loam, 30 to 75 percent slopes, eroded, and Anaheim clay loam, 15 to 30 percent slopes. The soil map units are described below and illustrated in Figure 3.

Fontana clay loam, 15 to 30 percent slopes / Fontana clay loam, 30 to 50 percent slopes. Fontana clay loam map units are composed of 85 percent of the Fontana soil series and 15 percent of other soil series. The Fontana soil series is composed of well drained, high runoff, and moderately slowly permeable residuum weathered from sedimentary rock located on foothills. These soils are not listed as hydric on the California hydric soils list (USDA 2010b)

A representative profile for the Fontana series consists of an A-horizon of slightly acid (pH 6.5) to slightly alkaline (pH 7.5) very dark grayish brown (10YR 3/2) clay loam to 21 inches depth. This is underlain by a C-horizon of moderately alkaline (pH 8.0) dark yellowish brown (10YR 4/4) shaley clay loam to platy shale from 21 to 60 inches depth.

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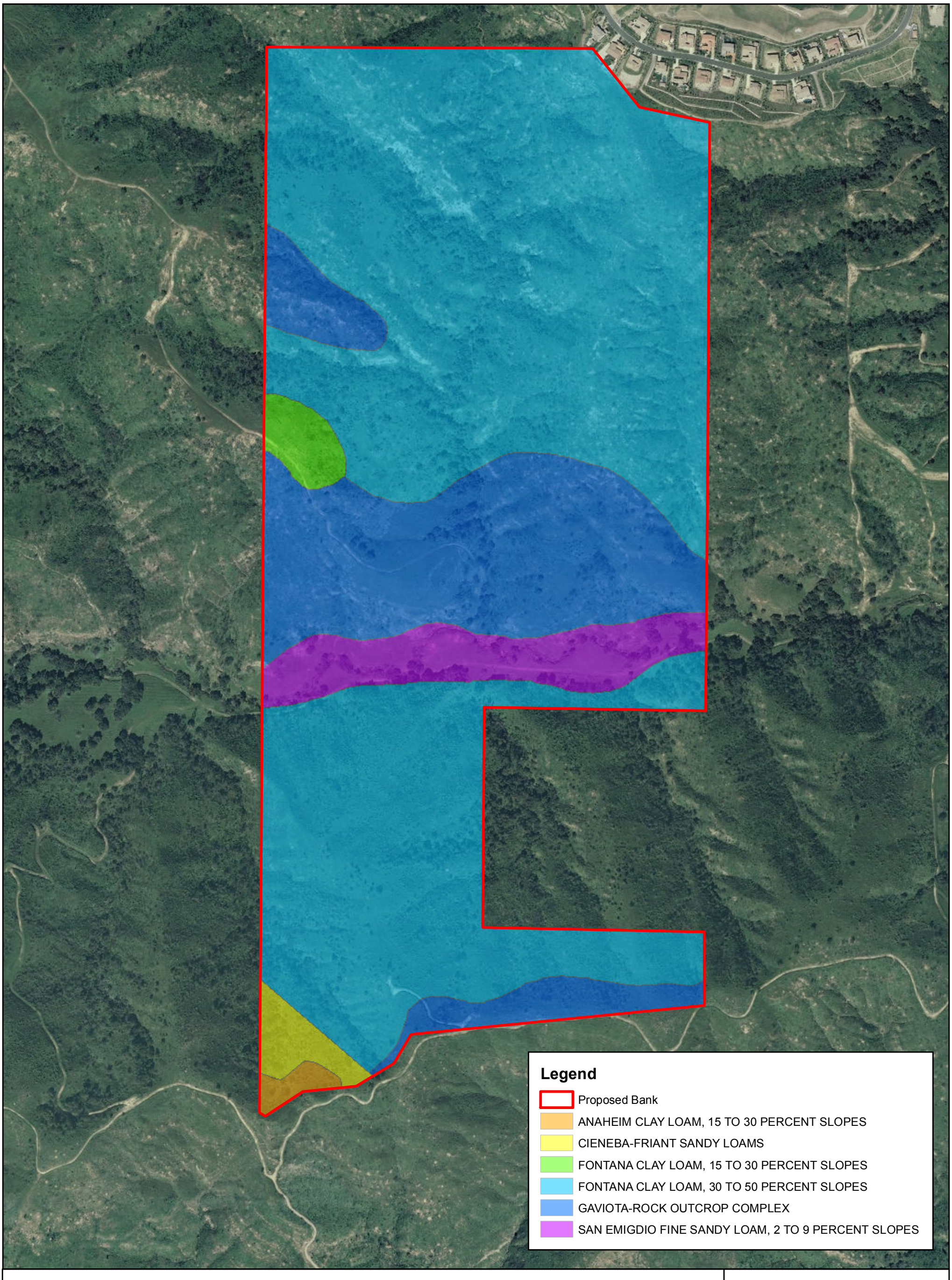

Figure 3. Soils within the Proposed Bank

Proposed Soquel Canyon
Mitigation/Conservation Bank
San Bernardino and Orange Counties, CA

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Date: February 2011
Map By: Sundaran Gillespie
Base Source: ESRI Imagery

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Gaviota-rock outcrop complex. The Gaviota-rock outcrop complex map unit is composed of 60 percent of the Gaviota soil series, 35 percent of exposed rock outcrops (sandstone), and 5 percent of other soil series. The Gaviota soil series is composed of somewhat excessively drained, medium runoff, and moderately rapidly permeable residuum weathered from sandstone located on upland hillsides. These soils are not listed as hydric on the California hydric soils list (USDA 2010b).

A representative profile for the Gaviota series consists of an A-horizon of neutral (pH 6.8 – 7.0) brown (7.5YR 4/4) gravelly loam to 10 inches depth. This is underlain by a R-horizon hard meta-sandstone from 10 to 17 inches depth.

San Emigdio fine sandy loam, 2 to 9 percent slopes. The San Emigdio fine sandy loam map unit is composed of 85 percent of the San Emigdio soil series and 15 percent of other soil series. The San Emigdio soil series is composed of well drained, low runoff, and moderately rapidly permeable alluvium derived from sedimentary rock located on alluvial fans. These soils are not listed as hydric on the California hydric soils list (USDA 2010b).

A representative profile for the San Emigdio series consists of an A-horizon of moderately alkaline (pH 8.2) dark grayish brown (2.5Y 4/2) fine sandy loam to 8 inches depth. This is underlain by a C-horizon consisting of moderately alkaline (pH 8.2) dark grayish brown (2.5Y 4/2) to light olive brown (2.5Y 4/3) fine sandy loam from 8 to 60 inches depth.

Cieneba-Friant sandy loam complex. The Cieneba-Friant sandy loam soil map unit is composed of 60 percent of the Cieneba soil series, 35 percent of the Friant soil series, and five percent of other soil series. The Cieneba soils series is composed of somewhat excessively drained, medium to rapid runoff, and moderately rapidly permeable residuum weathered from granite located on upland hillsides. These soils are not listed as hydric on the California hydric soils list (USDA 2010b).

A representative profile for the Cieneba series consists of a one-half inch O-horizon of twigs and leaf litter. This layer is underlain by an A-horizon of medium acid (pH 6.0) brown (10YR 4/3) fine gravelly loam to 10 inches depth. This is underlain by a C-horizon consisting of strongly weathered, acidic granitic material with some loam from 10 to 30 inches depth.

The Friant soil series is composed of somewhat excessively drained, medium to rapid runoff, and moderately rapidly permeable residuum weathered from granite located on upland hillsides. These soils are not listed as hydric on the California hydric soils list (USDA 2010b).

A representative profile for the Friant series consists of an A-horizon of slightly acid (pH 6.5) dark brown (10YR 3/3) fine sandy loam to 14 inches depth. This is underlain by an R-horizon of slightly weather quartz mica schist from 14 to 24 inches depth.

Anaheim clay loam, 15 to 30 percent slopes. The Anaheim clay loam soil map unit is composed of 80 percent of the Anaheim soil series, and 20 percent of other soil series. The Anaheim soil series is composed of well drained, rapid runoff, and moderately permeable residuum weathered from sandstone and shale parent materials located on hills. These soils are not listed as hydric on the California hydric soils list (USDA 2010b).

A representative profile for the Anaheim series consists of an A-horizon of slightly acid (pH 6.5) to slightly alkaline (pH 7.0) very dark grayish brown (10YR 3/2) to dark brown (10YR 3/3) clay loam to 26 inches depth. This is underlain by a C-horizon consisting of fractured and weathered fine grained sandstone and shale from 26 to 54 inches depth.

2.5 Vegetation

The vegetation within the Proposed Bank is cismontane woodland, chaparral, coastal scrub, riparian scrub, and valley and foothill grasslands typically situated in the Mediterranean climate zone of California. Woody vegetation is comprised predominantly of serrotonous species germinating or stump-sprouting following fire, while herbaceous vegetation is a mix of common chaparral species of all seral stages and non-native invasive species adapted to disturbance. Overall, the vegetation appears to be in an early to mid-seral stage following the disturbance of the most frequent fire, the Freeway Complex Fire of 2008, with charred trunks on shrubs and trees, apparent stump-sprouting, the presence of disturbance adapted non-native herbaceous species, and early seral native species (e.g. deer weed [*Acmispon glaber*]), grape soda lupine [*Lupinus excubitus*], and herbs (e.g. branching phacelia [*Phacelia ramosissima*]). Detailed vegetation alliance descriptions and species composition are provided in Sections 3.3.2 and 3.3.3 and illustrated in Figure 4.

3.0 SITE ASSESSMENT

3.1 Literature Review

Prior to the site visit, the Soil Surveys of San Bernardino County (USDA 1980) and Orange County (USDA 1978), the California Soil Resource Laboratory (CSRL) online soil survey (2011), the Yorba Linda USGS 7.5' quadrangle, aerial photographs, and National Wetlands Inventory (NWI 2011) were examined to determine if any unique soil types that could support special status plant species, sensitive plant communities, and/or aquatic features were present in the Project Area.

Additionally, database searches for known occurrences of special status wildlife species focused on the Yorba Linda 7.5 minute USGS quadrangle and the eight surrounding USGS quadrangles. The following sources were reviewed to determine which special status plant and wildlife species have been documented to occur in the vicinity of the Proposed Bank:

- California Natural Diversity Database (CNDDB) records (2011)
- Consortium of California Herbaria (CCH) records (2011)
- California Native Plant Society (CNPS) Electronic Inventory records (2011)
- USFWS quadrangle species lists (USFWS 2011)
- Chino Hills State Park Inventory, Monitoring and Assessment Program (2001)
- CDFG publication “California’s Wildlife, Volumes I-III” (Zeiner et al. 1990)
- CDFG 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)
- CDFG publication “Amphibians and Reptile Species of Special Concern in California” (Jennings and Hayes 1994)
- *A Field Guide to Western Reptiles and Amphibians* (Stebbins 2003)

A variety of other primary and secondary literature (including Internet websites) containing biological and distributional information for individual special status wildlife species are cited in subsequent sections.

Habitat conditions observed at the Proposed Bank were used to evaluate the potential for presence of special status species based on available forage and shelter, microclimate, vegetation communities, soil affinity, associated species, topographic position, shade tolerance, disturbance tolerance, and population distribution to determine the potential for these species to occur in the Proposed Bank (Appendix B). The potential for each special status species to occur in the Proposed Bank was then evaluated according to the following criteria:

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

The site assessment is intended to identify the presence or absence of suitable habitat for each special status species known to occur in the greater vicinity in order to determine its potential to occur in the Proposed Bank. A protocol-level rare plant survey was conducted concurrent with the site assessment and wetland delineation (Section 3.4.2).

3.2 Mapping Methods

Prior to all field studies, WRA generated field maps at a scale sufficient (1:200) to navigate through the Proposed Bank, and identify and note distinct features (e.g. vegetation changes, individual trees, rock outcrops). Winter and early spring field maps contained the most recent aerial photograph (2009) overlain with 20-foot contours, while late spring and summer field maps contained an updated aerial photograph (2011) overlain with 5-foot contours. Field maps were utilized for complete navigation throughout the Proposed Bank as well as hand drawing larger scale features such as distinct biological communities or widespread invasive plant species infestations. Additionally, each field biologist carried a Trimble XH hand-held global positioning system (GPS) to acquire sub-meter accuracy for smaller scale or localized features such as stream courses or individual special status species. Table 1 below details the specific features mapped by WRA biologists and their minimum mapping units.

Table 1. Proposed Bank mapped features and approximate minimum mapping units

Feature		**Approximate mapping unit**	
		Acres	**Square Feet**
Waters		0.001	45
Biological communities	Sensitive vegetation alliances	0.5	22,000
	Non-sensitive vegetation alliances	1	45,000
Invasive plant species	Widespread infestations	0.5	22,000
	Individual plants; small populations	point	point
Special status species	Widespread populations	0.01	450
	Individual plants; small populations	point	point
Vegetation recovery		0.5	22,000

Upon returning from the field visits, GIS staff downloaded data from the hand-held GPS units and digitized hand drawn data in ArcGIS v. 9.3 and 10.0. These data were then they displayed with 20-foot contours, the site boundary, and the aerial photograph to produce illustrations of the entire Proposed Bank.

Stream courses were assessed in February 2011 (WRA 2011) by biologists with 40-hour Corps Delineation training. Biological communities were determined in the field and separated between aquatic environments (e.g. stream courses) and terrestrial communities (e.g. coast live oak woodland). Terrestrial vegetation communities were classified based on existing descriptions described in the *Preliminary Descriptions of the Terrestrial Natural Communities of California* (Holland 1986) and refined to the vegetation alliance level and vegetation association level using *A Manual of California Vegetation 2nd Edition* (Sawyer et al. 2009). However, in some cases it was necessary to identify variants of vegetation alliances. Those biological communities observed at the Proposed Bank that are afforded special consideration under CEQA, all vegetation alliances with a State ("S") ranking of S1 through S3, and/or designated with a star (*) in *Preliminary Descriptions of the Terrestrial Natural Communities of California* (Holland 1986), and/or jurisdictional under the Clean Water Act or Section 1602 of the California Fish and Game Code were classified as sensitive. Non-sensitive biological communities were classified as those not afforded special consideration under CEQA, and other state, federal, and local laws, regulations and ordinances.

A vegetation alliance was classified riparian based on the following guidelines: (1) areas containing typical riparian species (e.g. mulefat, California walnut), and (2) areas with a substantial amount of woody vegetation within or near a stream. Riparian classified vegetation alliances extend beyond the adjacent stream when the alliance is dominated by riparian species.

3.3 Biological Communities

There are four general biological communities within the Propose Bank, non-wetland waters, woodlands, scrublands, and grasslands. The biological communities are comprised of 17 vegetation alliances containing 23 vegetation associations. Of these biological communities, non-wetland waters as well as nine vegetation alliances are considered sensitive, while eight vegetation alliances are not considered sensitive. The biological communities, vegetation alliances, and vegetation associations are described below, illustrated Figure 4, and summarized in Tables 2 and 3.

Table 2. Biological communities present within the Proposed Bank

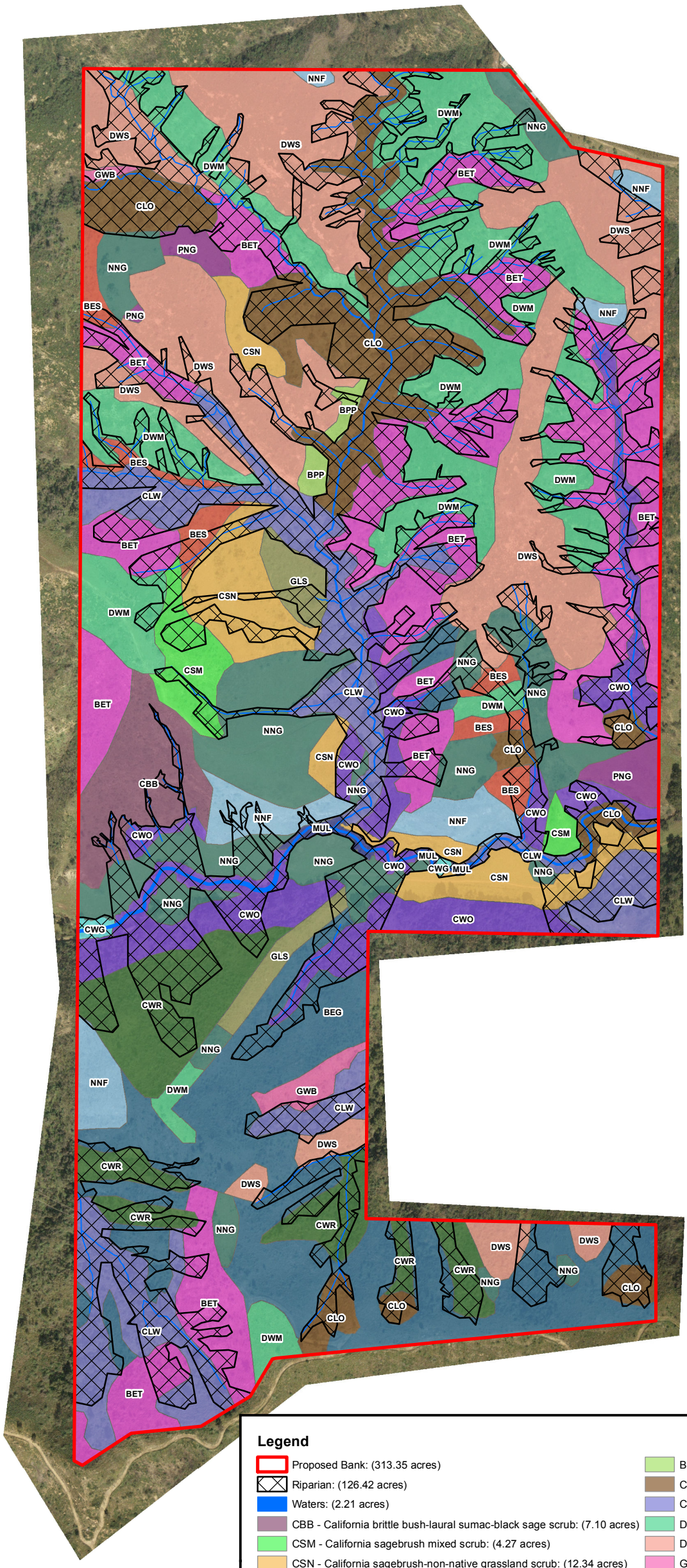
Biological community	Hydro-period / Sensitivity	Acreage	Linear feet
Non-wetland waters	Ephemeral streams (R4SB2/R4SB4/R4SB7)	3.89	67,842
	Intermittent streams (R4SB2/R4SB4)	1.45	8,610
	Perennial streams (R3UB2)	2.05	3,459
TOTAL		**7.39**	**79,911**
Woodland	Sensitive	83.08	N/A
	Non-sensitive	0.00	N/A
Scrubland	Sensitive	106.72	N/A
	Non-sensitive	85.49	N/A
Herbaceous	Sensitive	4.27	N/A
	Non-sensitive	33.80	N/A
TOTAL		**313.36**	**N/A**

Table 3. Vegetation communities present within the Proposed Bank

Vegetation Structure (Community)	Vegetation Alliance	Vegetation Association	Rank	Acreage	Notes
Tree dominated (cismontane woodland)	California walnut groves[1] (*Juglans californica* Woodland Alliance)	California walnut (*J. californica* Association)	G3 S3 (sensitive)	0.42	less than 5% relative cover of coast live oak
		California walnut – coast live oak (*J. californica – Quercus agrifolia* Association)	G3 S3 (sensitive)	19.87	greater than 5%, but less than 70% relative cover of coast live oak
		California walnut / blue elderberry / giant wild rye* (*J. californica / Sambucus nigra / Elymus condensatus* Association)	G3 S3 (sensitive)	15.41	similar to California walnut / toyon / giant wild rye groves, but elderberry in greater cover
	coast live oak woodland[1] (*Quercus agrifolia* Woodland Alliance)	coast live oak (*Q. agrifolia* Association)	G5 S4 (sensitive)	22.36	less than 5% relative cover of California walnut
		coast live oak – California walnut (*Q. agrifolia – J. californica* Association)	G3 S3? (sensitive)	25.02	similar to walnut – oak woodland, but less than 30% relative cover of California walnut
Shrub dominated (chaparral)	deer weed scrub (*Acmispon glaber* Shrubland Alliance)	deer weed (*A. glaber* Association)	G5 S5 (non-sensitive)	46.62	deer weed greater than 80% absolute cover; early seral stage vegetation
		deer weed – mixed shrubs* (*A. glaber* – shrub spp. Association)	G5 S5 (non-sensitive)	38.87	deer weed greater than 50% relative cover in shrub layer; less than 80% absolute cover; substantial bare ground and rock outcrops; early seral stage vegetation
	blue elderberry stands[1] (*Sambucus nigra* Shrubland Alliance)	blue elderberry (*S. nigra* Association)	G3 S3 (sensitive)	4.62	elderberry greater than 75% relative cover; less than 5% cover of walnut
		blue elderberry – toyon (*S. nigra – Heteromeles arbutifolia* Association)	G3 S3 (sensitive)	41.44	elderberry greater than 50% relative cover; toyon less than 50% but greater than 25% relative cover
		blue elderberry / giant wild rye (*S. nigra / E. condensatus* Association)	G3 S3 (sensitive)	32.54	elderberry greater than 20% absolute cover; wild rye greater than 50% absolute cover
Shrub dominated (riparian scrub)	Mulefat thickets[1] (*Baccharis salicifolia* Shrubland Alliance)	mulefat / Gooding's willow* (*B. salicifolia / S. gooddingii* Association)	G5 S4 (sensitive)	0.85	mulefat greater than 50% relative cover
Shrub dominated (coastal scrub)	California sagebrush scrub (*Artemisia californica* Shrubland Alliance)	California sagebrush – mixed shrubs* (*A. californica* – shrub spp. Association)	G5 S5 (sensitive)	4.27	California sagebrush greater than 50% relative cover; all shrubs greater than 50% absolute cover
		California sagebrush – grassland* (*A. californica* – grass spp. Association)	G5 S5 (sensitive)	12.34	All shrubs greater than 30% absolute cover; California sagebrush greater than 50% relative cover
	California brittle bush scrub (*Encelia californica* Shrubland Alliance)	California brittle bush – laurel sumac – black sage (*E. californica – Malosma laurina – Salvia mellifera* Association)	G3 S3 (sensitive)	7.10	brittle bush greater than 50% relative cover; relatively even mix of other shrubs

Vegetation Structure (Community)	Vegetation Alliance	Vegetation Association	Rank	Acreage	Notes
	grape soda lupine scrub* (*Lupinus excubitus* Shrubland Alliance)	grape soda lupine – California sagebrush – black sage (*L. excubitus – A. californica – S. mellifera* Association)	no rank (sensitive)	3.56	lupine greater than 50% relative cover; substantial cover of California sagebrush
Herb dominated (valley and foothill grassland)	giant wild rye stands[1] (*Elymus condensatus*)	giant wild rye / blue elderberry – California walnut (*E. condensatus / S. nigra – J. californica* Association)	G3 S3 (sensitive)	1.60	herbaceous strata greater than 80% relative cover; wild rye greater than 50% relative cover in herb layer
	branching phacelia patches* (*Phacelia ramosissima* Herbaceous Alliance)	branching phacelia (*P. ramosissima* Association)	no rank (non-sensitive?)	1.11	herbaceous strata greater than 80% relative cover to other strata; phacelia greater than 75% relative cover
	purple needlegrass grassland (*Stipa pulchra* Herbaceous Alliance)	purple needlegrass – wild oats – bromes (*S. pulchra – Avena* spp. – *Bromus* spp. Association)	G4 S3? (sensitive)	2.67	needlegrass greater than 10% relative cover; greater than 5% absolute cover
Herb dominated (foothill and valley grassland) **	wild oat grass grasslands (*Avena barbata* Semi-Natural Herbaceous Stands)	wild oat grass – soft chess (*A. barbata – Bromus hordeaceus* Association)	no rank (non-sensitive)	24.81	Alliance/Association level not mapped; herbaceous strata greater than 80% relative cover to other strata
	annual brome grasslands (*Bromus diandrus, B. hordeaceus* Semi-Natural Herbaceous Stands)	ripgut brome – soft chess (*B. diandrus – B. hordeaceus* Association)			Alliance/Association level not mapped; herbaceous strata greater than 80% relative cover to other strata
	red brome grasslands (*Bromus madritensis* ssp. *rubens* Semi-Natural Herbaceous Stands)	red brome (*B. madritensis* ssp. *rubens* Association)			Alliance/Association level not mapped; herbaceous strata greater than 80% relative cover to other strata
	upland mustards (*Brassica nigra* Semi-Natural Herbaceous Stands)	black mustard (*B. nigra* Association)		7.88	Alliance/Association level not mapped; herbaceous strata greater than 80% relative cover to other strata
	tocalote thistle fields (*Centaurea melitensis* Semi-Natural Herbaceous Stands)	tocalote thistle – black mustard (*C. melitensis – B. nigra* Association)			Alliance/Association level not mapped; herbaceous strata greater than 80% relative cover to other strata
	milk thistle stands (*Silybum marianum* Semi-Natural Herbaceous Stands)*	milk thistle – Italian thistle (*S. marianum – Carduus pycnocephalus* Association)			Alliance/Association level not mapped; herbaceous strata greater than 80% relative cover to other strata
TOTAL				**313.36**	

*Previously undescribed in the literature **Not mapped to the Alliance or Association level [1]Riparian community



Legend

- Proposed Bank: (313.35 acres)
- Riparian: (126.42 acres)
- Waters: (2.21 acres)
- CBB - California brittle bush-laural sumac-black sage scrub: (7.10 acres)
- CSM - California sagebrush mixed scrub: (4.27 acres)
- CSN - California sagebrush-non-native grassland scrub: (12.34 acres)
- CWG - California walnut groves: (0.42 acres)
- CWO - California walnut-coast live oak groves: (19.87 acres)
- CWR - California walnut/giant wild rye groves: (15.41 acres)
- BES - blue elderberry stands: (4.62 acres)
- BEG - blue elderberry-giant wild rye stands: (32.54 acres)
- BET - blue elderberry-toyon stands: (41.44 acres)
- BPP - branching phacelia patches: (1.11 acres)
- CLO - coast live oak woodland: (22.36 acres)
- CLW - coast live oak-California walnut woodland: (25.02 acres)
- DWM - deer weed mixed scrub: (38.87 acres)
- DWS - deer weed scrub: (46.62 acres)
- GWB - giant wild rye/blue elderberry-California walnut stands: (1.60 acres)
- GLS - grape soda lupine scrub: (3.56 acres)
- MUL - mulefat thickets: (0.85 acres)
- NNF - non-native forb stands: (7.88 acres)
- NNG - non-native grassland: (24.81 acres)
- PNG - purple needlegrass grasslands: (2.67 acres)

Figure 4. Vegetation Communities within the Proposed Bank

Proposed Soquel Canyon Mitigation/Conservation Bank
San Bernardino and Orange Counties, CA

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ENVIRONMENTAL CONSULTANTS

Date: August 2012
Map By: Sundaran Gillespie
Base Source: ESRI

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3.3.1 Wetlands and Waters

The Proposed Bank contains perennial, intermittent, and ephemeral streams; however, no wetlands were observed (WRA 2011). These streams are detailed below and illustrated in Figure 4.

Ephemeral streams (R4SB2/R4SB4/R4SB7). Ephemeral streams within the Proposed Bank occupy 67,842 linear feet (3.89 acre), and consist of first- and second-order streams originating in steep uplands, with water flowing during or immediately following substantial precipitation events. These 1-2 foot wide streams are typically confined in steep gullies and draws, and contain beds comprised of rubble, sand, and/or upland vegetation. Erosion is apparent, particularly in steeper areas, likely exacerbated by wildfire and grazing effects. Frequently, these streams terminated in lower gradient areas where surface flows percolate into the porous substrate. Vegetation within the streambed and on the banks includes branching phacelia (*Phacelia ramosissima*), black mustard (*Brassica nigra*), Italian thistle (*Carduus pycnocephalus*), red brome (*Bromus madritensis* ssp. *rubens*), ripgut brome (*B. diandrus*), toyon (*Heteromeles arbutifolia*), and blue elderberry (*Sambucus nigra*).

Intermittent streams (R4SB2/R4SB4). Intermittent streams within the Proposed Bank occupy 8,610 linear feet (1.45 acre), and consist of second- and third-order streams originating from confluences of ephemeral streams, with water flowing during and following large to moderate precipitation events. Flows appear to last only a few days with percolation rapid into the porous substrate; however, it is likely that sub-surface flow composes a substantial portion of the hydrology of these streams. These two foot or greater wide streams are typically on moderate to low gradient slopes, and contain beds comprised of rubble and/or sand. Several intermittent streams in the Proposed Bank contain shrub and tree species which appear to be dependent upon the topographic position and the associated availability of water. Woody species observed on the banks of intermittent streams include California walnut (*Juglans californica*), coast live oak (*Quercus agrifolia*), toyon (*Heteromeles arbutifolia*), and blue elderberry (*Sambucus nigra*).

Perennial stream (R3UB2). There is one perennial stream, Soquel Canyon Creek, within the Proposed Bank. Soquel Canyon Creek occupies 3,459 linear feet (2.05 acre), and appears to flow nine to twelve months in a year. Ponded or flowing surface water and saturated substrate were observed within the creek bed during each site visit. Evidence of substantial high flow events was observed as wrack 4-6 feet above the top of bank and a large, dislodged culvert located downstream from a former road crossing. It appears that the floodplain of Soquel Canyon Creek occupied the entire width of Soquel Canyon historically; however, currently the creek is confined to a narrow ravine 6-20 feet deep and 8-18 feet wide. The bed of the channel contains area of rock and cobble, but is generally composed of unvegetated gravel and fine sand. Woody and herbaceous vegetation dependent upon the topographic position and perennial hydrology spans the creek's entire reach, forming a riparian canopy 15-100 feet wide. Woody and herbaceous species observed on Soquel Canyon Creek include California walnut (*Juglans californica*), coast live oak (*Quercus agrifolia*), western sycamore (*Platanus racemosa*), Goodding's willow (*Salix gooddingii*), arroyo willow (*S. lasiolepis*), mulefat (*Baccharis salicifolia*), California blackberry (*Rubus ursinus*), stinging nettle (*Urtica dioica*), water cress (*Nasturtium officinale*), mugwort (*Artemisia douglasiana*), rosilla (*Helenium puberulum*), and basket rush (*Juncus textilis*).

3.3.2 Sensitive Terrestrial Communities

The Proposed Bank contains sensitive terrestrial communities comprised of nine vegetation alliances containing sixteen vegetation associations. These vegetation alliances and associations are described below and illustrated in Figure 4.

California walnut groves (*Juglans californica* Woodland Alliance), G3 S3.2. California walnut groves are known from the Western Transverse Range, Peninsula Ranges, and South Coast from Santa Barbara County in the north to San Diego County in the South. This community is not dependent upon disturbance, but vigorously responds to fire due to stump-sprouting (Sawyer et al. 2009). This vegetation alliance occupies approximately 35.7 acres, including 21.49 acres classified as riparian, and intergrades with blue elderberry stands, and coast live oak woodland throughout the Proposed Bank. The substrate is composed of sandy loams with very little bare ground and few rock outcrops. Three vegetation associations are mapped in the Proposed Bank, California walnut groves, California walnut-coast live oak groves, and California walnut/giant wild rye groves (Figure 4).

California walnut groves occupy approximately 0.42 acre, and are located in Soquel Canyon along Soquel Canyon Creek. These groves contain ten percent or greater absolute cover of tree species and thirty percent or greater relative cover of California walnut (*Juglans californica*). In the tree layer, coast live oak (*Quercus agrifolia*) is present but not subdominant with less than five percent relative cover. The shrub layer contains substantial cover of low-growing riparian shrubs including mulefat (*Baccharis salicifolia*), poison oak (*Toxicodendron diversilobum*), and snowberry (*Symphoricarpos albus* var. *laevigatus*). The herb layer is sparse and dominated by native forbs including western ragweed (*Ambrosia psilostachya*), mugwort (*Artemisia douglasiana*), and stinging nettle (*Urtica dioica*).

California walnut groves-coast live oak groves occupy approximately 19.87 acres, and are located in Soquel Canyon, on north-facing slopes, and within deep drainages in the lower third of hillsides on very steep to moderate slopes. These groves contain ten percent or greater absolute cover of tree species and thirty percent or greater relative cover of California walnut (*Juglans californica*). In the tree layer, coast live oak (*Quercus agrifolia*) is subdominant with seventy percent or less relative cover; however, this species typically comprises less than thirty percent relative cover in most groves in the Proposed Bank. The shrub layer contains substantial cover of native shrubs including blue elderberry (*Sambucus nigra*), toyon (*Heteromeles arbutifolia*), and laurel sumac (*Malosma laurina*). The herb layer is dominated by a non-native herbs including tocalote thistle (*Centaurea melitensis*), milk thistle (*Silybum marianum*), Italian thistle (*Carduus pycnocephalus*), ripgut brome (*Bromus diandrus*), and red brome (*B. madritensis* ssp. *rubens*).

California walnut/giant wild rye groves occupy approximately 15.41 acres, and are located on north-facing aspects on hillsides and in smaller drainages on moderate to steep slopes. These groves contain ten percent or greater absolute cover of California walnut (*Juglans californica*) and very few individuals of coast live oak (*Quercus agrifolia*). The shrub layer is dominated by blue elderberry (*Sambucus nigra*), with substantially less cover of toyon (*Heteromeles arbutifolia*), laurel sumac (*Malosma laurina*), lemonade berry (*Rhus integrifolia*), and sugar sumac (*R. ovata*). The herb layer is dominated by giant wild rye (*Elymus condensatus*), with substantially less cover of branching phacelia (*Phacelia ramosissima*), Italian thistle (*Carduus pycnocephalus*), and tocalote thistle (*Centaurea melitensis*).

Coast live oak woodland (*Quercus agrifolia* Woodland Alliance), G5 S4. Coast live oak woodlands are typically located on terraces, canyon bottoms, slopes, and flats from the outer and interior North Coast Ranges, the Bay Area, South and Central Coast Ranges, Western Transverse Range, and Peninsular Ranges from Humboldt County in the north to San Diego County in the south. This community is not dependent on disturbance, but larger trees are resistant to low to moderate fires (Sawyer et al. 2009). In the Proposed Bank, this vegetation alliance occupies approximately 47.38 acres, including 39.41 acres classified as riparian, and intergrades with blue elderberry stands, and California walnut groves throughout the Proposed Bank. The substrate is composed of deep sandy loams with very little bare ground and few rock outcrops. Two vegetation associations are mapped in the Proposed Bank, coast live oak woodlands and coast live oak-California walnut woodlands (Figure 4).

Coast live oak woodlands occupy approximately 22.36 acres in the Proposed Bank, and typically located in deep drainages and north-facing slopes. These woodlands contain fifty percent or greater absolute cover of coast live oak (*Quercus agrifolia*), and less than five percent relative cover of California walnut (*Juglans californica*) and western sycamore (*Platanus racemosa*) in the tree layer. Substantial cover of shrubs is present, particularly in openings in the tree canopy, and includes blue elderberry (*Sambucus nigra*), toyon (*Heteromeles arbutifolia*), mountain mahogany (*Cercocarpus betuloides*), fuchsia flowered gooseberry (*Ribes speciosum*), California rose (*Rosa californica*), and snowberry (*Symphoricarpos albus* var. *laevigatus*). The herb layer is dominated by non-native species including Italian thistle (*Carduus pycnocephalus*), milk thistle (*Silybum marianum*), ripgut brome (*Bromus diandrus*), and red brome (*B. madritensis* ssp. *rubens*).

Coast live oak-California walnut woodlands occupy approximately 25.02 acres in the Proposed Bank, and typically located in deep drainages, Soquel Canyon, and north-facing slopes. These woodland contain thirty percent or greater absolute cover of coast live oak (*Quercus agrifolia*), and less than thirty percent, but greater than five percent relative cover of California walnut (*Juglans californica*) in the tree layer. The tree canopy is typically more open in this association than the coast live oak woodland; therefore, the shrub layer is relatively dense. Shrub species include blue elderberry (*Sambucus nigra*), toyon (*Heteromeles arbutifolia*), snowberry (*Symphoricarpos albus* var. *laevigatus*), skunk brush (*Rhus trilobata*), and southern honeysuckle (*Lonicera subspicata* var. *denudata*). The herb layer is dominated by native and non-native species including branching phacelia (*Phacelia ramosissima*), blue fiesta flower (*Pholistoma auritum* var. *auritum*), Italian thistle (*Carduus pycnocephalus*), milk thistle (*Silybum marianum*), and ripgut brome (*Bromus diandrus*).

Blue elderberry stands (*Sambucus nigra* Shrubland Alliance), G3 S3. Blue elderberry stands are known from the Peninsular Ranges, Central Valley, and the hills surrounding the Bay Area. This community is dominated by shrubs that stump-sprout and seeds that germinate following low- to moderate-level fire (Sawyer et al. 2009). In the Proposed Bank, this vegetation alliance occupies approximately 78.6 acres, including 30.60 acres classified as riparian, and intergrades with coast live oak woodlands, California walnut groves, California sagebrush scrubs, and deer weed scrubs throughout the Proposed Bank. The substrate underlying this alliance is composed of cobbly, sandy loams, with very little bare ground present. Three vegetation associations are mapped in the Proposed Bank, blue elderberry stands, blue eldberberry-toyon stands, and blue elderberry/giant wild rye stands (Figure 4).

Blue elderberry stands occupy approximately 4.62 acres in the Proposed Bank, and are located on all aspects, slopes, and topographic positions. The tree cover is less than five percent absolute cover and composed of isolated individuals of coast live oak (*Quercus agrifolia*) and California walnut (*Juglans californica*). The shrub layer contains thirty to fifty percent absolute cover of shrubs, with blue elderberry (*Sambucus nigra*) comprising seventy-five percent or greater relative cover in the shrub layer. Other shrub species present include toyon (*Heteromeles arbutifolia*), laurel sumac (*Malosma laurina*), lemonade berry (*Rhus integrifolia*), and sugar sumac (*R. ovata*). The herb layer is dominated by a mix of native and non-native species including branching phacelia (*Phacelia ramosissima*), Italian thistle (*Carduus pycnocephalus*), and milk thistle (*Silybum marianum*).

Blue elderberry-toyon stands occupy approximately 41.44 acres in the Proposed Bank, and are located on all aspects, slopes, and topographic positions. The tree cover is less than ten percent absolute cover and composed of isolated individuals of coast live oak (*Quercus agrifolia*) and California walnut (*Juglans californica*). The shrub layer contains fifty percent or greater absolute cover of shrubs, with blue elderberry (*Sambucus nigra*) comprising fifty percent or greater relative cover and toyon (*Heteromeles arbutifolia*) comprising thirty to fifty percent relative cover in the shrub layer. Other shrubs comprising substantially less cover include laurel sumac (*Malosma laurina*), lemonade berry (*Rhus integrifolia*), sugar sumac (*R. ovata*), and sticky monkeyflower (*Mimulus aurantiacus*). The herb layer is dominated by a mix of native and non-native species including branching phacelia (*Phacelia ramosissima*), Italian thistle (*Carduus pycnocephalus*), and milk thistle (*Silybum marianum*).

Blue elderberry/giant wild rye stands occupy approximately 32.54 acres in the Proposed Bank, and are located primarily on north-facing aspects on moderate to steep slopes in the middle to upper portion of hillsides. The tree cover is less than one percent absolute cover and composed of isolated individuals of coast live oak (*Quercus agrifolia*) and California walnut (*Juglans californica*). The shrub layer contains thirty to fifty percent absolute cover of blue elderberry (*Sambucus nigra*). Other shrubs comprising substantially less cover include toyon (*Heteromeles arbutifolia*), laurel sumac (*Malosma laurina*), lemonade berry (*Rhus integrifolia*), sugar sumac (*R. ovata*), and sticky monkeyflower (*Mimulus aurantiacus*). The herb layer is dominated by giant wild rye (*Elymus condensatus*), substantially less cover of native forbs including branching phacelia (*Phacelia ramosissima*), caterpillar phacelia (*P. cicutaria* var. *hispida*), and stinging lupine (*Lupinus hirsutissimus*).

Mulefat thickets (*Baccharis salicifolia* Shrubland Alliance), G5 S4. Mulefat thickets are known from the interior North Coast Range, the Central and South Coast Ranges, the Central Valley, the desert mountains, the Transverse Ranges, and the Peninsula Ranges. This community is typically located in riparian areas and along broad washes, with the dominant disturbance mechanism comprised of fluvial processes (Sawyer et al. 2009). In the Proposed Bank, this vegetation alliance occupies approximately 0.85 acre, including 0.83 acre classified as riparian, and intergrades with California walnut groves and coast live oak woodland in the deeper drainages of the Proposed Bank. The substrate is composed of sorted sediments and bedrock. One vegetation association is mapped in the Proposed Bank, mulefat/Gooding's willow thickets (Figure 4).

Mulefat/Gooding's willow thickets are located in Soquel Canyon Creek and the lower ends of smaller drainages. Tree cover is less than ten percent absolute cover and dominated by Gooding's willow (*Salix gooddingii*), with less cover of coast live oak (*Quercus agrifolia*) and California walnut (*Juglans californica*). The shrub layer contains fifty percent or greater absolute cover of mulefat (*Baccharis salicifolia*). The herb layer is a dominated by hydrophytic species including water cress (*Nasturtium officinale*), basket rush (*Juncus textilis*), mugwort (*Artemisia douglasiana*), and stinging nettle (*Urtica dioica*).

California sagebrush scrub (*Artemisia californica* Shrubland Alliance), G5 S5. California sagebrush scrubs are typically located on colluvial and alluvial substrates on slopes in the Bay Area, Central and South Coast Ranges, the Western Transverse Range, and the Peninsular Ranges from Marin County in the north to San Diego County in the South. This community is relatively tolerant of fire, particularly nearer the coast, with some stump-sprouting and seed germination following fires (Sawyer et al. 2009). In the Proposed Bank, this vegetation alliance occupies approximately 16.61 acres, and intergrades with California walnut groves, deer weed scrubs, blue elderberry stands, and herbaceous communities throughout the Proposed Bank. The substrate is composed of deep sandy loams with very little bare ground and few rock outcrops. Two vegetation associations are mapped in the Proposed Bank, California sagebrush-mixed scrubs and California sagebrush/grassland scrubs (Figure 4).

California sagebrush-mixed scrubs occupy approximately 4.27 acres in the Proposed Bank, and typically are located on all aspects in the upper two-thirds of moderate to steep slopes. Tree cover is less than ten percent absolute cover, with isolated individuals or copses of coast live oak (*Quercus agrifolia*) and California walnut (*Juglans californica*). The shrub layer contains fifty percent or greater absolute cover of shrubs, with California sagebrush (*Artemisia californica*) composing fifty percent or greater relative cover in the shrub layer. Other shrub species include white sage (*Saliva apiana*), purple sage (*S. leucophylla*), black sage (*S. mellifera*), sticky monkeyflower (*Mimulus aurantiacus* var. *pubescens*), grape soda lupine (*Lupinus excubitus* var. *hallii*), and deer weed (*Acmispon glaber*). The herb layer is a dominated by native species including foothill needlegrass (*Stipa lepida*), purple needlegrass (*S. pulchra*), small-flower onion grass (*Melica imperfecta*), cardinal catchfly (*Silene laciniata* var. *laciniata*), Parry's phacelia (*Phacelia parryi*), and California four o'clock (*Mirabilis laevis* var. *crassifolia*).

California sagebrush-grassland scrubs occupy approximately 12.34 acres in the Proposed Bank, and are located on neutral aspects and slopes in the lower third of hillsides. Tree cover is less than one percent absolute cover, with isolated individuals of coast live oak (*Quercus agrifolia*) and California walnut (*Juglans californica*). The shrub layer contains thirty percent or greater absolute cover of shrubs, with California sagebrush composing fifty percent or greater relative cover in the shrub layer. Other shrub species include Menzies' goldenbush (*Isocoma menziesii* var. *menziesii*), purple sage (*Salvia leucophylla*), and black sage (*S. mellifera*). The herb layer is dominated by non-native grasses including wild oat grass (*Avena barbata*), ripgut brome (*Bromus diandrus*), soft chess (*B. hordeaceus*), red brome (*B. madritensis* ssp. *rubens*), and mouse barley (*Hordeum murinum*).

California brittle bush scrub (*Encelia californica* Shrubland Alliance), G4 S3. California brittle bush scrubs are typically located on open, steep slopes underlain by sandstone or shale substrate on the South Coast and Peninsular Ranges from Santa Barbara north in the north to San Diego County in the south. This community is not dependent on fire disturbance, but stump-sprouting and seed germination are vigorous following fire (Sawyer et al. 2009). In the Proposed Bank, this vegetation alliance occupies approximately 7.1 acres, and intergrades with California walnut groves, blue elderberry stands, and deer weed scrubs in the Proposed Bank. The substrate is composed of sandy loams and rock outcrops. One vegetation association is mapped in the Proposed Bank, California brittle bush-laurel sumac-black sage scrubs (Figure 4).

California brittle bush-laurel sumac-black sage scrubs are located on steep, south-facing exposures in the Proposed Bank. Tree cover is less than five percent absolute cover and composed of isolated individuals of coast live oak (*Quercus agrifolia*) and California walnut (*Juglans californica*). The shrub layer contains fifty percent or greater absolute cover of California brittle bush (*Encelia californica*), laurel sumac (*Malosma laurina*), black sage (*Salvia mellifera*), toyon (*Heteromeles arbutifolia*), blue elderberry (*Sambucus nigra*), deer weed (*Acmispon glaber*), and California sagebrush (*Artemisia californica*). The herb layer is a dominated by non-native invasive species including tocalote thistle (*Centaurea melitensis*), black mustard (*Brassica nigra*), Italian thistle (*Carduus pycnocephalus*), and milk thistle (*Silybum marianum*).

Grape soda lupine stands (*Lupinus excubitus* undescribed Shrubland Alliance), No Rank. Grape soda lupine stands are not described in the literature; however, the dominant species is known from the South Coast Ranges, Transverse Ranges, Peninsula Ranges, southern Sierra Nevada, Tehachapi Mountains, and Desert Mountains (CCH 2011). This vegetation alliance is likely emergent post-fire and short-lived, eventually becoming dominated by longer living shrubs and trees (Wirtz 1982). In the Proposed Bank, this vegetation alliance occupies approximately 3.56 acres, and intergrades with blue elderberry stands, California walnut groves, California sagebrush scrubs, and herbaceous dominated communities. The substrate is composed of sandy loams with very little bare ground or rock outcrops. One vegetation association is mapped in the Proposed Bank, grape soda lupine stands (Figure 4).

Grape soda lupine stands are located on north- and east-facing, middle hillsides, on relatively steep slopes. The vegetation is dominated by shrub, with no cover of tree species and little cover of herbaceous species. The dominant shrub species is grape soda lupine (*Lupinus excubitus* var. *hallii*), comprising approximately 50 to 75 percent relative cover in the shrub layer. Other shrub species composing a combined relative cover of less than 50 percent include white sage (*Salvia apiana*), purple sage (*S. leucophylla*), black sage (*S. mellifera*), California sagebrush (*Artemisia californica*), California brittle bush (*Encelia californica*), sticky monkeyflower (*Mimulus aurantiacus* var. *pubescens*), heart-leaf beardtongue (*Keckiella cordifolia*), and poison oak (*Toxicodendron diversilobum*). Herbaceous species include (*Phacelia ramosissima*), Parry's phacelia (*P. parryi*), and caterpiller phacelia (*P. cicutaria* var. *hispida*). This vegetation alliance likely will decline in extent as longer lived shrubs (e.g. black sage, California sagebrush) continue to invade and expand.

Giant wild rye stands (*Elymus condensatus* undescribed Herbaceous Alliance), No Rank. Giant wild rye stands are not described in the literature; however, the dominant species, giant wild rye (*Elymus condensatus*) is known from the Central and South Coast Ranges, Peninsular Ranges, and Mojave Desert (CCH 2011; Hickman 1993). In the Proposed Bank, this vegetation alliance occupies approximately 1.6 acres, including 0.25 acres classified as riparian, and intergrades with California walnut groves and blue elderberry stands. The substrate underlying this alliance is composed of deep sandy loams, with very little bare ground present. One vegetation association is mapped in the Proposed Bank, giant wild rye/blue elderberry/California walnut stands (Figure 4).

Giant wild rye/blue elderberry/California walnut stands are located on north-facing aspects on moderate to steep slopes in the upper half of hillsides. The shrub and tree layers contain less than twenty percent absolute cover, and are primarily composed of California walnut (*Juglans californica*) and blue elderberry (*Sambucus nigra*), with much less cover of toyon (*Heteromeles arbutifolia*) and laurel sumac (*Malosma laurina*). The herb layer is composed of eighty to ninety percent absolute cover, with giant wild rye (*Elymus condensatus*) comprising fifty to seventy-five percent relative cover in this strata. Other herbaceous species include branching phacelia (*Phacelia ramosissima*), Italian thistle (*Carduus pycnocephalus*), tocalote thistle (*Centaurea melitensis*), and milk thistle (*Silybum marianum*).

Purple needlegrass grassland (*Stipa pulchra* Herbaceous Alliance), G4 S3? Purple needlegrass grasslands are known from the Peninsula Ranges, Central Valley, and the hills surrounding the Bay Area. This community is dominated by shrubs that stump-sprout and seeds that germinate following low- to moderate-level fire (Sawyer et al. 2009). In the Proposed Bank, this vegetation alliance occupies approximately 2.67 acres, and intergrades with California sagebrush scrubs, deer weed scrubs, blue elderberry stands, and non-native herbaceous stands. The substrate underlying this alliance is composed of deep sandy loams, with very little bare ground present. One vegetation association is mapped in the Proposed Bank, purple needlegrass-wild oats-bromes grassland (Figure 4).

Purple needlegrass-wild oats-brome grasslands are located on south-facing to neutral aspects, on moderate to neutral slopes in the lower to upper portions of hillsides. There is no tree and minimal shrub cover within this association. The shrub layer contains less than one percent absolute cover of blue elderberry (*Sambucus niger*), toyon (*Heteromeles arbutifolia*), California sagebrush (*Artemisia californica*), and sages (*Salvia apiana, S. leucophylla, S. mellifera*). The herb layer is composed of ninety-five percent or greater absolute cover of graminoids, with purple needlegrass (*Stipa pulchra*) comprising ten to fifty percent relative cover, and wild oats and bromes comprising fifty to eight percent relative cover in this strata. Other herbs present in this vegetation association include foothill needlegrass (*Stipa lepida*), California onion grass (*Melica californica*), small-flower onion grass (*M. imperfecta*), wild oats (*Avena barbata, A. fatua*), bromes (*Bromus diandrus, B. hordeaceus, B. madritensis*), common yarrow (*Achillea millefolium*), California milkweed (*Asclepias californica*), narrow-leaf milkweed (*A. fascicularis*), and clustered tarweed (*Deinandra fasciculata*).

3.3.3 Non-sensitive Terrestrial Communities

The Proposed Bank contains non-sensitive terrestrial communities comprised of eight vegetation alliances containing nine vegetation associations. These vegetation alliances and associations are described below and illustrated in Figure 4.

Deer weed scrub (*Acmispon glaber* [*Lotus scoparius*] Shrubland Alliance), G5 S5. Deer weed scrubs are known from the Klamath Mountains, interior North Coast Range, Sierra Nevada Foothills, Central Coast Range, South Coast Range, Tehachapi Mountains, and Peninsula Ranges. This community is typically a short-lived early seral stage emerging following disturbance such as fire, and is located on a variety of soils, topographic positions, and aspects (Sawyer et al. 2009). In the Proposed Bank, this vegetation alliance occupies approximately 85.49 acres, including 20.75 acre classified as riparian, and intergrades with blue elderberry stands and herbaceous communities throughout the Proposed Bank. The substrate is composed of deep sandy loams with very little bare ground and few rock outcrops. Two vegetation associations are mapped in the Proposed Bank, deer weed scrubs and deer weed mixed scrubs (Figure 4).

Deer weed scrubs occupy approximately 46.62 acres in the Proposed Bank, and typically located on neutral aspects of ridgelines. Tree cover is less than one percent absolute cover composed of isolated individuals of coast live oak (*Quercus agrifolia*). The shrub layer contains eighty percent or greater absolute cover of shrubs, with deer weed (*Acmispon glaber*) composing seventy-five percent or greater relative cover in the shrub layer. Other shrub species include toyon (*Heteromeles arbutifolia*), blue elderberry (*Sambucus nigra*), black sage (*Salvia mellifera*), sticky monkeyflower (*Mimulus aurantiacus* var. *pubescens*), and California sagebrush (*Artemisia californica*). The herb layer is reduced due to a dense scrub layer, and dominated by native species including cardinal catchfly (*Silene laciniata* var. *laciniata*), Parry's phacelia (*Phacelia parryi*), sacapellote (*Acourtia microcephala*), California cudweed (*Gnaphalium californicum*), and California four o'clock (*Mirabilis laevis* var. *crassifolia*).

Deer weed mixed scrubs occupy approximately 38.87 acres in the Proposed Bank, and typically located on ridgelines. Tree cover is less than five percent absolute cover composed of isolated individuals of coast live oak (*Quercus agrifolia*) and California walnut (*Juglans californica*). The shrub layer contains fifty percent or greater absolute cover of shrubs, with deer weed (*Acmispon glaber*) composing fifty percent or greater relative cover in the shrub layer. Other shrub species include toyon (*Heteromeles arbutifolia*), blue elderberry (*Sambucus nigra*), black sage (*Salvia mellifera*), sticky monkeyflower (*Mimulus aurantiacus* var. *pubescens*), and California sagebrush (*Artemisia californica*). The herb layer dominated by a mix of native and non-native species including branching phacelia (*Phacelia ramosissima*), sacapellote (*Acourtia microcephala*), milk thistle (*Silybum marianum*), Italian thistle (*Carduus pycnocephalus*), and black mustard (*Brassica nigra*).

Branching phacelia patches (*Phacelia ramosissima* undescribed Herbaceous Alliance), No Rank. Branching phacelia patches are not described in the literature; however, the dominant species is known from the Coast Ranges, Transverse Ranges, Peninsula Ranges, Sierra Nevada, Tehachapi Mountains, and Desert Mountains (CCH 2011; Hickman 1993). In the Proposed Bank, this vegetation alliance occupies approximately 1.11 acres, and intergrades with coast live oak woodland and deer weed scrubs. The substrate underlying this alliance is composed of cobbly, sandy loams, with very little bare ground present. One vegetation association is mapped in the Proposed Bank, branching phacelia patches (Figure 4).

Branching phacelia patches are located on all east-facing aspects, on steep slopes in the middle to lower portions of hillsides. There is no tree and minimal shrub cover within this association. The shrub layer contains less than five percent absolute cover of blue elderberry (*Sambucus nigra*), toyon (*Heteromeles arbutifolia*), and deer weed (*Acmispon glaber*). The herb layer is composed of ninety-five percent or greater absolute cover of forbs, with branching phacelia (*Phacelia ramosissima*) comprising seventy-five percent or greater relative cover in this strata. Other herbs present in this vegetation association include Parry's phacelia (*P. parryi*), California four o'clock (*Mirabilis laevis* var. *crassifolia*), and stinging lupine (*Lupinus hirsutissimus*).

Non-native grassland (various Herbaceous Alliances), No Rank. Non-native grasslands are located throughout California, particularly in areas where native grasslands historically ranged. This community is dominated by non-native herbaceous species adapted to disturbance (Holland 1986; Sawyer et al. 2009). In the Proposed Bank, this community occupies approximately 24.81 acres, and intergrades with California sagebrush scrubs, blue elderberry stands, and purple needlegrass grassland (Figure 4). The substrate underlying this alliance is composed of deep sandy loams, with very little bare ground present. Within the Proposed Bank, there are three vegetation alliances composed of one vegetation association each, wild oat grasslands, annual brome grasslands, and red brome grasslands. Neither alliances nor associations mapped due to stand complexity and annual shifts in dominant species.

Within all three alliances, the tree and shrub cover contain less than twenty percent absolute cover. Tree and shrub species within these alliances include coast live oak (*Quercus agrifolia*), blue elderberry (*Sambucus nigra*), California sagebrush (*Artemisia californica*), sages (*Salvia apiana, S. leucophylla, S. mellifera*), laurel sumac (*Malosma laurina*), and toyon (*Heteromeles arbutifolia*). Herbaceous species contain eighty to one hundred percent absolute cover, with varying relative covers of individual species.

Wild oat grass grasslands are located throughout the non-native grasslands in the Proposed Bank. Wild oat grasses (*Avena barbata, A. fatua*) comprise fifty percent or greater relative cover in the herb layer. Other herbs present within this alliance include bromes (*Bromus diandrus, B. hordeaceus, B. madritensis*), needlegrasses (*Stipa lepida, S. pulchra*), lupines (*L. hirsutissimus, L. microcarpus, L. succulentus*), common yarrow (*Achillea millefolium*), and horehound (*Marrubium vulgare*).

Annual brome grasslands are located throughout the non-native grasslands in the Proposed Bank. Ripgut brome (*Bromus diandrus*) and/or soft chess (*B. hordeaceus*) comprise fifty percent or greater relative cover in the herb layer. Other herbs present within this alliance include wild oats (*Avena barbata, A. fatua*), needlegrasses (*Stipa lepida, S. pulchra*), lupines (*L. hirsutissimus, L. microcarpus, L. succulentus*), common yarrow (*Achillea millefolium*), and horehound (*Marrubium vulgare*).

Red brome grasslands are located throughout the non-native grasslands in the Proposed Bank. Red brome (*Bromus madritensis* ssp. *rubens*) comprises fifty percent or greater relative cover in the herb layer. Other herbs present within this alliance include wild oats (*Avena barbata, A. fatua*), bromes (*Bromus diandrus, B. hordeaceus*), needlegrasses (*Stipa lepida, S. pulchra*), lupines (*L. hirsutissimus, L. microcarpus, L. succulentus*), common yarrow (*Achillea millefolium*), and horehound (*Marrubium vulgare*).

Non-native forb stands (various Herbaceous Alliances), No Rank. Non-native forb stands are located throughout California, particularly in areas where native grasslands historically ranged and sites of recent and/or repeated disturbance. This community is dominated by non-native herbaceous species adapted to disturbance (Holland 1986; Sawyer et al. 2009). In the Proposed Bank, this community occupies approximately 7.88 acres, and intergrades with California sagebrush scrubs, blue elderberry stands, and non-native annual grasslands (Figure 4). The substrate underlying this alliance is composed of deep sandy loams, with substantial patches of bare ground present. Within the Proposed Bank, there are three vegetation alliances composed of one vegetation association each, upland mustards, tocalote thistle fields, and milk thistle stands. Neither alliances nor associations mapped due to stand complexity and annual shifts in dominant species.

Within all three alliances, the tree and shrub cover contain less than twenty percent absolute cover. Tree and shrub species within these alliances include coast live oak (*Quercus agrifolia*), blue elderberry (*Sambucus nigra*), California sagebrush (*Artemisia californica*), sages (*Salvia apiana, S. leucophylla, S. mellifera*), laurel sumac (*Malosma laurina*), and toyon (*Heteromeles arbutifolia*). Herbaceous species contain eighty to one hundred percent absolute cover, with varying relative covers of individual species.

Upland mustards are located throughout the non-native forb stands in the Proposed Bank. Black mustard (*Brassica nigra*) comprises fifty percent or greater relative cover in the herb layer. Other herbs present within this alliance include bromes (*Bromus diandrus, B. hordeaceus, B. madritensis*), horehound (*Marrubium vulgare*), branching phacelia (*Phacelia ramosissima*), Italian thistle (*Carduus pycnocephalus*), tocalote thistle (*Centaurea melitensis*), milk thistle (*Silybum marianum*), stinging lupine (*Lupinus hirsutissimus*), and filarees (*Erodium botrys, E. cicutarium*).

Tocalote thistle fields are located throughout the non-native forb stands in the Proposed Bank. Tocalote thistle (*Centaurea melitensis*) comprises fifty percent or greater relative cover in the herb layer, with substantial additional cover of black mustard (*Brassica nigra*). Other herbs present within this alliance include wild oats (*Avena barbata, A. fatua*), bromes (*Bromus diandrus, B. hordeaceus, B. madritensis*), Italian thistle (*Carduus pycnocephalus*), milk thistle (*Silybum marianum*), branching phacelia (*Phacelia ramosissima*), and horehound (*Marrubium vulgare*).

Milk thistle stands are located throughout the non-native forb stands in the Proposed Bank. Milk thistle (*Silybum marianum*) comprises fifty percent or greater relative cover in the herb layer. Other herbs present within this alliance include wild oats (*Avena barbata, A. fatua*), bromes (*Bromus diandrus, B. hordeaceus, B. madritensis*), Italian thistle (*Carduus pycnocephalus*), tocalote thistle (*Centaurea melitensis*), black mustard (*Brassica nigra*), branching phacelia (*Phacelia ramosissima*), and horehound (*Marrubium vulgare*).

3.4 Plant Species

3.4.1 Overall Biodiversity

Field surveys to date suggest that the Proposed Bank contains plant diversity consistent with the vegetation communities, and the land use and fire history present. A combined total of 216 species were observed during the survey. The three most diverse families include the sunflower family (Asteraceae) with 40 species, the grass family (Poaceae) with 22 species, and the pea family (Fabaceae) with 20 species. Of the 154 native species, 107 are herbs (vines, ferns, forbs, and graminoids), 42 are shrubs, and five are trees. Of the remaining 62 non-native species, 37 are considered invasive including two classified as “high” and 20 classified as “moderate” by the California Invasive Plant Council (Cal-IPC 2006).

Although survey methodology and total survey area are undocumented, plant surveys conducted by the Orange County CNPS (OCCNPS 2009) from Coal Canyon, Chino Hills State Park, reveal similar plant diversity to the Proposed Bank, but with a higher ratio of native to non-native species. There are a total of 246 species documented including 197 native species and 49 non-native species. Of the native species, 130 are herbs, 56 are shrubs, and 11 are trees. WRA conducted a site visit to Coal Canyon and observed similar plant diversity within several of the same vegetation alliances in a pre-fire context. The higher non-native to native species ratio in the Proposed Bank compared to Coal Canyon may be due repeated disturbance from recent fires and cattle grazing.

3.4.2 Special Status Plant Species

A background information search was conducted to identify potential special status plant species that may occur in the Proposed Bank. Sources for this search included the CCH (2011), CNDDB (2011) records, and the CNPS Electronic Inventory of Rare and Endangered Vascular Plants of California (2011) for the USGS Anaheim, Baldwin Park, Black Star Canyon, La Habra, Ontario, Orange, Prado Dam, San Dimas, and Yorba Linda 7.5-minute quadrangles. Of the forty-six special status plant species that have been recorded in the greater vicinity of the Proposed Bank, 28 were determined to have a moderate to high potential to occur. Figure 5 illustrates the documented locations of special status plant species in the vicinity of the Proposed Bank, and Appendix B summarizes the potential for each of these species to occur.

Three floristic, protocol-level rare plant surveys were conducted in April, June, and August, 2011. The survey corresponded to peak blooming periods for observing and accurately identifying the 28 vascular special status plant species with the potential to occur in the Proposed Bank. Where and when possible, WRA consulted with other botanists, reviewed dates of historical documentation, or conducted reference site visits to ensure that the surveys were conducted within a period sufficient to identify the potentially occurring special status plant species. To assist in the 2011 rare plant surveys a scientific collecting permit was obtained from Chino Hills State Park so that project botanists could visit reference sites within the State Park. All plants were primarily identified using *The Jepson Manual II* (Jepson 2011), to the taxonomic level necessary to determine rarity. Some plants were cross referenced and identified using *The Jepson Manual* (Hickman 1993) as some agencies and jurisdictions may base rarity on older names. Names given within this report follow *The Jepson Manual II* (Jepson 2011), with those from Hickman (1993) noted in brackets in Appendix A. The plant surveys were floristic in nature with all observed species recorded and included as a species list provided in Appendix A. Three special status plant species were observed in the Proposed Bank by WRA during the surveys: Catalina mariposa-lily (*Calochortus catalinae*), California walnut (*Juglans californica*), and Fish's milkwort (*Polygala cornuta* var. *fishiae*). Special status plant species that were observed, or have a moderate or high potential to occur in the Proposed Bank are discussed below.

Chaparral sand-verbena (*Abronia villosa* var. *aurita*), CNPS List 1B. Moderate Potential. Chaparral sand-verbena is a perennial forb in the four o'clock family (Nyctaginaceae) that blooms from January to September. It typically occurs on sandy substrates in chaparral, coastal scrub, and dune habitat at elevations ranging from 260 to 5200 feet (CNDDB 2011, CNPS 2011). Observed associated species include western sycamore (*Sycamore racemosa*), coast live oak (*Quercus agrifolia*), California buckwheat (*Eriogonum fasciculatum*), coyote brush (*Baccharis pilularis*), mulefat (*B. salicifolia*), California sagebrush (*Artemisia californica*), blue elderberry (*Sambucus nigra*), sagebrush (*A. tridentata*), ripgut brome (*Bromus diandrus*), cheat grass (*B. tectorum*), and stinging nettle (*Urtica dioica*) (CNDDB 2011).

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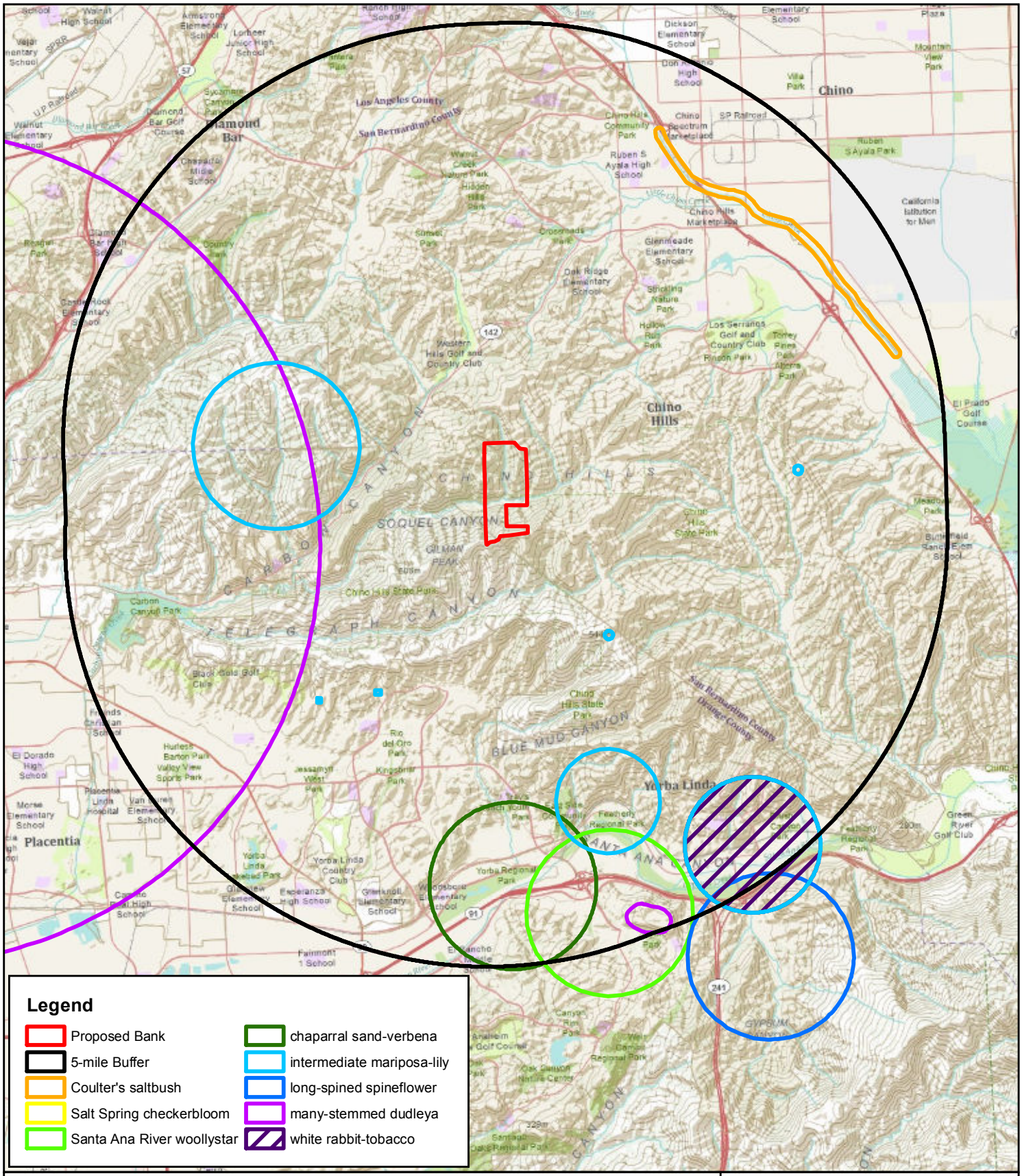

Figure 5. Special Status Plant Species within 5-mile Radius of Proposed Bank

Proposed Soquel Canyon Mitigation/Conservation Bank
San Bernardino and Orange Counties, CA

wra
ENVIRONMENTAL CONSULTANTS

Date: August 2011
Map By: Sundaran Gillespie
Basemap: ESRI World Topo

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Chaparral sand-verbena is known from 53 USGS 7.5-minute quadrangles in Imperial, Los Angeles, Orange, Riverside, San Bernardino, San Diego, and Ventura counties (CNPS 2011). There are four CNDDB (2011) records within the greater vicinity of the Proposed Bank, nine CCH (2011) records from Orange County, and two CCH (2011) records from San Bernardino County. The nearest documented occurrence is from July 1931 in Santa Ana Canyon, approximately four miles south of the Proposed Bank (CNDDB 2011). The most recent documented occurrence in Orange and San Bernardino counties is from October 1976 near Barstow, approximately 75 miles northeast of the Proposed Bank (CNDDB 2011, CCH 2011). This species has a moderate potential to occur in the Proposed Bank due to the presence of sandy substrate, chaparral and coastal scrub habitat, and several of the documented associated species; however, dune habitat is not present. This species was not observed during the April, July, or August surveys.

California Androsace (*Androsace elongata* ssp. *acuta*), CNPS List 4. Moderate Potential. California Androsace is an annual forb in the primrose family (Primulaceae) that blooms from March to June. It typically occurs in chaparral, cismontane woodland, coastal sage scrub, and valley and foothill grassland habitat at elevations ranging from 485 to 3900 feet (CNPS 2011). Observed associated species are unreported in the literature.

California Androsace is known from 43 USGS 7.5-minute quadrangles in Alameda, Contra Costa, Colusa, Fresno, Glenn, Kern, Los Angeles, Merced, Riverside, San Bernardino, San Benito, Santa Clara, San Diego, Siskiyou, San Joaquin, San Luis Obispo, San Mateo, Stanislaus, and Tehama county (CNPS 2011). There are no CNDDB (2011) records within the greater vicinity of the Proposed Bank, no CCH (2011) records in Orange County, and eight CCH (2011) records in San Bernardino County. The nearest documented occurrence is from April 1988 at Los Flores Ranch, approximately 40 miles northeast of the Proposed Bank (CCH 2011). The most recent documented occurrence is from April 2009 Baldwin Lake, approximately 60 miles east of the Proposed Bank (CCH 2011). California Androsace has a moderate potential to occur in the Proposed Bank due to the presence of chaparral, coastal scrub, and grassland habitat; however, specific habitat (i.e. soils, associated species) information are lacking for this species. This species was not observed during the April and June surveys.

Western spleenwort (*Asplenium vespertinum*), CNPS List 4. Moderate Potential. Western spleenwort is a perennial fern in the spleenwort family (Aspleniaceae). It typically occurs in rocky areas within chaparral, cismontane woodland, and coastal scrub habitat at elevations ranging from 585 to 3250 feet (CNPS 2011). Observed associated species are unreported in the literature.

Western spleenwort is known from 34 USGS 7.5-minute quadrangles in Los Angeles, Orange, Riverside, San Bernardino, San Diego, and Ventura counties (CNPS 2011). There are no CNDDB (2011) records within the greater vicinity of the Proposed Bank, no CCH (2011) records from Orange County, and five CCH (2011) records from San Bernardino County. The nearest documented occurrence from Orange or San Bernardino counties is from April 1917 in Cucamonga Canyon, approximately 15 miles north of the Proposed Bank (CCH 2011). The most recent documented occurrence from Orange or San Bernardino counties is from March 1942 in Box Spring Mountains, approximately 25 miles east of the Proposed Bank (CCH 2011). Western spleenwort has a moderate potential to occur in the Proposed Bank due to the presence of rocky areas in woodland, coastal scrub, and chaparral habitat; however, specific habitat (i.e. soils, associated species) information are lacking for this species. This species was not observed during the April, June, and August surveys.

Braunton's milk-vetch (*Astragalus brauntonii*), Federal Endangered; State Endangered; CNPS List 1B. High Potential. Braunton's milk-vetch is a perennial forb in the pea family (Fabaceae) that blooms from January to August. It typically occurs on saline or alkaline substrate derived from sandstone with carbonate layers in closed-cone coniferous forest, chaparral, coastal scrub, and valley and foothill grassland habitat often following fire at elevations ranging from 10 to 2080 feet (CNDDB 2011, CNPS 2011). Observed associated species include laurel sumac (*Malosma laurina*), lemonade berry (*Rhus integrifolia*), sugar sumac (*R. ovata*), California brickellbush (*Brickellia californica*), sawtooth goldenbush (*Hazardia squarrosa*), chamise (*Adenostoma fasciculatum*), California buckwheat (*Eriogonum fasciculatum*), tree tobacco (*Nicotiana glauca*), California sagebrush (*Artemisia californica*), and black sage (*Salvia mellifera*) (CNDDB 2011).

Braunton's milk-vetch is known from 13 USGS 7.5-minute quadrangles in Los Angeles, Orange, Riverside, and Ventura counties, with four assumed extirpated (CNPS 2011). There are two CNDDB (2011) records within the greater vicinity of the Proposed Bank, eight CCH (2011) records from Orange County, and no CCH (2011) records from San Bernardino County. The nearest and most recent documented occurrence is from July 2005 in Coal Canyon, approximately six miles southeast of the Proposed Bank (CNDDB 2011). Braunton's milk-vetch has a high potential due to the recent fire, presence of sandstone soils, chaparral, coastal scrub, and grassland habitat, and several associated species. This species was not observed during the April, June, and August surveys.

Brewer's red maids (*Calandrinia breweri*), CNPS List 4. High Potential. Brewer's red maids are annual forbs in the purslane family (Montiaceae) that blooms from March to June. It typically occurs in recently burned or disturbed sites on sandy and loamy substrate in chaparral and coastal scrub habitat at elevations ranging from 30 to 3965 feet (CNPS 2011). Observed associated species are not reported in the literature.

Brewer's red maids are known from 23 USGS 7.5-minute quadrangles in Contra Costa, Los Angeles, Marin, Mariposa, Mendocino, Monterey, Napa, Orange, Riverside, Santa Barbara, San Bernardino, Santa Clara, Santa Cruz, San Diego, Shasta, San Luis Obispo, Sonoma, and Ventura counties (CNPS 2011). There are no CNDDB (2011) records within the greater vicinity of the Proposed Bank, 14 CCH (2011) records from Orange County, and eight CCH (2011) records from San Bernardino County. The nearest and most recent documented occurrence from Orange or San Bernardino County is from May 2008 in Weir Canyon, approximately eight miles south of the Proposed Bank (CCH 2011). Brewer's red maids have a high potential to occur in the Proposed Bank due to recent disturbance (fire), suitable soils, and suitable habitat. This species was not observed during the April and June surveys.

Catalina mariposa-lily (*Calochortus catalinae*), CNPS List 4. High Potential. Catalina mariposa-lily is a perennial, bulbiferous forb in the lily family (Liliaceae) that blooms from February to June. It typically occurs in chaparral, cismontane woodland, coastal scrub, and valley and foothill grassland habitat at elevations ranging from 45 to 2275 feet (CNPS 2011). Observed associated species include laurel sumac (*Malosma laurina*), white sage (*Salvia apiana*), California sagebrush (*Artemisia californica*), grape soda lupine (*Lupinus excubitus*), southern honeysuckle (*Lonicera subspicata*), purple needlegrass (*Stipa pulchra*), foothill needlegrass (*S. lepida*), and non-native grasses (personal observation).

Catalina mariposa-lily is known from 20 USGS 7.5-minute quadrangles in Los Angeles, Orange, Santa Barbara, San Bernardino, San Diego, San Luis Obispo, and Ventura counties (CNPS 2011). There are no CNDDB (2011) records within the greater vicinity of the Proposed Bank, 52 CCH (2011) records from Orange County, and ten CCH (2011) records from San Bernardino County. The nearest and most recent documented occurrence from Orange or San Bernardino County is from April 2008 in Chino Hills State Park, approximately three miles southeast of the Proposed Bank (CCH 2011). Catalina mariposa-lily has a high potential to occur in the Proposed Bank due to the presence of suitable habitat and the relative location of documented occurrences. Approximately 40 individuals of this species were observed in grassland and patchy scrub habitat in three populations in the Proposed Bank during the April and July surveys (Figure 6). Within the Proposed Bank, observed soils, topography, vegetation communities, and associated species were consistent with those documented in the literature.

Plummer's mariposa-lily (*Calochortus plummerae*), CNPS List 1B. High Potential. Plummer's mariposa-lily is a bulbiferous perennial forb in the lily family (Liliaceae) that blooms May to July. It typically occurs on rocky and sandy alluvial substrate derived from granite in coastal scrub, chaparral, valley and foothill grassland, cismontane woodland, and lower montane coniferous forest at elevations ranging from 325 to 5525 feet (CNDDB 2011, CNPS 2011). Observed associated species include chamise (*Adenostoma fasciculatum*), chia (*Salvia columbariae*), white sage (*S. apiana*), California buckwheat (*Eriogonum fasciculatum*), poison oak (*Toxicodendron diversilobum*), deer weed (*Acmispon glaber*), leafy fleabane (*Erigeron foliosus*), golden yarrow (*Eriophyllum confertiflorum*), California sagebrush (*Artemisia californica*), and sugar sumac (*Rhus ovata*) (CNDDB 2011).

Plummer's mariposa-lily is known from 72 USGS 7.5-minute quadrangles in Los Angeles, Orange, Riverside, San Bernardino, and Ventura counties, with eight assumed extirpated (CNPS 2011). There are 11 CNDDB (2011) in the greater vicinity of the Proposed Bank, four CCH (2011) records from Orange County, and 66 CCH (2011) records from San Bernardino County. The nearest documented occurrence is from June 2000 near Santiago Reservoir, approximately eight miles south of the Proposed Bank (CNDDB 2011). The most recent documented occurrence from San Bernardino or Orange County is from July 2010 at Water Canyon, approximately 45 miles east of the Proposed Bank (CNDDB 2011). Plummer's mariposa-lily has a high potential to occur in the Proposed Bank due to the presence of suitable habitat, suitable substrate, and associated species. This species was not observed during the June survey.

Intermediate mariposa-lily (*Calochortus weedii* var. *intermedius*), CNPS List 1B. High Potential. Intermediate mariposa-lily is a bulbiferous perennial forb in the lily family (Liliaceae) that blooms from May to July. It typically located on dry, rocky open slopes and rock outcrops in coastal scrub, chaparral, and valley and foothill grassland habitat at elevations ranging from 340 to 2780 feet (CNDDB 2011, CNPS 2011). Observed associated species include California sagebrush (*Artemisia californica*), chaparral bush mallow (*Malacothamnus fasciculatus*), chamise (*Adenostoma fasciculatum*), white sage (*Salvia apiana*), black sage (*S. mellifera*), Menzies' goldenbush (*Isocoma menziesii*), clustered tarweed (*Deinandra fasciculata*), California buckwheat (*Eriogonum fasciculatum*), blue-eyed grass (*Sisyrinchium bellum*), purple needlegrass (*Stipa pulchra*), turkey mullein (*Croton setigerus*), and non-native grasses (CNDDB 2011).

Intermediate mariposa-lily is known from 21 USGS 7.5-minute quadrangles in Los Angeles, Orange, Riverside, and San Bernardino counties (CNPS 2011). There are 33 CNDDB (2011) records in the greater vicinity of the Proposed Bank, 50 CCH (2011) records from Orange County, and two CCH (2011) records from San Bernardino County. The nearest and most recent documented occurrence is from May 2008 in Chino Hills State Park, approximately two miles south of the Proposed Bank (CNDDB 2011). Intermediate mariposa-lily has a high potential to occur in the Proposed Bank due to the presence of suitable soil conditions, suitable habitat, and associated species. This species was not observed during the June survey.

San Fernando Valley spineflower (*Chorizanthe parryi* var. *fernandina*), Federal Candidate; State Endangered; CNPS List 1B. High Potential. San Fernando Valley spineflower is an annual forb in the buckwheat family (Polygonaceae) that blooms from April to July. It typically occurs on sandy substrates in coastal scrub, and valley and foothill grassland habitat at elevations ranging from 485 to 3965 feet (CNDDB 2011, CNPS 2011). Observed associated species include purple sage (*Salvia leucophylla*), California sagebrush (*Artemisia californica*), California buckwheat (*Eriogonum fasciculatum*), long-stem buckwheat (*Eriogonum elongatum*), California four o'clock (*Mirabilis laevis* var. *crassifolia*), purple needlegrass (*Stipa pulchra*), sacapellote (*Acourtia microcephala*), and non-native grasses (CNDDB 2011).

San Fernando Valley spineflower is known from 14 USGS 7.5-minute quadrangles in Los Angeles, Orange, and Ventura counties; however it is presumed extinct from nine of the quadrangles (CNDDB 2011). There is CNDDB (2011) record within the greater vicinity of the Proposed Bank, one CCH (2011) record from Orange County, and no CCH (2011) records from San Bernardino County. The nearest and most recent documented occurrence from Orange or San Bernardino County is from 1902 in the hills near Santa Ana, approximately ten miles south of the Proposed Bank (CNDDB 2011). San Fernando Valley spineflower has a high potential to occur in the Proposed Bank due to the presence of suitable soil conditions, suitable habitat, and associated species. This species was not observed during the April and July surveys.

Parry's spineflower (*Chorizanthe parryi* var. *parryi*), CNPS List 1B. Moderate Potential. Parry's spineflower is an annual forb in the buckwheat family (Polygonaceae) that blooms from April to June. It typically occurs on dry slopes and flats underlain by sandy substrate at ecotones of coastal scrub, chaparral, cismontane woodland, and valley and foothill grassland habitat at elevations ranging from 890 to 3965 feet (CNDDB 2011, CNPS 2011). Observed associated species include western sycamore (*Platanus racemosa*), black sage (*Salvia mellifera*), sugar sumac (*Rhus ovata*), chamise (*Adenostoma fasciculatum*), California buckwheat (*Eriogonum fasciculatum*), common sunflower (*Helianthus annuus*), California sagebrush (*Artemisia californica*), golden hills brittle brush (*Encelia farinosa*), California juniper (*Juniperus californicus*), deer weed (*Acmispon glaber*), and non-native grasses (CNDDB 2011).

Parry's spineflower is known from 41 USGS 7.5-minute quadrangles in Los Angeles, Riverside, and San Bernardino counties (CNPS 2011). There is one CNDDB (2011) record within the greater vicinity of the Proposed Bank, no CCH (2011) records from Orange County, and 74 CCH (2011) records from San Bernardino County. The nearest documented occurrence is from May 1920 in the San Gabriel Mountains, approximately 16 miles north of the Proposed Bank (CNDDB 2011). The most recent documented occurrence from Orange or San Bernardino County is from May 2009 at Lytle Creek Wash, approximately 27 miles northeast of the Proposed Bank (CCH 2011). Parry's spineflower has a moderate potential to occur in the Proposed Bank due to the presence of suitable soil and habitat conditions, and associated species; however, this species is known primarily from more inland and higher elevation sites than the Proposed Bank. This species was not observed during the April and June surveys.

Long-spined spineflower (*Chorizanthe polygonoides* var. *longispina*), CNPS List 1B. High Potential. Long-spined spineflower is an annual forb in the buckwheat family (Polygonaceae) that blooms from April to July. It typically occurs on sandy substrates in coastal scrub, chaparral, meadow, seep, valley and foothill grassland, and vernal pool habitat at elevations ranging from 95 to 4975 feet (CNDDB 2011, CNPS 2011). Observed associated species include coast live oak (*Quercus agrifolia*), Engelmann oak (*Quercus engelmannii*), California buckwheat (*Eriogonum fasciculatum*), California sagebrush (*Artemisia californica*), chamise (*Adenostoma fasciculatum*), black sage (*Salvia mellifera*), deer weed (*Acmispon glaber*), clustered tarweed (*Deinandra fasciculata*), purple needlegrass (*Stipa pulchra*), and non-native grasses (CNDDB 2011).

Long-spine spineflower is known from 42 USGS 7.5-minute quadrangles in Orange, Riverside, Santa Barbara, and San Diego counties (CNPS 2011). There is one CNDDB (2011) record within the greater vicinity of the Proposed Bank, one CCH (2011) record from Orange County, and no CCH (2011) records from San Bernardino County. The nearest and most recent documented occurrence from Orange or San Bernardino County is from May 2001 in Gypsum Canyon, approximately six miles south of the Proposed Bank (CNDDB 2011). Long-spine spineflower has a high potential to occur in the Proposed Bank due to the presence of suitable soil and habitat conditions, and associated species. This species was not observed during the April and June surveys.

Slender-horned spineflower (*Dodecahema leptoceras*), Federal Endangered; State Endangered; CNPS List 1B. Moderate Potential. Slender-horned spineflower is an annual forb in the buckwheat family (Polygonaceae) that blooms from April to June. It typically occurs on alluvial fans, flood deposits, and washes in chaparral, coastal scrub, and cismontane woodland habitat at elevations ranging from 650 to 2470 feet (CNDDB 2011, CNPS 2011). Observed associated species include California sagebrush (*Artemisia californica*), chaparral yucca (*Hesperoyucca whipplei*), California juniper (*Juniperus californicus*), hairy yerba santa (*Eriodictyon trichocalyx*), chia (*Salvia columbariae*), California buckwheat (*Eriogonum fasciculatum*), deer weed (*Acmispon glaber*), distant phacelia (*Phacelia distans*), California cottonrose (*Logfia californica*), and non-native grasses (CNDDB 2011).

Slender-horned spineflower is known from 26 USGS 7.5-minute quadrangles in Los Angeles, Riverside, and San Bernardino counties (CNPS 2011). There is one CNDDB (2011) record within the greater vicinity of the Proposed Bank, no CCH (2011) records from Orange County, and 21 CCH (2011) records from San Bernardino County. The nearest documented occurrence is from June 1905 near Ontario, approximately 12 miles northeast of the Proposed Bank (CNDDB 2011). The most recent documented occurrence from Orange or San Bernardino County is from June 2005 in the Transverse Ranges, approximately 27 miles northeast of the Proposed Bank (CCH 2011). Slender-horned spineflower has a moderate potential to occur in the Proposed Bank due to the presence of suitable habitat and associated species; however, this species is known primarily from more inland sites at higher elevations than the Proposed Bank. This species was not observe during the April and June surveys.

Many-stemmed dudleya (*Dudleya multicaulis*), CNPS List 1B. Moderate Potential. Many-stemmed dudleya is a perennial forb in the stonecrop family (Crassulaceae) that blooms from April to July. It typically occurs on heavy clay substrate in chaparral, coastal scrub, and valley and foothill grassland habitat at elevations ranging from 45 to 2570 feet (CNDDB 2011, CNPS 2011). Observed associated species include sugar sumac (*Rhus ovata*), laurel sumac (*Malosma laurina*), blue elderberry (*Sambucus nigra*), California brittle bush (*Encelia californica*), foothill needlegrass (*Stipa lepida*), purple needlegrass (*S. pulchra*), Catalina mariposa-lily (*Calochortus catalinae*), splendid mariposa-lily (*C. splendens*), blue-eyed grass (*Sisyrinchium bellum*), and non-native grasses (CNDDB 2011).

Many-stemmed dudleya is known from 32 USGS 7.5-minute quadrangles in Los Angeles, Orange, Riverside, San Bernardino, and San Diego counties (CNPS 2011). There are 36 CNDDB (2011) records within the greater vicinity of the Proposed Bank, 48 CCH (2011) records from Orange County, and four CCH (2011) records from San Bernardino County. The nearest documented occurrence is from July 1983 near Prado Dam, approximately five miles southeast of the Proposed Bank (CNDDB 2011). The most recent documented occurrence from Orange or San Bernardino County is from June 2008 above Gypsum Canyon, approximately six miles south of the Proposed Bank (CNDDB 2011). Many-stemmed dudleya has a moderate potential to occur in the Proposed Bank due to the presence of suitable habitat and associated species; however, clay substrate is not present. This species was not observed during the April and June surveys.

Santa Ana River woollystar (*Eriastrum densiflorum* ssp. *sanctorum*), Federal Endangered; State Endangered; CNPS List 1B. Moderate Potential. Santa Ana River woollystar is a perennial forb in the phlox family (Polemoniaceae) that blooms from May to September. It typically occurs on sandy and gravelly flood deposits on floodplains and alluvial fans in coastal scrub and chaparral habitat at elevations ranging from 295 to 1985 feet (CNDDB 2011, CNPS 2011). Observed associated species include western sycamore (*Platanus racemosa*), California juniper (*Juniperus californicus*), California broomshrub (*Lepidospartum squamatum*), shrubby ragwort (*Senecio flaccidus*), telegraph weed (*Heterotheca grandiflora*), California croton (*Croton californicus*), deer weed (*Acmispon glaber*), California buckwheat (*Eriogonum fasciculatum*), golden hills brittle brush (*Encelia farinosa*), chaparral yucca (*Hesperoyucca whipplei*), and clustered tarweed (*Deinandra fasciculata*) (CNDDB 2011).

Santa Ana River woollystar is known from ten USGS 7.5-minute quadrangles in Orange, Riverside, and San Bernardino counties (CNPS 2011). There is one CNDDB (2011) record within the greater vicinity of the Proposed Bank, three CCH (2011) records from Orange County, and 37 CCH (2011) records from San Bernardino County. The nearest documented occurrence is from August 1927 in Weir Creek, approximately five miles south of the Proposed Bank (CNDDB 2011). The most recent documented occurrence from Orange and San Bernardino County is from August 2008 Cajon Wash, approximately 25 miles northeast of the Proposed Bank (CNDDB 2011). Santa Ana River woollystar has a moderate potential to occur in the Proposed Bank due to the presence of suitable habitat and associated species; however, this species is typically located on broad alluvial fans and washes not present in the Proposed Bank. This species was not observed during the June and August surveys.

Mesa horkelia (*Horkelia cuneata* ssp. *puberula*), CNPS List 1B. High Potential. Mesa horkelia is a perennial forb in the rose family (Rosaceae) that blooms from February to September. It typically occurs on gravelly to sandy substrate in chaparral, cismontane woodland, and coastal scrub habitat at elevations ranging from 225 to 2635 feet (CNDDB 2011, CNPS 2011). Observed associated species include black sage (*Salvia mellifera*), white sage (*S. apiana*), California sagebrush (*Artemisia californica*), mugwort (*A. douglasiana*), San Diego savory (*Satureja chandleri*), and California goldenrod (*Solidago californica*) (CNDDB 2011).

Mesa horkelia is known from 45 USGS 7.5-minute quadrangles in Los Angeles, Orange, Riverside, Santa Barbara, San Bernardino, San Diego, San Luis Obispo, and Ventura counties; however, is presumed extirpated from 26 quadrangles (CNPS 2011). There are seven CNDDB (2011) records within the greater vicinity of the Proposed Bank, eight CCH (2011) records from Orange County, and 16 CCH (2011) records from San Bernardino County. The nearest documented occurrence is from March 1925 in Etwanda, approximately 19 miles northeast of the Proposed Bank (CNDDB 2011). The most recent documented occurrence from Orange or San Bernardino County is from April 2008 in Weir Canyon, approximately eight miles south of the Proposed Bank (CCH 2011). Mesa horkelia has a high potential to occur in the Proposed Bank due to the presence of suitable soil and habitat conditions, and associated species. This species was not observed during the April, June, and August surveys.

California walnut (*Juglans californica*), CNPS List 4. High Potential. California walnut is a deciduous tree in the walnut family (Juglandaceae) that blooms from March and August, with identifiable characters present into late fall. It typically occurs on alluvial substrates in washes and alluvial fans in chaparral, cismontane woodland, and coastal scrub at elevations ranging from 160 to 2925 feet (CNPS List 4). Observed associated species include coast live oak (*Quercus agrifolia*), blue elderberry (*Sambucus nigra*), toyon (*Heteromeles arbutifolia*), California sagebrush (*Artemisia californica*), California brittle bush (*Encelia californica*), white sage (*Salvia apiana*), purple sage (*S. leucophylla*), and black sage (*S. mellifera*) (personal observation).

California walnut is known from ten USGS 7.5-minute quadrangles in Los Angeles, Orange, Riverside, Santa Barbara, San Bernardino, San Diego, and Ventura counties (CNPS 2011). There are no CNDDB (2011) records within the greater vicinity of the Proposed Bank, 29 CCH (2011) records from Orange County, and 52 CCH (2011) records from San Bernardino County. The nearest and most recent documented occurrence from Orange or San Bernardino is from July 2004 in Chino Hills, approximately one mile east of the Proposed Bank (CCH 2011). California walnut has a high potential to occur in the Proposed Bank due to the presence of suitable soils, suitable habitat, and relative location of documented occurrences. Hundreds of individuals in several populations of this species were observed in the central and southern portions of the Proposed Bank during the April, June, and August survey (Figure 6). Within the Proposed Bank, observed soils, topography, vegetation communities, and associated species were consistent with those documented in the literature.

Heart-leaf pitcher sage (*Lepechinia cardiophylla*), CNPS List 1B. Moderate Potential. Heart-leaf pitcher sage is an evergreen shrub in the mint family (Lamiaceae) that blooms from April to July. It typically occurs in closed-cone coniferous forest, chaparral, and cismontane woodland habitat at elevations ranging from 1690 to 4455 feet (CNDDB 2011, CNPS 2011). Observed associated species include Tecate cypress (*Hesperocyparis forbesii*), knobcone pine (*Pinus attenuata*), scrub oak (*Quercus berberidifolia*), toyon (*Heteromeles arbutifolia*), bush poppy (*Dendromecon rigida*), mountain mahogany (*Cercocarpus betuloides*), poison oak (*Toxicodendron diversilobum*), California ash (*Fraxinus dipetala*), California buckwheat (*Eriogonum fasciculatum*), and golden yarrow (*Eriophyllum confertiflorum*) (CNDDB 2011).

Heart-leaf pitcher sage is known from five USGS 7.5-minute quadrangles in Orange, Riverside, and San Diego counties (CNPS 2011). There are eight CNDDB (2011) records within the greater vicinity of the Proposed Bank, 26 CCH (2011) records from Orange County, and no CCH (2011) records from San Bernardino County. The nearest documented occurrence is from 1982 at the headwaters of Coal Canyon, approximately seven miles southeast of the Proposed Bank (CNDDB 2011). The most recent documented occurrence from Orange or San Bernardino County is from June 2008 Fremont Canyon, approximately nine miles south of the Proposed Bank (CCH 2011). Heart-leaf pitcher sage has a moderate potential to occur in the Proposed Bank due the presence of suitable and habitat and a few associated species; however, this species is known primarily from higher elevations in Santa Ana Mountains. This species was not observed during the April and June surveys.

Robinson's pepper-grass (*Lepidium virginicum* var. *robinsonii*), CNPS List 1B. High Potential. Robinson's pepper-grass is an annual forb in the mustard family (Brassicaceae) that blooms from January to July. It typically occurs on dry substrates in chaparral and coastal scrub habitat at elevations ranging from 1 to 2880 feet (CNDDB 2011, CNPS 2011). Observed associated species include golden hills brittle brush (*Encelia farinosa*), hairy yerba santa (*Eriodictyon trichocalyx*), California buckwheat (*Eriogonum fasciculatum*), California four o'clock (*Mirabilis laevis* var. *crassifolia*), white sage (*Salvia apiana*), and California sagebrush (*Artemisia californica*) (CNDDB 2011).

Robinson's pepper-grass is known from 37 USGS 7.5-minute quadrangles in Los Angeles, Orange, Riverside, Santa Barbara, San Bernardino, and San Diego counties (CNPS 2011). There is one CNDDB (2011) record within the greater vicinity of the Proposed Bank, six CCH (2011) records from Orange County, and four CCH (2011) records from San Bernardino County. The nearest documented occurrence is from July 1936 in Chino, approximately six miles northeast of Proposed Bank (CNDDB 2011). The most recent documented occurrence from Orange or San Bernardino County is from May 2008 Weir Canyon, approximately eight miles south of the Proposed Bank (CCH 2011). Robinson's pepper-grass has a high potential to occur in the Proposed Bank due to suitable soils, suitable habitat, and associated species. This species was not observed during the April and June surveys.

Ocellated Humboldt lily (*Lilium humboldtii* ssp. *ocellatum*), CNPS List 4. High Potential. Ocellated Humboldt lily is a bulbiferous perennial forb in the lily family (Liliaceae) from March to August. It typically occurs in openings in chaparral, cismontane woodland, coastal scrub, lower montane coniferous forest, and riparian woodland habitat at elevations ranging from 95 to 5850 feet (CNDDB 2011, CNPS 2011). Observed associated species are unreported in the literature.

Ocellated Humboldt lily is known from 32 USGS 7.5-minute quadrangles in Los Angeles, Orange, Riverside, Santa Barbara, San Bernardino, San Diego, San Luis Obispo, and Ventura counties (CNPS 2011). There are no CNDDB (2011) records within the greater vicinity of the Proposed Bank, seven CCH (2011) records from Orange County, and 21 CCH (2011) records from San Bernardino County. The nearest documented occurrence is from June 2000 in Fremont Canyon, approximately ten miles south of the Proposed Bank. The most recent documented occurrence from Orange and San Bernardino County is from June 2009 at Holcomb Creek, approximately 43 miles northeast of the Proposed Bank. Ocellated Humboldt lily has a high potential to occur in the Proposed Bank due to the presence of suitable habitat. This species was not observed during the April, June, and August surveys.

California muhly (*Muhlenbergia californica*), CNPS List 4. Moderate Potential. California muhly is a perennial graminoid in the grass family (Poaceae) that blooms from June to September. It typically occurs in mesic sites, seeps, and streamsides in coastal scrub, chaparral, lower montane coniferous forest, and meadow habitat at elevations ranging from 325 to 6500 feet (CNPS 2011). Observed associated species are not reported in the literature.

California muhly is known from eleven USGS 7.5-minute quadrangles in Los Angeles, Riverside, and San Bernardino counties (CNPS 2011). There are no CNDDB (2011) records in the greater vicinity of the Proposed Bank, no CCH (2011) records from Orange County, and 52 CCH (2011) records from San Bernardino County. The nearest documented occurrence is from July 1925 in San Gabriel Mountains, approximately 17 miles northeast of the Proposed Bank (CCH 2011). The most recent documented occurrence from Orange or San Bernardino County is from July 2004 in Day Canyon, approximately 20 miles northeast of the Proposed Bank (CCH 2011). California muhly has a moderate potential to occur in the Proposed Bank due to the presence of suitable habitat and hydrologic conditions. This species was not observed during the June and August surveys.

Peninsular bear grass (*Nolina cismontana*), CNPS List 1B. High Potential. Peninsular bear grass is a perennial forb in the ruscus family (Ruscaceae) that blooms May to July. It typically occurs on sandstone, gabbro, or shale substrates in chaparral and coastal scrub habitat at elevations ranging from 455 to 4145 feet (CNDDB 2011, CNPS 2011). Observed associated species include coast live oak (*Quercus agrifolia*), white sage (*Salvia apiana*), black sage (*S. mellifera*), chamise (*Adenostoma fasciculatum*), southern wild cucumber (*Marah macrocarpus*), chaparral yucca (*Hesperoyucca whipplei*), laurel sumac (*Malosma laurina*), lemonade berry (*Rhus integrifolia*), California sagebrush (*Artemisia californica*), and crimson catchfly (*Silene laciniata*) (CNDDB 2011).

Peninsular bear grass is known from 15 USGS 7.5-minute quadrangles in Orange, Riverside, San Diego, and Ventura counties (CNPS 2011). There are five CNDDB (2011) records within the greater vicinity of the Proposed Bank, 46 CCH (2011) records from Orange County, and no CCH (2011) records from San Bernardino County. The nearest documented occurrence is from March 2004 in Coal Canyon, approximately six miles south of the Proposed Bank (CNDDB 2011). The most recent documented occurrence from Orange or San Bernardino County is from June 2008 along the Modjeska Grade Road, approximately 17 miles south of the Proposed Bank (CCH 2011). Peninsular bear grass has a high potential to occur in the Proposed Bank due to the presence of suitable soils, suitable habitat, and associated species. This species was not observed during the April and June surveys.

Allen's Pentachaeta (*Pentachaeta aurea* ssp. *allenii*), CNPS 1B. High Potential. Allen's Pentachaeta is an annual forb in the sunflower family (Asteraceae) that blooms from March to June. It typically occurs in grassy openings in coastal scrub and valley and foothill grassland habitat at elevations ranging from 240 to 1690 feet (CNDDB 2011, CNPS 2011). Observed associated species include lemonade berry (*Rhus integrifolia*), California sagebrush (*Artemisia californica*), black sage (*Salvia mellifera*), coyote brush (*Baccharis pilularis*), clustered tarweed (*Deinandra fasciculata*), foothill needlegrass (*Stipa lepida*), purple needlegrass (*S. pulchra*), California buckwheat (*Eriogonum fasciculatum*), and non-native grasses (CNDDB 2011).

Allen's Pentachaeta is known from five USGS 7.5-minute quadrangles in Orange County (CNPS 2011). There are two CNDDB (2011) records within the greater vicinity of the Proposed Bank, three CCH (2011) records from Orange County, and no CCH (2011) records from San Bernardino County. The nearest documented occurrence is from April 2000 in Gypsum Canyon, approximately seven miles south of the Proposed Bank (CNDDB 2011). The most recent documented occurrence is from May 2004 at Laguna Niguel, approximately 30 miles south of the Proposed Bank (CNDDB 2011). Allen's Pentachaeta has a high potential to occur in the Proposed Bank due to suitable soils, suitable habitat, and associated species. This species was not observed during the April and June surveys.

Hubby's phacelia (*Phacelia hubbyi*), CNPS List 4. High Potential. Hubby's phacelia is an annual forb in the forget-me-not family (Boraginaceae) that blooms from April to June. It typically occurs on gravelly substrate and rock talus in chaparral, coastal scrub, and valley and foothill grassland at elevations ranging from 0 to 3250 feet (CNPS 2011). Observed associated species are not reported in the literature.

Hubby's phacelia is known from 27 USGS 7.5-minute quadrangles in Kern, Los Angeles, Santa Barbara, and Ventura counties (CNPS 2011). There are no CNDDB (2011) records within the greater vicinity of the Proposed Bank, seven CCH (2011) records from Orange County, and no CCH (2011) records from San Bernardino. The nearest and most recent documented occurrence from Orange or San Bernardino County is from June 2008 in Fremont Canyon, approximately nine miles south of the Proposed Bank (CCH 2011). Hubby's phacelia has a high potential to occur in the Proposed Bank due to the presence of suitable soil and habitat conditions. This species was not observed during the April and June surveys.

Fish's milkwort (*Polygala cornuta* var. *fishiae*), CNPS List 4. High Potential. Fish's milkwort is a deciduous shrub in the milkwort family (Polygalaceae) that blooms from May to August. It typically occurs in chaparral, cismontane woodland, and riparian woodland at elevations ranging from 325 to 3250 feet (CNPS 2011). Observed associated species include California walnut (*Juglans californica*), coast live oak (*Quercus agrifolia*), blue elderberry (*Sambucus nigra*), common sand aster (*Corethrogyne filaginifolia*), mugwort (*Artemisia douglasiana*), California sagebrush (*A. californica*), stinging nettle (*Urtica dioica*), California blackberry (*Rubus ursinus*), and western ragwort (*Ambrosia psilostachya*).

Fish's milkwort is known from nine USGS 7.5-minute quadrangles in Los Angeles, Orange, Riverside, Santa Barbara, San Diego, and Ventura counties (CNPS 2011). There are no CNDDB (2011) records within the greater vicinity of the Proposed Bank, 20 CCH (2011) records from Orange County, and two CCH (2011) records from San Bernardino County. The nearest and most recent documented occurrence from Orange or San Bernardino County is from May 2008 in Chino Hills State Park, approximately one mile south of the Proposed Bank (CCH 2011). Fish's milkwort has a high potential to occur in the Proposed Bank due to the presence of suitable habitat and the relative location of documented occurrences. Approximately 35 individuals in two populations of this species were observed in the northern and central portions of the Proposed Bank on the edge of driplines of riparian woodlands during the August survey (Figure 6). Within the Proposed Bank, observed soils, topography, vegetation communities, and associated species were consistent with those documented in the literature.

White rabbit-tobacco (*Pseudognaphalium leucocephalum*), CNPS List 2. High Potential. White rabbit-tobacco is a perennial forb in the sunflower (Asteraceae) family that blooms from July to December. It typically occurs on gravelly and sandy substrate in riparian woodland, cismontane woodland, coastal scrub, and chaparral habitat at elevations ranging from 0 to 6285 feet (CNDDB 2011, CNPS 2011). Observed associated species include California sagebrush (*Artemisia californica*), California broomshrub (*Lepidospartum squamatum*), Wright's cudweed (*Pseudognaphalium canescens*), mulefat (*Baccharis salicifolia*), sandbar willow (*Salix exigua*), and polished willow (*S. laevigata*) (CNDDB 2011).

White rabbit-tobacco is known from 33 USGS 7.5-minute quadrangles in Los Angeles, Orange, Riverside, Santa Barbara, San Diego, San Luis Obispo, and Ventura counties (CNPS 2011). There is one CNDDB (2011) record within the greater vicinity of the Proposed Bank, 19 CCH (2011) records from Orange County, and three CCH (2011) records from San Bernardino County. The nearest documented occurrence September 1928 along the Santa Ana River, approximately 4.5 miles south of the Proposed Bank (CNDDB 2011). The most recent documented occurrence from Orange or San Bernardino County is from August 2008 in Fremont Canyon, approximately nine miles south of the Proposed Bank (CCH 2011). White rabbit-tobacco has a high potential to occur in the Proposed Bank due to suitable habitat, the presence of associated species, suitable substrate, and the relative locations of documented occurrences. This species was not observed during the August surveys.

Engelmann oak (*Quercus engelmannii*), CNPS List 4. High Potential. Engelmann oak is an evergreen tree in the beech family (Fagaceae) that blooms from March to June, but is identifiable year-round. It typically occurs in chaparral, cismontane woodland, riparian woodland, and valley and foothill grassland habitat at elevations ranging 160 to 4225 feet (CNDDB 2011, CNPS 2011). Observed associated species are not reported in the literature.

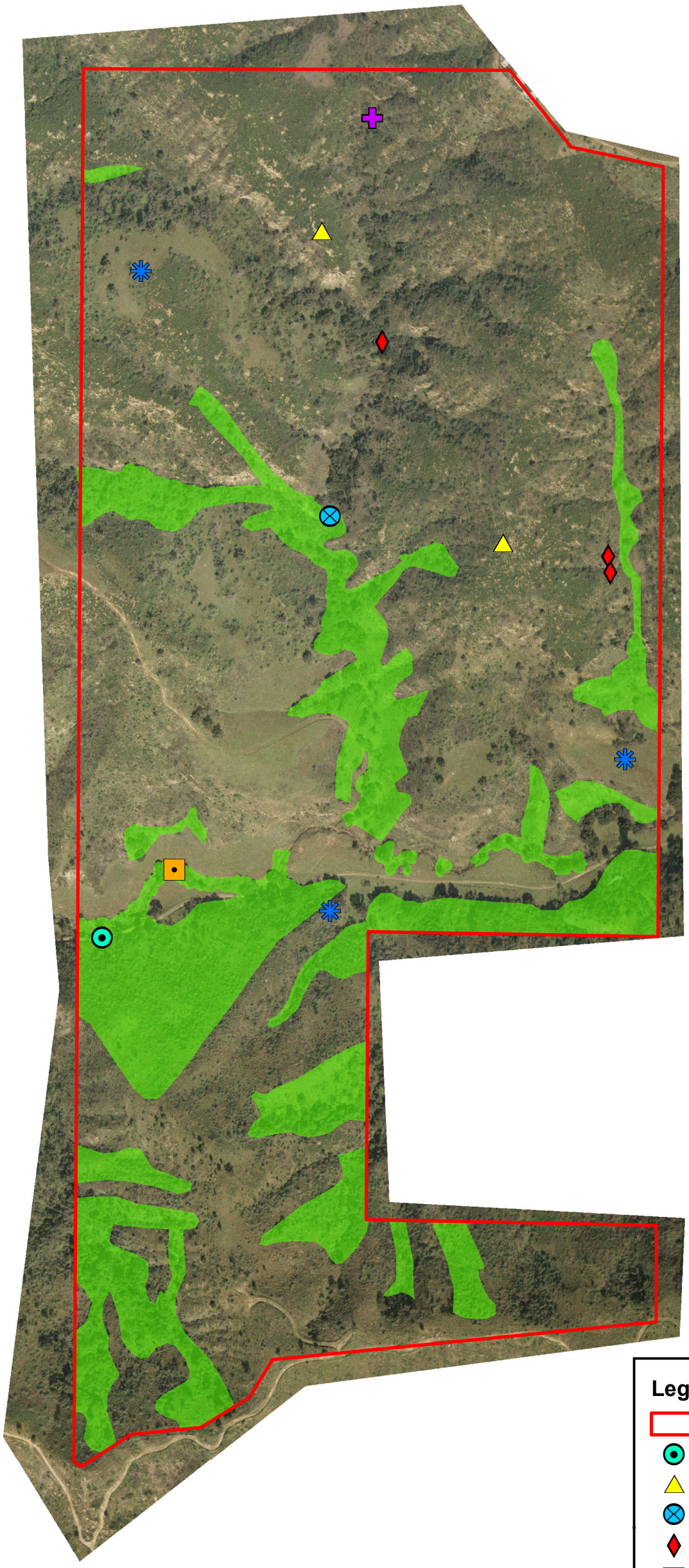
Engelmann oak is known from 20 USGS 7.5-minute quadrangles in Los Angeles, Orange, Riverside, and San Diego counties (CNPS 2011). There are no CNDDB (2011) records within the greater vicinity of the Proposed Bank, 14 CCH (2011) records from Orange County, and six CCH (2011) records from San Bernardino County. The nearest documented occurrence is from July 2000 in Black Star Canyon, approximately 12 miles south of the Proposed Bank (CCH 2011). The most recent documented occurrence from Orange or San Bernardino County is from January 2004 near Rancho Mission Viejo, approximately 34 miles south of the Proposed Bank (CCH 2011). Engelmann oak has a high potential to occur in the Proposed Bank due to suitable habitat and relative locations of documented occurrences. This species was not observed during the April, June, and August surveys.

Coulter's matilija poppy (*Romneya coulteri*), CNPS List 4. High Potential. Coulter's matilija poppy is a perennial forb in the poppy family (Papaveraceae) that blooms from March to July. It typically occurs in chaparral and coastal scrub habitat, often following burns, at elevations ranging from 65 to 3900 feet (CNPS 2011). Observed associated species include coast live oak (*Quercus agrifolia*), California sagebrush (*Artemisia californica*), white sage (*Salvia apiana*), purple sage (*S. leucophylla*), black sage (*S. mellifera*), mulefat (*Baccharis salicifolia*), and chaparral beard tongue (*Keckiella antirrhinoides*) (personal observation).

Coulter's matilija poppy is known from seven USGS 7.5-minute quadrangles in Los Angeles, Orange, Riverside, and San Diego counties (CNPS 2011). There are no CNDDB (2011) records within the greater vicinity of the Proposed Bank, 39 CCH (2011) records from Orange County, and three CCH (2011) records from San Bernardino County. The nearest documented occurrence is from May 1952 in Santa Ana Canyon, approximately five miles south of the Proposed Bank (CCH 2011). The most recent documented occurrence from Orange or San Bernardino County is from May 2008 near Modjeska Canyon, approximately nine miles south of the Proposed Bank (CCH 2011). Coulter's matilija poppy has a high potential to occur in the Proposed Bank due to the presence of suitable habitat, a recent burn, the presence of associated species, and the relative location of the nearest documented occurrence. This species was not observed during the April and June surveys.

San Bernardino aster (*Symphyotrichum defoliatum*), CNPS List 1B. High Potential. San Bernardino aster is a perennial forb in the sunflower family (Asteraceae) that blooms from July to November. It typically occurs in vernally mesic sites, ditches, streamsides, and seeps in meadow, marsh, swamp, coastal scrub, cismontane woodland, and lower montane coniferous forest habitat at elevations ranging from 5 to 6630 feet (CNDDB 2011, CNPS 2011). Observed associated species include Gooding's willow (*Salix gooddingii*), arroyo willow (*S. lasiolepis*), blue elderberry (*Sambucus nigra*), bulrushes (*Schoenoplectus* spp.), cattails (*Typha* spp.), heliotrope (*Heliotropium curassavicum*), horseweed (*Conyza canadensis*), California rose (*Rosa californica*), and common yarrow (*Achillea millefolium*) (CNDDB 2011).

San Bernardino aster is known from 51 USGS 7.5-minute quadrangles in Imperial, Kern, Los Angeles, Orange, Riverside, San Bernardino, San Diego, and San Luis Obispo counties (CNPS 2011). There are six CNDDB (2011) records within the greater vicinity of the Proposed Bank, twelve CCH (2011) records from Orange County, and 36 CCH (2011) records from San Bernardino County. The nearest documented occurrence is from September 1928 near Chino, approximately six miles east of the Proposed Bank (CNDDB 2011). The most recent documented occurrence from Orange or San Bernardino County is from October 2009 near Los Pinos Spring, approximately 25 miles southeast of the Proposed Bank (CNDDB 2011). San Bernardino aster has a high potential to occur in the Proposed Bank due to the presence of suitable soils conditions, suitable habitat, and associated species. This species was not observed during the August survey.



Legend

- Property: (313.35 acres)
- Allen's Hummingbird
- Coast Horned Lizard
- Nuttall's Woodpecker
- Red Diamond Rattlesnake
- Possible San Diego Desert Woodrat
- Fish's milkwort
- Catalina mariposa-lily
- California walnut

Figure 6. Special Status Species Observed within the Proposed Bank

Proposed Soquel Canyon
Mitigation/Conservation Bank
San Bernardino and Orange Counties, CA

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ENVIRONMENTAL CONSULTANTS

Date: August 2011
Map By: Sundaran Gillespie
Base Source: ESRI

Path: L:\Acad 2000 Files\20000\20114\gis\ArcMap\Prospectus\Fig7_SpecialStatus.mxd

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3.5 Wildlife Species

3.5.1 Overall Biodiversity

Field surveys to date demonstrate that the Proposed Bank supports a level of wildlife diversity expected of relatively pristine lands in coastal southern California (see Appendix A). Large mammals including Mule Deer (*Odocoileus hemionus*) and Coyote (*Canis latrans*) are present. While small mammals are generally difficult to observe and/or identify without dedicated survey techniques such as pitfall trapping, the diversity of microhabitats within the Proposed Bank suggests that a variety of the small mammal species found in the region are present. Thirty-seven species of native birds have been observed within the Proposed Bank by WRA (with additional species observed in adjacent lands), and its various habitats provide breeding habitat for most of these species. Many additional bird species very likely occur within the Proposed Bank during peak migratory periods, and other species (including the listed species California Gnatcatcher and Least Bell's Vireo) have the potential to colonize the site once vegetative communities further recovered from the Freeway Complex Fire. Six reptile and two amphibian species have been observed to date; as is the case with small mammals, diversity of these groups is often underrepresented by limited, opportunistic survey efforts of the type conducted thus far. While invertebrate diversity is more challenging to measure, several species each of large and conspicuous insect groups including butterflies, odonates (dragonflies and damselflies), and beetles have also been observed within the Proposed Bank.

3.5.2 Special Status Wildlife Species

Forty-seven special status species of wildlife have been recorded in the greater vicinity of the Proposed Bank (Figure 7); Appendix B summarizes the potential for each of these species to occur within the Proposed Bank. Four special status wildlife species were observed in the Proposed Bank by WRA during site visits: Allen's Hummingbird (*Selasphorus sasin*), Nuttall's Woodpecker (*Picoides nuttallii*), Coast Horned Lizard (*Phrynosoma blainvillii*), and Red Diamond Rattlesnake (*Crotalus ruber*). In addition, White-tailed Kite (*Elanus leucurus*) was observed foraging adjacent to the Proposed Bank. Special status wildlife species that were observed, or have a moderate or high potential to occur in the Proposed Bank are discussed below. Also included is Santa Ana Sucker (*Catostomus santaanae*), a species that is unlikely to occur but is a potential candidate for an experimental translocation attempt to the Proposed Bank.

Pallid Bat (*Antrozous pallidus*), CDFG Species of Special Concern, WBWG High Priority. Moderate Potential. Pallid Bat is widely distributed in California, occurring in a number of habitats from rocky arid deserts to grasslands and into higher-elevation coniferous forests. It is most abundant in the arid Sonoran life zones below 6,000 feet. Pallid Bats often roost in colonies of between 20 and several hundred individuals. Roosts are typically in rock crevices, tree hollows, mines, caves, and a variety of man-made structures, including vacant and occupied buildings. Tree roosting has been documented in large conifer snags, inside basal hollows of redwoods and giant sequoias, and within bole cavities in oak trees. Pallid bats are primarily insectivorous, feeding on large prey that is taken on the ground, or sometimes in flight. Prey items include arthropods such as scorpions, ground crickets, and cicadas (WBWG 2010). Rock outcrops and overhangs within the Proposed Bank provide potential roosting sites and the Proposed Bank also likely provides suitable foraging habitat. The nearest documented occurrence is approximately 9.7 miles south of the Proposed Bank (CDFG 2011).

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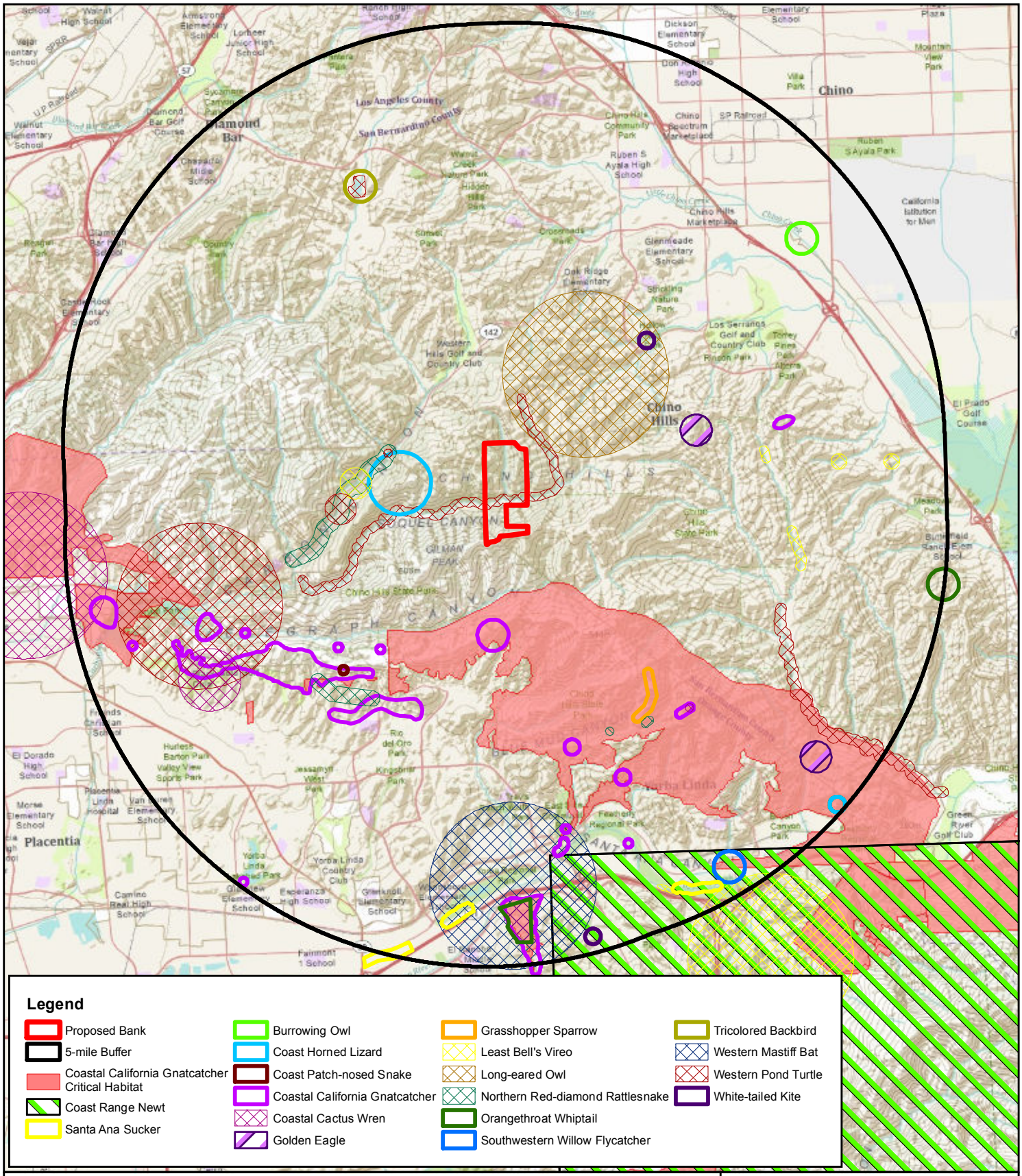

Figure 7. Special Status Wildlife Species within 5-mile Radius of Proposed Bank

Proposed Soquel Canyon Mitigation/Conservation Bank
San Bernardino and Orange Counties, CA

ENVIRONMENTAL CONSULTANTS

Date: August 2011
Map By: Sundaran Gillespie
Basemap: ESRI World Topo

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Western Red Bat (*Lasiurus blossevillii*), CDFG Species of Special Concern, WBWG High Priority. Moderate Potential. This species is considered highly migratory, and broadly distributed, occurring throughout much of the western United States. It is typically solitary, roosting primarily in the foliage of trees or shrubs. Day roosts are commonly in edge habitats adjacent to streams or open fields, possibly in association with riparian habitat (particularly willows, cottonwoods, and sycamores) (TPWD 2007). Trees within the Proposed Bank, particularly those in or adjacent to riparian areas, provide potential roost sites, and the Proposed Bank also likely provides suitable foraging habitat.

Fringed Myotis (*Myotis thysanodes*), WBWG High Priority. Moderate Potential. Fringed Myotis ranges through much of western North America. This species is found in desert scrubland, grassland, sage-grass steppe, old-growth forest, and subalpine coniferous and mixed deciduous forest. Oak and pinyon-juniper woodlands are most commonly used. Fringed Myotis roosts in colonies e from 10 to 2,000 individuals, although large colonies are rare. Caves, buildings, underground mines, rock crevices in cliff faces, and bridges are used for maternity and night roosts, while hibernation has only been documented in buildings and underground mines. Tree-roosting has also been documented in Oregon, New Mexico, and California (WBWG 2010). Tree snags, rock outcrops and rock overhangs provide potential roost habitat for this species within the Proposed Bank.

Long-legged Myotis (*Myotis volans*), WBWG High Priority. Moderate Potential. Long-legged Myotis ranges across western North America. This species is usually found in coniferous forests, but also occurs seasonally in riparian and desert habitats. They use abandoned buildings, cracks in the ground, cliff crevices, exfoliating tree bark and hollows within snags as summer day roosts. Caves and mines are used as hibernation roosts. Long-legged Myotis forage in and around the forest canopy and feed on moths and other soft-bodies insects (WBWG 2010). The Proposed Bank provides tree snags as potential day roosts; this species is likely present only seasonally, with hibernation roosting unlikely.

Western Mastiff Bat (*Eumops perotis californicus*), CDFG Species of Special Concern, WBWG High Priority. Moderate Potential. The Western Mastiff Bat ranges from Central Mexico across the southwestern United States. In California this species roosts at elevations up to 4,600 feet where significant rock features are present (WBWG 2010). Mastiff Bat roosts are primarily located high on cliffs under exfoliating rock slabs, but have also been found in similar crevices in large boulders and buildings. This species forages in groups high above the ground in broad, open areas and is most often found in desert washes, flood plains, chaparral, oak woodland, open pine forest, grasslands and agricultural areas (WBWG 2010). The Proposed Bank provides rock outcrops for potential roosting in proximity to chaparral and oak woodlands habitats for foraging. The nearest documented occurrence is approximately 3.9 miles south of the Proposed Bank, and there are several occurrences within ten miles (CDFG 2011).

San Diego Black-tailed Jackrabbit (*Lepus californicus bennettii*), CDFG Species of Special Concern. Moderate Potential. A subspecies of the widespread Black-tailed Jackrabbit (*L. californicus*), the San Diego Black-tailed Jackrabbit occurs on the coastal slope of southern California and northern Baja California. This jackrabbit typically favors open habitats, such as grazed grasslands, but also occurs in areas with scattered shrubs (Best 1996). The relatively open portions of the Proposed Bank (e.g. grazed grasslands) as well as adjacent scrub and chaparral provide suitable habitat for San Diego Black-tailed Jackrabbit, although no jackrabbits have been observed by WRA at the site to date. The nearest documented occurrence in CNDDB is approximately 16.5 miles northwest of the Proposed Bank (CDFG 2011).

Northwestern San Diego Pocket Mouse (*Chaetodipus fallax fallax*), CDFG Species of Special Concern. Moderate Potential. A subspecies of the San Diego Pocket Mouse (*C. fallax*), the Northwestern San Diego Pocket Mouse occurs in a variety of southern California habitats, preferring sandy, herbaceous areas usually in association with rocks and/or course gravel. According to Lackey (1996), this subspecies is common in coastal sage scrub habitats of the San Gabriel Mountains in eastern Los Angeles County. The Proposed Bank provides sandy, herbaceous areas as well as coastal sage scrub. The nearest documented occurrence in CNDDB is approximately 12.6 miles northeast of the Proposed Bank (CDFG 2011).

San Diego Desert Woodrat (*Neotoma lepida intermedia*), CDFG Species of Special Concern. Moderate Potential. A subspecies of the Desert Woodrat (*N. lepida*), the San Diego Desert Woodrat occurs on the coastal slope from San Luis Obispo County to northern Baja California. Habitat is variable and includes chaparral, coastal sage scrub, riparian scrub and woodland; generally found in association with large rocks and rock outcrops in southern California (Verts and Carraway 2002). Like other woodrats, the San Diego Desert Woodrat constructs large nests made of piles of sticks, vegetation, cacti and dung. The Proposed Bank provides chaparral, coastal sage scrub, riparian scrub and rocky habitats suitable for this species. One woodrat nest was observed by WRA within the site during August 2011, although the species using the nest was not identified and another (non-special status) woodrat species also has the potential to be present. The nearest documented CNDDB occurrence is approximately 12.7 miles northeast of the Proposed Bank (CDFG 2011).

American Badger (*Taxidea taxus*), CDFG Species of Special Concern. Moderate Potential. American Badger is a large, semi-fossorial member of the Mustelidae (i.e. weasel family). It is found uncommonly in drier open stages of most scrub, grassland, forest, and herbaceous habitats where friable soils and prey populations are present. Badgers are typically solitary and nocturnal, digging burrows to provide refuge during daylight hours. Burrow entrances are usually elliptical (rather than round); each burrow generally has only one entrance. Young are born in the spring and independent by the end of summer. Badgers are carnivores, preying on a variety of mammals (especially ground squirrels) and occasionally other vertebrates and eggs. The Proposed Bank provides suitable open habitats for this species, including grazed grassland and adjacent chaparral and scrub. The nearest documented occurrence in CNDDB is located approximately 11.5 miles to the north, and there are also occurrences at similar distances to the northwest and west.

Golden Eagle (*Aquila chrysaetos*), CDFG Fully Protected Species, USFWS Bird of Conservation Concern. High Potential. Golden Eagle is largely resident in open and semi-open areas from sea level to 3600 meters elevation. Occupied habitats include shrublands, grasslands, desert, mixed woodlands, and coniferous forests. This species is usually found in mountainous areas, but it also nests in wetland, riparian, and estuarine habitats at lower elevations (Kochert et al. 2002). Nests are large and typically built on cliff ledges or in large, relatively isolated trees. It forages over wide areas, feeding primarily on ground squirrels, rabbits, large birds, and carrion. The Proposed Bank provides large trees suitable for nesting, open habitats for foraging and is surrounded on most of its perimeter by two or miles of suitable, undeveloped land. The nearest documented nesting occurrence in CNDDB is located approximately 2.0 miles to the east and dates from 1998 (CDFG 2011). Golden Eagle may forage within the Proposed Bank even if nesting is not occurring there.

White-tailed Kite (*Elanus leucurus*), CDFG Fully Protected. High Potential. White-tailed Kite is resident in a variety of open habitats including agricultural areas, grasslands, scrub habitats, wet meadows and emergent wetlands throughout the lower elevations of California. Nests are constructed mostly of twigs and placed in small to large trees, often at habitat edges or in isolated groves (Dunk 1995). This species preys upon a variety of small mammals and other vertebrates. The Proposed Bank provides open habitats for foraging and suitable trees for nesting, as well as high-quality foraging habitat adjacent to the Proposed Bank. One White-tailed Kite was observed by WRA just outside of the Proposed Bank's northeastern boundary during a site visit in February 2011. White-tailed Kite may also forage within the Proposed Bank even if nesting is not occurring there.

Long-eared Owl (*Asio otus*), CDFG Species of Special Concern. Moderate Potential. This generally uncommon species is resident throughout much of California outside of the Central Valley. Long-eared Owl nests in a variety of woodland habitats, including oak and riparian. It requires adjacent open land with rodents for foraging, and the presence of old nests of crows, hawks, magpies etc. for breeding. Often roosts communally in the winter. The Proposed Bank provides woodland habitat with suitable nesting trees and adjacent open lands for foraging, and is within Long-eared Owl's breeding range per a recent monograph in Shuford and Gardali (2008).

Allen's Hummingbird (*Selasphorus sasin*), USFWS Bird of Conservation Concern. Present. Allen's Hummingbird, common in portions of its range, is a summer resident along much of California's coast and a year-round resident in portions of coastal southern California. It occurs in a variety of habitats including chaparral, woodland and forest edges, and parks and gardens. The Proposed Bank's woodlands and associated chaparral and scrub habitats provide suitable breeding habitat and flowering plants as a nectar source. A *Selasphorus* hummingbird presumed to be of this species was observed within the Proposed Bank by WRA during a February 2011 site visit.

Nuttall's Woodpecker (*Picoides nuttallii*), USFWS Bird of Conservation Concern. Present. Nuttall's Woodpecker, common in much of its range, is a year-round resident throughout most of California west of the Sierra Nevada. Typical habitat is open woodland of pines, pine-oak or riparian. Nesting occurs in tree cavities. The Proposed Bank's woodlands provide suitable nesting and foraging habitat, and at least two individual Nuttall's Woodpeckers were observed by WRA during a February 2011 site visit. This species was also observed during a June 2010 site visit, and is presumed to be resident within the Proposed Bank, including nesting.

Loggerhead Shrike (*Lanius ludovicianus*), CDFG Species of Special Concern, USFWS Bird of Conservation Concern. High Potential. Loggerhead Shrike is a resident and winter visitor in lowlands and foothills throughout California. This species is associated with open country with short vegetation and scattered trees, shrubs, posts, fences, utility lines or other perches. Nesting substrates vary from trees to brush piles; vegetation with thorns is usually preferred, and nests are typically well-concealed (Yosef 1996). Although a songbird, shrikes are predatory and forage on a variety of insects and also small vertebrates. The Proposed Bank provides both trees and large shrubs suitable for nesting as well as open foraging areas and prey species (macroinvertebrates and small vertebrates), and is within Loggerhead Shrike's breeding range per a recent monograph in Shuford and Gardali (2008). Shrikes would be mostly likely to occur in the central, relatively flat and open portion of the Proposed Bank.

Least Bell's Vireo (*Vireo bellii pusillus*), Federal Endangered, State Endangered. Unlikely (under current conditions); High Potential under future conditions. Least Bell's Vireo, a subspecies of Bell's Vireo (*V. bellii*), 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 the state 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 (i.e., between five and ten years old) and near water (USFWS 1998). Such habitat is preferred because it provides both dense cover in the lower shrub layer for nest concealment, and 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, cottonwood, and/or oaks, with a dense understory of species such as mulefat, California wild rose (*Rosa californica*), poison oak, and mugwort (USFWS 1998). Nests are typically placed within one meter 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 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.

There are several recent CNDDB occurrences for Least Bell's Vireo within ten miles of the Proposed Bank to the west, east and south, most of them in or adjacent to Chino Hills State Park (CDFG 2011). The Proposed Bank appears to be situated within a corridor of undeveloped land that provides areas of riparian habitat suitable for the vireo, although the state of this habitat overall following the Freeway Complex Fire is uncertain. Within the Proposed Bank, Soquel Canyon Creek features riparian habitat with limited willow cover and relatively small areas of mulefat thickets. Sparser riparian understory is also found along portions of the transverse drainages and in the southwestern portion of the site. Protocol-level surveys conducted by a permitted biologist have not detected any vireos within the Proposed Bank during the 2011 breeding season (see 2011 protocol-level survey report in Appendix D), and none have been observed during site visits by WRA. The riparian vegetation currently present is likely too limited in extent and density to support Least Bell's Vireo, and the understory was also degraded by heavy rainfall during the 2010 – 2011 precipitation season. Riparian restoration focused on 1) establishing stands of willows and cottonwoods, 2) extending understory cover (especially mulefat) laterally from the drainage, and 3) increasing overall foliage density would substantially improve habitat quality. The larger and more perennial transverse drainages could also benefit from riparian restoration and eventually provide suitable vireo breeding habitat. Another key management element is the elimination of cattle grazing within riparian areas, which would enhance habitat and further increase the likelihood of vireo colonization.

Coastal California Gnatcatcher (*Polioptila californica californica*), Federal Threatened, CDFG Species of Special Concern. Unlikely (under current conditions), High Potential under Future Conditions. Coastal California Gnatcatcher, listed as Threatened in 1993, is a resident subspecies of the California Gnatcatcher (*P. californica*) that occurs on the southern California coastal slope from Ventura County southward to northern Baja California. It is found in close association with sage scrub habitats throughout its U.S. range, typically preferring scrub dominated or co-dominated by California sagebrush (Atwood and Bontrager 2001). Other vegetation communities such as chaparral and riparian scrub may also be used during the non-breeding season, particularly if they are directly adjacent to coastal sage scrub (Atwood and Bontrager 2001, USFWS 2010). Coastal California Gnatcatcher is generally less numerous in scrub dominated by true sages (*Salvia*, e.g. black sage) (Atwood and Bontrager 2001). Nests are typically placed approximately one meter off of the ground (USFWS 2010), with a preference shown for dense scrub microhabitats with both horizontal and vertical structural homogeneity (Braden 1999). Habitat destruction due to urban development is an acute threat to gnatcatchers. Fires also have substantial impacts on coastal sage scrub habitat and can greatly reduce or eliminate it entirely in impacted areas until regeneration occurs.

The Proposed Bank is within Coastal California Gnatcatcher's range and there are numerous documented occurrences in CNDDB within five miles, particularly to the east and south (CDFG 2011). The Proposed Bank is situated within a broader corridor of undeveloped land that provided suitable habitat and was likely broadly occupied prior to the impacts of the Freeway Complex Fire. The extent of coastal sage scrub habitat within the Proposed Bank prior to the fire is not documented, but such habitat was present as shown by the sage scrub regeneration that is currently occurring. Protocol-level surveys conducted by a permitted biologist have not detected any gnatcatchers within the Proposed Bank during breeding-season surveys in 2011 (see 2011 protocol-level survey report in Appendix D), and none have been observed during site visits by WRA. The regeneration of mixed and grassland scrub habitats dominated by California sagebrush has occurred along the eastern half of Soquel Canyon Creek, and also in patches upslope of the creek in the northwestern portion of the site, for a total of approximately 16.6 acres. Additionally, California sagebrush has also shown regeneration on ridgelines (e.g., the southern boundary of the site adjacent to Chino Hills State Park), particularly within the deer weed scrub vegetation alliance. The lack of abundant and diverse California sagebrush-dominated habitats likely explains the current absence of Coastal California Gnatcatcher within the Proposed Bank. Management techniques that encourage extensive California sagebrush regeneration would greatly increase the likelihood of gnatcatcher use of the site. The most important initial management technique is the elimination of cattle grazing throughout the portions of the site both where California sagebrush scrub is present and where it has the potential to regenerate.

(Brewster's) Yellow Warbler (*Dendroica petechia brewsteri*), CDFG Species of Special Concern, USFWS Bird of Conservation Concern. Moderate Potential. The Yellow Warbler is a neotropical migrant bird that is widespread in North America. The Brewster's (*brewsteri*) subspecies is a summer resident and represents the vast majority of Yellow Warblers that breed in California, including on the southern California coastal slope. In California west of the Central Valley, Yellow Warbler breeding habitat typically consists of dense riparian vegetation near water (including wet meadows), with willows especially being favored (Shuford and Gardali 2008). This species has declined throughout much of its California breeding range, including in southern California. Soquel Canyon Creek and portions of the transverse drainages within the Proposed Bank currently features some riparian cover, although willows and understory are limited. As with Least Bell's Vireo, riparian restoration efforts will likely greatly improve habitat quality. Yellow Warbler occurs widely during migration and likely uses the Proposed Bank as stopover habitat.

Lawrence's Goldfinch (*Spinus lawrencei*), USFWS Bird of Conservation Concern. Moderate Potential. This generally uncommon species is endemic as a breeder to arid woodland habitats in the Central Valley and coastal foothills of California, as well as northern Baja California. Annual distribution within the breeding range can be highly erratic. Wintering occurs in the greater southwest region, including southern California. Suitable woodland habitat is frequently dominated by oaks, and annual native plants are an important food resource (Davis 1999). The Proposed Bank provides arid woodland habitat as well as native annual plants, and there is moderate potential for this species to occur there, including breeding.

Western Pond Turtle (*Emys marmorata*), CDFG Species of Special Concern. High Potential. Western Pond Turtle is the only aquatic turtle (excluding marine species) native to most of California, associated with rivers, streams, lakes, and ponds throughout much of the state. Typical aquatic habitat features stagnant or low gradient water, aquatic vegetation, and aerial basking sites such as logs, rocks, and mud-banks. Adult females excavate nests in riparian and upland areas in the spring or early summer. Nest sites are generally located on unshaded slopes, and require friable soil that is sufficiently dry to promote successful egg development (Holland 1994). The young generally hatch and overwinter in the nest (Jennings and Hayes 1994, Reese and Welsh 1997). At least under some ecological conditions, pond turtles may regularly utilize terrestrial habitats (Reese and Welsh 1997). While some populations are active principally in the spring and estivate during the rest of the year, turtles along the southern California coast may be active year-round (Jennings and Hayes 1994). Western Pond Turtle is a dietary generalist, subsisting principally on invertebrates as well as plant material and carrion.

The nearest documented occurrence, in CNDDB, is located within Soquel Canyon Creek approximately 0.1 miles east of the Proposed Bank's boundary, and there are several other occurrences within five miles of the Proposed Bank (CDFG 2011). Soquel Canyon Creek within the Proposed Bank provides suitable perennial aquatic habitat and adjacent suitable nesting habitat with friable soil amid riparian vegetation, although the higher-quality habitat is limited to portions of the creek with deeper permanent water. Riparian restoration along Soquel Canyon Creek would likely improve turtle nesting habitat by increasing vegetative cover.

Coast Horned Lizard (*Phrynosoma blainvillii*), CDFG Species of Special Concern. Present. Coast Horned Lizard is widespread in much of California west of the Sierra Nevada-Cascades ranges and the southern deserts. Habitat is variable and in southern California includes chaparral, coastal sage scrub, oak and riparian woodlands, and grassland. 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). The Proposed Bank provides chaparral and scrub habitat with open, sandy areas, particularly in the higher-elevation portions. Individual Coast Horned Lizards were observed by WRA within the Proposed Bank during site visits in June 2010 and April 2011.

Orange-throated (Orangethroat) Whiptail (*Aspidoscelis hyperythra*), CDFG Species of Special Concern. Moderate Potential. Orange-throated Whiptail is known to occur from central-eastern Orange and southwestern-most San Bernardino Counties southward through Baja California. This species is associated with washes and other sandy habitats with rocks and brush. Perennial plants are thought to be an important habitat component due to this whiptail's preference for termites as food; suitable perennials include various sages (Jennings and Hayes 1994). Open areas are generally avoided by this species (Jennings and Hayes 1994). The Proposed Bank provides sandy habitats with rocks and dense perennial shrubbery, although it appears to be right at the margin of Orange-throated Whiptail's range. The nearest documented occurrence is approximately 4.9 miles to the southeast, and there are several other occurrences at slightly greater distances in the vicinity (CDFG 2011). Thus, this species has a moderate potential to occur within the Proposed Bank.

Coast Patch-nosed Snake (*Salvadora hexalepis virgultea*), CDFG Species of Special Concern. Moderate Potential. A subspecies of the Patch-nosed Snake (*S. hexalepis*), the Coast Patch-nosed Snake occurs on the coastal slope from central California to Baja California and is uncommonly observed. It is found in association with chaparral and other habitats with a layer of brush or scrub (Jennings and Hayes 1994). Whiptails are thought to be a major food source, and the presence of small mammal burrows for refuge is also likely important (Jennings and Hayes 1994). The Proposed Bank provides chaparral and other brush/scrub habitats, and also features whiptails and small mammal burrows; the nearest documented occurrence is approximately 2.3 miles to the southwest (CDFG 2011). Coast Patch-nosed Snake has a moderate potential to occur within the Proposed Bank.

Two-striped Garter Snake (*Thamnophis hammondii*), CDFG Species of Special Concern. Moderate Potential. Two-striped Garter Snake is found on the coastal slope and associated foothills from central California through portions of Baja California. This species is highly aquatic, and typically inhabits perennial and intermittent streams with rocky beds bordered by willow thickets or other dense vegetation (Jennings and Hayes 1994). Individuals basking on stream banks and rocks generally flee into the water when threatened. During the winter, upland habitats adjacent to riparian areas such as grasslands and sage scrub are also utilized (Jennings and Hayes 1994). Fish, amphibians (including larvae) and invertebrates provide forage. Soquel Canyon Creek within the Proposed Bank provides strongly seasonal to perennial aquatic habitat with rocky beds, adjacent riparian vegetation, and amphibians for foraging. While this habitat is suitable, the relatively small amount of permanent water and limited riparian vegetation species likely limits potential occurrence to areas with the most extensive riparian vegetation. Riparian restoration along Soquel Canyon Creek would improve habitat for this species. The nearest documented occurrence is approximately 9.8 miles south of the Proposed Bank (CDFG 2011).

Red Diamond Rattlesnake (*Crotalus ruber*), CDFG Species of Special Concern. Present. Red Diamond Rattlesnake is endemic to southwestern California and Baja California. On the coastal slope, this species occurs in varied arid habitats including chaparral, scrub, oak woodland and rocky grasslands (Stebbins 1985). The Proposed Bank provides suitable arid habitats for this species including rock outcrops for refuge, and forage species. Individuals were observed by WRA during site visits in June and August 2011.

Santa Ana Sucker (*Catostomus santaanae*), Federal Threatened, CDFG Species of Special Concern. Unlikely; Potential Translocation Candidate. Santa Ana Sucker, listed as threatened by USFWS in 2000, is a small member of the Castomid fishes (sucker family) that is endemic to the Los Angeles, San Gabriel, and Santa Ana River systems, with an additional Santa Clara River population that is generally regarded as introduced. Within the Santa Ana River system, the sucker has been extirpated from the upper drainage and is currently restricted to portions of the Santa Ana River mainstem and to the lower reaches of its first-order tributaries. Per Moyle (2002), the main occupied portion is from Prado Dam to Yorba Linda, with a smaller isolated population upstream from Norco to Riverside. These occupied areas are critical habitat for the sucker and respectively named subunits 1C (Lower Santa Ana River) and 1B (Santa Ana River) of Unit 1. Subunit 1C is located approximately 3.5 miles south of the Proposed Bank. The Santa Ana River populations, generally dependant upon releases of waste water from sewage treatment plants (to maintain adequate water levels) and consistently subject to adverse water-quality impacts by urban sources, are viewed as insecure (Moyle 2002). The total estimated amount of suitable linear habitat within the Santa Ana River declined from approximately 10.5 km in 1999 to 4.2 km in 2010 (USFWS 2011).

Habitat characteristics for Santa Ana Sucker are summarized by Moyle (2002) and USFWS (2011). The sucker inhabits rivers and larger streams within its restricted range, preferring cool, flowing water, although seasonal turbidity is tolerated. Preferred substrates are gravel, rubble and boulder. Riparian vegetation at the water's edge provides cover, particularly for juvenile fish, though such vegetation is not as important in areas with riffles and deeper pool habitat. The sucker is well-adapted to the periodic flooding of occupied reaches due to heavy rainfall, in part because of a relatively prolonged spawning period that occurs from mid-March to July. Santa Ana Sucker feeds primarily on algae and detritus.

There are no documented occurrences of this species within or adjacent to the Proposed Bank, and no fishes of any type have been observed there during site visits. The historic status of this species within the lower reaches of Soquel Canyon Creek is unknown, although a dam across the creek below the Proposed Bank currently precludes any natural colonization. However, within the Proposed Bank, Soquel Canyon Creek is a near-perennial to perennial stream that provides several habitat attributes favorable to the sucker. These include: clear, cool flowing water derived from a relatively pristine watershed; gravel, cobble and boulder substrates; pools and riffles; algae for forage; and, riparian vegetation along portions of the creek for cover. Because of the degradation and declining quantity of habitat within the Santa Ana River, the sucker is a potential candidate for the experimental translocation of individuals to Soquel Canyon Creek in an attempt to establish a viable population in higher-quality habitat. The principal challenge to such a hypothetical translocation attempt may be ensuring that water flow within Soquel Canyon Creek is adequate to provide perennial sucker habitat, including deeper pools that remain inundated throughout years of below-average precipitation and subsequently reduced flow. For any such translocation to be seriously considered, more detailed studies of both the hydrology of the Soquel Canyon Creek watershed and the habitat suitability of the creek for the sucker would be needed.

3.5.3 Wildlife Dispersal Corridors

Wildlife movement between suitable habitat areas can occur via landscape linkages and wildlife movement corridors. The primary function of both wildlife corridors and landscape linkages is to connect two larger habitat blocks, also referred to as core habitat areas (Beier 1992, Soule and Terborgh 1999). For the purpose of this analysis, the term "landscape linkage" is used in a regional planning context, as a broad-scale mapping of natural habitat that functions to join two larger habitat blocks. The term "wildlife corridor" is used herein in the context of smaller scale, local area planning, where wildlife movement may be facilitated by specific local biological habitats or passages and/or may be restricted by barriers to movement. Corridors and linkages vary by species due to their unique habitat requirements, life histories, size, tolerance of disturbance, and movement patterns. Some species, particularly flying species, can use "stepping stone" dispersal habitats, or closely spaced pockets of habitat that can be used by certain species during dispersal between larger core habitat areas (Forman 1995). Because the ideal corridors can vary by species, wildlife movement is typically analyzed based on suitability for several focal species. Above all, wildlife corridors must link two areas of core habitat and should not direct wildlife to developed areas or areas that are otherwise void of core habitat (Hilty et al. 2006).

At the landscape linkage scale, the Proposed Bank is part of a much broader area of undeveloped lands surrounded virtually entirely by urban development that runs from the Puente Hills (approximately 15 miles to the west) to the southeastern boundary of Chino Hills State Park (approximately six miles to the southeast). This undeveloped area is broadest in the eastern portion that includes the Proposed Bank, where it is frequently greater than five miles wide. The importance of these undeveloped lands from a biological resources perspective is widely recognized; they are commonly referred to as the "Puente – Chino Hills Wildlife Corridor" and the subject of considerable conservation attention by public and private entities. The eastern portion of the "corridor" provides habitat for carnivorous mammal species not found in urbanized areas such as Bobcat (*Lynx rufus*) and Gray Fox (*Urocyon cinereoargenteus*) (Haas 2000), as well as dispersal habitat for Mountain Lion (Beier 1995). The southeastern portion of Chino Hills State Park also abuts directly to Cleveland National Forest, further enhancing the landscape linkage function of the area. As "stepping stone" habitat for birds and terrestrial animals capable of dispersing through urban areas, the Proposed Bank and surrounding undeveloped lands provide scrub, woodland and riparian habitats and offers connectivity to much larger core areas including Angeles National Forest to the north and the Santa Ana Mountains to the south.

At the scale of corridor as defined above, the Proposed Bank contains few barriers to local wildlife movement. The principal habitat corridor within the property is Soquel Canyon Creek, the perennial drainage running through the center of the site that offers direct connectivity of woodland, riparian and aquatic stream habitat to lands both east and west of the Proposed Bank. Woodland, chaparral and scrub habitats in the higher-elevation portions of the Proposed Bank are also contiguous with such habitats in the surrounding land parcels, with the exception of the northeastern boundary where a housing subdivision presents a significant barrier to movement for many types of wildlife.

3.6 Other Management Concerns

3.6.1 Invasive Plant Species

Thirty-seven plant species considered invasive by Cal-IPC (2006) were observed within the Proposed Bank (Table 4). Figure 8 illustrates the extent of invasive species distribution within the Proposed Bank. WRA mapped only extensive infestations and/or those invasive species that pose a substantial threat to the existing and emerging habitats. Additionally, several species were ubiquitous throughout the site and/or were characteristic species of defined vegetation alliances, and therefore were not mapped.

Table 4. Invasive species life form and Cal-IPC rank observed within the Proposed Bank

RANK / LIFE FORM	Assessed	Limited	Moderate	High	TOTAL
Trees	0	1	1	0	2
Shrubs	0	0	1	0	1
Forbs	7	6	10	1	24
Graminoids	0	1	8	1	10
TOTAL	7	8	20	2	37

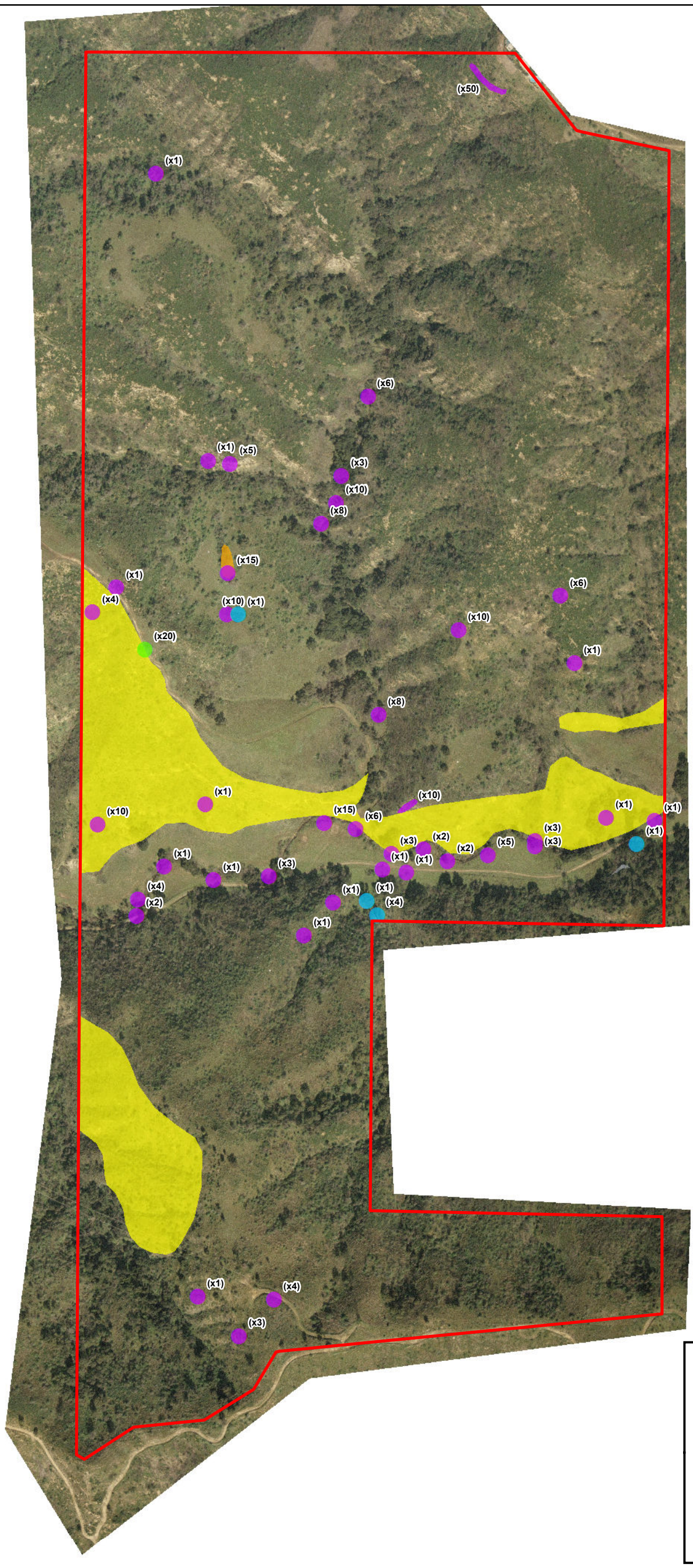
WRA evaluated invasive species ranked as "assessed" and "limited" and determined that only one species appeared to pose a threat within the Proposed Bank. Additionally, several species ranked "moderate" were determined to pose only a minor threat to the native habitat within the Proposed Bank. Those species of the highest concern for the Proposed Bank are summarized in Table 5 and are discussed below.

Table 5. Invasive plant species threats in the Proposed Bank

Species	Threat			Estimated Acreage / No. of Individuals
	Erosion	Habitat Loss	Fire	
blue gum	N/A	low	moderate-high	7 individuals
Peruvian peppertree	N/A	low-moderate	moderate-high	10 individuals
tree tobacco	N/A	moderate-high	low	146 individuals
black & Mediterranean mustards	moderate-high	moderate	moderate	extensive
Italian & milk thistles	moderate-high	moderate	moderate-high	extensive
tocalote	high	moderate	moderate	29.16 acres
fennel	low	moderate-high	moderate	15 individuals
grasses	moderate-high	moderate	high	extensive

<u>Trees</u>

Blue gum (*Eucalyptus globulus*), Moderate. Blue gum is an evergreen tree in the myrtle family (Myrtaceae) that blooms from October to January (Jepson 2011). It is originally native to southeast Australia, but is known throughout the Coast Ranges and Central Valley in California, cultivated particularly as wood lots, shelterbelts, and ornamentals. Blue gum can severely diminish native plant diversity due to increased shading and alleopathic chemicals that can inhibit understory development. Additionally, blue gum trees accumulate extremely flammable biomass from strips of bark and leaf litter, thereby increasing fire hazard (Cal-IPC 2006, Bossard et al. 2000).



Legend

- Property: (313.35 acres)
- Blue Gum
- Fennel
- Tree Tobacco
- Peruvian Peppertree
- Tocalote

Figure 8. Invasive Weeds Observed within the Proposed Bank

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Feet

wra
ENVIRONMENTAL CONSULTANTS

Proposed Soquel Canyon
Mitigation/Conservation Bank
San Bernardino and Orange Counties, CA

Date: August 2011
Map By: Sundaran Gillespie
Base Source: ESRI

Path: L:\Acad 2000 Files\20000\20114\gis\ArcMap\Prospectus\FigX_Weeds.mxd

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Within the Proposed Bank, blue gum is isolated to approximately seven individuals, several of which appeared to be row planted, with several other individuals observed on the adjacent property. Although blue gum can disperse readily, there were no saplings/seedlings observed. Due to its discrete distribution, WRA mapped the infestations of this species (Figure 8).

Peruvian pepper tree (*Schinus molle*), Limited. Peruvian pepper tree is an evergreen tree in the sumac family (Anacardiaceae) that blooms from June to August (Jepson 2011). It is originally native to South America, but is known from the Central and South Coast Ranges, Transverse Ranges, and Peninsular Ranges (CCH 2011). Peruvian pepper tree invades washes and recently disturbed sites, and can contribute to fire hazards in scrublands (Lambert et al. 2011, Cal-IPC 2006).

Within the Proposed Bank, Peruvian peppertree is isolated to approximately 10 individuals which appear to be row planted near a possible homestead. Although Peruvian peppertree can disperse readily, currently this species does not appear to be spreading in the Proposed Bank. Due to its discrete distribution, WRA mapped the individuals of this species (Figure 8).

Shrubs

Tree tobacco (*Nicotiana glaucus*), Moderate. Tree tobacco is an evergreen shrub in the nightshade family (Solanaceae) that blooms from April to August (Jepson 2011). It is originally native to South America, but is known from the South and Central Coast Ranges, Transverse Ranges, Peninsular Ranges, and Central Valley of California. Tree tobacco can invade disturbed areas rapidly and displace native species (CCH 2011, Cal-IPC 2006).

Within the Proposed Bank, tree tobacco was observed in extensive patches with approximately 146 individuals, throughout most vegetation alliances, and all topographic positions, aspects, and slopes, but especially where fire severity and grazing intensity are most pronounced. Due to its discrete distribution (small populations and individuals), WRA mapped the infestations of this species (Figure 8).

Forbs

Black mustard (*Brassica nigra*), Moderate; Mediterranean mustard (*Hirschfeldia incana*), Moderate. Black mustard is an annual forb and Mediterranean mustard is a perennial forb. Both species are in the mustard family (Brassicaceae) and bloom from April to October (Jepson 2011). They are originally native to Europe, but occur extensively throughout California except the Sierra Nevada, Modoc Plateau, and Deserts (CCH 2011). These mustards can disperse readily, particularly into recently disturbed sites and exacerbate erosion. Additionally, these species can increase fire hazard, particularly in areas with high non-native grass densities and previously burned sites (Lambert et al. 2011, Cal-IPC 2006).

Within the Proposed Bank, mustards were observed in extensive patches throughout most vegetation alliances, particularly on steep slopes and drainages with eroding banks. Most stands of mustards appeared to be in decline with a greater density of senesced stems and inflorescences than living vegetation. Although black mustard stands constituted their own vegetation alliance within the Proposed Bank, due to their extensive distribution and shifting annual patterns, these species were not mapped.

Italian thistle (*Carduus pycnocephalus*), Moderate; milk thistle (*Silybum marianum*), Limited. Italian thistle and milk thistle are annual forbs in the sunflower family (Asteraceae) which bloom from February to July (Jepson 2011). They are originally native to the Mediterranean, but occur extensively throughout California except for the Modoc Plateau, the high Sierra Nevada, and Deserts (CCH 2011, Cal-IPC 2006). These thistles can disperse readily into disturbed and eroded sites, displacing native species. Additionally, these species develop highly flammable thatch thereby increasing fire hazard particularly in woodlands due their relative shade tolerance (Lambert et al. 2011, Cal-IPC 2006, Bossard et al. 2000).

Within the Proposed Bank, these thistles were observed in extensive stands and constituted their own vegetation alliance; however, due to their extensive distribution, these species were not mapped. Additionally, dense stands of these thistles outside of herb dominated vegetation alliances were particularly associated in coast live oak woodlands and California walnut groves.

Tocalote (*Centaurea melitensis*), Moderate. Tocalote is an annual forb in the sunflower family (Asteraceae) which blooms from April to July (Jepson 2011). This species is originally native to southern Europe, but is known extensively throughout the Coast Ranges, Central Valley, and Deserts (Bossard et al. 2000). Tocalote can disperse readily forming dense stands in recently disturbed sites thereby displacing native, often perennial, species. As a result, the loss of living root structures in the wet season can exacerbate erosion (Cal-IPC 2006, Bossard et al. 2000).

Within the Proposed Bank, tocalote was observed in extensive stands constituted their own vegetation alliance, and were located on steep, eroded slopes. Due to the relatively confined distribution to the central portion of the Proposed Bank, WRA mapped the infestations of tocalote within the Proposed Bank (Figure 8).

Fennel (*Foeniculum vulgare*), High. Fennel is a perennial forb in the carrot family (Apiaceae) that blooms from May to September (Jepson 2011). This species is originally native to southern Europe, but is known extensively throughout the Coast Ranges, parts of the Central Valley, and South Coast of California. Fennel disperses rapidly and contains a large and long-lived seedbank. Native species can be inhibited through its rapid growth and alleopathic chemicals. Additionally, senesced flowering stalks can provide ignition sources for wildfire (Cal-IPC 2006, Bossar et al. 2000).

Within the Proposed Bank, fennel was observed in several small patches along a dirt road adjacent to deer weed scrub and California sagebrush mixed shrubs vegetation alliances. Due to its discrete distribution, WRA mapped the infestations of fennel within the Proposed Bank (Figure 8).

Grasses

Wild oat grass (*Avena barbata, A. fatua*), Moderate; bromes (*Bromus diandrus, B. hordeaceus*), Moderate; red brome (*B. madritensis* ssp. *rubens*), High; Bermuda grass (*Cynodon dactylon*), Moderate; rat tail fescue (*Festuca myuros*), Moderate; perennial rye grass (*Festuca perennis*), Moderate; foxtail barley (*Hordeum murinum* ssp. *leporinum*), Moderate. Wild oat grass, bromes, Bermuda grass, rat tail fescue, perennial rye grass, and foxtail barley are a mix of annual and perennial graminoids in the grass family (Poaceae) that typically bloom throughout the spring and into the early summer, followed by senescence or dormancy in the summer and fall (Jepson 2011). These species are originally native to Europe and Africa, but are known extensively throughout California. These grasses disperse readily, and can displace native species particularly annual forbs and perennial graminoids. Several of these species are utilized as forage by open range livestock in spring, but can become unpalatable following senescence. Additionally, annual thatch build up from these species can provide an ignition source for wildfire (Lambert et al. 2011, Cal-IPC 2006).

Within the Proposed Bank, these grasses were observed within all vegetation alliances; however, the densest populations were observed within herb dominated vegetation communities (e.g. wild oat grass grasslands, annual brome grasslands). Due to their extensive distribution and complex mosaic within herb dominated vegetation alliances, these species were not mapped.

3.6.2 Erosion, Grazing, and Fire Hazards

WRA observed substantial erosion throughout the Proposed Bank. Erosion appeared to be more severe in areas with steep slopes, in ephemeral-intermittent drainages, along the banks of Soquel Canyon Creek, areas dominated by non-native herbaceous species, areas of low vegetation density/high bare ground cover, and/or areas of evident cattle grazing.

Observations from an analogous site, Coal Canyon, where cattle are excluded, impacts from recent wildfire are not evident, and fewer invasive species occur than in the Proposed Bank, suggest that these three factors may be negatively affecting soil stability. Five wildfires have had direct impacts within the Proposed Bank in the past thirty-five years, with two in the past twenty years (Yorba Fire of 1990 and Freeway Complex Fire 2008) impacting at least half of the site. Historical aerial photographs illustrate that shrub dominated vegetation alliances were more extensive prior to the Freeway Complex Fire (Figure 9). Immediately following the fire, non-native annual herbaceous vegetation invaded these areas. Increased annual herbaceous species can increase erosion through the loss of intact, living roots to stabilize soil, and increase fire hazard through the addition of readily ignitable thatch and adding vertical structure where fire can reach into the shrub and tree canopy. Additionally, cattle-grazing appears to be maintaining and possibly increasing the density of non-native annual herbaceous vegetation through seed dispersal, ground disturbance, and incidental browsing of young woody vegetation (e.g. California sagebrush).

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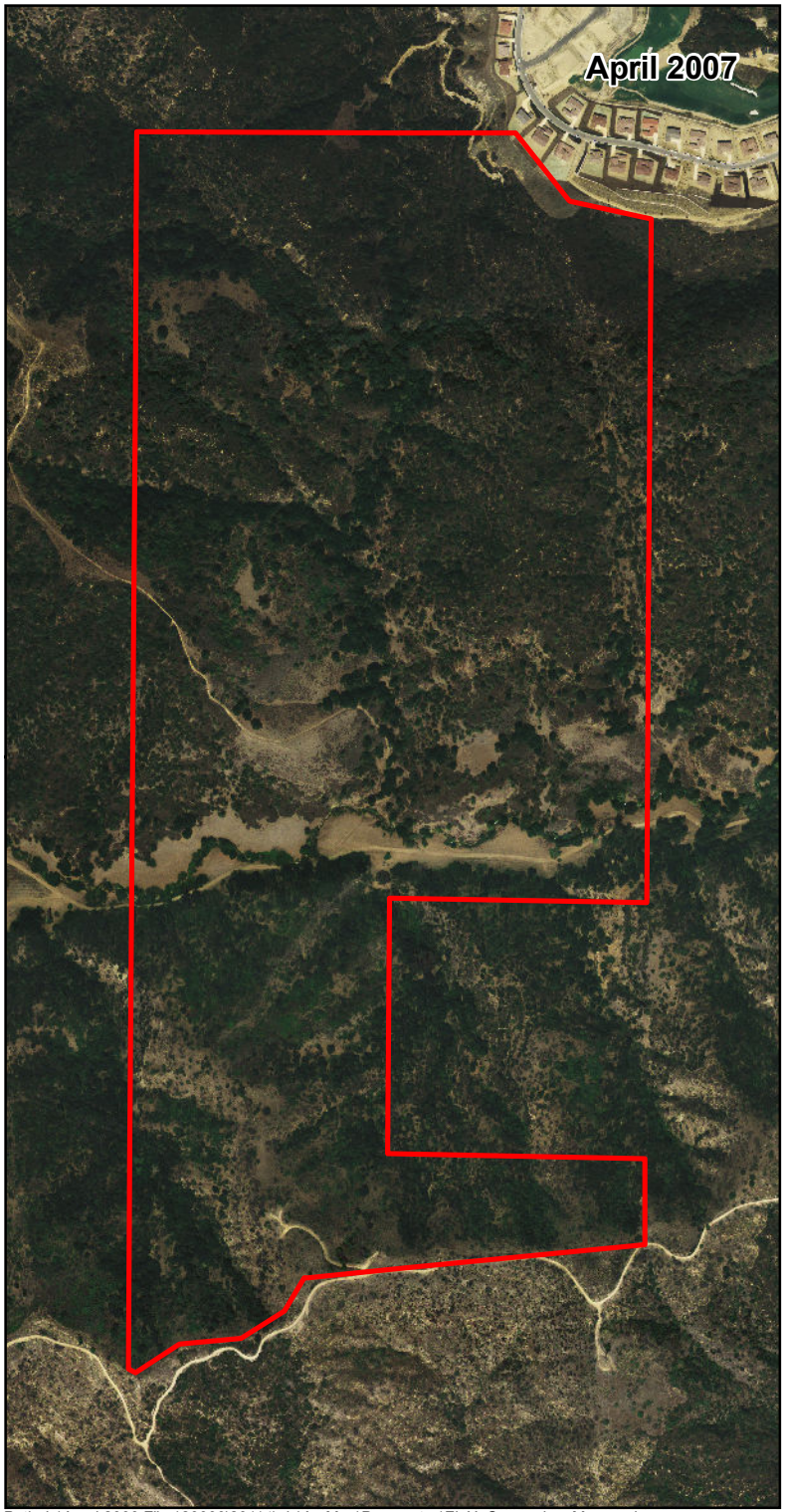

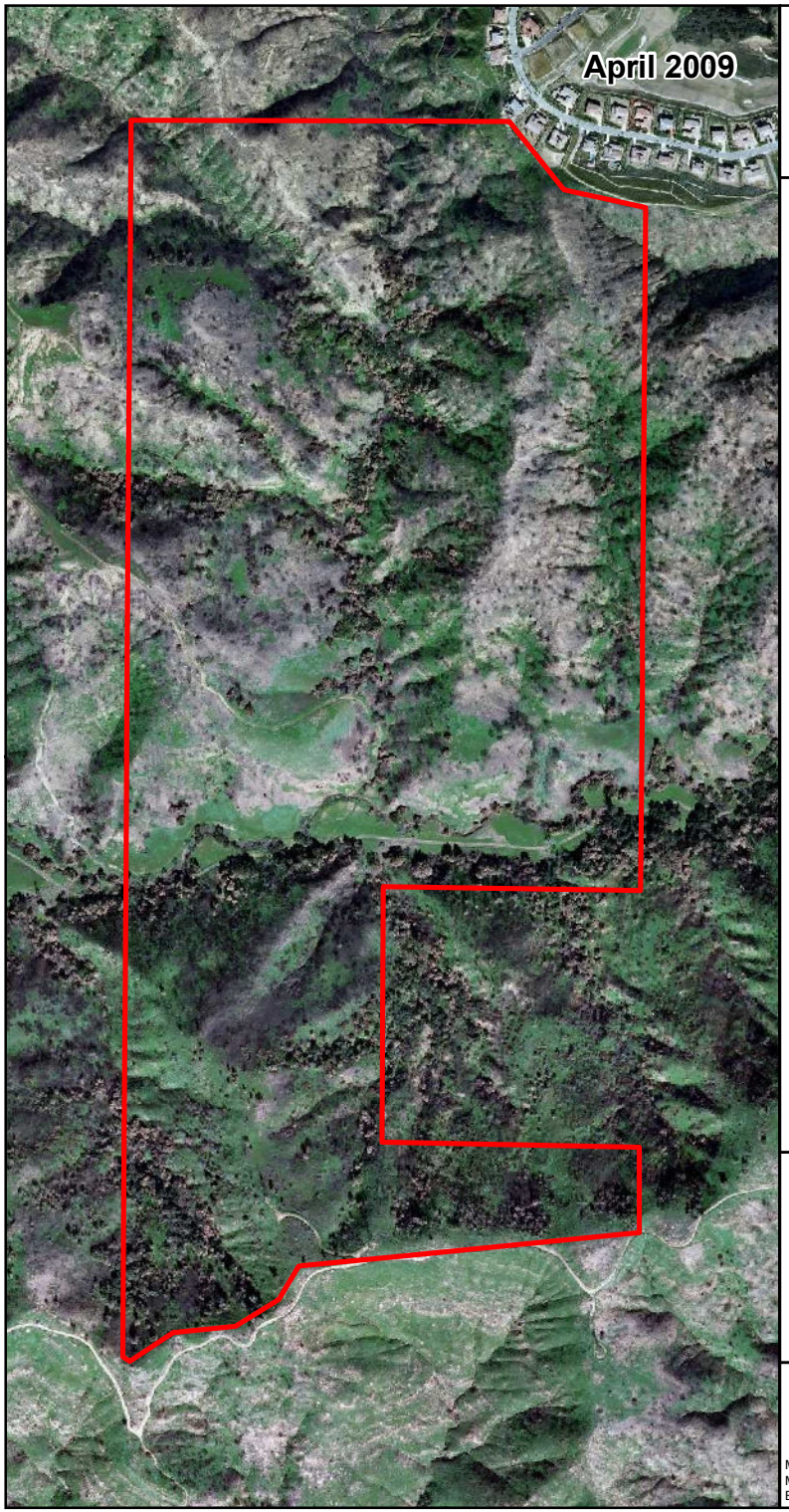

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Proposed Soquel Canyon Mitigation/ Conservation Bank San Bernardino and Orange Counties, California

Figure 9.
Pre/Post Fire Comparison

Legend

Proposed Bank

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Map Date: August 2011
Map By: Sundaran Gillespie
Base Source: USGS; ESRI; CDFG

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4.0 MANAGEMENT CONSIDERATIONS AND CONSTRAINTS

4.1 Wetlands and Waters

The ephemeral and intermittent streams in the upper reaches of the Proposed Bank appear to be relatively undisturbed with some erosion present and invasive species on their banks. The intermittent streams and perennial stream (Soquel Canyon Creek) contain more erosion, particularly down-cutting and scouring, that may be contributing sediment downstream. All streams contain vegetation affected by the Freeway Complex Fire with varying degrees of native vegetation recovery; however, it is assumed that fire effects, combined with invasive herbaceous species and cattle-grazing, may be accelerating erosion within the watershed.

Therefore, management guidelines for ephemeral, intermittent, and perennial waters should consider the following:

- Restoration and enhancement measures to increase native riparian vegetation to increase bank stability and shade the water courses;
- Erosion control measures to reduce sediment inputs (e.g. stream alteration, riparian vegetation planting);
- Grazing management and infrastructure to exclude grazers thereby accelerating woody vegetation recovery and reducing trampling (e.g. exclusion fencing, altering regime).

4.2 Sensitive Terrestrial Communities

The sensitive vegetation alliances within the Proposed Bank appear to be recovering from the most recent disturbance, the Freeway Complex Fire of 2008; however, persistent infestations of non-native species can slow their recovery and increase fire hazard. Those vegetation alliances dominated by stump-sprouting shrubs and trees (e.g. California walnut groves, blue elderberry stands) appear to be recovering more quickly than those dominated by shorter-lived and seed germinated species (e.g. California sagebrush scrub).

Therefore, management guidelines for sensitive terrestrial communities should consider the following:

- Monitoring of vegetation recovery to determine native species diversity, density, and recovery, particular coastal scrub communities (e.g. California sagebrush vegetation alliance) and riparian areas (e.g. California walnut groves);
- Restoration and enhancement measures to increase native shrub and tree species (e.g. planting, seeding);
- Address fire hazards to encourage native vegetation recovery and reduce fire interval/intensity (e.g. fire breaks, invasive species management);
- Invasive species removal/control to reduce erosion, fire hazard, and competitive effects;
- Grazing management and infrastructure to reduce incidental browsing/trampling and invasive species infestations (e.g. altering regime, animal units, grazing species).

4.3 Non-sensitive Terrestrial Communities

The non-sensitive vegetation alliances within the Proposed Bank appear to be either comprised of non-native species or native species typical of an early seral stage. Non-native annual herbaceous vegetation may be contributing to erosion, continued fire hazards, and native plants species suppression. Those vegetation alliances dominated by early seral state native species (e.g. deer weed scrub) will likely diminish through time with the emergence of longer-lived, middle and late stage seral shrubs (e.g. toyon and California sagebrush).

Therefore, management guidelines for non-sensitive terrestrial communities should consider the following:

- Monitoring of vegetation recovery (e.g. California sagebrush, black sage) within deer weed scrub;
- Restoration and enhancement measures;
- Address fire hazards;
- Erosion control measures;
- Invasive species removal/control;
- Grazing management and infrastructure.

4.4 Plant Species

4.4.1 Special Status Plant Species

Three special status plant species are present within the Proposed Bank. Although impacts to these species may not be considered under CEQA, they do provide habitat value and contribute to the plant diversity of the Proposed Bank.

Therefore, management guidelines for special status plant species should consider the following:

- Invasive species removal/control to reduce competitive pressure; however, herbicide applications, mechanical removal, etc. should avoid impacts to these species
- Restoration and enhancement to provide continued habitat for these species (e.g. seed collection, propagation)
- Avoidance during infrastructure installation/management, stream restoration, etc.

4.4.2 Invasive Plant Species

Thirty-seven Cal-IPC invasive plant species are present within the Proposed Bank, with 18 posing a substantial threat. Invasive species can alter the fire regime and intensity, contribute to erosion, and compete with native plant species, particularly in a post-fire context.

Therefore, management guidelines for invasive plant species should consider the following:

- Complete removal of individual species to reduce fire hazard and competitive pressure: blue gum, Peruvian peppertree, tree tobacco, and fennel;
- Grazing management and infrastructure to reduce fire hazard, erosion, and competitive pressure: mustards, thistles, and grasses;
- Herbicide application to reduce fire hazard and erosion: mustards, thistles, and grasses;
- Restoration and enhancement of native plant species.

4.5 Wildlife Species

4.5.1 Regulatory Constraints

Two bird species listed under the federal Endangered Species Act and/or the California Endangered Species Act have the potential to be present within the Proposed Bank under future conditions.

Therefore, management guidelines for listed bird species should consider the following:

- Restoration/enhancement activities within coastal scrub (e.g., California sagebrush scrub vegetation alliance) and riparian habitats may require protocol-level surveys for Coastal California Gnatcatcher and Least Bell's Vireo, to avoid potential impacts to nesting birds if they are present.

4.5.2 Wildlife Biodiversity

The Freeway Complex Fire heavily impacted vegetation communities within the Proposed Bank. Riparian habitat is critical for Least Bell's Vireo and other special-status wildlife species, and coastal sage scrub is critical for Coastal California Gnatcatcher. Restoration/enhancement efforts for these habitats would improve the rate of habitat regeneration, as well as overall habitat quality.

Therefore, management guidelines for wildlife biodiversity should consider the following:

- Riparian restoration/enhancement should be focused on Soquel Canyon Creek, with the goal of establishing 1) a canopy of willows and cottonwoods and 2) a dense and extensive riparian understory, including mulefat thickets, along as much of the creek as is feasible;
- Riparian restoration/enhancement efforts could also include some transverse drainages;
- Restoration/enhancement of coastal sage scrub should be implemented over as much of the site as is practical, with a particular focus on California sagebrush-dominated scrub habitat;
- Cattle grazing should be eliminated to reduce impacts to vegetation communities as well as nesting birds.

4.5.3 Dispersal Corridors

The Proposed Bank is part of a broader mosaic of undeveloped lands that function as an important landscape linkage for wildlife, connecting core habitat areas. For most wildlife species, Soquel Canyon Creek is the primary corridor within the site.

Therefore, management guidelines for dispersal corridors should consider the following:

- Restoration/enhancement of riparian habitat along Soquel Canyon Creek would improve the Proposed Bank's function as a wildlife corridor.

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APPENDIX A

LIST OF OBSERVED PLANT AND WILDLIFE SPECIES

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Table A-1. Plant species observed in the Proposed Bank, February-August, 2011

Family	Scientific name	Common name	Life form	Origin	Invasive Status[1]	Rare Status[2]	Wetland indicator[3]
Adoxaceae [Caprifoliaceae]	*Sambucus nigra* [*Sambucus mexicana*]	blue elderberry	deciduous shrub	native	N/A	N/A	FAC
Agavaceae [Liliaceae]	*Chlorogalum pomeridianum* var. *pomeridianum*	soap plant	perennial forb	native	N/A	N/A	NL
Anacardiaceae	*Malosma laurina*	laurel sumac	evergreen shrub	native	N/A	N/A	NL
Anacardiaceae	*Rhus aromatica* [*Rhus trilobata*]	skunk brush	deciduous shrub	native	N/A	N/A	NI
Anacardiaceae	*Rhus integrifolia*	lemonade berry	evergreen shrub	native	N/A	N/A	NL
Anacardiaceae	*Rhus ovata*	sugar sumac	evergreen shrub	native	N/A	N/A	NL
Anacardiaceae	*Toxicodendron diversilobum*	poison oak	deciduous shrub	native	N/A	N/A	NL
Apiaceae	*Osmorhiza brachypoda*	California sweet cicely	perennial forb	native	N/A	N/A	NL
Apiaceae	*Sanicula bipinnatifida*	purple sanicle	perennial forb	native	N/A	N/A	NL
Apiaceae	*Sanicula crassicaulis*	Pacific sanicle	perennial forb	native	N/A	N/A	NL
Apiaceae	*Tauschia arguta*	southern umbrellawort	perennial forb	native	N/A	N/A	NL
Apocynaceae [Asclepiadaceae]	*Asclepias californica*	California milkweed	perennial forb	native	N/A	N/A	NL
Apocynaceae [Asclepiadaceae]	*Asclepias fascicularis*	narrow-leaf milkweed	perennial forb	native	N/A	N/A	NL
Asteraceae	*Achillea millefolium*	common yarrow	perennial forb	native	N/A	N/A	FACU
Asteraceae	*Acourtia microcephala*	sacapellote	perennial forb	native	N/A	N/A	NL
Asteraceae	*Agoseris heterophylla*	annual dandelion	annual forb	native	N/A	N/A	NL
Asteraceae	*Ambrosia psilostachya*	western ragweed	perennial forb	native	N/A	N/A	FAC
Asteraceae	*Artemisia californica*	California sagebrush	evergreen shrub	native	N/A	N/A	NL
Asteraceae	*Artemisia douglasiana*	mugwort	perennial forb	native	N/A	N/A	FACW
Asteraceae	*Baccharis pilularis*	coyote brush	evergreen shrub	native	N/A	N/A	NL
Asteraceae	*Baccharis salicifolia*	mulefat	evergreen shrub	native	N/A	N/A	FACW
Asteraceae	*Brickellia californica*	California brickelbush	evergreen shrub	native	N/A	N/A	NL
Asteraceae	*Chaenactis santolinoides*	Santolina pincushion	perennial forb	native	N/A	N/A	NL
Asteraceae	*Cirsium occidentale* var. *occidentale*	cobweb thistle	perennial forb	native	N/A	N/A	NL
Asteraceae	*Conyza canadensis*	horseweed	annual forb	native	N/A	N/A	NL

Family	Scientific name	Common name	Life form	Origin	Invasive Status[1]	Rare Status[2]	Wetland indicator[3]
Asteraceae	*Corethrogyne filaginifolia* [*Lessingia filaginifolia* var. *filaginifolia*]	common sand aster	perennial forb	native	N/A	N/A	NL
Asteraceae	*Deinandra fasciculata* [*Hemizonia fasciculata*]	clustered tarweed	annual forb	native	N/A	N/A	NL
Asteraceae	*Ericameria palmeri*	Palmer's goldenweed	evergreen shrub	native	N/A	N/A	NL
Asteraceae	*Erigeron foliosus* var. *foliosus*	leafy fleabane	perennial forb	native	N/A	N/A	NL
Asteraceae	*Eriophyllum confertiflorum* var. *confertiflorum*	golden yarrow	evergreen shrub	native	N/A	N/A	NL
Asteraceae	*Hazardia squarrosa*	sawtooth goldenbush	evergreen shrub	native	N/A	N/A	NL
Asteraceae	*Helenium puberulum*	rosilla	perennial forb	native	N/A	N/A	FACW
Asteraceae	*Helianthus gracilentus*	slender sunflower	perennial forb	native	N/A	N/A	NL
Asteraceae	*Heterotheca grandiflora*	telegraph weed	annual forb	native	N/A	N/A	NL
Asteraceae	*Isocoma menziesii* var. *menziesii*	Menzie's goldenbush	evergreen shrub	native	N/A	N/A	NL
Asteraceae	*Madia gracilis*	slender tarweed	annual forb	native	N/A	N/A	NL
Asteraceae	*Malacothrix saxatilis* var. *tenuifolia*	cliff aster	perennial forb	native	N/A	N/A	NL
Asteraceae	*Pseudognaphalium californicum* [*Gnaphalium californicum*]	California cudweed	perennial forb	native	N/A	N/A	NL
Asteraceae	*Rafinesquia californica*	California plumseed	annual forb	native	N/A	N/A	NL
Asteraceae	*Senecio flaccidus*	threadleaf ragwort	perennial forb	native	N/A	N/A	NL
Asteraceae	*Tetradymia comosa*	cotton thorn	evergreen shrub	native	N/A	N/A	NL
Boraginaceae	*Amsinckia menziesii*	fiddleneck	annual forb	native	N/A	N/A	NL
Boraginaceae	*Cryptantha intermedia*	Clearwater cryptantha	annual forb	native	N/A	N/A	NL
Boraginaceae [Hydrophyllaceae]	*Emmenanthe penduliflora* var. *penduliflora*	whispering bells	annual forb	native	N/A	N/A	NL
Boraginaceae [Hydrophyllaceae]	*Eucrypta chrysanthemifolia* var. *chrysanthemifolia*	spotted hideseed	annual forb	native	N/A	N/A	NL
Boraginaceae [Hydrophyllaceae]	*Phacelia cicutaria* var. *hispida*	caterpillar phacelia	annual forb	native	N/A	N/A	NL
Boraginaceae [Hydrophyllaceae]	*Phacelia parryi*	Parry's phacelia	annual forb	native	N/A	N/A	NL

Family	Scientific name	Common name	Life form	Origin	Invasive Status[1]	Rare Status[2]	Wetland indicator[3]
Boraginaceae [Hydrophyllaceae]	*Phacelia ramosissima*	branching phacelia	perennial forb	native	N/A	N/A	NL
Boraginaceae [Hydrophyllaceae]	*Pholistoma auritum* var. *auritum*	blue fiesta flower	annual forb	native	N/A	N/A	NL
Brassicaceae	*Nasturtium officinale* [*Rorippa nasturtium-aquaticum*]	water cress	perennial forb	native	N/A	N/A	OBL
Caprifoliaceae	*Lonicera subspicata* var. *denudata*	southern honeysuckle	evergreen vine	native	N/A	N/A	NL
Caprifoliaceae	*Symphoricarpos albus* var. *laevigatus*	snowberry	evergreen shrub	native	N/A	N/A	FACU
Caryophyllaceae	*Cerastium fontanum* spp. *vulgare*	mouse-ear chickweed	perennial forb	native	N/A	N/A	FACU
Caryophyllaceae	*Silene laciniata* ssp. *laciniata*	cardinal catchfly	perennial forb	native	N/A	N/A	NL
Chenopodiaceae	*Chenopodium californicum*	California goosefoot	perennial forb	native	N/A	N/A	NL
Cistaceae	*Helianthemum scoparium*	common sun rose	evergreen shrub	native	N/A	N/A	NL
Convolvulaceae	*Calystegia macrostegia* ssp. *intermedia*	south coast morning glory	perennial vine	native	N/A	N/A	NL
Crassulaceae	*Dudleya lanceolata*	lance-leaf live-forever	perennial forb	native	N/A	N/A	NL
Cucurbitaceae	*Cucurbita foetidissima*	stinking gourd	perennial vine	native	N/A	N/A	NL
Cucurbitaceae	*Marah macrocarpus*	wild cucumber	perennial vine	native	N/A	N/A	NL
Cuscutaceae	*Cuscuta californica*	chaparral dodder	perennial vine	native	N/A	N/A	NL
Dryopteridaceae	*Dryopteris arguta*	wood fern	perennial fern	native	N/A	N/A	NL
Dryopteridaceae	*Polystichum munitum*	sword fern	perennial fern	native	N/A	N/A	NL
Euphorbiaceae	*Chamaesyce polycarpa*	small seeded spurge	perennial forb	native	N/A	N/A	NL
Euphorbiaceae	*Croton californicus*	California croton	perennial forb	native	N/A	N/A	NL
Euphorbiaceae	*Croton setigerus* [*Eremocarpus setigerus*]	turkey mullein	annual forb	native	N/A	N/A	NL
Fabaceae	*Acmispon glaber* [*Lotus scoparius*]	deer weed	evergreen shrub	native	N/A	N/A	NL
Fabaceae	*Acmispon strigosus* [*Lotus strigosus*]	hairy lotus	annual forb	native	N/A	N/A	NL
Fabaceae	*Acmispon wrangelianus* [*Lotus wrangelianus*]	Chilean bird's-foot trefoil	annual forb	native	N/A	N/A	NL

Family	Scientific name	Common name	Life form	Origin	Invasive Status[1]	Rare Status[2]	Wetland indicator[3]
Fabaceae	*Amorpha californica* var. *californica*	California indigo bush	deciduous shrub	native	N/A	N/A	NL
Fabaceae	*Amorpha fruticosa*	desert indigo bush	deciduous shrub	native	N/A	N/A	NL
Fabaceae	*Astragalus trichopodus*	Santa Barbara milk-vetch	perennial forb	native	N/A	N/A	NL
Fabaceae	*Lathyrus vestitus* var. *vestitus*	Pacific pea	perennial forb	native	N/A	N/A	NL
Fabaceae	*Lupinus bicolor*	miniature lupine	annual forb	native	N/A	N/A	NL
Fabaceae	*Lupinus excubitus* var. *hallii*	grape soda lupine	evergreen shrub	native	N/A	N/A	NL
Fabaceae	*Lupinus hirsutissimus*	stinging lupine	annual forb	native	N/A	N/A	NL
Fabaceae	*Lupinus microcarpus* var. *microcarpus*	chick lupine	annual forb	native	N/A	N/A	NL
Fabaceae	*Lupinus sparsiflorus*	Coulter's lupine	annual forb	native	N/A	N/A	NL
Fabaceae	*Lupinus succulentus*	succulent lupine	annual forb	native	N/A	N/A	NL
Fabaceae	*Pickeringia montana* var. *montana*	chaparral pea	evergreen shrub	native	N/A	N/A	NL
Fabaceae	*Trifolium willdenovii*	tomcat clover	annual forb	native	N/A	N/A	NL
Fagaceae	*Quercus agrifolia*	coast live oak	evergreen tree	native	N/A	N/A	NL
Fagaceae	*Quercus berberidifolia*	scrub oak	evergreen shrub	native	N/A	N/A	NL
Garryaceae	*Garrya flavescens*	ashy silk tassel	evergreen shrub	native	N/A	N/A	NL
Grossulariaceae	*Ribes malvaceum*	chaparral currant	evergreen shrub	native	N/A	N/A	NL
Grossulariaceae	*Ribes speciosum*	fuchsia flowered gooseberry	evergreen shrub	native	N/A	N/A	NL
Iridaceae	*Sisyrinchium bellum*	blue-eyed grass	perennial forb	native	N/A	N/A	FAC
Juglandaceae	*Juglans californica*	California walnut	deciduous tree	native	N/A	List 4	FAC
Juncaceae	*Juncus textilis*	basket rush	perennial graminoid	native	N/A	N/A	OBL
Lamiaceae	*Salvia apiana*	white sage	evergreen shrub	native	N/A	N/A	NL
Lamiaceae	*Salvia columbariae*	chia	perennial forb	native	N/A	N/A	NL
Lamiaceae	*Salvia leucophylla*	purple sage	evergreen shrub	native	N/A	N/A	NL
Lamiaceae	*Salvia mellifera*	black sage	evergreen shrub	native	N/A	N/A	NL
Lamiaceae	*Scutellaria tuberosa*	skullcap	perennial forb	native	N/A	N/A	NL

Family	Scientific name	Common name	Life form	Origin	Invasive Status[1]	Rare Status[2]	Wetland indicator[3]
Lamiaceae	*Stachys rigida* var. *quercetorum* [*Stachys ajugoides* var. *rigida*]	rigid hedge nettle	perennial forb	native	N/A	N/A	OBL
Liliaceae	*Calochortus catalinae*	Catalina mariposa lily	perennial forb	native	N/A	List 4	NL
Loasaceae	*Mentzelia micrantha*	chaparral blazing star	annual forb	native	N/A	N/A	NL
Malvaceae	*Malacothamnus fasciculatus*	chaparral bush mallow	evergreen shrub	native	N/A	N/A	NL
Montiaceae [Portulacaceae]	*Calandrinia ciliata*	red maids	annual forb	native	N/A	N/A	NL
Montiaceae [Portulacaceae]	*Claytonia perfoliata*	miner's lettuce	annual forb	native	N/A	N/A	FAC
Nyctaginaceae	*Mirabilis laevis* var. *crassifolia* [*Mirabilis californica*]	California four o-clock	perennial forb	native	N/A	N/A	NL
Onagraceae	*Camissoniopsis bistorta* [*Camissonia bistorta*]	California suncup	annual forb	native	N/A	N/A	NL
Onagraceae	*Camissoniopsis micrantha* [*Camissonia micrantha*]	miniature suncup	annual forb	native	N/A	N/A	NL
Onagraceae	*Clarkia dudleyi*	Dudley's clarkia	annual forb	native	N/A	N/A	NL
Onagraceae	*Epilobium brachycarpum*	annual willowherb	annual forb	native	N/A	N/A	UPL
Onagraceae	*Eulobus californicus* [*Camissonia californica*]	Torrey's willowherb	annual forb	native	N/A	N/A	FACW
Orobanchaceae [Scrophulariaceae]	*Castilleja exserta* ssp. *exserta*	purple owl's clover	annual forb	native	N/A	N/A	NL
Paeoniaceae	*Paeonia californica*	California peony	perennial forb	native	N/A	N/A	NL
Papaveraceae	*Eschscholzia californica*	California poppy	perennial forb	native	N/A	N/A	NL
Phrymaceae [Scrophulariaceae]	*Mimulus aurantiacus*	sticky monkey	evergreen shrub	native	N/A	N/A	NL
Plantaginaceae [Scrophulariaceae]	*Antirrhinum kelloggii*	climbing snapdragon	annual forb	native	N/A	N/A	NL
Plantaginaceae [Scrophulariaceae]	*Keckiella cordifolia*	heart-leaf beardtongue	deciduous shrub	native	N/A	N/A	NL
Platanaceae	*Platanus racemosa*	western sycamore	deciduous tree	native	N/A	N/A	FACW
Poaceae	*Bromus arizonicus*	Arizona brome	annual graminoid	native	N/A	N/A	NL

Family	Scientific name	Common name	Life form	Origin	Invasive Status[1]	Rare Status[2]	Wetland indicator[3]
Poaceae	*Elymus condensatus* [*Leymus condensatus*]	giant wild rye	perennial graminoid	native	N/A	N/A	FACU
Poaceae	*Festuca microstachys* [*Vulpia microstachys*]	small fescue	annual graminoid	native	N/A	N/A	NL
Poaceae	*Melica californica*	California onion grass	perennial graminoid	native	N/A	N/A	NL
Poaceae	*Melica imperfecta*	small-flower onion grass	perennial graminoid	native	N/A	N/A	NL
Poaceae	*Poa secunda*	one-sided bluegrass	perennial graminoid	native	N/A	N/A	FACU
Poaceae	*Stipa coronatum* [*Achnatherum coronatum*]	giant needlegrass	perennial graminoid	native	N/A	N/A	NL
Poaceae	*Stipa lepida* [*Nassella lepida*]	foothill needlegrass	perennial graminoid	native	N/A	N/A	NL
Poaceae	*Stipa pulchra* [*Nassella pulchra*]	purple needlegrass	perennial graminoid	native	N/A	N/A	NL
Polygalaceae	*Polygala cornuta* var. *fishiae*	fish's milkwort	perennial forb	native	N/A	List 4	NL
Polygonaceae	*Eriogonum fasciculatum* var. *fasciculatum*	California buckwheat	evergreen shrub	native	N/A	N/A	NL
Polygonaceae	*Polygonum aviculare* ssp. *depressum* [*Polygonum arenastrum*]	naked buckwheat	perennial forb	native	N/A	N/A	FAC
Polygonaceae	*Pterostegia drymarioides*	fairy mist	annual forb	native	N/A	N/A	NL
Polypodiaceae	*Polypodium californicum*	California polypody	perennial fern	native	N/A	N/A	NL
Pteridaceae	*Adiantum jordanii*	California maiden hair	perennial	native	N/A	N/A	NL
Pteridaceae	*Pentagramma triangularis*	golden-back fern	perennial fern	native	N/A	N/A	NL
Ranunculaceae	*Clematis lasiantha*	chaparral clematis	perennial vine	native	N/A	N/A	NL
Ranunculaceae	*Ranunculus californicus*	California buttercup	perennial forb	native	N/A	N/A	NL
Rhamnaceae	*Frangula californica* [*Rhamnus californica*]	coffeeberry	shrub	native	N/A	N/A	NL
Rhamnaceae	*Rhamnus ilicifolia*	holly-leaf buckthorn	evergreen shrub	native	N/A	N/A	NL
Rosaceae	*Adenostoma fasciculatum*	chamise	evergreen shrub	native	N/A	N/A	NL
Rosaceae	*Amelanchier utahensis*	service berry	deciduous shrub	native	N/A	N/A	NL
Rosaceae	*Cercocarpus betuloides*	mountain mahogany	deciduous shrub	native	N/A	N/A	NL

Family	Scientific name	Common name	Life form	Origin	Invasive Status[1]	Rare Status[2]	Wetland indicator[3]
Rosaceae	*Drymocallis glandulosa* ssp. *glandulosa* [*Potentilla glandulosa* ssp. *glandulosa*]	common cinquefoil	perennial forb	native	N/A	N/A	FAC
Rosaceae	*Heteromeles arbutifolia*	toyon	evergreen shrub	native	N/A	N/A	NL
Rosaceae	*Rosa californica*	California wild rose	evergreen shrub	native	N/A	N/A	NI
Rosaceae	*Rubus ursinus*	California blackberry	evergreen vine	native	N/A	N/A	FACW
Rubiaceae	*Galium angustifolium*	narrow-leaf bedstraw	perennial forb	native	N/A	N/A	NL
Rubiaceae	*Galium aparine*	common bedstraw	annual forb	native	N/A	N/A	FACU
Rubiaceae	*Galium porrigens* var. *porrigens*	climbing bedstraw	perennial vine	native	N/A	N/A	NL
Salicaceae	*Salix gooddingii*	Goodding's willow	deciduous tree	native	N/A	N/A	OBL
Salicaceae	*Salix lasiolepis*	arroyo willow	deciduous tree, shrub	native	N/A	N/A	FACW
Scrophulariaceae	*Scrophularia californica*	bee plants	perennial forb	native	N/A	N/A	FAC
Solanaceae	*Solanum douglasii*	Douglas' nightshade	perennial forb	native	N/A	N/A	FAC
Solanaceae	*Solanum xanti*	purple nightshade	evergreen shrub	native	N/A	N/A	NL
Themidaceae [Liliaceae]	*Bloomeria crocea*	golden stars	perennial forb	native	N/A	N/A	NL
Themidaceae [Liliaceae]	*Brodiaea terrestris* ssp. *kernensis*	Kern dwarf brodiaea	perennial forb	native	N/A	N/A	NL
Themidaceae [Liliaceae]	*Dichelostemma capitatum* ssp. *capitatum*	blue dicks	perennial forb	native	N/A	N/A	NL
Urticaceae	*Urtica dioica*	stinging nettle	perennial forb	native	N/A	N/A	FACW
Viscaceae	*Phoradendron villosum*	oak tree mistletoe	perennial forb	native	N/A	N/A	N/A
Vitaceae	*Vitis girdiana*	Southern wild grape	deciduous shrub	native	N/A	N/A	FACW
Asteraceae	*Anthemis cotula*	stinking chamomile	annual forb	non-native	assessed	N/A	FACU
Asteraceae	*Lactuca serriola*	prickly lettuce	annual forb	non-native	assessed	N/A	FAC
Asteraceae	*Taraxacum officinale*	common dandelion	perennial forb	non-native	assessed	N/A	FACU
Convolvulaceae	*Convolvulus arvensis*	field bindweed	perennial vine	non-native	assessed	N/A	NL
Fabaceae	*Melilotus albus*	white sweetclover	annual forb	non-native	assessed	N/A	FACU
Geraniaceae	*Erodium botrys*	long-beak filaree	annual forb	non-native	assessed	N/A	NL
Geraniaceae	*Erodium moschatum*	white-stem filaree	annual forb	non-native	assessed	N/A	NL
Apiaceae	*Foeniculum vulgare*	fennel	perennial forb	non-native	high	N/A	FACU

Family	Scientific name	Common name	Life form	Origin	Invasive Status[1]	Rare Status[2]	Wetland indicator[3]
Poaceae	*Bromus madritensis* ssp. *rubens*	red brome	annual graminoid	non-native	high	N/A	NL
Anacardiaceae	*Schinus molle*	Peruvian pepper tree	evergreen tree	non-native	limited	N/A	NL
Asteraceae	*Silybum marianum*	milk thistle	perennial forb	non-native	limited	N/A	NL
Brassicaceae	*Sinapis arvense*	charlock	annual forb	non-native	limited	N/A	NL
Chenopodiaceae	*Salsola tragus*	Russian thistle	annual forb	non-native	limited	N/A	FACU
Fabaceae	*Medicago polymorpha*	bur medic	annual forb	non-native	limited	N/A	NL
Geraniaceae	*Erodium cicutarium*	red-stem filaree	annual forb	non-native	limited	N/A	NL
Lamiaceae	*Marrubium vulgare*	horehound	perennial forb	non-native	limited	N/A	FAC
Poaceae	*Schismus barbatus*	Mediterranean grass	annual graminoid	non-native	limited	N/A	NL
Apiaceae	*Conium maculatum*	poison hemlock	perennial forb	non-native	moderate	N/A	FACW
Apiaceae	*Torilis arvensis*	hedge parsley	annual forb	non-native	moderate	N/A	NL
Asteraceae	*Carduus pycnocephalus*	Italian thistle	annual forb	non-native	moderate	N/A	NL
Asteraceae	*Centaurea melitensis*	tocalote	annual forb	non-native	moderate	N/A	NL
Asteraceae	*Cirsium vulgare*	bull thistle	biennial forb	non-native	moderate	N/A	FACU
Brassicaceae	*Brassica nigra*	black mustard	annual forb	non-native	moderate	N/A	NL
Brassicaceae	*Hirschfeldia incana*	Mediterranean mustard	perennial forb	non-native	moderate	N/A	NL
Fabaceae	*Trifolium hirtum*	rose clover	annual forb	non-native	moderate	N/A	NL
Geraniaceae	*Geranium dissectum*	cut-leaf geranium	annual forb	non-native	moderate	N/A	NL
Myrtaceae	*Eucalyptus globulus*	blue gum	evergreen tree	non-native	moderate	N/A	NL
Poaceae	*Avena barbata*	wild oat grass	annual graminoid	non-native	moderate	N/A	NL
Poaceae	*Avena fatua*	wild oat grass	annual graminoid	non-native	moderate	N/A	NL
Poaceae	*Bromus diandrus*	ripgut brome	annual graminoid	non-native	moderate	N/A	NL
Poaceae	*Bromus hordeaceus*	soft chess	annual graminoid	non-native	moderate	N/A	FACU
Poaceae	*Cynodon dactylon*	Bermuda grass	perennial graminoid	non-native	moderate	N/A	FAC
Poaceae	*Festuca myuros* [*Vulpia myuros*]	rat tail fescue	annual graminoid	non-native	moderate	N/A	FACU
Poaceae	*Festuca perennis* [*Lolium multiflorum*]	perennial rye grass	annual, perennial graminoid	non-native	moderate	N/A	FAC
Poaceae	*Hordeum murinum* ssp. *leporinum*	foxtail barley	annual graminoid	non-native	moderate	N/A	NI

Family	Scientific name	Common name	Life form	Origin	Invasive Status[1]	Rare Status[2]	Wetland indicator[3]
Polygonaceae	*Rumex acetosella*	sheep sorrel	perennial forb	non-native	moderate	N/A	FAC
Solanaceae	*Nicotiana glauca*	tobacco tree	evergreen shrub	non-native	moderate	N/A	FACW
Apiaceae	*Anthriscus caucalis*	bur chervil	annual forb	non-native	N/A	N/A	NL
Apocynaceae [Asclepiadaceae]	*Araujia sericofera*	bladder flower	perennial vine	non-native	N/A	N/A	NL
Asteraceae	*Hedypnois cretica*	Crete weed	annual forb	non-native	N/A	N/A	NL
Asteraceae	*Matricaria discoidea* [*Chamomilla suaveolens*]	pineapple weed	annual forb	non-native	N/A	N/A	FACU
Asteraceae	*Senecio vulgaris*	old-man-of-spring	annual forb	non-native	N/A	N/A	NI
Asteraceae	*Soliva sessilis*	bur weed	annual forb	non-native	N/A	N/A	FAC
Asteraceae	*Sonchus oleraceus*	common sow thistle	annual forb	non-native	N/A	N/A	NI
Brassicaceae	*Capsella bursa-pastoris*	shepherd's purse	annual forb	non-native	N/A	N/A	FAC
Cactaceae	*Opuntia* sp.	prickly pear cactus	perennial forb	non-native	N/A	N/A	NL
Caryophyllaceae	*Silene gallica*	windmill pink	annual forb	non-native	N/A	N/A	NL
Caryophyllaceae	*Stellaria media*	common chickweed	annual forb	non-native	N/A	N/A	FACU
Chenopodiaceae	*Dysphania ambrosioides* [*Chenopodium ambrosioides*]	Mexican tea	annual forb	non-native	N/A	N/A	FAC
Fabaceae	*Melilotus indicus*	yellow sweetclover	annual forb	non-native	N/A	N/A	FAC
Fabaceae	*Vicia benghalensis*	purple vetch	annual forb	non-native	N/A	N/A	NL
Juglandaceae	*Juglans regia*	English walnut	deciduous tree	non-native	N/A	N/A	NL
Lamiaceae	*Lamium amplexicaule*	henbit dead nettle	annual forb	non-native	N/A	N/A	NL
Linaceae	*Linum bienne*	pale flax	annual forb	non-native	N/A	N/A	NL
Malvaceae	*Malva nicaeensis*	bull mallow	annual forb	non-native	N/A	N/A	NL
Myrsinaceae [Primulaceae]	*Anagallis arvensis*	scarlet pimpernel	annual forb	non-native	N/A	N/A	FAC
Plantaginaceae [Scrophulariaceae]	*Veronica persica*	bird's-eye speedwell	annual forb	non-native	N/A	N/A	NL
Poaceae	*Gastridium phleoides* [*Gastridium ventricosum*]	nit grass	annual graminoid	non-native	N/A	N/A	FACU
Poaceae	*Lamarckia aurea*	goldentop grass	annual graminoid	non-native	N/A	N/A	NL
Poaceae	*Poa annua*	annual bluegrass	annual graminoid	non-native	N/A	N/A	FACW
Polygonaceae	*Rumex pulcher*	fiddle dock	perennial forb	non-native	N/A	N/A	FAC

Family	Scientific name	Common name	Life form	Origin	Invasive Status[1]	Rare Status[2]	Wetland indicator[3]
Scrophulariaceae	*Verbascum blattaria*	moth mullein	perennial forb	non-native	N/A	N/A	FACW

- All species identified using the *Jepson Manual* (Hickman 1993), and *Jepson Manual II: Vascular Plants of California* (Jepson 2011)
- Nomenclature follows *Jepson Manual II: Vascular Plants of California* (Jepson 2011) with those Families, Genera, and Species in brackets from *Jepson Manual* (Hickman 1993)

[1]Invasive Status: California Invasive Plant Inventory [Cal-IPC 2006]

High: These species have severe ecological impacts on physical processes, plant and animal communities, and vegetation structure. Their reproductive biology and other attributes are conducive to moderate to high rates of dispersal and establishment. Most are widely distributed ecologically.

Moderate: These species have substantial and apparent—but generally not severe—ecological impacts on physical processes, plant and animal communities, and vegetation structure. Their reproductive biology and other attributes are conducive to moderate to high rates of dispersal, though establishment is generally dependent upon ecological disturbance. Ecological amplitude and distribution may range from limited to widespread.

Limited: These species are invasive but their ecological impacts are minor on a statewide level or there was not enough information to justify a higher score. Their reproductive biology and other attributes result in low to moderate rates of invasiveness. Ecological amplitude and distribution are generally limited, but these species may be locally persistent and problematic.

Assessed: Species evaluated but evidence for listing inconclusive

[2]Rare Status: The CNPS Inventory of Rare and Endangered Plants [CNPS 2011]

[3]Wetland Status: National List of Plant Species that Occur in Wetlands, California – Region 10 [Reed 1988]

OBL: Almost always located in wetlands (>99% frequency)
FACW: Usually located in wetlands (67% - 99% frequency)
FAC: Equally located in wetlands and non-wetlands (34% - 66% frequency)
FACU: Usually located in non-wetlands (1% - 33% frequency)
UPL: Almost always located in non-wetlands (<1% frequency)
NL: Not listed, considered to be always located in non-wetlands
NI: No information, not considered when factoring wetland vegetation

Table A-2. Observed wildlife species in the Proposed Bank, June 2010 and February-August 2011

Common name	Scientific name
MAMMALS	
California Ground Squirrel	*Spermophilus beeyechi*
Mule Deer	*Odocoileus hemionus*
Coyote	*Canis latrans*
BIRDS	
California Quail	*Callipepla californica*
Turkey Vulture	*Cathartes aura*
Cooper's Hawk	*Accipiter cooperii*
Red-tailed Hawk	*Buteo jamaicensis*
American Kestrel	*Falco sparverius*
Mourning Dove	*Zenaida macroura*
Great Horned Owl	*Bubo virginianus*
Anna's Hummingbird	*Calypte anna*
Allen's Hummingbird	*Selasphorus sasin*
Acorn Woodpecker	*Melanerpes formicivorus*
Nuttall's Woodpecker	*Picoides nuttallii*
Black Phoebe	*Sayornis nigricans*
Say's Phoebe	*Sayornis saya*
Ash-throated Flycatcher	*Myiarchus cinerascens*
Cassin's Kingbird	*Tyrannus vociferans*
Western Kingbird	*Tyrannus verticalis*
Hutton's Vireo	*Vireo huttoni*
Western Scrub-Jay	*Aphelocoma californica*
Common Raven	*Corvus corax*
Oak Titmouse	*Baeolophus inornatus*
Bushtit	*Psaltriparus minimus*
Bewick's Wren	*Thryomanes bewickii*
House Wren	*Troglodytes aedon*
American Robin	*Turdus migratorius*
Northern Mockingbird	*Mimus polyglottos*
European Starling	*Sturnus vulgaris*
Phainopepla	*Phainopepla nitens*
Yellow-rumped Warbler	*Dendroica coronata*
Spotted Towhee	*Pipilo maculatus*
California Towhee	*Pipilo crissalis*
Lark Sparrow	*Chondestes grammacus*
Song Sparrow	*Melospiza melodia*
White-crowned Sparrow	*Zonotrichia leucophrys*
Dark-eyed Junco	*Junco hyemalis*
Lazuli Bunting	*Passerina amoena*
Bullock's Oriole	*Icterus bullockii*
House Finch	*Carpodacus mexicanus*
Lesser Goldfinch	*Carduelis psaltria*
REPTILES	
Coast Horned Lizard	*Phrynosoma blainvillii*

Common name	Scientific name
Western Fence Lizard	*Sceloporus occidentalis*
Coastal (Western) Whiptail	*Cnemidophorus tigris multiscutatus*
Gopher Snake	*Pituophis melanoleucus*
Western Rattlesnake	*Crotalus viridis*
Red Diamond Rattlesnake	*Crotalus ruber*
AMPHIBIANS	
Black-bellied Slender Salamander	*Batrachoseps nigriventris*
Pacific Tree Frog	*Pseudacris regilla*

APPENDIX B

POTENTIAL FOR SPECIAL STATUS PLANT AND WILDLIFE SPECIES TO OCCUR IN THE SITE

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Appendix B. Special status plant species that may occur, or are known to occur in habitats similar to those found in the Soquel Canyon Proposed Bank. List compiled from the U.S. Fish and Wildlife Service (USFWS) Species Lists (January 2011), California Native Plant Society (CNPS) Electronic Inventory (January 2011) and CNDDB (January 2011) searches of the Anaheim, Baldwin Park, Black Star Canyon, La Habra, Ontario, Orange, Prado Dam, San Dimas, and Yorba Linda USGS 7.5 minute quadrangles.

SPECIES	STATUS*	HABITAT REQUIREMENTS	POTENTIAL TO OCCUR IN PROPOSED BANK	RECOMMENDATIONS
WILDLIFE				
Mammals				
Pallid Bat *Antrozous pallidus*	SSC, WBWG High	Found in deserts, grasslands, shrublands, woodlands, and forests. Roost sites include old ranch buildings, rocky outcrops and caves within sandstone outcroppings. Roosts must protect bats from high temperatures. Very sensitive to disturbance of roosting sites.	**Moderate Potential.** Rock outcrops and overhangs within the Proposed Bank provide potential roosting sites, and potential foraging habitat is also present. The nearest documented occurrence is approximately 9.7 miles south of the Proposed Bank (CDFG 2011).	No further actions are recommended.
Mexican Long-Tongued Bat *Choeronycteris mexicana*	SSC, WBWG High	Occasionally found in San Diego County in the periphery of its range. Feeds on the nectar and pollen of night-blooming succulents. Roosts in relatively well-lit caves, and in and around buildings.	**Unlikely.** The Proposed Bank is outside of this species' known range.	No further actions are recommended.
Spotted Bat *Euderma maculatum*	SSC, WBWG High	Occupies a wide variety of habitats from arid deserts and grasslands through mixed conifer forests. Feeds over water and along washes. Requires rock crevices in cliffs or caves for roosting.	**Unlikely.** Although the Proposed Bank provides potential roosts for this species in the form of rocky outcrops and overhangs, it is considered rare throughout most of its range.	No further actions are recommended.
Western Red Bat *Lasiurus blossevillii*	SSC	Typically solitary, roosting primarily in the foliage of trees or shrubs. Day roosts are commonly in edge habitats adjacent to streams or open fields. There may be an association with intact riparian habitat.	**Moderate Potential.** Trees within the Proposed Bank, particularly those in the vicinity of riparian habitat, may provide roost habitat for this species.	No further actions are recommended.

SPECIES	STATUS*	HABITAT REQUIREMENTS	POTENTIAL TO OCCUR IN PROPOSED BANK	RECOMMENDATIONS
Fringed Myotis *Myotis thysanodes*	WBWG High	Associated with a wide variety of habitats, including various woodland types. Buildings, mines and large snags are important day and night roosts.	**Moderate Potential.** Tree snags, rock outcrops and rock overhangs provide potential roost habitat for this species within the Proposed Bank.	No further actions are recommended.
Long-legged Myotis *Myotis volans*	WBWG High	Generally associated with woodlands and forested habitats, but habitat highly variable. Large hollow trees, rock crevices and buildings are important day roosts. Other roosts include caves, mines and buildings.	**Moderate Potential.** Tree cavities, rock outcrops and rock overhangs provide potential roost habitat for this species within the Proposed Bank.	No further actions are recommended.
Western Mastiff Bat *Eumops perotis californicus*	SSC, WBWG High	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.	**Moderate Potential.** Rock outcrops and overhangs within the Proposed Bank provide potential roosting sites for this species. The nearest documented occurrence is approximately 3.9 miles south of the Proposed Bank (CDFG 2011).	No further actions are recommended.
Western Yellow Bat *Lasiurus xanthinus*	SSC, WBWG High	Found in valley foothill riparian, desert riparian, desert wash, and palm oasis habitats. Roosts in trees, particularly palms. Forages over water and among trees.	**Unlikely.** Although a CNDDB record exists for a single individual collected approximately 7.9 miles north of the Proposed Bank, this species is generally found in desert habitats in southern California.	No further actions are recommended.
Pocketed Free-tailed Bat *Nyctinomops femorasaccus*	SSC, WBWG Medium	Variety of arid areas in southern California -- pine-juniper woodlands, desert scrub, palm oasis, desert wash, desert riparian, etc. Prefers rocky areas with high cliffs.	**Unlikely.** Although a CNDDB record exists for a single individual collected approximately 7.9 miles east of the Proposed Bank, this species is generally found in desert habitats in southern California.	No further actions are recommended.

SPECIES	STATUS*	HABITAT REQUIREMENTS	POTENTIAL TO OCCUR IN PROPOSED BANK	RECOMMENDATIONS
Big Free-tailed Bat *Nyctinomops macrotis*	SSC, WBWG Medium -High	Occurs rarely in low-lying arid areas of southern California. Requires high cliffs or rocky outcrops for roosting sites.	**Unlikely.** Although a CNDDB record exists for a single individual collected approximately 7.9 miles north of the Proposed Bank, this species is considered rare in southern California.	No further actions are recommended.
San Diego Black-tailed Jackrabbit *Lepus californicus bennettii*	SSC	Found in intermediate canopy stages of shrub, open shrub/herbaceous and tree/ herbaceous edge habitats in southern California, including coastal sage scrub.	**Moderate Potential.** The Proposed Bank provides coastal sage scrub and other semi-open habitats suitable for this species. The nearest documented occurrence is approximately 16.5 miles northwest of the Proposed Bank (CDFG 2011).	Coastal sage scrub and riparian enhancement/restoration within the Proposed Bank may improve habitat conditions for this species.
Northwestern San Diego Pocket Mouse *Chaetodipus fallax fallax*	SSC	Occurs in a variety of southern California habitats, including coastal scrub, chaparral, grasslands, and sagebrush. Prefers sandy, herbaceous areas, usually in association with rocks or coarse gravel.	**Moderate Potential.** The Proposed Bank provides scrub and chaparral in association with rocks and thus suitable habitat for this subspecies. The nearest documented occurrence is approximately 12.6 miles northeast of the Proposed Bank (CDFG 2011).	Coastal sage scrub and riparian enhancement/restoration within the Proposed Bank may improve habitat conditions for this species.
San Diego Desert Woodrat *Neotoma lepida intermedia*	SSC	Coastal southern California from San Diego County to San Luis Obispo County. Prefers moderate to dense canopies; particularly abundant in rock outcrops and rocky cliffs and slopes. Constructs large nests similar to other woodrats, using sticks, grass, cacti, and dung.	**Moderate Potential.** The Proposed Bank provides riparian scrub, chaparral and woodland habitats suitable for this subspecies. The nearest documented occurrence is approximately 12.7 miles northeast of the Proposed Bank (CDFG 2011).	Coastal sage scrub and riparian enhancement/restoration within the Proposed Bank may improve habitat conditions for this species.

SPECIES	STATUS*	HABITAT REQUIREMENTS	POTENTIAL TO OCCUR IN PROPOSED BANK	RECOMMENDATIONS
American Badger *Taxidea taxus*	SSC	Most abundant in drier open stages of most shrub, forest, and herbaceous habitats, with friable soils. Requires friable soils and open, uncultivated ground. Preys on burrowing rodents.	**Moderate Potential.** The Proposed Bank provides open, uncultivated areas and likely also a suitable forage base for this species. The nearest documented occurrence is approximately 11.5 miles to the north, and there are also occurrences at similar distances to the northwest and west.	No further actions are recommended.
Birds				
Redhead (duck) Aythya americana	SSC	Resident and winter visitor in southern California. Typically breeds in freshwater emergent marshes, usually with dense cattail and/or tule stands. Typical wintering habitat consists of large, deep bodies of water.	**Unlikely.** No typical breeding (or wintering) habitat for this species occurs within the Proposed Bank.	No further actions are recommended.
Least Bittern *Ixobrychus exilis*	SSC, BCC	Summer resident in most of southern California. Typically breeds in deeper freshwater marshes with dense emergent and woody vegetation.	**Unlikely.** Marsh habitat suitable for this species is absent within the Proposed Bank.	No further actions are recommended.
Golden Eagle *Aquila chrysaetos*	CFP, BCC	Resident in rolling foothills, mountain areas, sage-juniper flats, and desert. Cliff-walled canyons provide nesting habitat in most parts of range; also nests in large trees in open areas.	**High Potential.** The Proposed Bank provides suitable open habitat for foraging and trees for nesting. The nearest documented breeding occurrence is approximately 2.0 miles to the east (CDFG 2011).	No further actions are recommended.
Northern Harrier *Circus cyaneus*	SSC	Resident and winter visitor. Forages in open meadows, savannah, and grassland habitats, often in association with wetlands. Nests on ground in emergent or shrubby vegetation, the latter usually in wet areas. Generally avoids forested and mountainous habitats.	**Unlikely.** The Proposed Bank provides only limited grassland foraging habitat and no typical breeding habitat, and is just outside (i.e. approximately 10 miles) of the current breeding range per a recent monograph in Shuford and Gardali (2008).	No further actions are recommended.

SPECIES	STATUS*	HABITAT REQUIREMENTS	POTENTIAL TO OCCUR IN PROPOSED BANK	RECOMMENDATIONS
White-tailed Kite *Elanus leucurus*	CFP	Resident of coastal and valley lowlands; often associated with agricultural areas. Preys on small diurnal mammals as well as other vertebrates and insects. Nests in small to large trees, often at habitat edges.	**High Potential.** The Proposed Bank provides open woodland habitats for foraging and potentially nesting. One White-tailed Kite was observing foraging on the Aerojet property east of the Proposed Bank during a February 2011 site visit. The nearest documented nesting occurrence is approximately 1.9 miles northwest of the Proposed Bank (in 2009; CDFG 2011).	No further actions are recommended.
Western Yellow-billed Cuckoo *Coccyzus americanus occidentalis*	FC, SE, BCC	Summer resident, breeding in dense riparian forests and jungles. Utilizes densely foliaged deciduous trees and shrubs. Eats mostly caterpillars. Current breeding distribution within California very limited and fragmented.	**Unlikely.** Suitable dense riparian forest is not present in the Proposed Bank. Nearest documented breeding occurrence in recent decades is located approximately 7.4 miles east of the Proposed Bank (CDFG 2011), and dates from 1989.	Riparian enhancement/restoration is unlikely to result in suitably dense riparian habitat for this species.
Burrowing Owl *Athene cunicularia*	SSC, BCC	Resident and winter visitor in open, dry annual or perennial grasslands and scrub habitats with low-growing vegetation, perches and abundant mammal burrows. Preys upon insects and small vertebrates. Nests and roosts in old mammal burrows, generally those of ground squirrels.	**Unlikely.** The open, relatively unvegetated habitat favored by this species is very limited within the Proposed Bank. The nearest recent documented occurrences are located between 4.1 and 6.7 miles to the northeast (CDFG 2010).	No further actions are recommended.

SPECIES	STATUS*	HABITAT REQUIREMENTS	POTENTIAL TO OCCUR IN PROPOSED BANK	RECOMMENDATIONS
Long-eared Owl *Asio otus*	SSC	Resident and visitor in the region. Nests in a variety of woodland habitats, including oak and riparian. Requires adjacent open land with rodents for foraging, and the presence of old nests of crows, hawks, magpies etc. for breeding.	**Moderate Potential.** The Proposed Bank provides oak and riparian woodland habitats, with some small open areas within and larger open areas adjacent. The Proposed Bank is within this species' breeding range per a recent monograph in Shuford and Gardali (2008).	Riparian enhancement/restoration within the Proposed Bank may improve habitat conditions for this species.
Allen's Hummingbird *Selasphorus sasin*	BCC	Summer resident, breeding along much of California's coastal slope. Occurs in woodlands, parks, and gardens.	**Present.** A *Selasphorus* sp. hummingbird presumed to be of this species was observed within the Proposed Bank during a February 2011 site visit. The Proposed Bank's woodlands and other open habitats provide suitable breeding habitat.	No further actions are recommended.
Nuttall's Woodpecker *Picoides nuttallii*	BCC	Resident in lowland woodlands throughout much of California west of the Sierra Nevada. Typical habitat is dominated by oaks.	**Present.** This species was observed within the Proposed Bank during a February 2011 site visit. The Study's Area's woodlands provide suitable nesting and foraging habitat.	No further actions are recommended.
Southwestern Willow Flycatcher *Empidonax traillii extimus*	FE, SE	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.	**Unlikely.** The nearest likely breeding site is located approximately 5.0 miles southeast of the Proposed Bank and dates from 1999. Riparian vegetation within the Proposed Bank is likely too limited in extent and density currently to provide any typical nesting habitat. May occur during migration.	Riparian habitat enhancement/restoration within the Proposed Bank could create suitable breeding habitat for this subspecies.

SPECIES	STATUS*	HABITAT REQUIREMENTS	POTENTIAL TO OCCUR IN PROPOSED BANK	RECOMMENDATIONS
Loggerhead Shrike *Lanius ludovicianus*	SSC, BCC	Resident in open woodland, grassland, savannah and scrub. Prefers open areas with sparse shrubs, trees, posts, and other suitable perches for foraging. Preys upon large insects and small vertebrates. Nests are well-concealed above ground in densely-foliaged shrub or tree.	**High Potential.** The Proposed Bank provides suitable open habitats for foraging as well as trees and bushes for nesting, and is within this species' breeding range per a recent monograph in Shuford and Gardali (2008).	No further actions are recommended.
Least Bell's Vireo *Vireo bellii pusillus*	FE, SE	Summer visitor. Breeds in riparian woodland and scrub along perennial or nearly perennial streams; prefers early successional vegetation. Willows and/or mulefat typically used for nesting.	**Unlikely (current conditions); High Potential under future conditions.** Riparian habitat within the Proposed Bank, especially along Soquel Creek, provides willows and mulefat but is too limited in extent and density to currently support breeding. There are several recent documented breeding occurrences within five miles of the Proposed Bank to the east and west (CDFG 2011).	Riparian habitat restoration and enhancement, as well as the elimination of cattle grazing in riparian areas, would greatly improve breeding habitat and the likelihood of colonization.
Purple Martin *Progne subis*	SSC, BCC	Summer resident, breeding in woodland and low-elevation coniferous forests. Nests in cavities, of trees and also anthropogenic structures. Woodland and forest nest sites typically in located in tall, isolated trees or snags. Abundant flying insect prey also important.	**Unlikely.** Although the Proposed Bank is located within this species' breeding range per a recent monograph in Shuford and Gardali (2008), breeding has become rare in the region.	The Freeway Complex Fire may have improved local nesting habitat by creating/enhancing cavities in tree snags. No further actions are recommended.

SPECIES	STATUS*	HABITAT REQUIREMENTS	POTENTIAL TO OCCUR IN PROPOSED BANK	RECOMMENDATIONS
San Diego (Coastal) Cactus Wren *Campylorhynchus brunneicapillus sandiegensis*	SSC, BCC	Resident subspecies found in coastal San Diego and southern Orange Counties. The presence of chollas and prickly-pear cacti is the primary habitat component.	**No Potential.** Although there are documented Cactus Wren occurrences within 5.0 miles of the Proposed Bank (CDFG 2011), the SSC status only applies to populations found approximately 20 miles southeast of the Proposed Bank within Orange County (Shuford and Gardali 2008).	No further actions are recommended.
Coastal California Gnatcatcher *Polioptila californica californica*	FT, SSC	Resident species/subspecies endemic to coastal California slopes from Ventura County to northern Baja California, Mexico. Strongly associated with coastal sage scrub for nesting and foraging; other vegetation communities (e.g. chaparral) found adjacent to sage scrub are also used.	**Unlikely (current conditions); High Potential under future conditions.** There are numerous documented occurrences within 5.0 miles of the Proposed Bank (CDFG 2011). The Proposed Bank appears to be near the edge of the known range, with only one occurrence to the east but several each to the north, west and south. This species may have been present prior to the Freeway Complex Fire but is considered absent currently.	Coastal sage scrub regeneration and enhancement, as well as the elimination of cattle grazing, have a high potential to produce suitable year-round habitat and attract gnatcatchers to the property. Other communities including chaparral and riparian may provide dispersal habitat.
(Brewster's) Yellow Warbler *Dendroica petechia brewsteri*	SSC, BCC	Summer resident throughout much of California. Breeds in riparian vegetation close to water, including streams and wet meadows. Microhabitat used for nesting variable, but dense willow growth is typical. Occurs widely on migration.	**Moderate Potential**. Within the Proposed Bank, Soquel Creek may provide some limited riparian breeding habitat for this species, though it is considered relatively scare as a breeder in the area (Shuford and Gardali 2008). Likely occurs regularly on migration.	Riparian habitat restoration and enhancement, as well as the elimination of cattle grazing in riparian areas, may greatly improve breeding habitat.

SPECIES	STATUS*	HABITAT REQUIREMENTS	POTENTIAL TO OCCUR IN PROPOSED BANK	RECOMMENDATIONS
Yellow-breasted Chat *Icteria virens*	SSC	Summer resident, utilizing riparian areas with an open canopy, dense understory, and trees for song perches. Nests in thickets of willow, blackberry, and wild grape.	**Unlikely.** Riparian vegetation within the Proposed Bank is likely too limited in extent and density currently to provide nesting habitat for this species. The nearest documented recent breeding occurrence is located approximately 8.4 miles east of the Proposed Bank (CDFG 2011). May occur on migration.	Riparian habitat restoration and enhancement, as well as the elimination of cattle grazing in riparian areas, could create suitable breeding habitat.
Oregon Vesper Sparrow *Pooecetes gramineus affinis*	SSC	Winter visitor; does not breed in the region. Occurs in open habitat with low grass and/or annual plants, or bare ground.	**Unlikely.** Grassland habitat within the Proposed Bank is likely too limited in size to provide suitable habitat for this subspecies. Number of birds wintering in California has been greatly reduced in recent years per a recent monograph in Shuford and Gardali (2008).	No further actions are recommended.
Grasshopper Sparrow *Ammodramus savannarum*	SSC	Summer resident. Secretive; breeds in open grassland habitats, generally with low- to moderate-height grasses and scattered shrubs.	**Unlikely.** Grassland habitat within the Proposed Bank is likely too limited in size to provide suitable habitat for this species. May occur occasionally on migration. The nearest documented breeding occurrence is approximately 2.5 miles southeast of the Proposed Bank (CDFG 2010).	No further actions are recommended.

SPECIES	STATUS*	HABITAT REQUIREMENTS	POTENTIAL TO OCCUR IN PROPOSED BANK	RECOMMENDATIONS
Tricolored Blackbird *Agelaius tricolor*	SSC, BCC	A highly colonial resident species, most numerous in the Central Valley and vicinity. Usually nests over or near freshwater in dense cattails, tules, or thickets of willow, blackberry, wild rose or other tall herbs. Requires breeding habitat sufficient to support 30 nesting pairs.	**Unlikely**. Suitable freshwater marsh habitat with emergent vegetation is absent within the Proposed Bank. May occur in small numbers with other blackbirds during the non-breeding season. The nearest documented breeding location is approximately 3.4 miles northwest of the Proposed Bank at Stafford Lake (CDFG 2011).	No further actions are recommended.
Lawrence's Goldfinch *Spinus lawrencei*	BCC	A summer visitor in coastal southern California, generally uncommon and local. Typically found in arid open woodlands, including oak savannah. Breeding distribution is erratic from year to year.	**Moderate Potential.** The open woodlands of the Proposed Bank provide suitable habitat for this species, although breeding may only occur sporadically.	No further actions are recommended.
REPTILES				
Western Pond Turtle *Emys marmorata*	SSC	Occurs in perennial ponds, lakes, rivers and streams with suitable basking habitat (mud banks, mats of floating vegetation, partially submerged logs), submerged shelter and terrestrial nest sites. Requires friable soil for breeding. Documented to disperse and wander over upland habitats.	**High Potential.** Soquel Creek provides perennial aquatic habitat and adjacent riparian areas with friable soil for breeding. The nearest documented occurrence is in Soquel Creek approximately 0.1 miles east of the Proposed Bank (CDFG 2011).	Riparian habitat restoration and enhancement, as well as the elimination of cattle grazing in riparian areas, would likely improve nesting habitat.
Coast Horned Lizard *Phrynosoma blainvillii*	SSC	Habitat variable, most common in lowlands along sandy washes with low bushes. Open areas for sunning, bushes for cover, patches of loose soil for burial, and an abundant supply of insect forage are primary microhabitat components.	**Present.** This species was observed at during site visits in June 2010 and June 2011. Scrub habitats with open, sandy areas within the Proposed Bank provide suitable habitat.	No further actions are recommended.

SPECIES	STATUS*	HABITAT REQUIREMENTS	POTENTIAL TO OCCUR IN PROPOSED BANK	RECOMMENDATIONS
Orange-throated (Orangethroat) Whiptail *Aspidoscelis hyperythra*	SSC	Inhabits low-elevation coastal scrub, chaparral, and valley-foothill hardwood habitats. Prefers washes and other sandy areas with patches of brush and rocks. Perennial plants likely necessary for termites, its primary prey item.	**Moderate Potential.** The Proposed Bank provides sandy areas with patches of brush and rocks within scrub and chaparral habitats. The range of this species apparently extends just to or within a few miles of the Proposed Bank; the nearest documented occurrence is approximately 4.9 miles to the southeast (CDFG 2011).	No further actions are recommended.
Coast Patch-nosed Snake *Salvadora hexalepis virgultea*	SSC	Brushy or shrubby vegetation, including chaparral, in coastal southern California. Requires small mammal burrows for refuge and overwintering sites.	**Moderate Potential.** Chaparral and scrub habitats within the Proposed Bank are suitable for this subspecies. The nearest documented occurrence is approximately 2.7 miles southwest of the Proposed Bank (CDFG 2011).	No further actions are recommended.
Two-striped Garter Snake *Thamnophis hammondii*	SSC	Coastal California from vicinity of Salinas to northwest Baja California. Highly aquatic, found in or near freshwater. Often along streams with rocky beds and riparian growth.	**Moderate Potential.** Soquel Creek provides suitable aquatic habitat with rocky beds, riparian growth and forage such as small amphibians. The nearest documented occurrence is approximately 10.7 miles south of the Proposed Bank (CDFG 2011).	Riparian habitat restoration and enhancement, as well as the elimination of cattle grazing in riparian areas, may improve habitat for this species.
South Coast Garter Snake *Thamnophis sirtalis* ssp.	SSC	Population of the Red-sided (Common) Garter Snake not fully described, occurring in coastal southern California from Ventura to San Diego Counties. Found in marsh and upland habitats near permanent water and riparian vegetation.	**Unlikely.** The Proposed Bank provides potential habitat for this species, but there are no documented occurrences within 20 miles and the South Coast population is believed to have a very restricted current distribution.	No further actions are recommended.

SPECIES	STATUS*	HABITAT REQUIREMENTS	POTENTIAL TO OCCUR IN PROPOSED BANK	RECOMMENDATIONS
Red Diamond Rattlesnake *Crotalus ruber*	SSC	Chaparrral, woodland, grassland, and desert areas in southern California. Typically occurs in rocky habitats with dense vegetation. Requires rodent burrows, cracks in rocks or surface cover objects for refuge.	**Present.** The Proposed Bank provides several areas with rock outcrops and surrounding scrub and chaparral habitats. Two individuals were observed within the Proposed Bank during a site visit in June 2011.	No further actions are recommended.
AMPHIBIANS				
Coast Range Newt *Taricha torosa torosa*	SSC	Coastal drainages from Mendocino County to San Diego County; SSC status applies only from the Salinas River south. Lives in terrestrial habitats (generally forest and woodland) and will migrate over 1 kilometer to breed in ponds, reservoirs and slow moving streams.	**Unlikely.** The Proposed Bank is outside of this population's recognized range, and no newts or newt larvae have been observed in the central drainage during site visits.	No further actions are recommended.
Western Spadefoot *Spea hammondii*	SSC	Occurs primarily in grassland habitats, but can be found in valley-foothill hardwood woodlands. Vernal pools are essential for breeding and egg-laying.	**Unlikely.** The Proposed Bank does not feature vernal pools or similar seasonal aquatic features. The nearest documented occurrence is approximately 6.6 miles south of the Proposed Bank (CDFG 2011).	No further actions are recommended.
FISHES				
Santa Ana Sucker *Catostomus santaanae*	FT, SSC	Endemic to the Los Angeles basin and currently restricted to the Los Angeles, San Gabriel, Santa Ana and Santa Clara Rivers. A habitat generalist, but prefers sand-rubble-boulder bottoms, cool, clear water, and algae.	**Unlikely.** Within the Santa Ana River watershed, this species is restricted to portions of the Santa Ana River mainstem (Moyle 2002). The nearest documented occurrence in CNDDB is approximately 4.4 miles south of the Proposed Bank (CDFG 2011).	This species is a potential candidate for experimental translocation from the Santa Ana River to Soquel Creek within the Proposed Bank.

SPECIES	STATUS*	HABITAT REQUIREMENTS	POTENTIAL TO OCCUR IN PROPOSED BANK	RECOMMENDATIONS
INVERTEBRATES				
San Diego fairy shrimp *Branchinecta sandiegonensis*	FE	Endemic to San Diego and Orange county mesas. Occurs in vernal pools.	**No Potential.** The Proposed Bank provides no vernal pool habitat and is outside of this species' known range.	No further actions are recommended.
PLANTS				
chaparral sand-verbena *Abronia villosa* var. *aurita*	List 1B	Chaparral, coastal scrub, desert dunes; located on sandy substrates. Elevation range: 260 – 5200 feet. Blooms: January – September.	**Moderate Potential.** The Proposed Bank contains chaparral habitat that may support this species; however, this species is primarily known from open sandy areas in desert scrub and dune habitat not present in the Proposed Bank.	A protocol-level survey in April, June, and August to determine absence or presence of this species in the Proposed Bank.
California androsace *Androsace elongata* ssp. *acuta*	List 4	Chaparral, cismontane woodland, coastal scrub, meadows and seeps, pinyon-juniper woodland, valley and foothill grassland. Elevation range: 485 – 3900 feet. Blooms: March – June.	**Moderate Potential.** The Proposed Bank contains chaparral, woodland, and scrub habitat that may support this species; however, this species is not documented from mountainous regions near the Proposed Bank (e.g. Chino Hills, Santa Ana Mountains, Santa Gabriel Mountains).	A protocol-level survey in April and June to determine absence or presence of this species in the Proposed Bank.
western spleenwort *Asplenium vespertinum*	List 4	Chaparral, cismontane woodland, coastal scrub; located on rocky sites. Elevation range: 585 – 3250 feet.	**Moderate Potential.** The Proposed Bank contains chaparral, scrub, and woodland habitat that may support this species. The nearest documented occurrence is from the San Jose Hills, less than nine miles north of the Proposed Bank.	A protocol-level survey in April, June, and August to determine absence or presence of this species in the Proposed Bank.

SPECIES	STATUS*	HABITAT REQUIREMENTS	POTENTIAL TO OCCUR IN PROPOSED BANK	RECOMMENDATIONS
Braunton's milk-vetch *Astragalus brauntonii*	FE; SE; List 1B	Closed-cone coniferous forest, chaparral, coastal scrub, valley and foothill grassland; often found in recent burns; located on saline, somewhat alkaline, sandstone with carbonate layers substrates. Elevation range: 10 – 2080 feet. Blooms: January – August.	**High Potential.** The Proposed Bank contains chaparral, scrub, and grassland habitat with known associated species underlain by similar soil characteristics as other known locations. The nearest documented occurrence is from the Santa Ana Mountains, less than six miles southeast of the Proposed Bank.	A protocol-level survey in April, June, and August to determine absence or presence of this species in the Proposed Bank.
Coulter's saltbush *Atriplex coulteri*	List 1B	Coastal bluff scrub, coastal dunes, coastal scrub, valley and foothill grassland; located on ocean bluffs, ridgetops, and low places underlain by alkaline substrate. Elevation range: 5 – 1495 feet. Blooms: March – October.	**Unlikely.** Although the Proposed Bank contains grassland habitat, this species is primarily known from sites on the coastal plain and interior basins.	No further actions are recommended for this species.
Parish's brittlescale *Atriplex parishii*	List 1B	Alkali meadow, vernal pools, chenopod scrub, playas; typically located on drying alkali flats with fine soils. Elevation range: 80 – 6175 feet. Blooms: June – October.	**No Potential.** The Proposed Bank does not contain alkali meadow, vernal pool, or chenopod scrub habitat to support this species.	No further actions are recommended for this species.
Davidson's saltscale *Atriplex serenana* var. *davidsonii*	List 1B	Coastal bluff scrub, coastal scrub; located on alkaline substrate. Elevation range: 30 – 650 feet. Blooms: April – October.	**Unlikely.** Although the Proposed Bank contains coastal scrub habitat, this species is known from lower elevation sites underlain by alkali substrate nearer the coast.	No further actions are recommended for this species.

SPECIES	STATUS*	HABITAT REQUIREMENTS	POTENTIAL TO OCCUR IN PROPOSED BANK	RECOMMENDATIONS
Malibu Baccharis *Baccharis malibuensis*	List 1B	Coastal scrub, chaparral, cismontane woodland, riparian; located on Conejo volcanic substrate, often on exposed roadcuts and bare soils; sometimes located in oak woodland. Elevation range: 485 – 995 feet. Blooms: August.	**Unlikely.** Although the Proposed Bank contains scrub, chaparral, and woodland habitat, the substrate is absent from the Proposed Bank. The nearest documented occurrence, approximately ten miles southeast of the Proposed Bank, is likely a misidentification or erroneous geographic data.	No further actions are recommended for this species.
Brewer's red maids *Calandrinia breweri*	List 4	Chaparral, coastal scrub; located in sage scrub underlain by sandy or loamy substrate; often observed in disturbed or burned sites. Elevation range: 30 – 3965 feet. Blooms: March – June.	**High Potential.** The Proposed Bank contains recently burned chaparral and scrub habitat underlain by sandy and loamy substrate that may support this species. The nearest documented occurrence is less than six miles southeast of the Proposed Bank.	A protocol-level survey in April and June to determine absence or presence of this species in the Proposed Bank.
round-leaved filaree *California macrophylla*	List 1B	Cismontane woodland, valley and foothill grassland; located on clay substrate. Elevation range: 45 – 3900 feet. Blooms: March – May.	**No Potential.** Although the Proposed Bank contains woodland and grassland habitat, this species occurs in deep, thick clays not present in the Proposed Bank.	No further actions are recommended for this species.
Catalina mariposa-lily *Calochortus catalinae*	List 4	Chaparral, cismontane woodland, coastal scrub, valley and foothill grassland. Elevation range: 45 – 2275 feet. Blooms: February – June.	**High Potential.** The Proposed Bank contains scrub, chaparral, grassland, and woodland habitat that may support this species. The nearest documented occurrence is from Chino Hills State Park.	A protocol-level survey in April and June to determine absence or presence of this species in the Proposed Bank.

SPECIES	STATUS*	HABITAT REQUIREMENTS	POTENTIAL TO OCCUR IN PROPOSED BANK	RECOMMENDATIONS
Plummer's mariposa-lily *Calochortus plummerae*	List 1B	Coastal scrub, chaparral, valley and foothill grassland, cismontane woodland, lower montane coniferous forest; located on rocky or sandy alluvial substrate derived from granite material; often observed after fires. Elevation range: 325 – 5525 feet. Blooms: May – July.	**High Potential.** The Proposed Bank contains scrub, chaparral, and grassland habitat with observed associated species, and similar soil characteristics to other known locations. The nearest documented occurrence is from the Santa Ana Mountains, less than eight miles southeast of the Proposed Bank in similar habitat.	A protocol-level survey in June to determine absence or presence of this species in the Proposed Bank.
intermediate mariposa-lily *Calochortus weedii* var. *intermedius*	List 1B	Coastal scrub, chaparral, valley and foothill grassland; located on dry, rocky open slopes and rock outcrops. Elevation range: 340 – 2780 feet. Blooms: May – July.	**High Potential.** The Proposed Bank contains scrub, chaparral, and grassland habitat with observed associated species, and similar soil characteristics to other known locations. The nearest documented occurrence is in Chino Hills State Park, within two miles of the Proposed Bank, in similar habitat.	A protocol-level survey in June to determine absence or presence of this species in the Proposed Bank.
southern tarplant *Centromadia parryi* ssp. *australis*	List 1B	Marshes and swamps, valley and foothill grassland, vernal pools; typically located on marsh margins and areas underlain by alkaline substrate; often located on disturbed sites; closely associated with salt grass. Elevation range: 0 – 1390 feet. Blooms: May – November.	**No Potential.** Marsh and alkaline conditions are not present to support this species. Additionally, this species is typically located in basin topography.	No further actions are recommended for this species.
San Fernando Valley spineflower *Chorizanthe parryi* var. *fernandina*	FC; SE; List 1B	Coastal scrub, valley and foothill grassland; located on sandy substrate. Elevation range: 485 – 3965 feet. Blooms: April – July.	**High Potential.** The Proposed Bank contains scrub and grassland habitat that may support this species. The nearest documented occurrence is from the Santa Ana Mountains within ten miles of the Proposed Bank.	A protocol-level survey in April and June to determine absence or presence of this species in the Proposed Bank.

SPECIES	STATUS*	HABITAT REQUIREMENTS	POTENTIAL TO OCCUR IN PROPOSED BANK	RECOMMENDATIONS
Parry's spineflower *Chorizanthe parryi* var. *parryi*	List 1B	Coastal scrub, chaparral, cismontane woodland, valley and foothill grassland; located on dry slopes and flats on sandy substrate; often observed in ecotones between oak woodland & chaparral. Elevation range: 890 – 3965 feet. Blooms: April – June.	**Moderate Potential.** The Proposed Bank contains scrub, chaparral, woodland, and grassland habitat that may support this species. The nearest documented occurrence is from the foothills of the San Gabriel Mountains, approximately 17 miles from the Proposed Bank.	A protocol-level survey in April and June to determine absence or presence of this species in the Proposed Bank.
long-spined spineflower *Chorizanthe polygonoides* var. *longispina*	List 1B	Coastal scrub, chaparral, meadows and seeps, valley and foothill grassland, vernal pools; located on sandy substrate. Elevation range: 95 – 4975 feet. Blooms: April – July.	**High Potential.** The Proposed Bank contains scrub, chaparral, and grassland habitat that may support this species. The nearest documented occurrence is from Santa Ana Mountains, less than six miles southeast of the Proposed Bank.	A protocol-level survey in April and June to determine absence or presence of this species in the Proposed Bank.
California saw-grass *Cladium californicum*	List 2	Freshwater and alkali marshes, meadows and seeps. Elevation range: 195 – 1950 feet. Blooms: June – September.	**No Potential.** The Proposed Bank does not contain marsh, seep, or wet meadow habitat to support this species.	No further actions are recommended for this species.
slender-horned spineflower *Dodecahema leptoceras*	FE; SE; List 1B	Chaparral, coastal scrub, cismontane woodland; located in alluvial fan sage scrub, on flood deposited terraces and washes. Elevation range: 650 – 2470 feet. Blooms: April – June.	**Moderate Potential.** The Proposed Bank contains chaparral, scrub, and woodland habitat underlain by alluvial substrate; this species known primarily from more inland sites.	A protocol-level survey in April and June to determine absence or presence of this species in the Proposed Bank.

SPECIES	STATUS*	HABITAT REQUIREMENTS	POTENTIAL TO OCCUR IN PROPOSED BANK	RECOMMENDATIONS
many-stemmed dudleya *Dudleya multicaulis*	List 1B	Chaparral, coastal scrub, valley and foothill grassland; located on heavy clay soils in grassy slopes. Elevation range: 45 – 2570 feet. Blooms: April – July.	**Moderate Potential.** Although this species is typically located on heavy clay substrate not present in the Proposed Bank, the presence of scrub, chaparral, and grassland with associated species may support this species. The nearest documented occurrence is in Chino Hills State Park, within six miles of the Proposed Bank.	A protocol-level survey in April and June to determine absence or presence of this species in the Proposed Bank.
Santa Ana River woollystar *Eriastrum densifolium* ssp. *sanctorum*	FE; SE; List 1B	Coastal scrub, chaparral; located on alluvial fans, terraced flood deposits, and river floodplains underlain by sandy or gravelly substrate. Elevation range: 295 – 1985 feet. Blooms: May – September.	**Moderate Potential.** The Proposed Bank contains scrub and chaparral habitat that may support this species; however, this species is typically located on broad alluvial fans and washes.	A protocol-level survey in June and August to determine absence or presence of this species in the Proposed Bank.
Palmer's grapplinghook *Harpagonella palmeri*	List 4	Chaparral, coastal scrub, valley and foothill grassland; located on clay substrate. Elevation range: 65 – 3105 feet. Blooms: March – May.	**Unlikely.** Although the Proposed Bank contains chaparral, scrub, and grassland habitat, the site lacks clay substrate to support this species.	No further actions are recommended for this species.
Tecate cypress *Hesperocyparis forbesii*	List 1B	Closed-cone coniferous forest, chaparral; located on northwest-facing slopes in or near chaparral underlain by gabbro or metavolcanic clay substrate. Elevation range: 825 – 4875 feet.	**Unlikely.** Although the Proposed Bank contains chaparral habitat, observed soil conditions at known occurrences are lacking in the Proposed Bank. The nearest documented occurrence is in Chino Hills State Park.	No further actions are recommended for this species.
Vernal barley *Hordeum intercedens*	List 3	Coastal dunes, coastal scrub, valley and foothill grassland, vernal pools; located in saline flats and depressions. Elevation range: 15 – 3250 feet. Blooms: March – June.	**Unlikely.** Although the Proposed Bank contains scrub and grassland habitat, this species is typically located in saline sites in basin topography not present in the Proposed Bank.	No further actions are recommended for this species.

SPECIES	STATUS*	HABITAT REQUIREMENTS	POTENTIAL TO OCCUR IN PROPOSED BANK	RECOMMENDATIONS
Mesa horkelia *Horkelia cuneata* ssp. *puberula*	List 1B	Chaparral, cismontane woodland, coastal scrub; located on sandy or gravelly substrate. Elevation range: 225 – 2635 feet. Blooms: February – September.	**High Potential.** The Proposed Bank contains chaparral, woodland, and scrub habitat that may support this species. The nearest documented occurrence is from the Santa Ana Mountains, less than eight miles southeast of the Proposed Bank.	A protocol-level survey in April, June, and August to determine absence or presence of this species in the Proposed Bank.
California walnut *Juglans californica*	List 4	Chaparral, cismontane woodland, coastal scrub; located on alluvial substrate in floodplains and fans. Elevation range: 160 – 2925 feet. Blooms: March – August.	**Present.** This species was observed along drainages during preliminary assessments by WRA.	
Coulter's goldfields *Lasthenia glabrata* ssp. *coulteri*	List 1B	Coastal salt marshes, playas, valley and foothill grassland, vernal pools; typically located in pools, sinks, and playas underlain by alkali substrate. Elevation range: 1 – 3965 feet. Blooms: February – June.	**No Potential.** The Proposed Bank does not contain wetlands or alkali soils suitable to support this species.	No further actions are recommended for this species.
heart-leaf pitcher sage *Lepechinia cardiophylla*	List 1B	Closed-cone coniferous forest, chaparral, cismontane woodland. Elevation range: 1690 – 4455 feet. Blooms: April – July.	**Moderate Potential.** The Proposed Bank contains chaparral and woodland habitat that may support this species; this species typically located at higher elevations in the Santa Ana Mountains. The nearest documented occurrence is in the Santa Ana Mountains, within seven miles of the Proposed Bank.	A protocol-level survey in April and June to determine absence or presence of this species in the Proposed Bank.
Robinson's pepper-grass *Lepidium virginicum* var. *robinsonii*	List 1B	Chaparral, coastal scrub; located on dry substrate in scrubland. Elevation range: 1 – 2880 feet. Blooms: January – July.	**High Potential.** The Proposed Bank contains chaparral and scrub habitat that may support this species. The nearest documented occurrence is in the Santa Ana Mountains, within seven miles of the Proposed Bank.	A protocol-level survey in April and June to determine absence or presence of this species in the Proposed Bank.

SPECIES	STATUS*	HABITAT REQUIREMENTS	POTENTIAL TO OCCUR IN PROPOSED BANK	RECOMMENDATIONS
ocellated Humboldt lily *Lilium humboldtii* ssp. *ocellatum*	List 4	Chaparral, cismontane woodland, coastal scrub, lower montane coniferous forest, riparian woodland; located in openings. Elevation range: 95 – 5850 feet. Blooms: March – August.	**High Potential.** The Proposed Bank contains chaparral, scrub, and riparian woodland habitat that may support this species. The nearest documented occurrence is in the Santa Ana Mountains, within six miles of the Proposed Bank.	A protocol-level survey in April, June, and August to determine absence or presence of this species in the Proposed Bank.
California muhly *Muhlenbergia californica*	List 4	Coastal scrub, chaparral, lower montane coniferous forest, meadows; located in mesic sites, seeps, and streamsides. Elevation range: 325 – 6500 feet. Blooms: June – September.	**High Potential.** The Proposed Bank contains scrub and chaparral habitat that may support this species. The nearest documented occurrence is from San Gabriel Mountains less than 17 miles north of the Proposed Bank.	A protocol-level survey in June and August to determine absence or presence of this species in the Proposed Bank.
prostrate vernal pool navarretia *Navarretia prostrata*	List 1B	Coastal scrub, valley and foothill grassland, vernal pools; located on mesic sites in vernal pools and grassland underlain by alkali substrate. Elevation range: 45 – 2275 feet. Blooms: April – July.	**Unlikely.** Although the Proposed Bank contains scrub and grassland habitat, this species is known from vernally mesic wetlands not present in the Proposed Bank.	No further actions are recommended for this species.
Peninsular bear grass *Nolina cismontana*	List 1B	Chaparral, coastal scrub; located on sandstone, shale, or gabbro substrate. Elevation range: 455 – 4145 feet. Blooms: May – July.	**High Potential.** The Proposed Bank contains scrub and chaparral habitat underlain by soil types derived from sandstone and shale that may support this species.	A protocol-level survey in June to determine absence or presence of this species in the Proposed Bank.
California beardtongue *Penstemon californicus*	List 1B	Chaparral, lower montane coniferous forest, pinyon-juniper woodland; located on rocky slopes in shrubby openings underlain by sandy, granitic substrate. Elevation range: 3805 – 7475 feet. Blooms: May – August.	**Unlikely.** Although the Proposed Bank contains chaparral habitat, this species is known from higher elevations than present in the Proposed Bank. Historic documented occurrence at a lower elevation in Orange County may be a misidentification.	No further actions are recommended for this species.

SPECIES	STATUS*	HABITAT REQUIREMENTS	POTENTIAL TO OCCUR IN PROPOSED BANK	RECOMMENDATIONS
Allen's Pentachaeta *Pentachaeta aurea* ssp. *allenii*	List 1B	Valley and foothill grassland, coastal scrub; located in openings or grassland. Elevation range: 240 – 1690 feet. Blooms: March – June.	**High Potential.** The Proposed Bank contains grassland and coastal scrub habitat that may support this species. The nearest documented occurrence is within eight miles of the Proposed Bank.	A protocol-level survey in June to determine absence or presence of this species in the Proposed Bank.
Hubby's phacelia *Phacelia hubbyi*	List 4	Chaparral, coastal scrub, valley and foothill grassland; located on gravelly and rocky talus. Elevation range: 0 – 3250 feet. Blooms: April – June.	**Moderate Potential.** The Proposed Bank contains chaparral, scrub, and grassland habitat that may support this species; however there is limited gravel and rocky substrate.	A protocol-level survey in April and June to determine absence or presence of this species in the Proposed Bank.
south coast branching phacelia *Phacelia ramosissima* var. *austrolitoralis*	List 4	Chaparral, coastal scrub, coastal dunes, coastal salt marshes and swamps; located on sandy, sometimes rocky substrate. Elevation range: 20 – 975 feet. Blooms: March – August.	**Unlikely.** Although the Proposed Bank contains coastal scrub and chaparral habitat, this species is typically located on the coastal plain in the Los Angeles Basin and other coastal sites.	No further actions are recommended for this species.
Brand's star phacelia *Phacelia stellaris*	FC; List 1B	Coastal scrub, coastal dunes; located in open areas. Elevation range: 1 – 1300 feet. Blooms: March – June.	**Unlikely.** Although the Proposed Bank contains scrub habitat, this species is known from the Los Angeles basin and San Diego coast line in areas with direct maritime influence.	No further actions are recommended for this species.
montana chaparral pea *Pickeringia montana* var. *tomentosa*	List 4	Chaparral; located on clay substrate derived from granite or gabbro. Elevation range: 0 – 5525 feet. Blooms: May – August.	**Unlikely.** Although the Proposed Bank contains chaparral habitat, it does not contain clay substrate to support this species.	No further actions are recommended for this species.
Fish's milkwort *Polygala cornuta* var. *fishiae*	List 4	Chaparral, cismontane woodland, riparian woodland. Elevation range: 325 – 3250 feet. Blooms: May – August.	**High Potential.** The Proposed Bank contains chaparral, woodland, and riparian habitat that may support this species. The nearest occurrence is from Chino Hills State Park.	A protocol-level survey in June and August to determine absence or presence of this species in the Proposed Bank.

SPECIES	STATUS*	HABITAT REQUIREMENTS	POTENTIAL TO OCCUR IN PROPOSED BANK	RECOMMENDATIONS
white rabbit-tobacco *Pseudognaphalium leucocephalum*	List 2	Riparian woodland, cismontane woodland, coastal scrub, chaparral; located on gravelly, sandy substrate. Elevation range: 0 – 6825 feet. Blooms: July – December.	**High Potential.** The Proposed Bank contains riparian woodland, scrub, and chaparral habitat that may support this species. The nearest occurrence is within five miles of the Proposed Bank.	A protocol-level survey in August to determine absence or presence of this species in the Proposed Bank.
Engelmann oak *Quercus engelmannii*	List 4	Chaparral, cismontane woodland, riparian woodland, valley and foothill grassland. Elevation range: 160 – 4225 feet. Blooms: March – June.	**High Potential.** The Proposed Bank contains chaparral, woodland, and grassland habitat that may support this species.	A protocol-level survey in April and June to determine absence or presence of this species in the Proposed Bank.
Coulter's matilija poppy *Romneya coulteri*	List 4	Chaparral, coastal scrub; often located in burns. Elevation range: 65 – 3900 feet. Blooms: March – July.	**High Potential.** The Proposed Bank contains chaparral and scrub habitat that has recently burned that may support this species. The nearest occurrence is in Chino Hills State Park.	A protocol-level survey in April and June to determine absence or presence of this species in the Proposed Bank.
chaparral ragwort *Senecio aphanactis*	List 2	Cismontane woodland, coastal scrub, chaparral; located on drying, alkali flats. Elevation range: 45 – 2600 feet. Blooms: January – April.	**No Potential.** Although the Proposed Bank contains woodland and chaparral habitat, it does not contain alkali flat habitat to support this species.	No further actions are recommended for this species.
Salt Spring checkerbloom *Sidalcea neomexicana*	List 2	Chaparral, coastal scrub, lower montane coniferous forest, Mojavean desert scrub, alkali playas, brackish marshes; typically located in or near alkali springs and marshes. Elevation range: 45 – 4975 feet. Blooms: March – June.	**No Potential.** Although the Proposed Bank contains chaparral and scrub habitat, this species is closely associated with alkali wetlands not present in the Proposed Bank.	No further actions are recommended for this species.

SPECIES	STATUS*	HABITAT REQUIREMENTS	POTENTIAL TO OCCUR IN PROPOSED BANK	RECOMMENDATIONS
San Bernardino aster *Symphyotrichum defoliatum*	List 1B	Meadows and seeps, marshes and swamps, coastal scrub, cismontane woodland, lower montane coniferous forest, grassland; located in vernally mesic sites, grasslands, ditches, streams, and seeps; often observed in disturbed areas. Elevation range: 5 – 6630 feet. Blooms: July – November.	**High Potential.** The Proposed Bank contains scrub and grassland habitat, with some mesic areas along streams that could support this species. The nearest occurrence is within seven miles of the Proposed Bank.	A protocol-level survey in August to determine absence or presence of this species in the Proposed Bank.

*** Key to status codes:**

FE	Federal Endangered
FT	Federal Threatened
FC	Federal Candidate
BCC	USFWS Birds of Conservation Concern
SE	State Endangered
SD	State Delisted
ST	State Threatened
SSC	CDFG Species of Special Concern
CFP	CDFG Fully Protected Animal
WBWG	Western Bat Working Group High or Medium-High Priority species
List 1A	CNPS List 1A: Plants presumed extinct in California
List 1B	CNPS List 1B: Plants rare, threatened or endangered in California and elsewhere
List 2	CNPS List 2: Plants rare, threatened, or endangered in California, but more common elsewhere
List 3	CNPS List 3: Plants about which CNPS needs more information (a review list) *[not special status]*
List 4	CNPS List 4: Plants of limited distribution (a watch list) *[not special status]*

Species Evaluations:

No Potential. Habitat on and adjacent to the site is clearly unsuitable for the species requirements (cover, substrate, elevation, hydrology, plant community, site history, disturbance regime).

Unlikely. Few of the habitat components meeting the species requirements are present, and/or the majority of habitat on and adjacent to the site is unsuitable or of very poor quality. The species is not likely to be found on the site.

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 site is unsuitable. The species has a moderate probability of being found on the site.

High Potential. All of the habitat components meeting the species requirements are present and/or most of the habitat on or adjacent to the site is highly suitable. The species has a high probability of being found on the site.

Present. Species was observed on the site or has been recorded (i.e. CNDDB, other reports) on the site recently.

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APPENDIX C

REPRESENTATIVE SITE PHOTOGRAPHS

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Top: Overview of southern portion of the Proposed Bank (view: south).

Bottom: Overview of northern portion of the Proposed Bank (view: north).

Photographs taken February 8 (top) and April 15 (bottom), 2011

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Top: California walnut grove in the southern portion of the Proposed Bank (view: west).

Bottom: Coast live oak woodland in north-central portion of the Proposed Bank (view: west).

Photographs taken April 15, 2011

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ENVIRONMENTAL CONSULTANTS

Top: Deer weed scrub in the north-central portion of the Proposed Bank (view: north).

Bottom: Blue elderberry stand in the eastern portion of the Proposed Bank (view: east).

Photographs taken April 14 (top) and June 16 (bottom), 2011

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Top: Mulefat thicket on the banks of Soquel Creek (view: west).

Bottom: California sagebrush scrub in the north-central portion of the Proposed Bank (view: north).

Photographs taken June 15 (top) and February 9 (bottom), 2011

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ENVIRONMENTAL CONSULTANTS

Top: California brittle bush scrub in the north-central portion of the Proposed Bank (view: north).

Bottom: Grape soda lupine scrub in the north-central portion of the Proposed Bank (view: south).

Photographs taken April 15, 2011

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ENVIRONMENTAL CONSULTANTS

Top: Giant wild rye stand in the southern portion of the Proposed Bank (view: northeast).

Bottom: Branching phacelia patch in the northern portion of the Proposed Bank (view: east).

Photographs taken June 14 (top) and April 14 (bottom), 2011

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ENVIRONMENTAL CONSULTANTS

Top: Purple needlegrass grassland in the northern portion of the Proposed Bank (view: west).

Bottom: Non-native grassland in the north-central portion of the Proposed Bank (view: north).

Photographs taken June 14 (top) and April 15 (bottom), 2011

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ENVIRONMENTAL CONSULTANTS

Top: Non-native forb stand in the northern portion of the Proposed Bank (view: south).

Bottom: Ephemeral stream in the southern portion of the Proposed Bank (view: north).

Photographs taken April 14 (top) and February 9 (bottom), 2011

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Top: Intermittent stream in the northern portion of the Proposed Bank (view: north).

Bottom: Perennial stream (Soquel Creek) in the central portion of the Proposed Bank (view: west).

Photographs taken February 9 (top) and August 23 (bottom), 2011

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Top: Catalina mariposa-lily (*Calochortus catalinae*) in the north-central portion of the Proposed Bank.

Bottom: California walnut (*Juglans californica*) in the central portion of the Proposed Bank.

Photographs taken April 13, 2011

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Top: Fish's milkwort (*Polygala cornuta* var. *fishiae*) in the central portion of the Proposed Bank.

Bottom: Red Diamondback Rattlesnake (*Crotalus ruber*) in the central portion of the Proposed Bank.

Photographs taken August 23, 2011

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APPENDIX D

COASTAL CALIFORNIA GNATCATCHER AND LEAST BELL'S VIREO 2011 PROTOCOL-LEVEL SURVEY REPORT

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August 18, 2011

Ms. Erin McCarthy
Recovery Permit Coordinator
U.S. Fish & Wildlife Service
6010 Hidden Valley Road
Carlsbad, CA 92011

Subject: Annual Report for U.S. Fish and Wildlife Service (USFWS) Protocol Presence/Absence Surveys for the Coastal California Gnatcatcher (*Polioptila californica californica*) and least Bell's vireo *(Vireo bellii pusillus)* Conducted in 2011 on the 313 acre Soquel Canyon Site.

Dear Ms. McCarthy:

This report provides the methods, results, and conclusions of presence/absence surveys for the coastal California gnatcatcher (*Polioptila californica californica*) and least Bell's vireo *(Vireo bellii pusillus)* conducted by consulting biologist Robert Bates (TE 154963-0) for the firm of Land Veritas in 2011. This 2011 report covers California gnatcatcher surveys conducted on one site in southern California (Soquel Canyon) and least Bell's vireo surveys conducted on one site in southern California (Soquel Canyon).

SURVEY METHODS FOR CALIFORNIA GNATCATCHER SURVEYS

Surveys to determine presence/absence of this species are regulated by the U. S. Fish and Wildlife Service (USFWS). Other than areas governed by the Natural Communities Conservation Plan (NCCP), the USFWS requires a minimum of six surveys conducted by a permitted biologist at least one week apart during the breeding season, March 15 to June 30, or nine surveys conducted at least two weeks apart during the non-breeding season, July 1 to March 14 (USFWS 1997). For areas participating in an NCCP three surveys are required throughout the year, but are preferred during February 15 and August 30. A maximum of 80 acres of suitable gnatcatcher habitat may be surveyed by one person in any one day in non-NCCP areas or 100 acres in NCCP areas. Surveys are to be conducted in the morning between sunrise and noon; however, when temperatures are excessively cool or hot, or the weather is inclement, surveys are to be suspended. All areas were covered on foot by walking slowly through or adjacent to suitable habitat, stopping periodically to listen for gnatcatcher calls. Tape-recordings of the species' typical mew notes were played periodically along with pishing to induce any nearby silent birds that may be present to call in response to the presumed intruder.

SURVEY METHODS FOR LEAST BELL'S VIREO SURVEYS

Surveys to determine presence/absence of least Bell's vireo are regulated by the U. S. Fish and Wildlife Service (USFWS). For the vireo, the USFWS requires a minimum of eight surveys conducted by a qualified biologist at least 10 days apart during the breeding season, April 10 to July 31. A maximum of 3 linear kilometers of suitable vireo habitat may be surveyed by one person in any one day. Surveys are to be conducted in the morning between sunrise and 11:00 am; however, when temperatures are excessively cool or hot, or the weather is inclement, surveys are to be suspended. All areas were covered on foot by walking slowly through or adjacent to suitable habitat, stopping periodically to listen for vireo calls

Soquel Canyon Site

The site is approximately 313 acres located in the Yorba Linda USGS quadrangle in the City of Chino Hills, with the Chino Hills State Park located adjacent to the property's southern boundary (Figure 1). The property offers a diversity of vegetation and habitat including chaparral, coastal scrub communities, black walnut and oak woodlands and riparian habitat. A large portion of the property supports grazed grasslands on slopes with intermixed coastal scrub communities. Soquel Canyon Creek bisects the property at its lowest elevation and supports riparian habitat with black walnut (*Juglans californica*), and oak (*Quercus spp*.) woodlands.

Elevations within the site range from approximately 900 to 1,600 feet in elevation. The site has steep slopes which supported extensive coastal scrub communities before the Freeway Complex fire in November 2008, which heavily burned the subject property as well as the adjacent Chino Hills State Park. The vegetation and habitat are recovering quickly and support a variety of wildlife (Figures 2 and 3). The site supports several seeps and has large canyons with ephemeral and intermittent drainages as well as the perennial stream in Soquel Canyon known as Soquel Creek. The site is within the San Gabriel River 8 unit HUC (Hydrologic Unit Code) but is hydrologically connected to both the Santa Ana and San Gabriel rivers due to a surface water diversion point at Miller Basin.

A review of historical aerial photographs indicates that the site was dominated by chaparral and coastal scrub communities before the Freeway Complex fire. The majority of plant species found in chaparral and coastal scrub are low-growing, drought-deciduous shrubs and subshrubs including California sagebrush (*Artemisia californica)*, sages (*Salvia melifera, S. apiana*) and chamise (*Adenostorna fasciculaturn*). A variety of these scrub and chaparral communities are found in the slopes and canyons in patchy patterns. These communities are recovering well. In addition, Soquel Canyon bisects the property and this region supports riparian habitat with black walnut and oaks to form woodlands above the creeks, often on north facing slopes.

Seeps and drainages supporting seasonal and perennial wetland vegetation are also located in the canyons throughout the site. Slopes and creeks support large oaks, black walnuts and other riparian trees such as sycamore (*Platanus racemosa*) and scattered willows (*Salix spp*.). The understory and grassland areas remain well vegetated too, as the cattle grazing intensity is quite low on the property.

TABLE I. CALIFORNIA GNATCATCHER SURVEY DATES AND TIMES

Date	Time	Biologist(s)	Survey
28-31 March 2011	0600 - 1500	Robert Bates	Survey 1 (4 Days)
8-11 April 2011	0600 - 1500	Robert Bates	Survey 2 (4 Days)
15-18 April 2011	0600 - 1500	Robert Bates	Survey 3 (4 Days)
22-25 April 2011	0600 - 1500	Robert Bates	Survey 4 (4 Days)
13-16 May 2011	0600 - 1500	Robert Bates	Survey 5 (4 Days)
27-30 May 2011	0600 - 1500	Robert Bates	Survey 6 (4 Days)
10-13 June 2011	0600 - 1500	Robert Bates	(Additional Survey)

*No California gnatcatcher was recorded during the survey season.

TABLE II. LEAST BELL'S VIREO SURVEY DATES AND TIMES

Date	Time	Biologist(s)	Survey
12-13 April 2011	0500 - 1100	Robert Bates	Survey 1 (2 Days)
26-27 April 2011	0500 - 1100	Robert Bates	Survey 2 (2 Days)
10-11 May 2011	0500 - 1100	Robert Bates	Survey 3 (2 Days)
24-25 May 2011	0500 - 1100	Robert Bates	Survey 4 (2 Days)
7-8 June 2011	0500 - 1100	Robert Bates	Survey 5 (2 Days)
21-22 June 2011	0500 - 1100	Robert Bates	Survey 6 (2 Days)
5-6 July 2011	0500 - 1100	Robert Bates	Survey 7 (2 Days)
19-20 July 2011	0500 - 1100	Robert Bates	Survey 8 (2 Days)

*No least Bell's vireo was detected during the survey season.

Recommendations

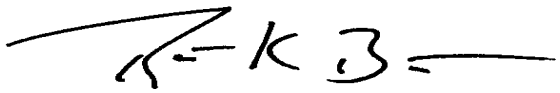
The quality of California gnatcacher and least Bell's vireo habitat on the site has declined due to fire and fire-following invasive species, and on a lesser extent to grazing and high rainfall totals from the previous winter, which have caused reduced diversity of native species and reduced populations of California sagebrush and mulefat. Overall, throughout southern California, burned areas of previously known occupied gnatcatcher and vireo locations should be monitored and studied to learn more about how they recover from large scale devastation and how their habitat recovers. Areas invaded by aggressive non-natives should be managed for native vegetation communities.

The Soquel Canyon Site in particular has the added pressure from cattle grazing and moving through the scrub, causing disturbance that would dislodge nesting attempts and disrupt foraging behavior of California gnatcatcher. The heavy rains from the previous winter also altered the riparian areas, removing native understories of mulefat that would benefit and support least Bell's vireo along with a lack of diversity in tree canopy with willow and cottonwood species absent from the site.. These factors make the site less suitable for nesting California gnatcatcher and least Bell's vireo and may explain why neither species were observed on-site during the 2011 surveys when there are several other populations in similar habitats nearby.

The Soquel Canyon Site supports the open space and habitats needed to support California gnatcacher and least Bell's vireo through management changes to the land. The end of cattle grazing will allow woody vegetation to begin to grow back into the currently grazed non-native grasslands located between coastal sage scrub islands and along riparian corridors. The removal of cattle will also remove any impacts they have to the stream bank and bed, allowing new vegetation to grow in and stabilize. Along with the reduction of non-native species, an increase in native species and diversity through restoration will allow for the return of both species from nearby populations.

If you have questions or comments on this material please contact me directly at 949-374-2373 or at rbates@elementecology.com.

Sincerely,



Robert K. Bates
Senior Biologist/Ecologist
Element Ecology Consulting, Inc

Attached
Exhibit 1: Site Map